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Project 2033
Progress Report Seven
to
MULTIWALL SHIPPING SACK PAPER
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PREFACE

This bibliography covers the literature through May, 1958 on the manufacture and uses of paper bags and sacks. References on filling and closing mechanisms are included. Where no abstract is given, neither the original nor an abstract was available. For a large number of patents, neither the original patent nor an abstract was available. In these cases, the descriptions in the U. S. Patent Gazette and in the British Abridgement of Specifications have been utilized. These references are marked with a "G" preceding the abstract number, for example, G15. The chief sources of reference were the Bulletin of The Institute of Paper Chemistry, Chemical Abstracts and Packaging Abstracts.
A new product is a 75-lb. GRS bag for synthetic rubber. It will stand the cold flow of the rubber and prevents contamination of the rubber or its sticking to the fibers of the paper bag.

Methods are provided for the high-speed mass production of waterproof laminated paper bags from a continuous roll of flexible sheet material, which, as it is unrolled, is cut into like sections of predetermined dimensions; each section is successively folded upon itself and marginally sealed.

An automatic square-bottom bagmaking, filling and sealing machine, known as Model 500 Acme-Pakit, can also handle, with an attachment, shredded products such as cocoanut, codfish flakes, shredded cabbage, and salad mix. Both net weight or volumetric filling devices are offered. The machine will take any heat-sealing material, such as regenerated cellulose, Pliofilm heat-sealing papers or foils, either plain or printed. In the latter case, the company explained, a photoelectric cell arrangement controls the cutoff to insure proper registry of the printing. The machine has a bag size range, with one end of the bag open, of 3/4 in. by 2-1/2 in. by 5 in. minimum to 2-1/2 in. by 4-1/2 in. by 10-1/2 in. maximum. Operating speeds vary from 25 to 30 packages per min., depending on the product being handled. One operator can run several machines. Acme has also developed another bagmaking, filling and sealing machine that produces a pillow-type bag in a similar fashion. It is known as Model No. 510 and provides the same operating speeds. It handles a range of bag sizes with one end of the bag open, from 3 in. by 6 in. minimum to 6 in. by 12 in. maximum.

An apparatus for filling valve bags comprises a filling tube adapted to extend horizontally inward through a valve of a bag for conveying material into the same, a pair of outer members consisting of independent bars mounted and fixed upon the upper surface of the filling tube and extending lengthwise.
thereof in spaced parallel relation to each other, and an intermediate
member formed by an independent bar mounted and fixed upon the upper surface
and extending between and beyond the outer bars at one end in spaced parallel
relation with the outer bars to provide spaced parallel open venting channels
between the adjacent bars for establishing free communication between the
atmosphere and the interior of the bag thereby to permit air progressively
to escape therefrom during the filling operation.

6. Adams, Richard E. Gusset type bag. U. S. patent 2,781,161 (Feb. 12,
1957); B.I.P.C. 27:1344.

A gusseted paper bag having upper edges reinforced with paperboard is
provided with registering hand holes in the front and rear panels, with a
fold-through retaining flap that engages the edge of the gussets to prevent
them from opening when the handle is closed.

7. Adams, Richard E. Produce bag. U. S. patent 2,756,922 (July 31,
1956); B.I.P.C. 27:165.

A reinforced paper bag is provided with a handle opening and folding lock
at the top to secure the contents and yet to allow reopening and closing of
the bag for access to the contents.

Tech. Notes, Bull. no. 83:3-4 (Nov., 1949); Packaging Abstr. 7:10.

Aero Research "Resin 70" is a urea-formaldehyde resin used by Paper
Sacks Ltd., for increasing the strength of certain of their products.

6, no. 11:62 (Nov., 1953); Packaging Abstr. 11:147.

The machine handles a wide variety of products in containers from 2 to 50
lb., producing a flat, tight closure.

10. All about multiwalls. Modern Materials Handling 12, no. 10:12-7
(Oct., 1957); Packaging Abstr. 14:1032.

Types of paper, dimensions, closures, filling, storing, handling, loading
and repairs are discussed.

patent 2,350,893 (June 6, 1944); Packaging Abstr. 27:35.

The machine consists of a turntable carrier with pairs of movable fingers
for receiving from below and releasably retaining sections of tubular bag
material, a sewing machine for continuously applying interconnected bottom
closure seams on the bag sections while retained by the fingers, and shearing
means mounted to swing in the path of movement of the finger-retained bag
sections for severing the interconnections of the seams.

While capable of opening and shaping any of the ordinarily available forms of bags or envelopes the device is particularly adapted for opening and squaring the bottoms of square bags.


A method of operating the bag grippers is claimed.


An improved closure for multi-ply bags of the gusseted type, which can be used for forming the closed end of the bag during manufacture and/or for closing the filled bag, is claimed. At the ends of the closure where the infolded gussets make a fourfold thickness, the outer two plies (in the case of a four-ply bag) are removed so that the folded top is of equal thickness throughout; this is of benefit when applying the folded closure cover and adhesive tape.


A method is described for sealing an open bag top by means of an adhesive applied to the inner marginal edges of the walls.


A bag body is sealed by pressing the walls into flatwise relation with the edge walls intucked between the side walls and folding a strip of tape over the flattened ends.


A machine for forming a filled paper bag into an extremely slack package is described.


The preliminary tucking and closing of filled paper bags and analogous receptacles by fully automatic means is described. Subsequent folding, wrapping, sealing, etc., is done either manually or by another machine.
Standard multiwall bags with gusseted sides are conveyed through an apparatus to a valving station where the gusset at an open corner of each bag is tucked in and held in place while it is creased and pressed to form the finished valve. The bag is then conveyed to a sleeving station where the valve walls are opened, forming an approximate right angle with each other to receive a sheet of paper which is folded to retain a set position while being inserted into the valve. After the sheet is in place the valve is pressed closed to crease the sheet into sleeve form within the valve.

A length of flat tubular multilayered thermoplastic sheet material is advanced in a mechanism where a knife severs the material centrally along its length. The material is then passed over a drum on which spaced transverse wires are intermittently electrically heated to sever ends from the material and seal the severed edges to form pairs of bags. Means are provided to create an air flow from the interior of the drum through holes in its surface to remove the bags to a conveyor for their discharge from the mechanism.

A method is described for folding together and sealing marginal edge portions of an open end of a bag which is filled with articles such as cans or containers; the marginal edge portions are folded inwardly at the corners in a pleated fashion which results in a smooth corner construction.

A sealing head mechanism is adapted for the folding and sealing of filled paper bags. The marginal edge portions of a bag are folded in such a manner that corner pleats are formed.

The common unit for flour bags in America is 100 lb., although 140-lb. bags are also permitted. Cloth flour bags are made from either cotton sheeting or burlap (jute) and seamless two-bushel jute grain sacks are also used. Uniform flour package size is legally imposed in most states. At the present time well over half the flour is packed in multiwall paper containers.
compared with 10% as recently as 1946. These bags consist of from one to six (but usually four) paper bags or tubes rested one within the other. Some bags are closed by sewing a strip of tape over the mouth. Others are closed before filling except for a valve which admits the flour and closes automatically and instantly due to the internal pressure of the flour as soon as the bag is filled and dropped on the floor or conveyer belt. The cost of a valve bag is about 10 cents and the salvage price averages 1-1/2 to 2 cents. The elimination of used flour containers, which provides a ready source of infestation, is one of the most important features of the American post-war drive for improved flour sanitation. This has led to the necessity of finding a market for used cloth containers. The cost of a 100-lb. plain cotton bag is about 31 cents, about 3 cents dearer than a burlap bag. Their value used is said to be from 16 to 20 cents. Many cotton bags are now made from materials printed in attractive patterns and colors suitable for dresses, aprons, curtains, and many other domestic uses. Although initially dearer, this feature adds appreciably to their resale value. Examples of prices of cotton bags sold by bakers' roundsmen to housewives or over the shop counter are 30 cents for plain white and 45 cents for dress print patterns. Many American millers have established a firm policy of not repacking used bags, and several of the large bakers are buying flour only in new containers. Several states have now introduced legislation prohibiting either the use, sale or packing of flour in used, or, in some instances, in un laundered bags.


The sacks are of 50 and 60-lb. basis weight paper, with a capacity of 1/6 barrel and measuring 11 by 18 by 7 in.


A new package for fresh fruit and vegetables now being used in shops in America is made of paper which remains strong even when wet. In the bulk-packaging field, a shipping sack is made of a number of sheets of relatively lightweight paper instead of a few sheets of heavy paper. These are moisture-proof and can be used for commodities that are liquid when poured hot and harden into a cake of the shape and size of the sack when they cool.


This patent covers an apparatus for coating and sealing the secured, projecting, and collapsed filling ends of filled paper bags or the like.

A paper baglike dust-collecting receptacle for vacuum cleaners is provided with a self-closing mouth structure which automatically seals the receptacle against spilling of dirt when it is removed from the cleaner.


A gripping mechanism is described which holds plies of paper bags to a revolving drum in a paper bag machine. Paper bags with bellows side folds are received on the drum from conveying means and gripped between fingers which are inserted between the bellows folds to hold them and at the same time straighten them. The fingers are supported and reciprocally actuated by means carried on the drum. A second revolving member operated adjacent to the drum co-operates to straighten the folds and release the bags to be carried on the drum.


A device for the automatic closure of sleeved valve bags comprises a pair of arcuate leaf springs which are mounted at the discharge opening of a paper or fabric filling sleeve; the springs are arranged in such a manner that they tend to fold the end of the sleeve downwardly and inwardly, thus sealing the sleeve.


This review of paper- and board-converting machinery and equipment gives examples and descriptions of many new types and brands of machines used in the manufacture of multi-ply bags and other shipping and storage containers. It covers spray guns, electronic aids to printing, knife grinders, cutters, slitters, winders, laminators, and machines for banding, top and bottom sealing, stitching, corner staying, coating, gluing, taping, stripping, creasing, embossing, corrugating, shredding, window patching, rewinding, and printing of all materials and surfaces, including multicolor and flexoprinting.


After a brief review of the historical development of paper bags for shipping chemicals in powder form, a description of the manufacturing processes and a recently installed European bag paper fourdrinier machine is given. The pulp is thickened in cell filters and passes a series of kollergangs, a riffler, and three fine screens before being pumped to the high pressure inlet. Details of the fourdrinier machine are given, the
pressure of the three wet presses being obtained by the use of compressed air. After travelling through the drier section and the six-roll calender stack the web is wound into a roll 5400 mm wide; the latter is subdivided upon slitters into individual sections of the exact width as required by the plies of the multiwall bags.


It is claimed that the valve prevents leakage of the products (such as fertilizers, cement, etc.) through the filler opening, even though the sack is subjected to rough handling.


The article discusses the requirements of kraft pulps for different applications, such as condenser paper, insulating paper, bag paper, spinning paper, creped paper, and body paper for coating, emery, and sandpaper.


Reference is made to the possible salvage of printed bags and containers where the printed text (selling price, purchase taxes, etc.) has to be changed. Instead of discarding the otherwise perfect products, they can be overprinted with rubber plates, thereby not only covering the obsolete printing, but drawing attention to the change by applying fresh colors.


The Shur-Close valve bag, stitched across the top, is filled through a valve on the gusset side. The bag prevents the sifting and escape of contents and is quicker to fill as the construction of the valve allows a rapid escape of air. The Sta-Stak multiwall bag is made with irregular rough crinkles in the outer sheet to prevent shifting and sliding in a wagon. This roughness feature makes palletization efficient and also gives resilience and strength to the bag. The bag may be used for chemicals, fertilizer, salt and sugar. The Plasto-Pak bag is of polyethylene-kraft construction to give moistureproof protection to hygroscopic materials. Bags lined with Plasto-Pak sheet are acidproof for use with strong chemicals. The Electro-Seal closes off the needle holes at the bottom of the bag. These bags, as well as the Sta-Pak, are available in various sizes beginning at 50 lb.

The Shur-Close valve bag is said to provide increased efficiency in filling by not only permitting a faster flow of material, but also preventing sifting. The makers report the valve is adaptable to multiwall bags of any number of plies and may be filled on all standard filling machines.


The empty paper bags are evenly distributed on expendable board pallets, a cardboard sheet is placed on top, and the entire package is covered with wrapping paper. The pallet is then compressed under a vertical drop-weight press, and steel strapping running under the pallet and over the top of the pile on four sides is secured while the package is in a compressed condition. This method yields tighter and neater packages which are easier to handle and saves about 50% in storage space.


Among the most important causes of deterioration of jute sandbags are listed: decay of the fiber due to attack by either micro-organisms or chemicals, or failure due to physical agencies, such as shrinkage of fibers when wetted, expansion of bag contents when wetted causing the bags to burst, pressure exerted by filling, and fiber degradation by sunlight. The characteristics required of the rotproofer include fungicidal and bacterial properties without being poisonous to human beings or causing dermatitis to those working with it; it should be neutral, only slightly soluble in water, not render the bags more inflammable, should not cause shrinkage greater than that experienced when wetted with water nor reduce fiber strength; it should dry quickly, and be reasonably cheap and easily applicable. Creosote, organic copper salts, and cuprammonium have been found satisfactory from all these angles. When correctly applied, it has been shown that the life of a proofed bag can be extended from a few weeks to from eighteen months to two years.


A valve is provided for controlling the flow of granular materials, such as seed or grain, into a bag. The valve housing is of rectangular cross section and has a flange for connection to a hopper or bin. An arcuate plate, slidable between guide slots in the housing, is adjusted to govern the flow of material when it is moved by a pair of arms which are pivotally connected to the housing.

42. Arndt, Willy. Auxiliary machinery and tools for the manufacture of bags. Papier-Ztg. 64, no. 8:144-5; no. 9:164-5; no. 10:182-4 (Jan. 28, Feb. 1, 4, 1939); B.I.P.C. 9:348.

An illustrated description is given of various kinds of machinery for the manufacture of bags, machines for pasting, folding, and setting in block bottoms in particular.
A shipment of cone-shaped and block bottom paper bags used for sugar was found to contain small cracks and pasting defects, so that the contents spilled and the bags could not be employed for the intended purpose. The converter blamed the defects on the paper; expert advice, however, traced it back to faulty working of the bag machines. In the case of the cone-shaped bags, either incorrect setting or worn sections, in the second case nonparallel running of the tube from which the individual bags are cut were shown to be the true reasons. The method for controlling the operation of the block bottom bag machine is described in detail and illustrated by diagrams.

Directions are given for calculating the most economical way of cutting out blanks for block bottom bags from a sheet of paper. In spite of many efforts the sizes of this type of bag have not yet been standardized and a great variety are on the market. This is partly due to the fact that articles of identical volume but of different shape require different bag constructions. Diagrams help to explain the instructions for the different examples.

The closure is especially suitable for multiwall paper bags for finely powdered material or material which should be protected from moisture. A tape coated with a low melting point sealing substance, such as wax and/or polyethylene, is folded over the end of the bag, sewn to the bag and sealed to the bag by fusing the coating on the tape.

This bag closure prevents the escape of finely powdered material and the ingress of moisture by coating the sealing tape with a low-melting-point wax and polyethylene prior to the application of the tape to the bag ends.

A bag tube, while still wrapped around the forming plate, is severed by knives operating in grooves above and below the forming plate. The upper and lower knives operate at a slight offset so that a flap is formed for adhesive application. Spring-loaded cams actuate the knife carriers so that the blade travel is sufficiently rapid to avoid interference with the moving bag tube.
The bag bottom is formed of two folds on the two walls of the bag, the folds being united by means of an adhesive. Such bags are designed for the packaging of dry powders and flaky materials.

A method is claimed for the formation of a block-bottom bag.

The bag opener may be used in the packaging of confectionery and hardware. Simple adjustments for height and tilting of the machine enable a single operator to receive the opened bag, fill it and place it in a carton in one continuous operation.

Designed for filling by weight or volume, the Drohmann type BF/BSL bag-filling and sealing machine will handle either paper or film bags. Two different methods of closure are employed, the paper bags being folded over a card while the film bags are folded and glued with, if desired, a superimposed label. The machine comprises the bag-opening and filling machine, type BF, coupled to a bag-closing machine, type BSL, either of which can be individually supplied.

An account, reproduced from the Russian press, is given of various automatic and semiautomatic devices invented by the workers and management of the largest Russian paper mill, the Segesh collective, to facilitate and expedite the manufacture of paper shipping bags. These devices include stitching, sewing, and flap-making mechanisms. Some operations, such as bundling and load testing, are still performed manually.

A description is given of St. Regis Paper Co.'s automatic packaging machine which positions, opens, fills, closes, and sews open-mouth bags. The material is preweighed before filling. The machine can handle 6-12 bags/min.

The machine (type PDHOR) includes a two-color aniline printing unit, and bag forming, filling and sealing mechanisms. The outer bag may be paper, cellulose film or aluminum. Filling may be accomplished by either weighing or volume measuring mechanisms. Closing may include insertion of an advertising ticket, folding the bag flaps and gluing on a label, or double gluing of the flaps without a label.


Four St. Regis 402-PS valve bag filling machines are now operating in the Toledo, Ohio, flour mill of the National Biscuit Co. Each packer has a capacity of about six 100-pound bags a minute, and drops the bags on a single conveyor belt which carries them to the railroad car on a siding adjacent the mill. The company is using similar equipment in another mill, and has ordered more for a third installation. This system illustrates the marked increase in the use of multiwall paper valve bags.


The VredOMatic is designed primarily for granular, free-flowing materials, but auxiliary equipment adapts it for semifree-flowing materials. Open-mouth multiwall bags of 25 to 125-lb. capacity are automatically positioned, filled, closed and sewed (with or without bound-over tape) at a rate of 6 to 12 per min.


The Seal-O-Matic sleeve eliminates sifting of pulverized, granular, crystal and pellet-type products in multiwall bags.


The method of making bags which comprises applying spots of adhesive to adjacent areas of a sheet, folding the opposite margins of the sheet onto the portion thereof bearing the adhesive spots and thereby transferring adhesive from said spots to the folded portions of the sheet, separating the portions of the sheet to which the adhesive is thus transferred from the portions of the sheet to which the spots of adhesive were applied, and folding end portions of the sheet onto the adhesive spots thus applied and transferred. In a bag machine, the combination of a roller over which a web is arranged to travel, means co-operative with the web as it travels over said roller to cut a tab therefrom, means co-operative with the web as it travels over said roller to apply spots of paste thereto at points adjacent to the tab, means for forming the web into
a bag tube, co-operative cutter members between which the tube passes, said members being operative to sever the tube on a line which joins the ends of the tab, and means for cutting in an end of the tube slits which extend to points adjacent to the paste spots.


The method of making bags which comprises forming a web into a tube, applying spots of paste to the web before the tube is completely formed, transferring paste from said paste spots applied to one portion of the web to unpasted areas on another portion thereof, separating the portion of the web to which the paste spots have been applied relatively to the portion thereof to which the paste was transferred, and folding an end of the tube and overlapping and securing together portions thereof by said paste spots.


The method of making satchel-bottom bags which comprises cutting adjacent located tabs and an aperture offset laterally therefrom in a strip of material, forming the strip into a tube and thereby bringing said tabs and aperture into positions on one side of the tube, forming a diamond fold at one end of the tube along fold lines, some of which intersect the bases of said tabs and others of which converge toward said aperture, thereby providing bottom flaps connected by diagonal fold lines and causing the tabs to project unfolded from the diagonal fold lines of one of the flaps and exposing a portion of the outer ply of the other flap through said aperture, applying adhesive to said tabs and to said exposed portion of said outer ply, and folding the flaps and said tabs to adhesively secure them.


Equipment is described for the formation of bag handles from strips of multi-ply paper tape; means are included for attaching the handles to pre-formed bags.


Available today are jute, cotton, and multiwall paper bags in all sizes and weights of material to meet practically any need. Filled bag closing machines are now used in hundreds of process plants. A number of typical bag closing methods are briefly described and illustrated.

Bowaters Multi-Wall Sacks Ltd. produce the following weigher-fillers for sacks: the 5007 FS for filling powders into both paper and jute valve sacks; the hand-operated 7000 FC for ground rock products; the 5000 FS for low output filling; and the 3003 PB for products like sugar and poultry pellets.


Burlap or paper bags are carried between two conveyors. A levelling action takes place, creating a uniform thickness throughout the bag as it passes between the staggered upper and lower rollers. The unit is portable and is available from the Power-Curve Conveyor Co.


After the bags are filled with powdered starch and stitched at the American Maize Products Co. and before being loaded on pallets, they are passed through a bag flattener (Flexoveyor Mfg. Co.). The spot application of adhesives is used to enable the bags to adhere to each other to make a unit load.


The Duo Tite bag is made of a natural supercalendered bleached kraft outer shell and a liner of kraft or pouch stock that can be laminated with various materials for extra protection. To form the special bottom closure, the bag is heat-sealed and folded once, then a quick-drying paste is applied and another fold is made which glues to the bag. Through a special operation that applies a strip of thermoplastic material to the inside top of the bag, the same heat-sealed pasted closure can be made by the user on a machine built by the George Ho Fry Co.

67. Bag is specially constructed for new end use. Packaging Parade 22, no. 229:103 (Feb., 1952); Packaging Abstr. 9:335.

A bag for Coproxy (a waterproofing cement paint) is by Union Bag and Paper Corp. Completely machine made, the bag is of duplex construction with an inner lining of Unithene (Union kraft coated with polyethylene). Its resistance to moisture penetration gives adequate protection to the product, which is a hygroscopic powder, and its glasslike surface ensures complete emptying of the contents.


"Vari-pitch" speed changers and "Texrope" drives beneath the machine control the speed according to the material being run.
A bag making machine is illustrated which will construct leakproof bags suitable for holding liquids prior to freezing. It makes gusset bags up to 12 by 3 by 20 in. in size.

The Tenax HE-1 makes 2 seams and can print up to 4 colors. It can be adjusted from 50 by 70 to 150 by 220 mm. and handles 300 bags per minute.

The Take-Hold self-opening bag has a reinforced built-in handle, which can be folded flat, while the bag retains its square shape. It is closed by stapling or sewing beneath the handle area.

Old and new possibilities in the intelligent merchandising of paper bags are outlined with particular reference to recently developed specialty bags.

To package 50 lb. of MBTS (a vulcanization accelerator) for more efficient unit loading and easier handling, a new shape of multiwall bag was designed, with side gussets up to 9 inches wide.

In high-speed bagmaking machines, production is often restricted because rolls of paper capable of being unwound without breaks at top speed are very scarce. This is usually not due to the quality of the paper, but to the way it is wound into rolls on the paper machine. Only a faultless machine-finished roll, perfectly round, straight and even at the ends, and without entrapped air will give satisfactory results.

A machine for attaching string handles to paper bags is adjustable to accommodate various sizes of bags. U-shaped handles are formed and shaped automatically and applied to both sides of the bag simultaneously, thus eliminating the necessity for two passes through the machine. As the bag is advanced through the machine, adhesive applicators contact the bag, the
ends of the handles are pressed into contact with the bag, and an adhesive-coated reinforcing strip is cut and applied over the handles and pressed into place.


Olpacell bags made by the firm of Karlheinz, Nurnberg, Amorbach/Unterfranken, are cone-shaped with a flat round bottom. They are closed by means of staples.


Bags are folded over and crimped to give a secure, easily opened and reclosed closure, eliminating the usual metal tie-piece. Packaging machinery requires little modification to enable it to form and pack these bags.

78. Bags versus bugs. Resinous Reporter 8, no. 1:12-14 (1947); Packaging Abstr. 4:85.

Paper bags used for transporting crushed ice are described. These are one-trip disposable packages, strong and tear-resistant, and wet strengthened by the addition of urea-formaldehyde resin, Uformite 467 or 670, in an amount of 2 to 3% at the beater stage.


Preformed bags made from the user's trade-marked paper stock, according to the user's specified box dimensions, are taking the place in some establishments of the hand wrapping of boxes. The packer inserts the box in the preformed wrap, folds the open end over the box, and seals the wrap with a gummed sticker or piece of pressure-sensitive tape. It has been found that the bag wraps can be completed two and a half to three times as fast as a similar package can be wrapped from a flat sheet of paper.


Paper, polyethylene, and other bags are carried by a support which passes them to several filling points. guides the material to be packaged into the bag, continuously weighs the bag and indicates the weight, and releases the bag when a predetermined weight is reached.


A machine for filling drawstring bags with potatoes or similar items has a plurality of filling hoppers moving in an endless path. A drawstring bag is fitted about the feeding end of each hopper, and the drawstring is looped over an adjacent hook. The hopper mouth opens and drops
its contents into the bag. The weight of the contents pulls the bag from the hopper and closes the drawstring. The bag is passed over a conveyor, dropped, and carried off for further processing.


The author discusses the heat input and distribution in pulping a regular grade of kraft pulp suitable for wrapping or bag paper; the conversion of the pulp into paper is not considered. The author arrives at the following figures: For each ton of air-dried pulp produced, 11,730 pounds of steam at 212°F are available from the burning of black liquor; of this quantity, 2100 pounds of steam are not used in the pulping process. A brief reference is also made to steam available from the burning of bark (3680 pounds of steam/ton of air-dry pulp).


A closure for a heavy-duty type of bag.


Method of forming a square bottom siftproof bag.


Butler's method of packing herring meal in impregnated, airtight paper bags was used for meal produced from Norwegian summer herring. The iodine number of the fat of this herring is relatively high, and when the meal prepared from summer herring is stored in the usual 50-kg. bags made from 5 layers of kraft paper, heating often occurs. Bags made from 4 layers of kraft paper and 1 layer of asphalt or 1 layer of Thiocol (a polysulfide resin) were tested. Both types of asphalt-impregnated bag gave almost complete protection against heating. The bag impregnated with Thiocol was not so effective.


Container boards and paper bags are being produced from a mixture of sugar cane bagasse and wood pulp at the Lima, Peru, plant of the Paramonga Box and Bag Plant. The wood pulp adds strength to the bagasse pulp and, to some extent, offsets the natural harshness of the latter. The paper, dark brown in color, is not being bleached, although experiments on this process
are underway. The corrugating medium is made from bagasse combined with waste paper. The box plant operates two corrugating machines equipped to produce either A or B type flutes. The first automatic feeder for the box machinery, a partition slotter, was received in December, 1947; a combination printer-creaser is on order. In spite of the very humid climate, there has been little trouble because of the loosening of adhesive bindings. The absorbent surface of the bagasse paper helps solve the moisture problems in printing.


One of the disadvantages of textile dress print bags for commercial mixed feed or flour was the difficulty of securing brand identification. As an expedient, large paper labels carrying the brand name were pasted on the center of the bags; however, they showed the name only on one face and were readily scuffed or torn off during packaging and shipping, or hidden in piles in warehouse stocks. A better method of brand printing on dress print bags was developed by Bemis Bros. Bag Co. through the "Band-Label Bag." A strip of paper, usually 10 inches wide is laminated to the cloth with water-soluble paste in such a manner that it runs around the middle of the completed bag, providing space for printing on white paper on the front, back, and two sides of the bag. A special paper had to be developed for the purpose. Illustrations are included.


A machine for the manufacture of paper bags of the "Bates" type from blanks in the form of flattened tubes not closed at their ends, comprising a rotary cylinder turning about a horizontal axis actuated with a continuous rotary movement, a series of flat tables mounted on said cylinder according to the faces of a uniform prism having the same axis as said cylinder, means for bringing the blanks on said tables to a fixed point of their circular course, the opened ends of said blanks being directed toward the opposite sides of the cylinder, gripping and folding devices mounted on said tables and arranged to form closing folds on the ends of the bag blanks during a part of the circular course, a device located at a fixed point outside the rotary cylinder and operative to place a valve comprising a section of flattened paper tube, on an end of each bag blank during its passing said fixed point where the closing of such end is still incomplete, means for gumming the ends of the incompletely closed blank, means to finish the folding of the ends of the blank and to press the parts finally folded against each other, the sleeve thus being fixed in an end of the closed bag in such a position that it makes the inside of said bag connect with the exterior, and means to discharge finished bags outside the tables of the cylinder at a point of their
circular course near to the point where the blanks are loaded on said tables, said gumming, pressing and discharging means being located at fixed points outside of the rotary cylinder and being driven in timed relation to the rotation of the cylinder.


A method is described for successively forming fabric or reinforced paper bags from a continuous length of preformed tubular material; the bags are cut from the tubular material and closed at the bottom.


A self-opening, satchel-type bag or rose-shape bag having triangular parts at its base, which in the folding process, are folded over and stuck down on the base, is made powderproof in these parts as follows: The strip of paper of which the bag is to be made has an adhesive, which may be a normal bagmaking adhesive or of the pressure-sensitive type such as latex or of the thermoplastic type, applied to parts which come to the insides of the two triangular parts at the bag bottom produced in the folding operation so that when such triangular parts are produced, the two plies of material in each part can be bound together by the adhesive. The face of each triangular part which comes against the bottom of the bag in the final folding operation is afterwards pasted with a shaped paste. The two triangular parts when folded down on to the bag bottom overlap and form an effective seal therefor.


The end of the top flap forming the bottom closure of the bag is kept free from adhesive and is perforated (during manufacture) across its connection to the remainder of the flap. The flap is adhesively secured to the bottom closure so that the end can have printing on it to indicate the bag contents and can be detached when the sale is complete. The device is particularly suitable for S.O.S. bags.


Some of the paper which normally forms the bottom of an S.O.S. bag is used as a detachable flap for indicating the contents of the bag, without detracting from the effectiveness of the bag bottom closure.


A liner-type bag is produced from a tubular paper conformation having a liner therein throughout in which the double tubular material is creased
or folded from end to end to produce corners in the bag, and to produce gussets at two opposite sides, there being a transverse crease or fold formed in the united materials at a predetermined distance from each end of the tube where the ends are to be folded inwards to close the bag, the two materials being secured together between the transverse creases or folds, but beyond the latter, the liner is cut at the longitudinal corner creases so as to provide flaps at both ends of the bag, such flaps being free from attachment to the outer materials of the bag or some flaps being free and some attached to the outer material so that in closing the ends to form a bag, the free flaps are folded inward and then the outer materials with any attached flaps folded over the free flaps and secured by adhesive.


Containers for filling with particulate material are secured to holders on a movable indexed member by flexible elements (e.g., cables) on the respective holders. These cables surround the holders and are drawn tight to close the container mouths.


The machine forms, fills and seals bags in a nonoxidizing atmosphere.


The machine is for operating on a pair of strips of paper, etc., to form, fill and seal individual bags. The machine has a conveyor with grippers to grip the bags and a cut-off mechanism to sever the leading bag from a row of connected bags to leave it free at the correct time to be carried on to the conveyor.


The machine is an improvement of that described in British patent 702,723 (Jan. 20, 1954) in which strip material is converted into a row of bags which are filled and sealed. Each bag, after cut-off, is supported and conveyed to first and second filling mechanisms which are spaced along the conveyor and are aligned with the bag at different dwell positions of the conveyor.


Bags are formed by folding a strip of heat-sealable paper into two vertical side strips, then sealing these strips together at spaced intervals to form a series of connected bags. Vacuum cups engage the upper edge of the bag wall at the filling station to ensure opening. The machine features easy adjustability for changing the bag size.

A sheet of thermally inert material coated on one side with a thermosensitive substance is folded to form two panels with the coated sides adjacent. The folded end is tucked in to form a pair of outer folds and a reverse fold, thereby forming a pair of double-walled flaps. Heat and pressure are applied to seal the sides of the panels. Heat and pressure are applied diagonally across the corners of the flaps to seal the walls of each flap together while leaving the two flaps separate.


A strip of paper is folded longitudinally with a strip of transparent material between the fold and is intermittently advanced along a path. Window apertures are die punched in one side wall and sealing means applied for attaching the transparent material around the inside of the windows. The strip is severed transversely between the windows thus formed and the edges sealed to form separate bags. This is an improvement over U. S. patent 2,649,674 (Aug. 25, 1953). [See Abstr. No. 100.]


A machine is claimed for making bags from a double row of flexible heat-sealable material, introducing the required amount of material in the lower portion of the bag, forming a cross seal to close the lower bag, and then introducing material into the upper bag and forming the seal. The upper and lower bags are severed from the strip and then from each other.


A combined closing and venting device for a pliable bag is formed from a metal channel-like clamp strip with an elastic lining. The metal channel is so designed that gas within the bag may be forced out but any outside air cannot enter.


Reference is made to the successful production and use of multiwall paper bags for packaging roofing asphalt.


One top corner of a bag with gusset sides is provided with a tucked-in gusset fold defining a valve opening. Inside the opening a longitudinally
folded, rectangular piece of stiff paper is adhesively secured to form a sleeve which extends at right angles from the side of the bag. Fold lines in the sleeve are coincident with folds in the bag, and the upper margin is caught in a stitched top closure.


A valved bag has a corner tucked in to form a valve flap extending into the bag with a sleeve line in the flap; the liner comprises a sheet having its intermediate portion stitched to the flap along a line adjacent the inner end of the flap; this sheet is tucked in with the flap.


By making two bags simultaneously, a new Belfanco unit produces plain or printed paper bags at speeds up to 4,000 per minute (?). The machine is fed from one reel of paper, the single web being cut into two as it enters the unit. The paper web is threaded simply and quickly. If run as duplex equipment, it can produce bags up to 5-1/2 inches wide; single bags up to 12-1/2 inches wide are made at a maximum speed of 2000 per minute (?). If printed bags are required, the machine can be coupled with the company's standard 26-inch aniline printer. Illustrations are given.


A combination of pairs of rotatable slitting and anvil rollers, adapted simultaneously to slit a plurality of webs moving in spaced paths, are manually adjustable to accommodate webs of different widths and to stagger the slits in one web relative to those in another web, in a machine provided with a cross-pasting mechanism used for manufacturing multiple-wall satchel bottom and self-opening paper bags.


Paper bags such as those for sugar are provided with a closure composed of a polyvinyl alcohol thread extending through the wall of the bag, which may be applied to the bag by sewing, both the thread and the bag being dispersible in water under the action of a beater roll for regeneration purposes.

In sealing the open end of a flexible walled bag body, each edge wall is longitudinally folded upon itself and intucked between the side walls; the corner of each juxtaposed wall portion is intucked between the wall plies thereof and a strip of sealing tape is applied over the edges of the flattened bag top walls.


This is a continuation of the previous patent. The method consists in pressing the walls of the bag end into flatwise relation with the edge walls intucked between the side walls, outwardly bending the side walls along vertical fold lines, downwardly folding the wall portions against their respective edge walls, and folding a strip of sealing tape over all the marginal edges of the side and end walls.


A method is proposed for closing the bottom of a flexible-walled, square-bottom bag formed from a single blank by means of a thermoplastic quick-drying adhesive applied to restricted areas of the blank.


The walls of the bag end are pressed into flatwise relation with the edge walls intucked between the side walls so that the flattened bag end is provided at each side edge with a pair of juxtaposed corners, and the whole is secured with a strip of adhesive tape.


The method of closing and sealing an open end of a flexible-walled tubular bag body, which consists in pressing the walls of the bag end into flatwise relation with the edge walls intucked between the side walls, whereby the flattened bag end is provided at each side edge with juxtaposed corners each comprising at least two plies, adhering together the plies of each corner, folding said juxtaposed corners against their respective side walls along diagonal fold lines and adhering them thereto, said diagonal fold lines being so disposed that said corners will be located within the perimeter of the bag end, when the bag body is filled, and subsequently folding a strip of tape over the edges of the flattened bag end walls and said folded corners and adhering it thereto.


This is a division of U. S. patent 2,406,791(Sept. 3, 1946). It provides for closing a bag with a single strip of tape; it is not necessary
to apply an adhesive to any portion of the bag walls prior to the application of the tape. The ends of the closure can be so fashioned as to provide suitable carrying handles.


A method is proposed for the manufacture of siftproof bag valves of the sleeve-lined, tucked-in flap type. It relates specifically to applying a sleeve-forming attachment to a valve-forming portion of a tube having a mouth edge lying uniformly in a plane at right angles to the length of a bag formed from the tube.


A conveyor for advancing filled bags along a predetermined path and means for applying a strip of sealing tape to the bag top walls.


A machine is described for applying and securing a strip of sealing tape over the edges of the flattened bag top walls, after the walls have been pressed into flatwise relation.


Paper from two supply rolls is fed into this machine which cuts window openings into the webs; adhesive is applied around the opening of one of the webs, and a patch of window material such as cellophane is applied over the window opening of what will become the bag liner. The window openings are brought into register and bag tubing is formed and made into two-ply window bags.


The apparatus is designed for valve bags of the type which have a valve sleeve affixed at a corner. The apparatus is designed particularly for stitching sleeves to bags which have gusset sides.


An apparatus is adapted for the continuous production of paper valve bags which incorporate a valve sleeve adhesively secured to a corner of the bag.


Sacks for mineral fertilizers can be made from three layers of kraft paper separated by layers of aspenwood 0.15 mm thick and held by a bitumen glue.


A closure flap is constructed and folded in a given manner to facilitate filling and closing of the bag.


After an historical and general account of paper shipping sacks, the following topics are discussed: the proper way to store empty paper sacks, the filling and closing of paper sacks, the proper handling of filled multiwall sacks, the palletizing of paper sacks, the Bemis Packaging Service Machines (sack filling and closing), and Bemis Sewing Machine Clinics which are instructional.


The following are discussed: paper bags, multiwall, balers Deltaseal, Flexi-carton, window bags, small bags; Packer-Aid (a filling and closing machine for open mouth shipping bags), Deltaseal filling and closing machinery.


Bemis waterproof bags are claimed to give protection against packaging, storage and shipping hazards such as change in moisture content, contamination, sifting losses and insect infestation. For most commodities a 3-ply construction is used consisting of an inside ply of flexible creped kraft paper-laminated to a center ply by a waterproof adhesive which seals the pores of the outside ply of burlap or cotton and cements the plies together. The seams may either be cemented or sewn according to the degree of protection required. Brands may be printed on the bags, thus eliminating the need for labels. The closure of the bag is effected either by hand or machine-sewing, by wire tying or taped tops. The latter are formed with heat-sealing, moistureproof, plastic-coated textile tape ("Plastape") with glued tapes attached to the side of the top, or they may be slit-taped tops to allow for filling through a spout. Economical advantages are also claimed for the bag.
Bemis is clay coating paper for flour bags. Paper Mill News 75, no. 29:78 (July 19, 1952); Packaging Abstr. 9:707.

A Kohler Model 42 is attached to a Merrill coater and, if desired, coating can be undertaken on the reverse side without rewinding the roll or turning over the web.


One of the bags approved by the American Dry Milk Institute for packaging nonfat dry milk solids is double-paperlined and is known as the Standard Type. The other is called the Trionex Type. These bags are made by laminating sturdy paper to burlap or cotton with adhesives especially selected for the purpose. Cemented seams rather than sewn seams are used in making the bags in order to provide protection against the infiltration of air and moisture. As an extra safeguard, a waxed crepe kraft liner is inserted in the bag. After the bags have been filled, they are closed with Plastape. This is a heat-sealing, plastic-coated, textile tape, developed especially for this purpose by Bemis. An alternative method is to close the bags with wire ties.


A multi-ply paper bag comprises a valve corner in which each ply in the valve possesses a series of slits to form independently movable fringe elements. It is claimed that this construction of the inner valve edge results in a better seal than otherwise possible without the use of insert sleeves, etc.


A wheeled shovel is run onto a sloping rocking member and held there while the member is swung on a horizontal axis to tip material in the shovel into a suitably supported bag.


Collapsed paper bags with nonre-entrant folds are maintained in hoppers and fed to the machine, where they are opened, shaped, filled, and heat-sealed by a continuous, automatic operation. The apparatus is adapted to food packaging.

The packaging machine is very similar to one disclosed in U. S. patents 2,768,653 [see Abstr. No. 1341] and 2,768,654 [see Abstr. No. 1419]. A pair of pivotally mounted backing members is provided to co-operate with a wedge-shaped filling head in the machine to clamp the side walls of a bag in air-tight condition for evacuation and filling with flowable comminuted material.


In a machine for the production of flat-bottom bags, the jaws of the grippers (for forming the bottoms) comprise deformable metal elements which readily conform to the different thicknesses at the fold(s) to be treated.


A multilayer paper bag for cement, sand, etc., has a weight-carrying side wall comprising a loop of cord, disposed between layers of the wall, with its end portions exposed to provide handles.


Mechanism for forming lined bag material which comprises means for continuously feeding a web of heat-fusible material, means for continuously feeding a web of backing material, means for continuously applying adhesive to one of the webs, means for continuously bringing the webs into surface attachment in offset registry wherein a border of the heat-fusible web material extends beyond one side of the combined webs and a border of the backing material extends along the other, and means for continuously applying adhesive to the area whereby the border band of the backing material will lap the outside of the finished tube, and means for continuously forming the bag material into a continuous tube with a backing material band adhesively secured to an overlapped opposite edge of the backing web, and means for continuously fusing the border band of heat-fusible material to an overlapping opposite edge of the heat-fusible web material.


A step in the method of forming a plural ply bag which comprises forming a tube of paper about a ply of thin heat-fusible flexible material with the edges of the tube of paper and the inner ply, respectively, in offset overlapped relation and forming joints in the overlapped edges of the paper and the ply of heat-fusible material by first adhesively joining said overlapped edges of the paper and then exposing the overlapped edges of the ply of heat fusible material to sufficient heat passing through the paper to cause fusing of the joint in said heat-fusible material.
A method for fusing seams in a tube formed of heat-fusible material, having overlapping edges which consists in curving a zone in said overlapping edges by engaging said zone from one side only, and while said material is being moved, and while in curved condition, applying heat to the curved portion to bring about a fusion between said overlapping edges.


The ends of bags or liners are hermetically sealed by pressing. A method of hermetically sealing the end of a flexible tubular bag or liner, which comprises pressing together opposite walls thereof so as to hold them against each other along a line spaced from the end of the liner, opening up the liner end so as to separate the walls beyond the line of pressure and introducing a sealing medium into the open end, whereby to effect a seal above the line at which the walls are held together. The nature of the adhesive used depends on the properties desired in the package—e.g., if it is to be moisture- or waterproof, then an adhesive consisting of Piccolyte 70 and Vistanex 6, 30%, or of microcrystalline wax 60%, Vistames 6 15, Vistac 10, and purified wood rosin 15% is used; if it is to be grease- or oilproof then the adhesive may consist of either (1) AYAA 60, dibutyl phthalate 20, Staybelite 20%; (2) AYAA 60, dibutyl phthalate 20, wood rosin 20%; (3) AYAA 60, dibutyl phthalate 20, shellac 20%.


A method of hermetically sealing the end of a flexible tubular bag or liner comprises pressing together opposite walls thereof, whereby to hold them against each other along a line spaced from the end of the liner, opening up the liner end so as to separate the walls beyond the line of pressure and introducing a sealing medium into the open end in a continuous body to form a plastic, ribbonlike mass whereby to effect a seal above the line at which the walls are held together.


In combination, a bag-forming machine comprising means in continuous operation to seal collapsed tubes by double folding each tube at one of its ends, said means consisting of conveying means, scoring means, preliminary folding and pressure means, adhesive applying means, secondary folding and pressure means, said folding and scoring means effective in sequence on each tube at its end while being conveyed through said machine.


Means are provided for the uniform application of a thermoplastic adhesive around the inner surface of the mouth of a heat-sealing paper bag or tube.

A bag machine is adapted for the manufacture of laminated bags or carton liners (e.g., made of Pliofilm laminated to paper). Means are included for forming a predetermined line of weakening in the walls of a bag or liner and then coating the weakened line, including a contiguous area of the walls, with a film-forming substance which is capable of filling or closing the perforations in the line. In this manner the proofness of the bag walls is preserved in spite of the line of weakening.

144. Betner, Benjamin C. Method and means for opening bags. British patent 621,049 (May 2, 1946); Packaging Abstr. 6:563.

A method of expanding gusseted bags of the square type from the flattened condition comprises: opening the mouth of the bag and thereafter progressively expanding the body of the bag from the mouth to the bottom while restraining the bag walls in mutually rectangular relationship, initiating fold lines for the bag bottom by pneumatic pressure exerted within the bag concomitantly with the progressive expansion of the bag body, and then completing the bag bottom by creasing the material of the bag along the initiated folded flat or square-bottom bags and inserting them in successive cartons comprises means for opening the mouth of a bag; a plunger; means for inserting the plunger into the open bag mouth and progressing the plunger towards the bottom of the bag; means for initiating fold lines for the bag bottom by pneumatic pressures; means for restraining the bag against movement with the plunger until the latter has substantially reached the bottom of the latter upon continued movement of the plunger, the downward movement of the plunger being regulated to allow the same to compress and crease the bag bottom against the bottom of the carton.


In a bagmaking machine, variable speed draw rolls, tube-forming means, a reciprocating mandrel located in the tube, cutter rolls above and below the mandrel which moves with the rolls and the web during the cutting operation and means for bringing the movement of the web, mandrel and cutting rolls into substantial conformity at cutting time comprising a mechanical device having repeated cycle movement of increasing and diminishing speeds, such as elliptical gears, located in the drive for the rolls and mandrel, said instrumentalities being shiftable with respect to the gears to bring their operative moments at different points in a cycle.


In combination, an approximately upright shaft rotatably journalled in upper and lower guide bearings and supported to revolve upon a lower thrust bearing and having a platform rotatable therewith for rotatably supporting a roll of web stock embracing the medial portion of the shaft, means for
withdrawing the web from said roll, a pair of round rods converging from the ends of said roll for folding the advancing web into a ribbon having confronting walls travelling in a plane transversely of the roll axis, and means for effecting vertical adjustment of said lower thrust bearing to shift said rotating shaft and roll along the common axis thereof and thereby vary the relative widths of said ribbon walls.


A machine is described for forming bags or pouches from a rapidly advancing ribbon of paper, thermoplastic material, or the like; it provides maximum sealing periods at the seams and joints of the successive bags even when operating at very high speeds.


A glued bag is formed from a flexible, relatively impervious stock; a triple bottom seal is designed to seal the bottom of the bag hermetically against the entry or escape of air or vapor.


The object of the invention is to enable the valve tube to be sealed in a single operation after the bag has been filled. The tube projects only a short distance from the valve and is provided in its outer end with a tongue of relatively stiff material, such as pasteboard or the like, approximately in the form of a segment of a circle and attached by means of adhesion or in any other manner internally in the tube to the top portion or wall. The extension of the tongue in the transverse direction of the valve is somewhat less than the width of the tube attached in the valve in the normal flattened condition and the straight base edge of which extending in the transverse direction of the valve is a short distance inside the outer end of the tube, in other words approximately at or just inside the outer edge of the upper side of the valve and, on folding of the outer end portion of the tube about the base edge, may be folded into a so-called blind valve formed between the bottom of the valve opening and the lower portion or wall of the tube.


A closure is claimed for a multi-ply paper bag of the type which is sealed at both ends, but has at one corner a filling valve, formed by folding in the corner, in which is attached a paper tube. After filling the bag, that portion of the tube which extends into the bag beyond the valve is folded inside the bag, and the top wall of the tube is provided with a bendable stiffening insert of metal which is bent in the folding of the tube and retains it in the bent position. The stiffening insert consists of an iron or other metal wire bent forth and back to form a few stems interconnected by bends and constructed and applied in such a way that the stems run substantially in the longitudinal direction of the tube.

The longitudinal folds are reinforced with additional strips which also strengthen the joint with the sack bottom.


The device which grips both sides of the bag tubing firmly enables the bag bottom to be completed immediately after the tubing has been formed.


The device transfers the material from the tube-forming machine to apparatus which forms the sack bottom.


The filling valve of this bag can be locked after filling by pulling a drawstring.


The end of the valve tube projecting into the inside of the bag is provided with corner folds. After filling, these fall over the exit aperture of the valve tube and close the valve. Details are given, with diagrams.


Closure of a filling valve is improved by the development of a drawstring whose ends are connected from the inside in the longitudinal direction of the valve tubing with the upper half of the valve tubing in the direction of its length whereas the lower valve tubing has a slit which is at least as wide as the width of the drawstring.


In order to reinforce the sack, portions of the insert are diverted to be glued to the inner walls of the sack.
An improved valve construction is described and illustrated.

The object is to make sure that the corners of the bottom of the sack do not leak when heavily loaded. To this end the parts of the bottom of the sack which fold together to form the valve are stuck together.

An apparatus for applying patches to bags. U.S. patent 2,231,051 (Feb. 11, 1941).

An apparatus for applying patches to bag bottoms comprising, in combination, a bag gripper cylinder; means for holding a roll of patch material; means for drawing patch material from said roll of patch material; means for severing said roll of patch material to provide patches comprising a reciprocating knife operated by a cam; means comprising a drum and travelling tape for conveying said patch to a patch gripper cylinder; paste-applying means comprising an arcuate section rotating about an axis common to the cam that operates the knife; and a patch gripper cylinder carrying a patch gripper pivoted thereon, said patch gripper terminating in a roller adapted to ride freely upon a cam, said patch gripper being positioned to carry a patch from said drum to said bag gripper cylinder, said patch gripper cylinder being positioned adjacent said bag gripper cylinder whereby said patch gripper cylinder applies a patch to the bag on the bag gripper cylinder; and means for pressing the patch on to the bag and for delivering the bag to a conveyor.

In an apparatus of the character described, means for feeding an open-ended tube along a predetermined path, means for applying an adhesive to one face of an elongated strip of material, means for feeding the adhesive face of said strip into adhesive engagement with the tube, the feeding means for the tube and the strip being such that the strip will be fed slightly in advance of the tube to secure the strip to the tube with a marginal portion of the strip projecting beyond the end of the tube, means acting upon the thus engaged tube and strip to crimp the strip and tube along a transverse line intermediate the longitudinal edges of the strip, and means for there-after bending the tube on the line of crimping to bring portions of the tube on opposite sides of said line into face-abutting engagement and to simultaneously fold the strip to bring the projecting portion thereof into adhesive engagement with the tube to seal the end of the latter.


In a machine for manufacturing satchel-bottom bags, a crimping drum having spaced belts passing partially thereabout for holding the longitudinal edges of a diamond-folded bag blank against the surface of the drum, said drum being provided with clamping means and a resilient block in spaced relation, in combination with a pair of creasing blades mounted adjacent the surface of said drum, the foremost of said blades being adapted transversely to crease the foremost point of the diamond fold and to tuck the crease so formed into said clamping means and the second of said creasing blades being adapted transversely to crease the trailing point of the diamond fold by pressing the same against said resilient block, means traveling faster than said bag blank to overtake and whip the said trailing point down onto the intermediate portion of the diamond fold, a roll adjacent said crimping drum presenting therewith converging traveling surfaces adapted to fold the foremost point of said diamond fold into overlapping relation with the trailing point, and means subsequent thereto for affixing a patch to the bag so as to cover said overlapped points.


In a machine for manufacturing satchel-bottom bags, a crimping drum having spaced belts passing partially thereabout for holding the longitudinal edges of a diamond-folded bag blank against the surface of the drum, said drum being provided with clamping means and a resilient block in spaced relation, in combination with a pair of creasing blades mounted adjacent the surface of said drum, the foremost of said blades being adapted transversely to crease the foremost point of the diamond fold and to tuck the crease so formed into said clamping means and the second of said creasing blades being adapted to crease the trailing point of the diamond fold by pressing the same against said resilient block, means traveling faster than said bag blank to overtake and whip the said trailing point down onto the intermediate portion of the
diamond fold, a roll adjacent said crimping drum presenting therewith converging travelling surfaces adapted to fold the foremost point of said diamond fold into overlapping relation with the trailing point, and means located prior to the foregoing mechanism for adhesively securing a patch to the foremost point of said diamond fold with the patch extending beyond the said point whereby the patch will be caused to cover the overlapped points when positioned by said foregoing mechanism.


A description is given of the Nilsa automatic multiwall-bag machine and the Nilsaton, a new type of multicolor printing press, which are now available in the United States. Special attachments may be purchased for making cellophane windows and dustproof bags. The bag machine and printing press operate with two or three colors at the same time; their normal speed on specialty bags is 12,000-15,000/hr. The unique feature of the Nilsaton press is an ink fountain which eliminates rubber rollers on the press; their absence reduces the time for color changes to an average of 5 minutes.


A nonwoven sheet material for use in making bags, sacks, etc. is composed of bast fibers laid substantially parallel and bonded with a thermoplastic resin or a synthetic rubber. Several plies of this basic material may be laminated to one another or to paper, cloth, and similar material. Suitable apparatus is described.


In a bag machine, in combination, a former about which a web of paper is folded to form a bag tube, said former having two cutting edges, and means co-operating with said cutting edges for causing one wall of said tube to be severed against one of said cutting edges and the other wall of the tube to be severed against the other cutting edge.


In a bag machine, a former about which a web of paper is folded to form a bag tube, feed rollers for advancing the tube, pinch bar mechanism for creating slack in the tube, a rotary lip knife and connections from said pinch bar mechanism to said lip knife whereby it is rotated in timed relation with said pinch bar mechanism.

A process for forming a bag consisting in mounting a bag collar removably on one end of an elongated tubular member, in then wrapping a sheet of bag material around the tubular member and the collar so that one edge of the sheet projects a material distance beyond the tubular member and the collar, and so that the other end of the tubular member projects a material distance beyond the sheet edge adjacent that end, and in then twisting and forcing the projecting edge of the sheet into the collar, and in then removing the tubular member from the sheet and the collar, leaving the collar in the bag thus formed as a part thereof.


Different machinery constructions for making asphalted and bituminous papers for wrapping purposes with plain or creped paper, in web or sheet form, the latter for paper bags, are described.


Heat-sealed bags are made from a continuous gusseted tube of paper or other material having an inner layer of thermosetting adhesive material. Cutout areas are provided near the bottom ends to expose lower portions of the gussets so that such portions may be adhesively secured when an end portion is folded over the cutouts and heat sealed to form the bottom closure.


In a machine for making a heat-sealed bottom closure in bags of the flat and square type with an inner heat-sealable surface, the bottom ends are folded upwardly and heat sealed before being folded and secured against the body of the bag.


A machine for the manufacture of bags is claimed wherein the sides of a web of paper, if desired with the application of a fold, are folded the one over the other, after an adhesive has been applied to the inside of one of the sides, whereafter a compression takes place, and then severing the so-formed tube of paper into pieces of the length of a bag, whereafter the one end of the bag is folded over and fastened, e.g., pasted. It is characterized in that with the paper web also a fastening tape, e.g., so-called bast tape, is fed along, the tape being only periodically provided with an adhesive and thereafter pressed onto the paper web, so that parts which are pasted regularly alternate with parts which are lying loose, whereafter the tape is periodically severed at the back-end of each free-lying part of the tape, the division of the paper tube being accomplished each time by "chopping" at the place of the front end of each free-lying part of the tape.
A machine closes sacks by folding and gumming together the mouth with a band of sacking material.

A closure for a square-bottomed paper bag is effected by finger mechanisms which spread the bag mouth to a flattened element above the center of the bag top. This portion is folded down and secured with adhesive to half of the bag top and extending down both sides; the extensions can be further tucked under and sealed.

The author discusses the problems involved in the closing of bag packages and factors which influence the selection of a specific method (type and size of bag, material of which bag is made, structure of the bag contents, and rate of filling). Examples of different bag closures, including heat sealing, are given; the majority of procedures permit either manual or machine application.

An apparatus for filling a bag with pulverulent material is claimed.

A flat flexible closing member is provided which has at least two arms to be pushed through correspondingly matched perforations or slits of two or several folded or superposed closing portions of the walls of the bag characterized in that sets of perforations are arranged at such a distance from the edge of the bag opening that an outermost perforated zone or strip can be laid between a perforated zone or strip bounding the bag opening and a median unperforated zone or strip by first folding the outermost zone on to the median zone, and then folding both the zones on to the inner zone bounding the bag opening, whereby the arms of the closing member, each of which is pushed through a pair of the holes in register, are unexposed, being between the inner surface of the median zone and the contiguous face of the outer zone. The device is for paper bags such as envelopes used for containing samples.
A closing device is described for paper bags having a flat two-armed bendable closing member and, on the wall parts bounding the bag opening and laid flat together, two pairs of closing holes suited to the width of the arms of the closing member.


A closable bag employs a flat, two-armed bendable closing member whose arms are threaded through two pairs of registering holes in the wall and flap of the bag, which correspond to the width of the arms of the member. This is similar to Canadian patent 452,218 (preceding Abstr.).


The inner container is a paperlike bag and the outer container is formed of cardboard, the latter having two superimposed flaps for closing one end thereof. The bag is adhered to the inner of the flaps to facilitate perforating the inner bag and to retain the perforation in alignment with registering apertures.


In a multi-ply block-bottom valve-type bag each of the inner plies of the nonvalve corner flap of the block-bottom valve closure exposes a longitudinal step and a lateral step, relative to the ply above it, to receive adhesive prior to folding over of a face flap.


A specified construction of a two-ply, blow-bottom, valve bag obviates the disadvantage of blow holes.


Valve bags are filled with perlite granules so that the filled bag has flat sides and granule breakage is minimized by restraining the bag between forming plates during filling by conventional machinery and by providing a feeder shut-off control actuated by exertion of excessive force by the machine feed element.


An open-mesh bag is woven from wet-strength paper yarn with a label strip encircling the bag at the midpoint. A warp yarn of lighter weight is used in the area covered by the label strip which is adhesively secured to the mesh.
A composite bag and cover construction is claimed.

A ravelable stitch closure for cloth or paper bags embodies a stitch-ripping pull tab which is stitched to the bag by ravelable stitching on the needle side of the bag and at the trailing end of the stitching.

A bag closure comprises adjacently located multi-ply bag end portions, a layer of low melting-point flexible sealing substance covering all faces and inter faces of the plies near the bag end, a V-shaped covering tape enclosing the bag ends and presenting dry exterior faces, and stitching passing through the tape and the bag ends, the holes in all plies formed by the stitching being completely penetrated from two sides and sealed by the substance within the interior of the tape, the sealing substance being substantially confined to locations inside the tape, whereby the dry exterior faces of the tape are substantially free of the sealing substance.

A sewn closure for multiwall paper bags is claimed.

A bag valve made up of an end area near a corner of the bag at its mouth edge, comprises, when flat, two diagonal score lines defining a triangular area to be turned in to form the valve and defining end portions of front and back flaps to be turned over for closing the bag, flap-hinging score lines parallel to the mouth of the bag and meeting the diagonal score lines, a pair of parallel score lines perpendicular to the flap-hinging score lines and meeting the bag mouth edge, the parallel perpendicular score lines defining sideward hinges of the ultimately formed valve, and a third diagonal score line running from the point of intersection of one of the parallel perpendicular score lines with the mouth edge to the point of meeting of the other parallel perpendicular score line with one of the first-mentioned diagonal score lines.

A rip-cord closure for multiwall paper bags (e.g., for flour, grain, or animal feed) is designed to prevent any contamination of the contents of a bag by ripped stitches.
A bag useful for the purposes for which stiff-sided containers are used is claimed, which comprises a paper bag and a stiffening insert of pasteboard or the like. The insert is a rectangular blank folded to hold the bag in the shape desired, e.g., the bag is divided lengthwise into two rectangular compartments; the lower end of the insert engages the bottom of the bag.

An open-mesh bag is provided with a water-resistant paper label; the mesh fabric is woven from a water-resistant twisted kraft paper strip.

The method of manufacture of a valved bag is claimed in which the valve sleeve extends over a substantial width of the bag for greater strength; the valve sleeve can be formed into a variety of valves.

To reduce slippage in stacking, a multiwall paper bag is provided with a creped strip adhesively secured longitudinally along one side of the bag, or a strip of plain kraft paper may be used and coated with the nonslip compositions claimed in Canadian patent 506,758 [see Abstr. No. 715A]. The strip may also act as a label which is removable for re-use of the bag.

A flexible strip of folded paper is disposed in one of the gussets of a length of tubing which is segmented to form separate bags. The strip is detachably secured with paste spots and is firmly secured in top and bottom closures of each bag. Manual attachment of the strip from the side of a bag makes the strip accessible as a handle.

The invention relates to improvements in constructing bags with gusseted side walls, a so-called self-opening bottom, and a heat-sealable liner. Longitudinal slits extending inward from the bottom end of the tubular bag body are spaced apart to provide a means whereby corner portions of the outside wall material can be opened to expose the inner heat-sealable material for contacting overlapped portions required in making the heat-sealed bottom.
A closure for a bag consists of a length of bendable wire having eyes at its end; a method for tightening the wire is claimed.

The bag consists of a flexible paper tube having front, back, and side areas, a folded and pasted bottom closure, and stiffer internal reinforcing strips pasted on the front and back areas and extending into and incorporated in the folds of the bottom closure.

A ventilated, open-mesh bag incorporates a relatively large area of imperforate material (e.g., kraft or creped paper) which is adapted to receive printing. The bag also includes a woven-in drawstring.

A ventilated bag with a drawstring closure is claimed in which the bottom of the bag is formed from two layers of kraft or creped paper and the upper portion from a paper fabric. The bag is stitched at the seam between the bottom and top and along one side and the bottom.

A labeled bag comprises a body having a seam and a label strip adhered to the body and extending peripherally around the bag; the ends of the label strip extend into and are caught by the seam. The strip may be reinforced on one edge by an adhered cord.

A textile or paper-lined textile valve bag incorporates an insert-type valve sleeve.

A paper valved bag embodies a valve sleeve which can serve as a removable label for the display of advertising matter.
This bag comprises a lower section of paper adhesively joined to an upper section of woven perforated material (e.g., wet-strength paper yarn). The upper section provides for ventilation and viewing of the contents and contains a drawstring for closure.

Gusseted multi-ply kraft paper bags (with a folded-in valve at one corner in which a valve extension is formed from one of the paper plies) are cut from a continuous bag tube without cutting the valve extension from a portion of the next adjacent bag, thereby avoiding a weakening of the structure in each bag.

A method is described for laminating webs to form baglike structures.

A method is described for forming a flat bag having side gussets.

A flat, pillow-shaped paper bag is formed by adhering two rectangular paper sheets to both sides of a U-shaped adhesive strip. The bag construction is adaptable to various bottom forms, such as satchel bottoms, V-bottoms, and the like.

Fifty pounds of the prepared bread mix are packaged in a cloth bag and overpacked in a multiwall paper bag; 2 ounces of active dry yeast is packaged in a foil envelope (cellulose acetate/aluminum foil coated with a heat-sealing compound such as polyvinyl acetate). Four 2-oz. foil packages of the yeast are placed in a kraft-cellulose film laminated bag (laminated with a water-vapor proof adhesive). The laminated bag is placed in the flour before the cloth bag is sewn up.
Granular or powdered materials, such as coffee and sugar, or products such as dried beans, peas, jelly beans, and the like are moved to gravitate through a bottom opening in a supply hopper by means of a feed screw. A sealing-die mechanism is arranged to unite two strips of sheet material to form a series of pockets sealed along three sides, and each pocket receives a measured quantity of the material. The filled pocket is sealed along the fourth side before being severed from the strip and discharged as a complete package.


The concrete additive used in mixing the cement for the Mackinac Bridge is exactly weighed and packed in a 4-ply bag. The inner two plies are of 50-lb. kraft paper; the next ply is a three-in-one made of 50-lb. paper, 30-lb. asphalt and a layer of 30-lb. paper; the outer ply is a 60-lb. natural kraft to resist scuffing and wear.


Particulars are given of the Day Automatic Bag-making and Packing Machine. Printed cut sheets of paper are fed to the machine from a stack in the feeding mechanism. As it passes through the machine, the sheet is glued, folded and formed into a bag with a special siftproof bottom, giving a flat outer face which serves for the display of printed matter and also enables the pack to stand up easily. The fashioned bag then passes under the outlet of one of three electrical weighing machines. The delivery of the material from these weighing machines is electrically controlled by the packeting section and timed to coincide with the arrival of the bag under the outlet. No material is tipped from the weigher unless there is a bag in position to receive it. The filled bag then passes through other portions of the mechanism, to be vibrated and shaken until the contents reach the level required for folding. The ends of the pack are folded in and gummed. The last operation is the passage of the pack through a pressing device which shapes and presses it to an exact form and size, at the same time giving it the necessary firmness desired.


The following uses of multiwall paper sacks were described at the 21st National Packaging Conference and Exposition: "Cement and other rock products," by L. O. Robinson; "Chemicals," by R. W. Lahey; "Transportation," by L. W. North; "Feeds and other agricultural commodities," by E. F. Dickey.

A machine for catching paper bags from a conveyor, counting and stacking a certain quantity, and placing the counted unit on a moving conveyor ready for packaging is claimed.


When paper sacks as developed in U.S.A. were tried out by fertilizer firms in this country before the war, the results were discouraging as they did not stand up to hard wear. Preliminary tests conducted by Fisons Ltd. indicated that to prevent the acidic action of fertilizers from weakening the bag, it is necessary to have a Union paper as the inner ply, and to prevent external moisture from weakening the sack, a Union paper next to the outside is required, with the outer ply of wet-strength paper. In addition, stitching with cotton of at least 12d/5 gauge is necessary. Sacks should be dropped flat and movement during transport should be avoided. Later development work included improved testing methods for filled sacks, reducing the cost of sacks while maintaining efficiency, technique of stitching sacks, development of new threads to eliminate stitch rot, alternative materials for sack construction, the effect of temperature of materials on paper sacks and the subsequent behavior of fertilizer in paper as compared with jute. It is considered that polyethylene-coated paper sacks should be superior in strength to sacks of Union paper and should give good acid and waterproof protection. The most recent development has been an all-pasted valve sack for granular fertilizer.


A device for sealing bags, in which loops of cord may be drawn tightly round the bag mouth, is claimed. The cord is threaded through perforations in a sealing element and guard member which are designed to prevent the cord being cut as it is tightened.


In a multi-ply bag-tubing machine for producing moistureproof gussets for the sewn-type end closures of gusseted bags, a gusseted bag tube is formed from a plurality of paper webs. A moisture-resistant adhesive is sprayed into opposite gussets at bag-length intervals at a frequency equivalent to the frequency of the severing operation.


A closure for bags, sacks, etc., consists of a pair of parallel strips of springy material (e.g., steel), one of each being placed on each side of the open end. The top of the sack is rolled round the metal strips, which are preferably of greater length than the width of the sack. Means
are provided to secure the ends of the strips together (e.g., a string, wire or hook arrangement).


The apparatus automatically fills paper or mesh bags with a predetermined weight of potatoes or the like. Loading of empty bags and unloading of filled bags from the machine are manual operations.


At the Hodge, La. mill of Southern Advance Bag and Paper Division of Robert Gair Co., a wide variety of equipment (bag machines, roll printers, stock washers, thickeners, savealls, tubing machines, conveyors, etc.) is operated for which adjustable-speed drives are justified; most of these fall in the small to medium range of 1-75 h.p. Among the roughly seven types of adjustable-speed drives available (constant and adjustable d.c., wound-rotor a.c., and commutator-type a.c. motor drives, magnetic slip couplings, hydraulic couplings and drives, and mechanical speed changers), the advantages and disadvantages of which are briefly outlined, d.c. adjustable-voltage drives were found to be most suitable for the particular applications of this mill. The reasons for this selection and the individual installations are discussed briefly.

222. Bulk packaging. Packaging Rev. 74, no. 9:36-8 (March, 1954); Packaging Abstr. 11:495.

A summary is given of a talk at the U. S. Packaging Institute's Annual Forum on "Multiwall-wall paper sacks," by F. Pocta.


Among other items of bulk packaging, the use of paper bags, printing of designs and labels on paper bags, protection against moisture, carloading of bags, and filling and closing of bags are discussed.


In this report postwar trends and possibilities in bulk packaging of chemicals are discussed, including multiwall bags, glass containers, wooden containers, fiber drums, textile bags, metal drums, and tank cars. Multiwall bags, having come to the fore as a result of their success during the war, are discussed in greater detail. A table of types of tank cars is included (compiled from ICC regulations by the American Car and Foundry Co.), which is offered as a guide only to indicate what regulations apply to a selected list of chemicals. The list is subject to change and should not be used as a final authority.
A method of forming bags (suitable for the packaging of dehydrated foods) comprises continuously conveying a successive series of tubes of sheet material coated with a heat-sealable composition, flexing the tubes into an arch shape, successively heating and pressing a predetermined end portion of the tubes while travelling in the arcuate contour to form a seam, flattening the tubes now formed into bags into a substantially flat condition, cooling the seams while so flattened and then conveying the bags arch shaped while chilling and applying pressure to the seams.

The five chief ways in which losses of material during bagging (sacking) can occur, and their correction by scale adjustments and bag selection, are described. Bags can be of open-mouth (paper, cotton, burlap) and valve types. The economics of bagging and of a bagging installation, e.g., in a cement works, are discussed.

In an apparatus for filling and sewing large-size paper bags, two independent conveyors from two separate bag-filling and packing stations (alternately serviced by a single operator) merge to a single conveyor that delivers the bags in spaced alternate succession to a single sewing-machine station.

Five possible ways of losing money in a bagging operation (bag sizes of 50 pounds and up)—weight "give-away" caused by setting mean weight high so that no bag falls short, excess labor costs, use of more expensive bag type, improper amortization, and failure to include interest in figuring cost of operation—and methods of eliminating these errors are discussed.

The paper sleeve is made of smooth kraft paper bonded to the burlap by a thermoplastic adhesive. The paper insert is placed in the mouth of the turned bag and passed through a special heat-sealing machine where heat and pressure fasten it securely to the fabric. Both the paper insert and the burlap bag are then folded to form the sleeve valve. The top of the bag is sewn shut. The paper-valve burlap bags may be filled on the same packing equipment as the valve paper bags, and, therefore, require no additional filling equipment. The burlap bags are said to fill more rapidly than paper bags, because their
porosity permits rapid escape of air. A rip-cord closure permits easy opening by a quick jerk on either end of the cord without danger to the bag. After being emptied, the undamaged bag becomes a regular open-mouth burlap bag which can be used as a potato pick-up sack or for many other re-use purposes.


Multiwall bags are constructed of 3 to 6 walls and are of two general types, sewn or pasted. Ten different sacks are illustrated and described and their uses given. Storage is of the utmost importance for good performance.


A multi-ply valve bag is formed by passing several webs of bag stock, as well as a web of valve stock introduced between two webs of bag stock, through a tuber simultaneously so that the valve flap is included in the original bag formation and is held so securely that no adhesive or other securing means is required.


The machine is suitable for forming the bottoms of multi-ply valve bags. There is a master device for controlling the motion of the bag tube as it is progressively operated upon by tube spreaders, gluers, etc., so that a preselected phase timing is maintained between them.


An apparatus is adapted for the automatic formation of the bottoms of multi-ply paper valve bags.


An apparatus having a bag tube conveyor, including grippers for consecutively gripping each of a plurality of bag tubes on the leading edge of each tube, is claimed to permit formation of bag bottoms of selected and uniform width. A supplementary mechanism for conveying pairs of press elements is operated in combination with the tube conveyor for pressing the end flaps of each oncoming bag.


A multi-ply, gusseted, sewn-end valve bag incorporates a supplemental sheet in its valve arrangement which is designed to provide an effective closing action in the valve when the bag is filled.

A method is described for forming valves in flattened gusseted paper bag tubes and introducing supplemental sheets to form valve sleeves therein.


The mouth of the bag tube is opened at the valve corner, the supplemental sheet inserted, and the valve corner closed or flattened. Automatic sewing equipment stitches both ends of the bag tube. Bags of various sizes may be handled on this apparatus.

238. Calculating system for board and paper. Paper Container 76, no. 2:33, 35; no. 3:57, 59; no. 4:81, 83; no. 5:105, 107; no. 6:133, 135; 77, no. 1:5, 7 (Feb.-July, 1957); Packaging Abstr. 14:744.

The system is for box and bag making and is based on a series of graphs.


The use of multiwall paper bags, fiber drums and fiber boxes for the packaging of chemicals is discussed briefly.


In an attempt to stimulate the salvage value of used multiwall paper bags, members of the Paper Shipping Sack Manufacturers' Association have approved a system of marking with a standard symbol all multiwall bags made of natural kraft paper suitable for repulping. The symbol "ANK" (all natural kraft) is to be printed just above or below the Consolidated Freight Classification certificate; its use is entirely optional.


The guiding principle in the selection of containers for postwar packaging and shipping should be the ability of the container to transport its contents economically and safely to its point of destination. The author summarizes briefly the important points to be taken into consideration by the shipper before deciding on the use of steel drums, fiber drums, multiwall paper bags, and corrugated or solid fiber boxes.

Suggestions for conserving solid fiber drums, solid and corrugated fiber boxes, set-up paper boxes, and multiwall paper bags are given. A prime prerequisite in the re-use of any paper container is careful handling; instructions for correct procedures should be given to all shipping and receiving clerks. If containers cannot be returned to original shipper, the recipient can practice conservation by re-using them himself or selling at once to a re-used container dealer or to another user. Containers too battered for further use should be sold for salvage to a waste paper dealer.


Reference is made to multiwall paper bags designed for the packaging of synthetic rubber. The inner ply is a talc-coated paper which will not adhere to the rubber, and a crepe-surfaced outer ply is used to prevent the bags from slipping when stacked. Synthetic rubber is processed into blocks weighing approximately 75 lbs. each; a special automatic machine has been developed for inserting them into the bags which are then conveyed to a sewing machine where the tops are closed by sewing, or to a packaging crew who apply a diamond fold to the top of the container and tape the top of the package.


The process of extrusion coating polyethylene onto paper, cellophane, and foil, the properties which the coating imparts, and applications and marketing possibilities for each class of coated products are discussed. Multiwall bags lined with polyethylene-coated paper, pouches and fiber containers made from the coated paper, white-pigmented coatings on boxboard, and a paper coated with a wax-modified polyethylene are examples of recent developments.


A multicompartment bag is so constructed as to eliminate the complicated and expensive bottom-forming operations, yet providing a product having a strong bottom and side seams.

246o Campbell, H. P. Metal bottom bag. U. S. patent 2,377,311(June 5, 1945); Packaging Abstr. 3:347.

A bag of the character described includes a removable metal bottom having a vertically extending flange therearound provided with a single outwardly facing circumferential groove, a tubular fabric body member having its lower end provided with an inwardly turned hem portion, means within the hem portion for enlarging the same, the tubular body member being disposed over the vertically extending flange of the bottom with the enlarged hem portion disposed so as to lie below, but closely adjacent to the groove, and binding means engaging the body member above the enlarged
hem portion thereof so as to force the fabric of the body into the groove and to prevent upward movement of the body and thereby the enlarged hem portion of the latter between the wall defining the groove and the binding means, whereby to prevent separation of the fabric body and metal bottom.


Statistical data for the Canadian paper box and bag industry for 1944 are given, as compared with 1943 figures. For the fifth consecutive year, the industry established new records, the gross value of products amounting to 4.8% more than the previous year.


A new crush-resistant wrapping material, called Carbion, has been introduced by Spicers Ltd. Normally made of straw paper, Carbion may also be made of other papers, viscose film, cellular wadding, and foil-laminated and coated papers. It can be produced in tubular or flat form and in flexible or rigid type. All types are characterized by two-way undulated corrugations ("corrugated corrugations") which are impressed into the flat paper during the manufacturing process, giving the paper a structural strength of its own and eliminating the facing sheets commonly employed in the making of corrugated paper and board. Tests have shown that the material recovers almost completely from sudden blows or sustained pressure.


A vacuum is applied to plates supporting the porous sides of a bag to withdraw air from its interior during filling with finely divided material.


An apparatus for filling valve bags with granular material comprises a basket structure within which the bag is suspended, a filling spout that is inverted in the suspended bag, and a shroud surrounding the basket structure. After the bag is positioned, a door in the shroud is evacuated to draw the granular material from the hopper through the feed nozzle into the bag.


A machine for evacuating and sealing filled flexible bags is claimed.

Airtight, paper, pasteboard or cellulosic film bags are formed in a flat folded condition ready for dispatch.


A tubular extension is provided to receive a (vertical) spout when the sack is being filled with fertilizer, etc.

254. Chadwick, F. Machines for making bags from paper or transparent film. British patent 618,035 (Oct. 16, 1946); Packaging Abstr. 6:337.

A machine for the manufacture of flat or gusseted bags from paper or transparent film is claimed, in which the web of material is formed with initial slits, folded into tube form on a former plate, and subsequently severed into sections having a tongue or lip at each end of the section by transverse cuts joining the aforesaid slits, the transverse cuts being made by the shearing action of rotary cutters co-operating with stationary knife edges on the upper and lower sides of the former plate.


A bag closing and heat-sealing machine is claimed.


A machine for heat sealing bags is claimed.


The French firm Charfa was founded in 1927 and includes several bag-making factories (it was the first French firm to manufacture multiwall bags) and a paper mill at Lumbres, Pas-de-Calais. An illustrated description of the bag factory at Gaillon and the Lumbres one-machine kraft paper mill employing imported Scandinavian and domestic pulps is given. The present output of about 5 million bags/month of the entire Charfa groups represents approximately 12% of the French bag production.


The title is somewhat misleading, since the article deals principally with polyethylene (I) and (I)-coated paper in general and refers only occasionally to shipping bags. Following a general discussion of the physical and chemical properties of (I) and its compatibility with other substances, waxes in particular, and suitable antioxidants for wax-(I) mixtures, the application of (I) to paper by different coating processes
(solvent, hot-melt, and extrusion-lamination), heat sealing, prevention of bag slippage in stacking by the provision of the outside plies with either a creped paper strip or one coated with a nonslip abrasive composition, and applications of (I)-coated papers are described.


There are four basic types of paper bags—namely, flat bags, satchel bottom bags, square bags, and automatic self-opening bags. Whether used for packaging or wrapping, paper bags fit into one or more of these classifications. Reference is made to the variety of papers available for bags according to the requirements of the product to be packaged; a few examples are given showing their wide application. Four diagrams of the basic types and illustrations are included.


Loose carbon black is packed in multi-ply kraft valve bags while subjecting the outer surface of the bag to a vacuum. The resulting pressure differential between the interior and exterior of the container removes the gas from the bulk material through the permeable walls so that the contents are compressed and densified within the container without agglomeration.


A web former and cutter is designed for use in the manufacture of satchel-bottom paper bags. The usual variation in the distance between thumb cuts from one bag to the next is eliminated by the location of the thumb-cut knife at the back end of the machine, adjacent to the cutoff knife.


Adjustable crimping rollers for making containers (envelopes, bags, etc.) of different sizes from advancing sheets or strips are provided on pairs of drive shafts in coacting relation to seal the material passing between them. Circular knife blades are positioned on the shafts to be rotated at greater speed than the crimping rollers for cutting the material uniformly and cleanly.

Brief reference is made to the improvements in the handling of chemicals in paper bags by the use of a special Pul-Pac truck and paper load-carrier sheets in the place of skids. Cars are unloaded by this method in half the time previously required, manpower is saved, damage to bags is negligible, and storage space much better utilized, because the bags can be tiered 20 high, as compared with the former 10 high, when stacked by a crew.


The successful use of multiwall paper bags as shipping containers depends upon correct design and handling, the design factor covering the correct size, proportion, and strength for the commodity in question. However, a bag can meet these conditions and still fail, unless properly handled and loaded in the car. The principles of successful handling and loading involve the following details: regular inspection of all equipment used in handling the filled bags; a notice to the railroads that the required cars are for paper loading and that good bottoms are essential; careful inspection of the cars prior to loading to remove all nails, splinters, etc.; always loading paper bags flat, never on their edges or ends; and loading the car tightly, with particular attention to the portion of the load between car doors. Diagrams are included illustrating some of the commonly used methods of loading, the size of the bag and the size of the load being the determining factors in selecting a method.


Gusseted, open-mouth bags are carried on a vibrating conveyor (which acts to settle the contents) to a pair of endless converging belts where the bag mouth is closed. A spoked wheel with flexible elements tucks the gussets inwardly prior to the entry of the bag mouth between the belts, thus ensuring a smooth closure. The bags are then ready for sealing by stitching or other means.


The contents of gusseted bags are settled and the gusseted top is tucked in.

267. Claussen, H. P. Factors that influence choice of bag material. Textile Age 9, no. 2:50, 55-6, 58, 60-1 (Feb., 1945); B.I.P.C. 15:352.

The volume of business captured by cotton, burlap, and paper bags in a relatively few but important areas of competition is dependent largely on price; these bags can be used interchangeably in the packaging of many commodities, such as sugar, flour, fertilizer, and feed, to mention a few. Price as net cost to the bag user consists of three elements: initial price, salvage value or re-use potentialities, and total dollar cost of filling, closing, baling, and otherwise handling the various types of containers. Some of the more important nonprice factors are: end-consumer
preferences, handling costs of large consumers, nature of product (dusty, odorous, etc.), and degree of protection required against loss by sifting, contamination, etc. Multiwall paper bags have the advantage in that they are sifting proof, they shed water and protect contents when stored in the open, whereas textiles under similar conditions disintegrate. In small retail packages (up to 25 pounds), paper has displaced cotton to a large extent for sugar and flour because of highly specialized machinery for automatically handling and packaging small bags. No similar developments are available for handling small cotton bags, because any textile is difficult to handle on automatic machinery and inventive effort has followed the lines of least resistance. The author believes it possible that such machinery for textile bags can be developed; he emphasizes the need of bringing the art of mechanical invention into action at the earliest possible moment to work for cotton in the packaging field.


A seam of the double-thread type has associated with it a supplementary binder thread.


Cloth-lined paper consists either of two layers of paper with a tissue reinforcement in between, or of one paper layer backed with cloth. It is used in the bag and envelope industry, for wrapping and similar purposes where strength and resistance to wear are essential.


Mechanical means for sewing a hem on a bag while adhesively incorporating a carrier string therein, include a specially designed guide plate adapted to turn over a hem on a bag blank so as to enclose a tie strip. A pump, adhesive reservoir, and means for conveying adhesive to the guide plate are also provided.


Large paper bags used for packaging items such as sugar in five- and ten-pound bags are advanced to the sealing station by conveyor where folding arms press half of the flap down, then move outwardly at the same time as the adhesive-applying belt is advanced into the bag top and coats a rim portion of the upstanding flap with adhesive. Folding arms continue to move outwardly until the top is folded down and ears are projecting on either side of the bag; these ears are adhesively coated on the upper side and folded over on top of the bag to complete the closure.

A waterproofing material is applied to an area of a bag made of a non-moistureproof material sufficient only to prevent the moisture in the adhesive used for sealing the turned-in top of the bag from penetrating the bag and contacting its contents.


Statistical information for the year 1940 is given.


A bag containing flowable material which has a practically rectangular mouth and is closed by folding in the front and side walls on the contents and folding over this the back wall, has an elongated closure fastened to the inner surface of the back wall which projects from the top; this projection is fastened to the underlying wall of the bag to seal it.


A folded blank is inserted into the mouth of a bag formed from heat-sealable material.


The method of closing the open mouth of a bag, or like container, composed of a heat-sealable material, is claimed which comprises positioning a closure member having at least two legs over the mouth of the bag with one of the legs projecting within the mouth of the bag, the inwardly projecting leg having a width less than the length of the mouth of the bag and heat sealing to each other the opposite sides of the mouth of the bag which contact each other adjacent the inwardly projecting leg, the inwardly projecting leg preventing a heat seal across the entire mouth of the bag and providing an opening into the bag upon severing the closure adjacent the leg.


A waterproof laminated material for the manufacture of bags and the like is formed by longitudinally and laterally stretching a loosely woven fabric and inserting it between longitudinally stretched crinkled paper sheets and adhesively uniting the combination with asphalt or other adhesive. The combination has a high bursting strength.

The author has developed and patented (U.S. patent 2,423,294) a comparatively inexpensive, loosely woven, pliable membranous fabric, which is covered on both sides by a crinkled water-resistant paper, which material is to be sewed into bags. The sheets of paper are bonded to each other through the open-mesh membrane by hot asphalt, and then compressed. The patent diagrams and some of the information given in the application are included.


The invention provides a machine which automatically seals envelopes or envelopelike bags regardless of nonuniformity in thickness caused by the product in the envelope, and delivers a neat, straight, and compact package. A pair of draw rolls included in the mechanism is operated to compress and shape the package. Liquid adhesive is applied to the envelope closure flap which is pushed downward when approaching the draw rolls.

280. Compression packaging. Modern Packaging 20, no. 6:118-21 (Feb., 1947); BoI.PoCo 17:440.

Long, narrow Fiberglas batts for building insulation were formerly rolled by hand and packed in corrugated shipping containers, which were in themselves expensive, took up a good deal of space for storing, opening, and shipping, and were difficult to handle on a building job. Engineers of the Owens-Corning Fiberglas Co. have devised a machine which compresses these batts and carries them into double-wall, 50-pound Mullen-test kraft bags. The new package, which is closed by stapling, is approximately one third as large as the old carton, can be stacked for storage, and can be readily passed through studs and girders by carpenters on a building job.


Adhesive applying apparatus comprises means for supporting a filled bag with its mouth collapsed and folded over ready to be closed, means for maintaining a supply of quick-setting adhesive at a temperature sufficient to render it flowable and means for transferring predetermined portions of a relatively thick film of adhesive to the bag. The adhesive remains in a sufficiently flowable condition to permit the final closure of the bag.


This bag opening and filling machine will open and shape any of the well-known types of paper bag.

A method and machine are claimed for forming and sealing paper bag tops of the single panel fold type.

284. Continuous-feed bag closing and sealing. Packaging 33, no. 251:69 (May, 1951); Packaging Abstr. 8:436.

The machine (Hoeller Brothers of Cologne) folds down and adhesively seals bag flaps at speeds of 80 or more per minute.


A bag having one corner turned in to form a valve and a supplementary sheet extending inward from the inturned corner, the sheet being normally folded along one line when the bag is empty and being folded along different lines to close the valve opening after the bag is filled, the edge of the sheet being provided with a slit along each of the lines and being unslit between the lines, and the sheet being attached to the bag walls beyond the inturned corner and adjacent the slits along which the valve is folded after the bag is filled.


The author deals with methods for heat-sealing bags, by discussing, in turn, the types of heat-sealed bags, bag closing machines, bag handling and storage, bag loading, and the bag and carton package or bag-in-a-box package, which may be of either the combination type (assembled before the package is filled) or the double package type, where the bag is strong enough to be handled as a single package and is then inserted into a carton. Illustrations are included.


Paper bags may be closed by fitting over the upper end of the contents a sheet of cardboard or other stiff material which is bent into a "Z" shape. The upper ends of the bag are folded into the space between two adjacent folded layers of the sheet of cardboard.

288. Corrigan, J. S. Bags, pockets or similar containers of paper, cellulose or the like. British patent 658,352 (May 5, 1953); Packaging Abstr. 8:876.

The bags have one wall longer than the other and are closed in one of two alternative ways.

The Funk Bros. Seed Co. pack their seed corn in elastic multiwall bags of 5 plies of kraft stock, all of which are crinkled. Lamination is done with a combination of cold weather adhesive and asphalt, which keeps the bag pliable and retards breathing properties, which protects the vigor of the corn. The bag is insectproof, water-resistant and withstands shock.


The new "Citrobag," made of 4 plies of paper—a diphenyl-treated inner kraft wall which effectively prevents fruit deterioration and reduces shrinkage; a waxed ply to hold the diphenyl vapor within the closed space; and two outer sheets of wet-strength paper treated with a compound to resist the effect of citrus juices—is automatically filled with fruit by the Model 100 F. O. Automatic Packer. The loading of the bags into railway wagons and the effect of transport on them are discussed.


The improvement in the art of making valve bags from a web, which consists in forming a tube from a desired number of plies of material; cutting off blanks from the tube; printing the blanks after cutting; folding and pasting one end of the blank to form a bottom for the bag; reversing the position of the blank in the apparatus; and finishing the valve end of the bag, all in a single continuous operation in which the bag blank is mechanically engaged from the beginning to the end of the operation, is described. In bagmaking machinery, a source of supply of blanks; a plurality of bottomers; a selector for distributing the blanks to the bottomers in alternation; and means for throwing the selector out of action at will, so that the blanks are fed to a single bottomer.


Apparatus for making paper bags and the like comprising a pair of sprocket wheels, a chain carrier driven by said sprocket wheels, a plurality of forms on each of which a bag is to be formed, the forms being attached to said carrier adjacent one edge of each form, grippers for holding a paper blank in contact with one face of the form, stationary means for drawing the paper blank over one end of the form and over the face of the form opposite to said first mentioned face, means operated by the continued motion of the form and attached blank for folding projecting portions of the blank against faces of the form disposed between the two faces of the form that have already been covered and for forming triangular end flaps of the residual portions of the paper blank, and means for folding said triangular flaps against the faces of the form last covered, thus completing the forming of the bag.

A valve, multi-ply bag severed from a continuous web has cuts through its normal severance edge adapted to define the width of opposed outer and inner folds. The outer and inner folds overlap each other across the bag opening to form a diagonal fold end closure. One of the inner folds has a single-ply extension which forms a valve flap of smaller width than the inner fold, but wider than the bag opening. The special features of this valve are claimed.


In bagmaking machines, a paste pad having two motions, one circumferentially coincident at a desired position with the path of a bag blank, the other a lateral movement transverse to said path; and means for imparting the said lateral motion at desired times.


The improvement in the art of making bags from blanks, which consists in opening the end of a bag blank to form side folds and longitudinal folds; applying paste beneath the under sides of the side folds and the parts of the web employed in forming the closure, and then completing the closure with the longitudinal folds.


A new water- and vaporproof container consists of 0.0005-inch aluminum foil glued to a 30-pound glassine paper, which is bonded to a 50-pound supercalendered bleached white kraft. The bag is heat sealed at the top and bottom and is equipped with a metal tin-tie at the top for reclosure. The attractively printed flexible container is used for packaging a household dehumidifying agent.


A Swedish development, an all-automatic machine for packing flour in square paper bags of 2-1/2 and 5 kg. capacity is described. Only one girl is required for feeding the bags to the machine. They are thicker and heavier and of better paper quality than the usual bags used in the retail market. After filling, five or ten bags are packed into cardboard containers which present a convenient form for shipping and handling.


A siftproof, multi-ply paper bag for the shipment of carbon black or similar powdery material embodies a pasted bottom structure.

Various details are described of a cloth bag lined with crepe-paper plies and with a layer of asphaltic material securing together the plies of a paper and with a binder of other material, less readily softened by heat than asphalt, uniting the cloth and paper plies. A latex adhesive may be used.


The largest part of the article deals with the complex problem of metal containers, their re-use, standardization, and shipping regulations. Brief paragraphs are devoted to multiwall paper bags and fiber drums and the possibility of using them as substitutes for metal containers for different products.


Apparatus of the character described comprising means for spreading apart the two sides of an end of a bag and folding the corners inwardly over the spread apart sides, means for applying adhesive to areas of the folded sides and corners, mechanism for depositing a supplemental extension to one of said folded corners comprising a spool of tape from which the extension is formed, continuously operated feed rolls for furnishing tape to a continuously actuated shear, means for conducting a severed length of tape forming the extension to the deposition means, said deposition means comprising a rotating shaft to which is fixed a segmental shoe, tape engaging means borne by said shoe, a rocker arm journaled in bearings fixed to said shaft and having a rocker arm fixed to one end thereof and operable over a fixed cam, a member borne by said rocker arm adapted to contact the tape engaging means, said rocker arm, rocker shaft and member being adapted to be moved by said cam during rotation of the rotating shaft to a position where they actuate said tape engaging means so that the latter protrude from the periphery of the shoe to engage the severed section of tape and attach the latter to the shoe at one station of its rotation, and other means for retracting said tape engaging means at another station of its rotation so as to release the tape from the shoe and permit it to be deposited by the rotating shoe in the adhesive on one of the folded corners of the bag.


The method of closing the end of a bag tube to form a closed end with a sleeve through the bag to be filled, which consists in opening the end of a bag tube to form two oppositely disposed outwardly extending side flaps and two inwardly extending end flaps connecting the ends of the side flaps, applying paste to the edges of the end flaps and one of the side flaps, applying a supplemental sheet to the pasted edge of one end flap so that the sheet extends outward beyond the ends of the side flaps and extends across
the base line of the pasted side flap, applying paste to the edge of the supplemental sheet that extends across said base line, folding inward the unpasted side flap, and finally folding inward the pasted side flap and thereby uniting the side flaps and the edges of the supplemental sheet. Bag-bottoming apparatus comprising an opening device for opening the end of a bag tube, a conveyor in position to receive the opened bag from the opening device, and conveyor comprising three parallel chains, a clamp on the central chain timed to clamp the leading edge of the opened end, flap folders at the delivery end of the conveyor, means to release the clamp before it reaches the folders, and pushers on the side chains in position to engage the rear end of the bag tube and push it through the folders.


Reference is made to the use of creped paper for bags and other wrapping purposes. The best results with regard to elasticity, bursting strength, and elongation can be obtained when the creping is carried out upon a separate machine and not upon the original paper machine. Such machines have various speeds and are equipped to crepe paper of different thickness and furnish; some crepe the paper also in the cross direction. They must be able to crepe bituminous papers without splitting of the two webs united by the tar. A prerequisite of faultless working is that the bituminous coat is applied in a sufficiently thin layer without impairing the bonding strength of the adhesive.


The bags are produced in two to six plies. Single or laminated sheets of regular or wet-strength kraft are used. Protection for moisture-sensitive products may be obtained by incorporating wax impregnated, asphalt-laminated or polyethylene-coated plies. The bags are offered in any size up to 36 in. wide, with a maximum of 44 in. for some applications. Four-color printing is available.

305. Crinoline . . . 1944 style for bag closures. Modern Packaging 18, no. 2:114 (Oct., 1944); Packaging Abstr. 2:231.

The Aquatex closure for waterproof multiwall bags consists of a tape made of starched crinoline laminated to double-napping outing flannel. The tape is sewn on the bottom of the bag when it is manufactured and then dipped in a special wax. The wax penetrates the crinoline flannel, sewing thread and the plies of the paper bag. The same method is used on the top of the bag after it has been filled. Ordinary tape-sealing equipment is used.


A single rectangular sheet of air-pervious paper is joined together along opposite edges to form a tube, and the sides of the tube are pleated
to form a number of gussets along opposite sides. One end of the bag thus formed is arranged to engage a filter adapter on a suction cleaner, and the other end is folded over and sealed.


The bag-in-box package has gained such wide usage today, that its range includes the packaging of extremely dry products—where sifting is a factor—to those containing moisture, and even animal, mineral, and vegetable oils and fats. Package sizes vary from the packaging of one ounce of a product to those where as much as 100 pounds are involved. The material used in the box includes all grades of boxboard from plain chipboard to the toughest kraft grades and with all standard finishes. The bags are made in practically all grades of bag material from the most transparent to the most opaque and with a wide range of protective properties; the two styles most generally employed are the flat type and the square or gusset construction. The box protects the bag and offers a display surface for brand identification and sales design. There are three types of construction: (1) the floating type, where the bag is inserted loose; (2) an application where the bag is spot-glued into the box during manufacture and shipped to the packager folded as a complete unit; and (3) a bag firmly glued to the inner walls of the carton, overlapping at both ends sufficiently that a seal may be formed. The closure is of the greatest importance if the full value of the package is to be realized. The outstanding advantage of the construction is probably its adaptability.


The device creates a vacuum within the bag as it is being filled, enabling the product to fill the bag from the bottom up. A diagram shows how the unit works. It is available in three sizes. It has been found that smaller bags can be used as a result.


Papers with superior water-repellent, wet-strength, and sizing properties are prepared by impregnation with 0.1-15% polymeric polyamines (in organic solution, or in aqueous solution of organic or inorganic acids) and treating the impregnated paper with formaldehyde (at least 0.5 mole formaldehyde per amino group in the polymeric amine). The treated paper is then cured by heating for 5-45 min. at 90-150° C., or by drying and aging at room temperature for one day or longer. The polyamines were prepared by the reductive amination of polyketones (from copolymerization of ethylene and carbon monoxide, or by the catalytic hydrogenation of acrylonitrile and alkacylonitrile polymers, and alkacylonitriles with polymerizable vinylidene compounds (containing a double-bonded methylene group). The papers treated as described are suitable for paper bags, including fertilizer bags, flooring papers, building paper board, seat-cover papers, moisture vapor transmission-resistant papers, electric insulation paper (cable wrap), wallpaper, writing paper, and the like.
Jet-Pak Inc. make cushioned bags for shipping books and other products that require protection during transit.

D. DDT emulsions, impregnated on paper bags at the rate of 133 mg. or above per bag, gave excellent control of corn earworms, Heliothis zea, or sorghum heads packed in the bags, but caused an increase in corn leaf aphids, Rhopalosiphum maidis. Heptachlor, aldrin, dieldrin, lindane, and Metacide also gave good control of H. zea. Toxaphene gave satisfactory control of H. zea when applied at 290 mg. or above per bag. Heptachlor, aldrin, dieldrin, BHC, TEPP, and demeton gave satisfactory R. maidis control, but BHC and lindane caused a high sterility of the heads. Heptachlor and aldrin gave satisfactory control of H. zea and R. maidis and caused little sterility. Aldrin gave fair control of R. maidis and excellent control of H. zea when applied as a streak on the inside of the bags at 72 mg. per bag.

Daller, Adrian O. Method and apparatus for the formation of bags and the like. U. S. patent 2,136,990 (Nov. 15, 1938).

Bag-forming apparatus comprising means to apply transverse strips of adhesive to a web, means to dry said adhesive, means to separate the web into sheets along lines with said transverse strips of adhesive on either side thereof, means to wrap said sheet into contact with a form with said transverse stripes juxtaposed to other edge portions of said sheet to form a seam leading toward the open end of the bag to be formed, and means to press the portions carrying said transverse stripes against said other portions to provide a seal.


A machine for continuously forming open-mouth bags having folded seamless bottoms and heat-sealed edges is described.


This patent covers the manufacture of a paper bag having a ventilating insert of cloth. An incomplete paper tube is formed from a paper strip whose edges do not meet, the edges are bent and covered with an adhesive, cloth is applied to complete the tube, the edges are folded and sealed in hooked relationship, and paper is bonded over the folds of paper and cloth along the edges of the tube. The term hooked relationship is used to indicate that relation of parts in which folded edges are interlocked with one another or in which one folded edge is hooked over a straight edge.

A method of manufacturing bags from paper sheet or strip, or plastic materials (e.g., "Cellophane") or of woven textile material is claimed whereby the speed of operation is increased. The method consists in forming short cuts in the strip or web spaced apart by a distance slightly less than half of the total width of the strip and disposed parallel to or at a slight angle to the longitudinal axis of the strip, whereupon the strip has its edge folded up to overlap and to be secured by adhesive or other means, and then a bag is severed from the tube so formed by cuts on opposite sides along lines spaced apart by the length of the lateral cuts and extending to the ends of these to leave a tongue which may be lapped over to seal the bag so formed at one end, succeeding spaced cuts forming bags in sequence from the continuous tube.


A siftproof bag is obtained by forming a web into a tube, applying adhesive transversely and externally to the walls of the tube, folding over the tube bottom twice, and unifying the folds together by the externally applied adhesive, the adhesive being applied to the web transversely before it is formed into a tube, whereby when the tube is formed the walls of the tube are united together by their internal surfaces at the place destined to be the bag bottom.


In a paper satchel bag, whose inner face only is heat and/or pressure sealable, the re-entrant folds in the turned-over bottom of the bag have their adjacent outer faces secured to each other by adhesive.

318. Davies, K. W., and Nicholas, J. Bags made of paper, cellulose or the like materials. British patent 637,981 (June 17, 1948); Packaging Abstr. 7:570.

A modification of British patent 582,372 (Sept. 25, 1944).


Difficulties experienced in keeping the paper running in the correct relationship to the former plate and to the line of paste applied from the seam adhesive device (e.g., a paste box) are obviated by machinery in which the seam adhesive device moves laterally of the direction of the travel of the web, and its movement in one lateral direction or another is controlled by the lateral movement of the paper web, so that the movements of the web and the seam adhesive device are practically simultaneous and in the same direction so that they move together step by step.
Davies, K. W., and Wills, S. C. F. Apparatus for making paper and like bags. British patent 636,836 (May 12, 1940); Packaging Abstr. 7:490.

The apparatus is characterized in that the nosepiece comprises an endless travelling belt having one run forming the floor of the nosepiece to make contact with the bottom wall of the bag tube and assist in drawing it under the nosepiece.


A paper bag constructed from single-layer lightweight kraft (80 lb. or lighter) with reinforcing corner strips of heavy paperboard is made especially for storage of empty cans in warehouse stacks. The bottom of the bag is made from cardboard or similar material.


The machine claimed for packaging resilient materials, particularly sponge or foam rubber, in paper bags comprises means to compress the body on opposite sides to reduce the girth; means to maintain compression; conveyor means to insert the body into a container having a larger girth than the reduced cross section of the body; and pressure-removing means to allow the body to expand within the container. This causes the resilient material to be under compression and the bag under tension, affording the ease of handling of rigid boxes. The principles of the invention are also applicable to other types of containers, such as boxes or cartons.

Davis, R. Multi-ply paper sacks. British patent 688,658 (Nov. 9, 1951); Packaging Abstr. 10:357.

A multi-ply paper sack with block-folded end closures with or without a valve has an additional leaf of paper or other flexible material entirely covering the folded end face of one or each end on the inside and secured by adhesive along its longer edges to the walls of the sack. This makes the sack more siltproof.


After referring to the shortage of wood supply and reduced Scandinavian imports, the author discusses the statistics of the kraft wrapping paper production and the progress the industry is making in the reconversion of its production to grocery bags, sacks, and other standard bags which were severely curtailed by WPB pulp allocation during the wartime period. In normal times, the so-called grocery and variety standard bag classification consumed 40% of the domestic kraft paper production; this declined to 18% in 1945, on account of war regulations. The recovery has been slow and difficult, although shipments of grocers' bags for the first six months of this year had recovered to 85% of the last prewar year. In 1945, it was estimated that 46.5% of all kraft produced in the United States went into
bags and sacks of all kinds, with 22.5% going into kraft wrapping, and 31% being consumed in all other forms of conversion. Substantial growth took place both during the war and since in certain types of bags, such as multi-wall and special packaging. It is estimated that the demand for kraft paper is some 400,000 tons annually above the expected 1946 supply. New kraft paper production is expected to come in by the end of 1949 and is estimated at approximately 230,000 tons.


An adjustable cam mechanism is used in conjunction with the opening cylinder assembly of a paper bagmaking machine to vary the axial and radial movement for different size bags.


An adhesive control apparatus which is designed for regulating the level in paste pots on paper bagmaking machines has a beam pivotally mounted on a support; an adhesive receptacle carried by one end of the beam, which permits the opposite end of the beam to swing in an arc as the adhesive level in the receptacle changes; a control device actuated by the movement of the beam; and a feed line for supplying adhesive to the receptacle.


Ice can be conveniently sold in 50-lb. bags made of "wet-strength" paper (treated with a water-repellent resin), in 10-lb. packages of "beverage ice" and by automatic ice-vending machines.


Flour, sugar, animal feeds and other products are considered. Protection given, hygiene, ability to permit maturing of the flour, protection against atmospheric variations, ease of handling, economics of use and re-use value are some aspects discussed.


A method of packaging products tending to deteriorate under atmospheric conditions, e.g., powdered milk, using a strong flexible gas- and moisture-proof sheet of paper, metal foil and cellulose film laminated together with a thermoplastic adhesive and formed into a bag, is claimed. The apparatus required comprises: bag magazine and forming mechanism, conveyor system, filling mechanism, bag spreading means, vacuum sealing mechanism and drive mechanism.

A block-bottom paper bag with a handle is described.


A bagmaking machine is described which is capable of using a strip of paper and has means for sealing the adjacent edges as the material is fed through the machine; it can make multiwall bags, bags with a slip sheet positioned between the walls, and bags of a large variety of sizes.


Flexible containers for consumer packages have been used since methods of color printing for bags were developed. Wartime restrictions on many types of rigid containers have greatly increased their use. Many of these gains will carry over in the postwar era. The basic essentials for a bag package are the same as those for any other type of container: protection, convenience, eye appeal, and economy. Protection depends upon the nature of the product, its suitability for a flexible container, and the selection of materials and type of closure used. Convenience has to do with the adaptability of the bag package to production facilities and equipment, and its ease of handling from both the manufacturer's and consumer's viewpoint. From the cost standpoint, flexible containers offer a very economical type of package. Eye appeal is one of the biggest factors in planning the design, the first principle being to take the physical characteristics of the bag construction into consideration and to plan the design specially for the flexible package. The printing on the bag paper is done with stereotypes on steel cut dies engraved cylinders, curved electrotypes, and rubber plates. Presses are equipped to print as many as six colors in one run through the press, the printed paper being rewound and put on the bagmaking machine. The printing should be kept well below the fold so that it does not interfere with the closure; an allowance in height and weight of the design should be made for the settling of the product after filling. An illustrated description of a number of flexible containers is given, including examples for holding coffee, seeds, chemicals, dog foods, cereals, chewing tobacco, and candy. All the examples listed show that design principles are similar to those for other types of containers.


In bag-opening and filling means; bag-holding means including a funnel member arranged to extend into the mouth of a bag; turntable mechanism operative to move said bag holding means through receiving, filling and releasing positions; filling means for delivering a quantity of a product through said funnel member into the bag when it is in said filling position;
means in said releasing position operating to release said bag from said bag holding means; a support adjacent said turntable mechanism; and bag feeding means comprising an arm pivotally connected to said support so as to be swung upwardly from a lowered position to a raised position wherein the outer end of said arm is adjacent said receiving position, a bag-gripping finger at the outer end of said arm for carrying a bag upward into said receiving position, means for actuating said bag-gripping finger, means operating to swing said arm in such timed relation to the movement of said funnel member through said receiving position that said bag and said funnel member will be moved coincidentally into said receiving position so that the mouth of said bag will be placed on said funnel member, cam means for effecting a lateral movement of the outer end of said arm as it moves into raised position, to obtain operative alignment of the bag mouth with said funnel member, and means for directing a flow of air into the mouth of the bag to open the same so that it will move readily onto said funnel member.


A bag is closed by a flap comprising two layers of paper, one from each wall of the bag, the inner layer being cut from the wall of the bag along a line transverse to the bag mouth and being adhesively secured to the outer layer.


Each bag length is creased along a pair(s) of transverse lines separated by a part which is to form a bottom gusset, the latter being folded between opposite walls of the bag by folding about the pair of lines.


An improved automatic process for making bags of a type in which opposite sides are formed of different sheets of material, such sheets being secured together by edge parts.


Thin flexible moistureproof material is fed to and folded over an elongated mandrel to form a continuous tube, and its overlapped longitudinal seam is sealed by a rotary heating element disposed above the mandrel. The tube is transversely cut and sealed at one end at spaced intervals by a pair of co-operating rotary members between which the material is fed. A reciprocating opening member is operated from within the mandrel to open the end of the tube after each bag has been cut and sealed.
Collapsed bags stacked on edge in a magazine are grasped by the vacuum cups on an arm that carries the bag into contact with a second pair of opposed arms likewise equipped with sucker elements; these elements grasp opposite sides of the bag to open the bag mouth and slip the mouth over the filling nozzle.

In bag-filling apparatus, a filling spout, a clamp movable from open position to closed position to secure a bag to said filling spout, weighing mechanism for periodically weighing charges of material, means for delivering material to said weighing mechanism, control means operatively interconnected to said weighing mechanism, operative in response to weighing movement thereof and normally operable to cause delivery of a weighed charge of material from said weighing mechanism to said filling spout, an interrupter device operable in response to movement of said clamp to the open position for interrupting the operative interconnection of said weighing mechanism and said control means for preventing operation of said control means when said clamp is in open position, and means controlled by said interrupter device to interrupt the delivery of material to said weighing mechanism when the clamp is open at the end of a weighing cycle.

Improved protection is given by this long fiber kraft, polyethylene-coated bag, which has a unique back seal. The contents of the bag touch only the polyethylene coating, which prevents them from sticking.

A bag which is adapted for use in the packaging of dehydrated food and blood plasma is formed of two plies of crinkled paper laminated together with an asphaltic adhesive.

A sewed seam-type closure for multiwall paper bags is constructed in such a manner as to prevent the occurrence of sifting through the needle holes. The needle holes and the crevices between the end of the bag tube and the sealing strip are sealed by dipping the closure in melted wax.

Improved forming and heat-seal seaming means are provided for multi-ply bags formed of a crinkled paper lined with polyethylene.
A method for forming the valve sleeve for a multi-ply crinkled paper bag is claimed which utilizes a heat-sealing film on the inside of the sleeve to bond it to the bag body. The sleeve is easily inserted either manually or by machine. The sealing strip which closes the top of the bag is extended to seal the valve opening.

The inner polyethylene-coated ply of a multi-ply bag is folded transversely adjacent to the open end of the bag to provide a double fold which permits the inner ply to be extended for forming an inside seal under the outside closure seam of the filled bag. The bag may be of the type described in U.S. patent 2,314,876 (March 30, 1943) in which crinkled paper is used to form the plys, with the crinkles extending circumferentially of the bag to provide for longitudinal stretchability.

A composite web, made of one or more layers of paper and one or more layers of polyethylene laminated together, is passed through a tank of hot water and subjected to the action of conventional crinkling and corrugating apparatus to produce a highly elastic bag material.

A multi-ply bag of kraft paper has the plies secured together throughout their area by closely spaced particles of pressure-sensitive rubber adhesive containing hydrogenated rosin or resin. The particles keep the plies apart and provide cushioning dead-air space between them.

Linings or bags of stretchable paper are formed by applying adhesive to a web along the edge and also in transverse strips, joining a second web to the first while saturated steam is introduced at the nip under pressure. The joined webs are passed through a liquid bath, then a crinkling and corrugating device to impart stretchability. Heat is applied to cause ballooning before the completed bags are severed from the web.
the blanks for overlapping relation in the bottom formation of such bags or containers; providing said web with a plurality of sets of apertures adapted to register when the web is folded and disposed at regular intervals transversely of the same, each of said apertures having a clean-cut marginal edge; slitting the web longitudinally thereof to provide such tablike portions; and terminating one end of each of said slits in a preformed aperture, the opposite ends of said slits opening through a wall of the bag blank.


A method of forming the bottom of a block bottom bag is characterized in that the final lateral fold is made by creasing the bag blank laterally at the place of the formation of the final fold so as to cause the rear portion of the diamond fold to fall away from the bag tube and completing the bottom by folding over the resulting flap by folding means, which move at a speed greater than the speed of and preferably in the same direction as the movement of the bag blank while completing the fold. The folding means may have a continuous as opposed to a reciprocating movement.


An apparatus for the manufacture of block-bottom and rose-bottom bags is characterized in that the formation of the diamond fold in the severed bag blank is effected by nonreciprocating parts.


A method of making block-bottom and rose-bottom bags is characterized in severing the tube in two stages, whereby the final severance is effected while a member is within that part of the tube where primary severance has been effected.


The history of the manufacture of paper bags by machinery in the United States is outlined; the first paper bag produced on a machine was made about a century ago, although neither the exact date nor the name of the inventor is known. A few years later, in 1851, a schoolmaster in Bethlehem, Pa., Francis Wolle, designed and built his first bagmaking machine for which he received a patent in October, 1852. This machine is the ancestor of all later models, although the bag was still formed from sheets, not from a continuous band, and mechanical shears were used, not a striker. The present production in the United States has reached a point where 70 billion bags are manufactured per year; there are some 40 manufacturers of retail store types of paper bags, of which the Savannah plant of the Union Bag and Paper Corp. is the world's largest.
A cardboard panel is cut and scored on opposite ends to provide flap portions for overlapping and holding both ends of a bag which has been filled with material such as nut meats. The flaps can be secured in position with staples.

This is one of a second series of industrial lectures on pulp and paper manufacture presented at the University of Maine.

A feeding mechanism comprises a pair of intermittently operated feed rolls arranged to advance a predetermined length of a web of bag forming material, a supporting plate having an opening therein upon which the advanced portion of the web is supported, and a movable suction head arranged to be moved over the opening. The suction head is adapted to engage and control the leading edge of the web as it is being advanced over the opening so as to prevent curling of the leading edge and engagement thereof with the edges of the opening during the advancing movement.

Three-ply shipping and storage bags for ammonium nitrate fertilizer and other deliquescent materials comprise moisture-barrier coatings of asphalt or paraffin, vapor-barrier desiccants, such as plaster of Paris (calcium sulfate hemihydrate), and moisture-absorbent desiccants, such as anhydrous calcium sulfate, between the plies.

A paper bag is removed from the stack by a vacuum cup and opened by finger elements; an air blast directed at the mouth of the bag ensures complete opening. The bag is held open by the fingers during the filling process.

A method of opening a folded paper bag, or the like, said method including the steps of applying pressure to each side of the bag substantially
across the width thereof a fraction of the length of the bag below the mouth thereof, said pressures each being toward the other to provide a seal across the bag, directing a jet of air at the mouth of the bag to spread the lips of the bag, inserting a pair of arms within the spread lips and moving the arms outwardly to further open the mouth of the bag, releasing said pressure and continuing to move said arms outwardly to complete the opening of the bag.


A method of manufacturing paper bags having a carrying loop comprises folding two opposite edge portions of a bag blank one over the other and securing the overlapping portions in juxtaposition to form a tube, the outer portion having an aperture formed therein, threading the free ends of a carrying loop of V-form through the aperture and securing the ends between the overlapping portions, double-folding one end of the tube, and securing the double-folded end to form a closed end.


The flat bottom of a side-fold bag is sharply bent towards both sides of the tube, along a fold running perpendicularly to the axis of the tube, at the axis corresponding to the depth of the side folds. This produces folds which, when the bag is opened, give the bottom the desired rectangular form. The flap commonly used for sealing or sticking the flat bottom must not project beyond the edge of the latter farther than corresponds to the depth of the side folds.


Three types of electronic controls—an improved version of the Autotron (the Mark IV) (I) for color-register control on multicolor rotary presses, the Trakatron (II) for side-register control for rereeling and slitting machines, and the Webatron for cut-off control for sheeters and length-register control for bagmaking machines are described. With (I) register is claimed to be controlled three times faster than by the old methods, using a system known as supercorrection. (II) has introduced a new principle of scanning which is said to work satisfactorily even from the edge of unprinted cellulose film.


In the manufacture of satchel bags, a suitable heat- and/or pressure-sealing adhesive is applied to the outer face of a paper web or tube at places which are to be located in the re-entrant folds or gussets at the bottom of the bag. Similar places at the top of the bag may be treated in the same manner.
A bag construction is described which eliminates the necessity of pins in attaching sales tickets to the bag.


In a device of the type described, a tube-forming mechanism, a smooth-faced cutting shoe adapted to reciprocate in the tube formed by said mechanism, a cutting roll adjacent said shoe and having a knife adapted to roll against said shoe upon rotation of said roll, a drive means for imparting reciprocal motion to said shoe, a resilient connection between said shoe and said drive, and means on said cutting roll for preventing relative motion between said shoe and said knife during contact of said knife with said shoe.


In a device of the type described, means for forming a tube from a continuous web of bag-forming material, means for progressing said tube at variable speeds, upper and lower cutting rolls for operation on said tube, a cutting shoe reciprocably mounted within said cutting rolls traveling with said tube between said cutting rolls at the time the latter are in operable position, and driving means for said cutting rolls, including a pair of intermeshing adjustable complementary elliptical gears.


In a device of the type described, a cutting roll having a cut-out portion, a base plate secured to said roll in said cut-out portion, a knife blade, knife sections clamping said blade and secured to said base plate, a plurality of wedge members between said base plate and the cut-out portion of said roll, and means for adjusting said wedges to raise or lower said knife blade.


A new super-size, flat or gusseted paper bag is being produced by the company for packaging long cylindrical objects, such as rugs, textile rolls, linoleum, poles, pipes, etc., up to 14 feet long and 74 inches in circumference.

Estimating the quantity of bags from the reel. Paper Containers 65, no. 3:63; no. 4:91, 93; no. 5:119, 121; no. 6:147 (Sept.-Dec., 1951); 66, no. 1:7; no. 2:35, 37 (Jan.-Feb., 1952); Packaging Abstr. 9:322.
The subject is discussed under the following headings: machinery manufacturers' hourly output figures in different sizes and styles of bags in varied sizes; reel weight calculations; theoretical weights for 1000 bags in varied sizes; formula for checking production of 1000 from reel weight; formula for the amount of paper required; formulas for reel weight and yardage; kraft paper sacks; varieties of bags made. Because of the variety in sizes of bags, etc., squared paper charts enable details of output to be calculated.


An inner bag of highly porous paper of relatively low strength is placed within an outer enclosing bag of low-porosity paper of greater strength and having artificial pores which serve to permit egress of air.


Improved mounting devices are provided for adjustment of the relative axial alignment between pairs of rollers. The devices include spaced parallel guides forming slideways, in which bearing blocks for the rollers are vertically movable. The position of one roll with respect to the other may be accurately regulated together with the pressure of spring loading on each roll.


The bearing block in this adjustable roll mounting is positioned in the slideway by a screw and slip-collar arrangement which permits the movable roll to move away from the stationary roll against the adjustable spring pressure. The movable roll may thus be spaced a desired distance from the stationary roll and still be spring loaded for proper tension.


A machine constructed in accordance with the invention is intended to receive a loose bundle of bags from the delivery or transfer mechanism of an associated bagmaking machine, move the bundle to a wrapping station, compress the bundle, wrap the same with a band of paper, and discharge the wrapped bundle from the machine. An elevator-mounted, bundle-supporting plate in the machine which is cyclically operable to move in an arcuate path from the bundle-receiving position to a wrapping station is movable against the resistance of a hydraulically operable presser overlying a paper strip to compress the bundle as it is moved upward into banding position.

The square or automatic bottom folds of bags are formed by sweep arms mounted on counterbalanced rotors adjacent the bag-carrying drum. High-speed operation without vibration is claimed for this construction.


Draw rolls carry the bag tubing over the forming plate, and a constantly rotating striker severs the tubing into bag lengths when pinch rolls momentarily interrupt the advance of the web. This device is particularly useful in connection with high-speed machines making automatic-bottomed bags.


An apparatus is claimed for receiving individual paper bags from a bag-making machine, collecting them together in a series of groups each containing a predetermined number of bags, and assembling a plurality of groups to form a bundle in which each group is turned end for end with respect to the adjacent group.


A 50% expansion of floor space is planned to be completed in 1957 at William Palfrey, Ltd., makers of "Palfsack" multiwall paper bags. Details of the expanded manufacturing and materials-handling operations are described.


A laminated product is formed from a thin, flexible, sheetlike material (cellulose derivatives, vinyl resins, or casein sheeting), an elastic protective coating of a relatively adhesive character on both sides of the sheet, a paper sheet (e.g., 50-pound kraft paper) adhered at one side to the coating on one side of the flexible sheet, an elastic protective coating on the other side of the paper sheet and providing the surface for one side of the material, and a water- and moisture-resistant fiber sheet adhered at one side to the coating on the other side of the flexible sheet, the second sheet providing a dry nonadhesive surface for the other side of the material. Open-mesh woven textile material and a dry-wax paper can be used as facing materials.


A packing bag is claimed comprising superimposed sheets of packing material, connecting means passing through superimposed marginal portions of at least two of the sheets, and waterproofing material remaining somewhat pasty covering the inner faces of marginal portions.
The trend toward flexible packaging means smaller unit packaging and greater protection for each individual package, reducing over-all loss. In most industries, government package specifications set up during the war are still the standard. It is probable that government testing and research bureaus will continue this work, not only for government use, but also for regular domestic and export shipments. Where government specifications are not set up, simple formulas can be adopted by industries for their own products. For the bag-in-box package, the bags follow many different grades and classifications, ranging from plain lightweight 25-pound up to 90-pound kraft, and including waxed, coated, parchment, and laminated papers. Polythene has rapidly become one of the most important packaging materials, chiefly because it does so much at so little cost. A special bag-in-box package used by one of the large shortening companies has saved about 10 cents on a completed package, approximately a third of the storage and shipping space of the final package, and a tremendous amount on the storage of empty cartons and bags. Another successful adaptation of the flexible package is the much advertised bag which facilitates mixing color with margarine.

A bag made of paper or the like, of the automatic or self-opening satchel bottom type, has an inner lining of impervious material, such that an effective seal may be made at certain places, preferably by the application of heat.

The principles of quick freezing foods and storing them in refrigerated rooms are essentially the same for the commercial quick freezing plants and rural locker plants; however, the commercial freezer must ship his products and use careful and attractive packing, whereas rural locker plants serve only for the purpose of storing the farmer's surplus food. The wrapping and packaging of the products is an important step, not all papers being suitable for the purpose. The necessary characteristics include: air- and moisture-vaporproofness to protect the contents against freezer burns, shrinkage, and other dangers related to dehydration, as well as contamination by off-odors in the surrounding atmosphere, freedom from objectionable taste or odor of the wrapper itself, impermeability to dirt and dust, strength and pliability whether wet or dry, good stripping properties, and satisfactory outer stamping or writing surface. A variety of bags, cartons, or round containers have been developed, vegetable parchment, plain or coated cellophane, and heavy waxed board being used successfully in their manufacture.
The machine comprises trays, each adapted to receive as many articles as it is desired to package in a single bag; means for advancing the trays seriatim from a position where the articles are loaded onto the trays, to a position where the articles are moved from a particular tray into means for ejecting the articles from each tray as the tray is moved to the bagging position; a bagging tube supported for rocking movement and located at the bagging position for receiving the articles as they are ejected from the tray; a bag magazine; means for removing a bag from the magazine and threading it over the end of the tube; and means for rocking the tube to a vertical position to cause the articles to fall from the tube and into the bag, thereby stripping the bag from the tube.

The invention relates to a device for sealing bags made of a heat-sealable material after the bags have been filled with a partly liquid product (such as pickles or sauerkraut) in a packaging machine. The device consists of means for suctionally removing air from the filled bags, and distention means operated in the open top of the bag to shape it into flattened formation and to assist a gripping means to hold the top portion in an unwrinkled condition while sealing means are applied to form a top closure. A bag support having a pivoted bottom is actuated to cause the filled and sealed bag to fall out of the support.

Various types of paper tubing, including flat, gusseted, multiwall, and sectional tubing and tubular bags, are described; and a list of products for which paper tubing is used as packing is presented.

A container of envelope type formed of flexible strip material (paper, cloth, plastic, metal or metal foil, etc.) is provided with a stiffened base, so that it will remain upright when set on a table. The apparatus for the manufacture as a continuous process, filling, sealing, and severing the packages is also claimed.
Fiberglas looks to bag reinforcement following success with paper and tape. Paper & Paper Products 91, no. 21:8-9 (July 20, 1950); B.S.P.G. 21:42; Packaging Abstr. 8:106.

Brief reference is made to the superior performance qualities of Fiberglas-reinforced yarns incorporated in industrial papers, tapes, and non-woven scrim. Work is now in progress to develop a line of paper bags, reinforced with Fiberglas yarns, which promises to replace many types of multiwall bags now in use.


A bag of paper, cellulose film or a lamination of both, comprises two plies, one of which is larger than the other. Three edges of the larger ply are folded over the corresponding edges of the smaller ply and secured by adhesive to form a bag, while the remaining three edges are in register. One of the plies is imperforate, while perforations, slots or similar cutaways are provided relatively close to the free edge of the other ply to allow the adhesive to reach the imperforate ply when the top of the bag is folded over and gummed with the perforated ply to the inner side of the fold, the adhesive being applied in the fold. The result is a dustproof closure.


Type FA is fully automatic and 1 operator can handle 3 or 4 machines. The machine fills powdered or granular products into block-bottom bags up to 120 mm. in width and 280 mm. in height at the rate of 40 bags per min. The DGK is semi-automatic and fills granular products in amounts of 1/2 to 50 g. into bags or tins at 40 per min.


The unit is by the Black Products Co., and is automatically controlled. It fills 25 to 100-lb. bags according to the density of the product. It can be made explosionproof if necessary.


In a machine for making paper bags from a sheet formed into a tube, means for defining a waste end for each bag on the sheet the tube is formed from, by scores extending inwardly from the side edges of the sheet for part of its width only, means for forming the scored sheet into a tube, means for finishing the bags, a supporting roller, a shaft-forming part of the supporting roller, alternately fast and loose disks on the shaft, a tear-off roller arranged to engage the finished bags together with the fast disks and to rotate at a peripheral velocity equal to that of the fast disks, and a retaining roller arranged to engage the waste end of the bags together with the loose disks and to rotate at a lower peripheral velocity.
Firma Martin Frères. Waterproofing paper to be made into bags. German patent 732,985 (Feb. 18, 1943); C.A. 38:1114.


The enormous development in the application of paper and board to packaging problems in the war and postwar periods, particularly in the United States, is discussed, including multiwall bags, wet-strength papers, special laminations, corrugated and solid fiberboard shipping containers, and frozen-food wrapping. The important part played by research and container-testing laboratories is mentioned, as well as the need for investigations of export packaging in Germany.


The device is particularly for forming bags made of light papers and consists of an air jet for opening the paper tubing to form the block bottom.


A multi-ply sack, e.g., for fertilizers, has an intermediate ply of aluminum foil.


A sack or bag having a restricted opening to receive a filling spout is made by tucking in and fastening down one corner of the open end.

Flour bags closed by corks. Neue Verpackung 6, no. 3:134 (1953); Packaging Abstr. 10:433.

The Larabee Flour Mills Co. have found that closing flour bags by means of a ring and a cork is more economical than sewing. The method is known as the "Stewart" closure and could be applied to other sacks.


The small individual packages of flour are shipped to retail outlets by Pillsbury Mills, Inc., Minneapolis in semirigid kraft sacks. The container, made of a single ply of heavy-duty kraft, and the machinery developed for the system are described.

Flour for overseas shipment is packaged in (1) an inner bag of sheeting and overpacked in a five-ply multiwall bag; (2) a cloth bag; (3) a burlap bag with a creped and waxed paper liner; or (4) in a six-ply paper sack (kraft asphalt-laminated kraft, wet-strengthened kraft), according to requirements.


The Hudson Pulp & Paper Corp. makes a multiwall sack using a sheet of .00035-in. foil laminated to 40-lb. kraft positioned between the inner and outer plies.


The device consists of a straight metal strip enclosed in a paper sleeve. When the bag is ready for sealing, the strip is placed across the bag about half an inch from the opening, the top of the bag being then folded over it twice and the ends of the strip bent back to secure it to the container. The strips are made in a variety of widths and lengths, and can, if required, be supplied printed. Where heavy paper bags are used, such as those in which flour, soft sugar and similar products are packed, a stronger type of fold-hold is employed made with twin wires.


A bag comprises an inturned fabric flap, the bottom of the flap including a sewed portion of the side seam of the bag on which the valve is located, and separate valve extensions from the flap.


The apparatus comprises a fixed former, with apertures in it, over which the sheet material is passed in the form of a tube, tube-holding rolls operating through the apertures to grip the tube, means for cutting out short segments to form slots at spaced points in opposite edges of the flattened tube, the ends of the slots being curved, means to sever the flattened tube transversely between the ends of two opposing slots, and snatch rolls for periodically gripping and imparting a pull upon the section of the tube to be severed. The slot-cutting means are positioned to operate on the tube while it is on the former and prior to its passing to the transverse severing means.


In a paper bagmaking machine in which tubular sheet material is fed in a substantially flat condition over a former to a cutting zone for cutting
it into lengths, the provision of a pair of cutting members one of which is adapted to shear one side of the tubular sheet material and one the other side at the cutting zone, a fixed former the front edge of which is spaced a short distance rearwardly of the cutting zone so that the sides of the material are held apart at the cutting zone by the former in the absence of any element between the sides at the cutting zone, means for rotating the cutting edges of said knives in circular paths one above and one below the track of the sheet material, said track being substantially tangential with both of said circular portion and in a direction complementary to the direction of rotation of said cutting edges.


In a machine for making plain, satchel type or block-bottom bags, the combination with slitting means adapted to slit the sheet material into longitudinal side by side continuous strips of means to apply to the outer edges of the strips marginal coatings of an adhesive, means to fold relatively narrow inner marginal edges of the strips away from each other, and means to fold relatively wide parts of the strips towards the said relatively narrow marginal folded inner edges so as to obtain separate tube-forming seams in close proximity to each other.


A bag made of paper suitable for filtering dust from air has an infolded gusset portion extending along one side and a seating member of stiff material attached to its top edge. The seating member is interrupted at the infolded portion of the bag and has an unattached end portion coated with pressure-sensitive adhesive so that the opening can be adjusted to fit the discharge opening of various sizes of vacuum cleaners.


A bag for holding grain is claimed.


A laminated paper sack incorporates a panel of burlap or sacking suitably plaited so that samplers or probes can be used to determine the contents. The bag can be filled to the maximum by gravity so that it is stronger and easier to handle.


A grain bag is claimed, the side walls of which are made of laminations of paper, the side edges and bottom being reinforced by relatively narrow bands of burlap. The burlap is sufficiently resilient to close the puncture after the removal of a probe inserted to remove a sample.
From bags to riches; the story of the paper bag. The Digester (Union Bag & Paper Corp.) 18, no. 3:10-11 (March, 1954); Paper & Twine J. 28, no. 1:31-4 (March, 1954).

The origin of the paper bag, credited to John Francis Wolle of Bethlehem, Pa., who was granted a patent in October of 1852 for a machine to make paper bags, is discussed. In 1869, the same Wolle, his brother August, a few of the other leading makers of machines, and interested financiers combined to form a company called the Union Paper Bag Machine Co. They did not make or sell bags, but manufactured the machines which they sold to others who made the bags. It took years of exhausting missionary work to get the production of bags up to 1000 bags/day. This is contrasted with the daily output of 35 million bags of the Savannah plant of the Union Bag & Paper Corp. today; the great diversity of these bags is mentioned. [Same as Abstr. No. 1210.]

Frozen foods via package and bag. Packaging Parade 12, no. 138: 35-7 (July, 1944); BiLoPoCo 14:423.

If fruits and vegetables are to be kept in locker plants in good condition for many months, the packaging material must be tightly sealed. An illustrated description of the Freeztext Package developed by the Menasha Products Co. is given. It consists of an outer carton made of a special grade of laminated cardboard treated with paraffin to increase its moisture resistance and keep the carton steady and firm. A moisture-vaporproof bag, the "Marapak Bag," is placed inside the carton; it is made from a specially coated wet strength paper stock, heat-sealed at bottom and the center seam. When filled, the top is heat sealed with a flatiron, the ears of the bag are tucked in, the folds of the carton are interlocked and the package is ready for freezing. The different steps in filling, sealing, and closing the carton are illustrated in sketches.

Bag seal. U. S. patent 2,544,452 (March 6, 1951); Packaging Abstr. 8:378.

A sealing device for the mouth of a container when gathered into a constricted neck comprises a pin pierced through the neck, an eye integrally formed with one end of the pin, a cord loop encompassing the neck and passing through the eye, and a seal casing into which the free end of the pin passes. The ends of the cord loop pass into the casing and are knotted therewithin. The casing is composed of a pair of complementary interlocking sections affording access to the interior thereof for tying the knot, and preventing access to the interior thereof for tampering with the knot when the sections become interlocked.

A continuous strip of paper is cut into individual blanks and as the free end of a blank protrudes from the cutting device, tension is applied by a rotary folding device, which severs it from the strip.
A method of package manufacture is described as follows: (1) the bag sheet material is formed into a continuously moving strip with a closed bottom and open top; (2) the material is retained transversely at spaced distances apart to provide separation portions of bag sections folded about filling members inserted into the open tops between the temporarily retained closures while being advanced; (3) a charge of the product is deposited through each of the filling members; (4) the open tops of each bag section and the side closures between the separation portions are successively permanently heat-sealed to form filled package sections; (5) the package sections are severed along the sealed closures to provide a succession of individual, filled, sealed packages. These can be moved continuously into counted delivery groups to facilitate package shipment.

The following aspects of the subject are discussed: (1) fully automatic packaging machines which also make the bags themselves; (2) automatic filling and sealing machines. They utilize either (a) single-ply bags of paper or cellulose film (b) duplex bags consisting of (i) an internal layer of aluminum foil, waxed or unwaxed parchment or cellulose film; and (ii) an outside layer of paper, parchment paper, aluminum foil or printed or unprinted cellulose film; or (c) a triplex bag consisting of two inner layers of paper and one printed outer layer. The advantages of fully automatic plants are discussed from the economic and productive capacity viewpoints.

Directions are given for the economic cutting of blanks for block bottom bags and calculating the required amount of material. Diagrams are included.

Method for making containers of flexible sheet material rendered adhesive by the application of heat.

In the great majority of cases, the adhesive used for either tube winding or bag seams is tailor-made. For each use there are a few standard formulations, but these are usually the basis for variations determined by the individual combinations of materials and machine speeds, as well as the particular use requirements of the adhesive film. The two basic types of corn products used in both cases are a white and a slightly more converted brown dextrin cooked in a borated paste. Modifications are described for the special
problems presented by outer decorative plies and label application in tube winding, and the introduction of asphalt and wax as moisture barriers in multiwall bags. Resin-starch combinations with a catalyst for the formulation of waterproof seam pastes are also discussed.


The ends of a tube of paper, regenerated cellulose, cellulose acetate, or the like are closed by deformable bands of metal or plastic. The bag thus formed may be opened by applying stress to the closure band in one direction and closed by applying force in the opposite direction. If elastic material is used to form the band, no force is necessary to re-close the bag.


A multiwall square-bottom bag of paper laminated with rubber hydrochloride is produced.


A two-ply gusseted bag with one ply of paper and the other of a heat-sealable synthetic material.


The machine makes bags with spirally disposed seams.


A machine for manufacturing multiwall paper bags includes a pulling forward device and a perforating device arranged for each width of paper. The individual units are mounted vertically one above the other and the paper is passed through them in roll form so that at the end of the process the tubes are united together.

426. Gassmann, W. Methods and apparatus for folding and gluing of paper blanks for the manufacture of bags, pouches, envelopes and the like. British patent 622,087 (March 12, 1947); Packaging Abstr. 6:564.

A method of, and machinery for, folding over a paper blank at one of its ends and approximately at its center and gluing together the joining ends of the blank are described.

Fold-over bags with gussets, carrier bags or block-bottom bags with gussets in the sides may be provided near the upper end of each side with an opening, the openings being in register, the upper ends of the sides of the bag being strengthened by one or more reinforcing layers either inside or outside the bag, provided with an opening of the same size and in register with the corresponding opening near the upper end of one or both sides is extended by a flap provided with an opening of the same size and shape as the opening near the upper end of the side, so that when the flap is folded inwardly or outwardly, the opening therein comes into register with the openings near the upper ends of the sides. The material which is cut from the upper ends of the sides and from the flap(s) may be allowed to remain integral with the sides or flap(s) along one edge, so that when bent along this edge through the registering openings, it bears against the upper edges of the registering openings so as to form a cushion for the fingers of a user against the upper edges of the openings.


The machine forms bags from a web of thin, flexible heat-sealable material and fills them.


In a method for the manufacture of paper bags from sheet material like "cellophane," characterized by the use of a platelike mandrel, the steps of arranging a sheet of the material on one side of the mandrel with substantially equal marginal edges of the sheet extending from the side edges of the mandrel and with a relatively shorter end margin of the sheet extending from the corresponding end edge of the mandrel, effecting a folding operation of said margins of the sheet commencing with successive folding of the side margins through angles of substantially 180° and over the side edges of the mandrel and immediately followed by folding over of the end margin through an angle of substantially 180° and over the end edge of the mandrel, and then applying heat under pressure to a substantially T-shaped planar area which includes the overlapping edges of the side margins of the sheet, and the overlap between the end margin of the sheet and the folded side margins.


A separate compartment is formed along one side of a paper bag by an overlapping of the bag walls; a pleat is provided at each side to allow sufficient space in the compartment.


Paper-cutting means for machines for making bags of paper or transparent film include a float or former plate provided on its upper side.
with a ridge presenting a knife edge extending transversely of the direction of travel of the web, and on its lower side with a ridge presenting a knife edge extending parallel to and in staggered relation to the first and an upper and a lower rotary cutter each co-operating with a knife edge, characterized in that there is provided on the approach side of each of the knife edges a recess or concavity extending across the float for the full width of the respective knife edge.


A tear tape is incorporated in the sealing strip adhered to the folded-over top edges of a paper or cellophane bag.


The method of closing and sealing the open top of a bag of the intucked type consists in securing anchor elements to certain wall portions at the sides of the bag top. The anchor elements have ends projecting above the upper edges of the bag top walls, the edge walls of the bag top are tucked in between the side walls and all of the walls are pressed into flatwise relation. The projecting ends of the anchor elements are bent over against certain of the bag top walls, and a strip of tape is folded over the flattened end of the bag top walls, and a strip of tape is folded over the flattened end of the bag top and adheres to the outer surface of the opposed walls, thereby sealing the bag top.


A method is described for sealing a bag with a flexible sealing tape to produce a moisture-resistant permanent and hermetic closure for the container.


A method is described for closing one end of a flat-type tubular bag blank to form a bag bottom by means of a thermoplastic adhesive. The bag is formed from a single blank of flexible material.


A bag structure consists of an outer flexible wall and an inner independently formed liner of nonporous waterproof material; means are provided for the escape of air from the bag during the filling operation.

A method is provided for folding a strip of sealing tape over the flattened bag top walls; the ends of the tape are formed into a tab.


A method is described for closing a valve-type bag with tape.


The method of closing and sealing the open top of a tubular bag body consists of pressing the walls of the bag top into flatwise relation and inwardly folding the corners of the flattened bag top into engagement with the opposed walls of the bag top, and folding a strip of sealing tape over the top edges of the flattened bag top walls and securing the tape thereto.


A multi-ply, heavy-duty sealing tape which is adapted to provide a flexible closure for flexible-wall paper bags consists of a ply formed of a coarsely woven textile material, and a kraft paper ply which is coated on one side with a thermoplastic adhesive to provide a barrier layer which is impervious to moisture and chemicals. The other side of the kraft ply is coated with a second thermoplastic adhesive, the melting point of which is lower than that of the first-mentioned adhesive composition.


Bags formed of paper or other flexible sheet material are provided with stepped-end closure flaps without wasting material when a plurality of webs are scored at regular intervals to define the end edges of the flaps and then superimposed and formed into a tube from which bags may be cut which will have corner flap portions with outer and inner plies of different lengths.


Machines for fabricating stepped-end sacks have made this type of sack an economic proposition for shipping a great variety of products. New developments in this type of machine are indicated.


A device indicates when the supply of paste is exhausted.
A container is made by providing a flexible baglike fibered foundation closed at one end and having an open mouth, impregnating and coating both surfaces of the foundation with a thin coating of liquid resin adapted to be hardened and polymerized by the application of heat, subjecting a portion of the treated foundation to the action of heat to harden and polymerize the resin and produce a rigid structure of substantially the same configuration as the fibered foundation, to form the body of the container, while retaining the balance of the foundation in a flexible condition, and subsequently subjecting a portion of the balance to the action of heat to harden and polymerize the resin and provide a closure formed entirely by a portion of the coated foundation per se.

Untreated eggs and eggs oiled and sealed in egg-case liner bags were stored for six weeks in standard export cases (a) at 70°F. and 90% relative humidity continuously, (b) at 65°F. and 95% relative humidity alternating with 75° and 70% every two days, the dew point consequently always remaining below 65°F., and (c) at 60°F. alternating with 80° every three days, both at 90% relative humidity, but the dew point varying from 57° to 77°F. respectively. Spoilage was least under the second set of conditions and greatest under the third. The indications were that, within rather wide limits, microbiological development was dependent primarily upon storage conditions rather than upon the quantity of inoculum on the surface of the eggs at the beginning of storage. The bags used had little effect on intracase temperatures. Under conditions (a) and (c), oiling and bagging reduced internal mold and rot but did not significantly affect the development of external mold; under conditions (b), internal spoilage was uniformly low in both treated and control eggs. All oiled and bagged eggs were in better physical condition after storage than were the untreated, having smaller air cells, freer yolks, and less distinct yolk shadows. Variations in the incidence of spoilage within cases occurred and are attributed to intracase temperature and humidity differentials.

A successful paper salesman points out that if a customer can be sold on an idea, the paper will sell itself. An illustrative example is his suggestion to a diaper service that wide-mouth bags would be more adequate for soiled diapers than the ordinary kraft bags which were being used; the company now buys these bags from him regularly.

A machine for making gussetless bags of either a single-ply or multi-ply
construction receives the formed bag tubing, cuts the tubing to length, folds
back one end of the tube, inserts the adhesive-coated valve flap, and refolds
the end of the bag so that the tube is ready for the taping and sewing opera-
tions which complete the bag.


A machine is provided for stacking and bundling bags or similar articles;
the apparatus is adapted for use in conjunction with a bagmaking machine of
any suitable type, such as those used in the manufacture of cellophane or
aluminum foil bags.

449. Glass, J. L. Corn icing is here. Ice & Refriger. 120, no. 4:34-6
(1951); Food Sci. Abstr. 25, no. 3:296 (May, 1953); Packaging Abstr. 10:684.

With the object of developing improved handling methods, experiments
were carried out in which sweet corn, immediately after picking, was packed
in different ways with ice in wet-strength paper bags, similar to but larger
than the bags commonly used for delivering 50 lb. of prepared ice. With this
method of icing, sweet corn could be delivered to retail shops at about 40
or 50°F. (4 or 10°C.), compared with uniced sweet corn which reached tem-
peratures of about 80°F. (27°C.).

450. Goder, Max. Method and device for the mechanical production of

A machine for mechanically producing multiple-walled paper bags with
cross or block bottoms, comprising in combination a sucker adapted to re-
move a wrapper sheet from a pile, rollers adapted to receive said wrapper
sheet from said sucker, stops adapted to arrest the movement of said sheet,
means for feeding a plurality of superposed webs, means for cutting said
webs into sheets, means for guiding said sheets against said stops on the
top of said wrapper sheet, and means for uniting said blanks with said
wrapper sheet.

451. Goebel, J. K. The packaging process in the light of time and
motion studies. Neue Verpackung 5, no. 9:7 (Sept., 1952); suppl. 2; Packag-
ing Abstr. 11:927.

The article confines itself to sack and bag packaging.

452. Gorg, H. Preparation of paper bags. German patent 804,884;
Allgem. Papier-Rundschau no. 12:514 (June 26, 1951); Packaging Abstr. 8:566.

At least one of the sealing surfaces of the bag is coated with a heat-
sealing material.

1 and 2. Paper, Film and Foil Converter 30, no. 3:28-31; no. 4:25, 108
(March, April, 1956); B.I.P.C. 26:717.
A series of tables is presented, clearly defining the properties necessary and the types of adhesives used in the manufacture of different kinds of bags, including vinyl adhesives for specialty bags (cellophane, foil, flour, potato, vacuum cleaner, waxed glassine and sulfite, garbage, giblet, and duplex "Flavotainer" type bags); rubber adhesive for polyethylene-coated kraft, polyethylene and Pliofilm, waxed glassine and sulfite (including poly-wax blends), and duplex bags; adhesives for laminating film, paper, and acetate to foil; adhesives for laminating various combinations of plastic films; and heat-seal coatings for flexible packaging materials. Outstanding properties of heat-seal coating materials and their disadvantages are pointed out.


The manufacture of tobacco bags having hemmed mouths adapted to receive drawstrings is claimed.


This patent covers a structure for sealing paper containers or bags.


Data are given on machines for making various types of bag and for filling and sealing them.


A valve for bags comprising a tubular member rolled back upon itself to form an inner sleeve and outer cuff, the cuff having its outer marginal edge attached to the bag, and a flap having one edge secured to the outer cuff whereby the flap will be drawn into the inner sleeve and close off the sleeve when the sleeve is pulled outwardly.


It is reported that sacks of kraft paper lined with glassine made an air- and waterproof package for dry skim milk.


The unsuitability of aluminum acetate, potassium resinate and zinc chloride is discussed.
Of the methods of impregnating different grades of paper with various materials for the production of paper bags with sufficient degree of water- and air-impermeability, the impregnation with solutions of bitumen in mineral oils (preferably in autol) is the most satisfactory. Mixtures of equal parts of bitumen and oil give the best results. The ratio of bitumen and oil in the mixture can be varied, according to the properties of paper, from 25-50% bitumen to 75-50% oil. Paper is best impregnated with a mixture of 100°C. in the Müller machine at a rate of 63 m²/min. with the drying rolls heated with steam at 2.5 atm pressure. About 35-40% of the mixture of the weight of sized paper is consumed in the process of impregnation. Of the papers used, the best practical results were obtained with the impregnation of bag paper of 80 g/sq. m. with the air-impermeability not exceeding 150 sq. cm. Various procedures for impregnation and fireproofing of papers are described.

Forty-four ways of closing bags are illustrated by line drawings in this article.

The machine gathers up and seals the end of thermoplastic tubing. The tubing is severed at the seal.

A flat bag made of flexible material, such as polyethylene film, paper, or fabric, is provided with reinforcing strips laminated on each upper edge to define the mouth of the bag. A longitudinal groove molded in one strip is adapted to engage a rounded projection on the other strip elastically and form a closure impervious to dust and moisture. The bag is opened by pulling a cord which is attached inside and accessible outside at a corner of the closure.

The machine feeds blanks with their axes at right angles to the direction of conveyance and the blanks are conveyed to and from such operations by pairs of endless link chains, each pair having one chain disposed above another to grip the blanks between them.

The device is suitable for the separate feeding of tubes for paper sacks from a pile.


This device embodies a conveyor upon which the bag moves coupled to a series of vacuum cups mounted in pairs above the conveyor. The bag tube is fed to the machine and severed in the desired lengths, then one or both ends are opened by the vacuum cups which attach themselves to opposite sides of the bag tubing and move apart thereby opening the bottom section. A creasing unit folds the spread material in the desired shape to form the bag bottom, adhesive is applied, and the bottom flaps are folded and pressed until the adhesive has set. A valve unit may be incorporated in one end if so desired. This unit may be used to form bags of either single- or multiple-ply construction.


The mechanism is for use with a bag-forming apparatus of the type claimed in U. S. patent 2,641,167 (June 9, 1953) [see preceding Abstr.] and comprises means for automatically opening the ends of a previously formed bag tube of the multiwalled stepped-end variety. Thereafter corner and end flaps are formed, and the tube end is prepared for closure and sealing. One or both ends of the formed bag can be made into a bottom with or without a valve.


Laminae of paper, fabric, wood or the like are secured together by an adhesive resistant to water and comprising a blown asphalt or asphaltic flux together with about 1-10% of a trivalent metal soap, such as an aluminum stearate.


A device is described for converting a large paper bag into a wheeled carrier for transporting groceries and other materials.


Grade A greaseproof bags can be used for packaging small machine parts which can be covered with a protective film of grease and dropped into the bag. The package is not moisture-vaporproof; it can be used only in cases where the grease can be removed by the receiver and where it will not injure
the mechanics of the parts in question. In the latter case, packaging by dehydration will be necessary.


The method of forming a tube of the class described which comprises feeding a strip longitudinally and while the strip is being fed folding over at least one of the edges of the strip, and crinkling the strip with the crinkles extending transversely thereof and across said folded edge portion, cutting off lengths of the strip, forming a tube by folding each length on a line transversely thereof so as to position the end edges of the strip together, and securing said edges together to form the completed tube.

Gregg, John, and Jones, Herbert H. Bag or carton container. Canadian patent 445,401 (Dec. 9, 1947); B.I.P.C. 18:340.

A method of manufacturing a folding bag or carton is described.


This is a modification of British patent 587,167 and consists in a folding container comprising a rectangular base, two rectangular wall members integrally united along one of their edges with opposite sides of the base, further rectangular portions integrally united with opposite lateral edges of each wall member and adapted to be secured face to face so that the two overlapped pairs of such portions provide the other two wall members of the article, and folded gussets integrally united with the remaining sides of the base as well as with the overlapped wall portions, the gussets being disposed wholly internally of the article and lying against the inner surface of the base, one pair of opposed wall members of the container and a further wall member thereof having fold lines therein intermediate the edges of the members and adapted to permit the bag or carton to be folded flat.


The author considers packaging in western Europe using tins and cans, drums, aluminum, cardboard containers, bottles and closures, ampoules, cellophane, paper, paper pails and small packs, paper tape, and sacks and bags.


A keyhole-shaped flat strip of metal is designed so that the circular part holds the gathered neck of the bag. The straight parts are held together by a hook, but when the hook is released, the straight parts spring open.

The ends of the three or more plies of the bag have stepped margins. At each of the corners of the block-bottom closure, which is to be adhesively sealed, at least two tongues are provided. One overlaps the other so that areas of different plies are exposed for adhesion with the paper of the stepped front and rear face flaps. The tongues are outlined by slitting the webs forming the plies without loss of paper and before assembly for passing into the bag tubing machine.


A multi-ply, stepped margin, diamond corner, block-bottom valve bag has longitudinal tongues projecting beyond the outermost ply at diagonally opposite corners of the bag length and extending laterally to or beyond the transverse folding line of the face flaps, which are adhesively secured to margins of the projecting tongues.


A secure and siftproof seal at the closed corner folds of block-bottom bags is claimed for manufacturing bags on machines employing the perforating and rupturing method. At least two tongues for adhesively sealing each of the corners are provided by locally slitting the plies forming the bag tubing without loss of paper and before assembly.


Plants burning a small amount of coal can use pulverized coal shipped in paper bags.


The speed of paper-bag and other converting machines is generally evaluated in terms of the number of pieces manufactured or the weight of paper used up in the conversion. These methods are considered useful only where equal bag sizes are being made. For comparing machine speeds where different bag sizes are manufactured, the length (in meters) of paper web converted is suggested as a better criterion of performance. Examples of calculations are given. Similarly, the production rate for hand-made paper bags can be assessed in terms of the length of the glue line. Other applications of these calculating methods are also indicated.
A machine is adapted for the manufacture of multi-ply valve bags of the type in which a filling sleeve extends through the valve opening; the mechanism is adjustable to produce bags of various sizes.

The application and advantages of photoelectric register control to bag machines is described. Reduction of waste and increase in production due to increased machine speed are claimed for these installations. Two diagrams and one illustration help to explain the arrangement of the instrument.

A bag is claimed having two sides with a pocket provided in a sealed end portion.

The machine consists of a conveyor, means for transferring a carton containing a filled heat-sealable bag on to the conveyor, means for collapsing the mouth of the bag, means for applying heat and pressure to the collapsed mouth of the bag to seal the same, means for applying pressure without heat to the sealed mouth to cool the same, means for folding and tucking the sealed mouth down into the carton, and a single drive shaft located entirely above the conveyor and operative to drive all of the means.

The container consists of an inner bag having overlapping parts reinforcing and closing one end thereof and an outer container having flaps folded toward each other and another flap folded across the first flaps. The apertures in the closed ends of the two parts register with each other.

A machine is claimed for manufacturing multi-ply valve bags from webs of paper. Devices are provided for interposing supplementary sheets between the webs during the tubing operation to form valve sleeves. These sleeves form closure flaps for the valves of the finished bags. The machine is adapted for forming the bag tube corners into sleeved valve corners upon which a seam may be stitched across the end of the tube.
A filling valve of the conventional type formed in an upper gusseted corner of a multi-ply paper bag is provided with a number of lines of perforations extending from fold lines defining the valve apron to its apex, and the entire apron is crimped to form a series of corrugations extending parallel to the central fold line of the valve. The perforations permit rapid escape of air when the bag is filled, and the flexibility imparted by crimping makes it possible for the valve to flip upward into closing position when the filling tube is withdrawn.

Florida citrus growers are considering adopting either burlap or multiple-layer paper bags as master containers for the 8-lb. cotton mesh bags.

Bitumen is poured while it is liquid (about 200°C.) into multiwall open-corner bags. The bags are sealed with metallic closures.

A summary is given of an address which the author presented at the Fall, 1944 meeting of the Swedish Paper Mill Association, in which he described some of his impressions during his recent trip to the United States. Among the topics discussed were kraft paper bags (multiwall paper bags) and x-crapping.

A metallic wire strip is applied to the bag opening and secured to the sides and the strip secured to the bag by means of a paper strip applied over the metallic strip and stuck firmly to the bag.

This invention provides a paper bag which can stand during filling. The bag is much stronger than the usual type and is capable of replacing cartons. A strengthening band, of about the same width as the bag, is stuck to the front or back wall. If the bag is made of several thicknesses of paper, the strengthening band should be inserted between two of these.

In a series of questions and answers, information relevant to the production and marketing of handmade paper bags is given.


Among the subjects discussed are the advantages of the use of paper sacks for the transportation and storage of dry and nonliquid chemical products, the types of sacks made, handling (lifting, carrying, loading on hand trucks, spot repairs, exposure to elements), handling equipment (hand trucks, platform trucks, skid platforms, or pallets, auto trucks, conveyor systems), unloading goods wagons, auto trucks, and vessels (opening freight car doors, marine unloading), storage (location, stacking) and the emptying of bags (opening, storing partially emptied bags, salvage of used bags).

Hammer, Fred I. What are the potentialities of new films and foils? Food Industries 18, no. 9:1365-7, 1504, 1506, 1508, 1510 (Sept., 1946); B.I.P.C. 17:79.

Most of the packages of the postwar era—which will incorporate many war developments—will be designed to combine functional and protective properties with beauty and sales appeal. The multiwall-bag paper industry will discover additional applications.


Improvements in bag turners are claimed.


A brief review is given of liners for metal drums, fiber drums, boxes and cases, crates, paper shipping bags, railroad cars, and as shrouds. Available and applicable materials range from numerous synthetic coatings to the use of single or laminated foils, films, papers, and fabrics. The proper selection must be based on (1) a thorough knowledge of the behavior of the product to be protected under all possible conditions and hazards of shipment and storage, (2) the type of shipping container selected as the most suitable for the purpose; and (3) performance tests of the linings and containers indicated as being the most likely to succeed.


After noting that as much as 90% of all direct labor costs in the chemical industry is consumed in packaging and materials handling—not
counting other packaging and packaging materials costs—the author makes a cost comparison between four different containers for general use in industry. These four include 400 and 100 lb. metal drums and 100 and 50 lb. multi-ply paper bags. The comparison shows the high superiority of the paper bags.


Bags (preferably of heat-sealable material) in a row with the open end up are supported by grippers attached to upright posts to carry the bag past the filling station and to the sealing station, where a clamp arrangement grips the upper trailing edge as the bag approaches the sealing mechanism and stretches it to make possible a smooth uniform seal.


A bag-closing mechanism for packaging machines which are designed to fill and close the top of a series of bags consists primarily of a gripper that holds the leading edge of the bag and guides it to the closing station, where a stationary gripper secures the trailing edge of the bag, pulling the open lips even and tight for neat sealing.


Two strips of material are folded, one inside the other, by the mechanism claimed, and the resulting tube is sealed at spaced transverse intervals to produce a series of bags. To position the two strips accurately, a separate set of rollers and formers is used to fold each strip, and the strips are held out of contact with each other until ready to be sealed together.


Bag-filling machines are provided with a splitter bar having an orifice through which air may be blown into the bag to open it to the desired volume.


A successful paper bag combines the greatest number of conveniences for the customer; examples of bags designed with this purpose in mind are insulated bags for ice cream and handle bags for produce, canned goods, and beverages.

504. Harrington, M. J., and Hammer, S. E. Apparatus for opening and filling bags. U. S. patent 2,540,615 (Feb. 6, 1951); Packaging Abstr. 8:357.

The machine has a delivery chute for bulk material, a bag-opening device operable to spread apart the walls of a bag and to hold the bag in an open condition beneath the chute, a valve movable to open and closed positions.
for controlling the flow of the bulk material through the chute, an electric power device for concurrently actuating the valve and the bag-opening device, a circuit for causing energization of the power device, and a switch controlling the circuit, the switch being of the self-contained tiltable type and being located adjacent the bag-opening device so as to be engaged and tilted by a portion of the bag to be opened.


A bag-filling apparatus comprises a pair of adjacent, substantially coextending, generally flat members adapted to be inserted into a bag by relative telescopic movement between the members and bag, and means for imparting substantially parallel movement to one of the members to cause opening of the bag by spreading the walls thereof. One of the members has an opening therein adjacent its lower end and the lower end of the bag is curved toward one member and is adapted to extend into the opening when the members are in their bag-receiving position.


The seams of a paper bag are sealed with a nontacky, flexible coating, which consists of one part of a hydrogenated castor oil and two to ten parts of a solid mineral wax.


American industry used approximately 1,100,000,000 heavy duty paper shipping sacks in 1943, which represents a 250% increase during the last eight years. There are five major types of multiwall bags: sewn valve, pasted valve, sewn open mouth, pasted open mouth, and the so-called open corner bag. The two valve bags are completely fabricated in the bag factory with a small opening left in one corner through which the bag is filled. This valve is closed in a variety of ways, all of which are simple and effective. Various types of filling machines are constructed to weigh the product to be packed and propel it through the valve into the bag. These machines vary in design and size to meet the various physical properties of materials to be handled and rate of production. The two open mouth bags are factory closed at one end only, the other end being closed where the bag is filled by sewing, wire tying, stapling, or the use of gummed tape. Of these methods, sewing is the most popular, and several automatic and semiautomatic machines are available which apply bound-over tape and stitch through all plies of the bag. The open corner bag is an intermediate variety between the valve and open mouth type sacks. It usually has a sewn bottom and the open top is partly closed by sewing. These bags are often used for commodities which are liquid when poured hot and which
harden into a cake of the shape and size of the bag when cool. The usual procedure is to place the bag in a form and flow the hot liquid (asphalt, waxes, resins, etc.) in from a pipe inserted at the open corner. After filling, the plies at the open corner are stapled and tape is applied over the closure; the bags are placed flat on their sides to cool and form a block which is easy to stack and handle. Over 300 different commodities are shipped in these bags, ranging in weight from 25 to 100 pounds, the 100-pound weight being the most common size. In conclusion, reference is made to specifications developed during the war through co-operative efforts of the industry and different government agencies, and to the excellent post-war possibilities of multiwall bags.


A multi-ply bag consists of an inner ply of pliable plastic material (e.g., Koroseal), a surrounding ply (or plies) of paper, closure means for an end of the bag constructed and arranged with a valve at one corner (the valve having an inturned flap formed of the plies), and a valve sleeve therein which includes an inner ply of paper and an outer ply of the plastic material.


In a multiwall gusseted paper bag which is closed by a longitudinally folded paper strip of U-shaped cross section, a coating of waxy material covers the strip and stitching. The reinforcing strip is perforated along its fold line at one or more points adjacent the gusset areas to permit the wax to contact and cover the end edges of the gusset areas and seal them.


A valve of the "tuck-in" sleeve type is designed for use in multiwall paper bags. The sleeve is formed from inner and outer walls; the inner sleeve is the longer. These sleeves are folded in such a manner that the valve prevents loss of materials from the bag.


An apparatus for opening and filling paper bags comprises belts, between which the top of the bag is yieldingly gripped, and a member on each side of the bag top beneath the belt and slanting downward in the direction of movement of the bag toward the sewing machine, whereby the members press the bag walls inward and downward and the bag shoulders are squared.

An apparatus for feeding filled bags to a sewing machine incorporates belts for gripping the top of a bag; means are also included for pressing the bag walls inward and downward and for squaring the shoulders of the bag.


In a bagmaking machine, means for supporting a paper supply roll, means for drawing the paper from the supply roll and feeding it forward, means for engaging the advancing sheet of paper to fold lateral flaps over the middle section thereof, means between said paper supply roll support and said folding means for applying two lines of adhesive to the paper near its edges on the side which is to be the outer face of said flaps when the paper is folded, a guide roll for the paper between said adhesive applying means and said folding means, said guide roll being on the side of the paper to which the adhesive is applied and having slots therein spanning the lines of adhesive, means for cutting the paper transversely into lengths, and means for folding said lengths on a transverse line midway between their ends to bring the lines of adhesive on the two halves of each flap into contact.


In the process of making a bag from sheet material by folding the sheet to form a tube with the edges of the sheet overlapping and joined by a longitudinal seam of adhesive, severing the tube into sections and closing one end of each section to form the bottom of the bag; the improvement which comprises applying to the sheet, before it is folded, discrete transverse strips of a rapidly hardening adhesive, said transverse strips being continuous across the complete width of the sheet and on only one side of the sheet; and located so as to form complete rings of adhesive inside of said tube adjacent each end of each tube section; then hardening said adhesive strips; the folding of each part of said tube bearing a transverse strip of adhesive being carried out after the transverse strip of adhesive thereon has hardened; and thereafter reactivating the transverse strip of adhesive located at the end of each tube section which is to form the bottom of the bag and sealing the same by pressing on opposite sides of the tube while it is in flat condition; the transverse strip of adhesive at the other end of each tube section being left unsealed and being adapted to be sealed after the bag is filled, to form an impervious closure.


A bag comprises a length of flattened tube, having an outer ply of paper and an inner ply of heat-fusible material, and a diamond fold bottom including flaps defined by slits in opposed walls.

The bags are made of flexible material having at least its interior surface thermoplastic.


The satchel-bottom, moisture- and siftproof bag claimed, which may be formed on existing bagmaking machinery, comprises a flattened composite tube (an outer paper and an inner heat-sealable thermoplastic tube) with front- and rear-wall ends slitted to define a diamond fold. In this manner the layers of thermoplastic material are brought into contact for subsequent overlap heat sealing.


The mouth structure for a two-ply gusseted paper bag incorporates an inner ply of heat-fusible material; the inner ply may be sealed in any desired manner, and the outer ply may be formed into a closure.


A bag-filling machine comprising a stationary horizontal table having a discharge spout, a measuring unit arranged over said table and comprising a plurality of measuring devices rotatable successively to a position above said spout to discharge material therethrough, a vertical shaft carrying said measuring unit, a pipe for delivering fluid to said spout, a valve in said pipe, said valve having a stem and being biased to closed position, a lever engaging said stem, and a polygonal cam having sides corresponding in number to said measuring devices and engaging said lever whereby, upon rotation of said shaft, said valve will be opened to discharge fluid through said pipe to open a bag beneath said spout prior to the discharge of material through said spout.


This is an improvement on U. S. patent 2,261,591 (Nov. 4, 1941) [see Abstr. No. 1166]. The method includes the steps of folding the longitudinal edges of a strip of heat-sealable material of indefinite length inwardly toward the longitudinal axis thereof, cutting the strip longitudinally along the line of demarcation, heat sealing the folded strips transversely at predetermined intervals, and cutting the folded strips transversely at predetermined lengths.
Horizontally disposed sack-supporting members are secured to a plate which is fixed to the load side of a weighing scale for delivering predetermined quantities of material to the sacks.

The sack is, during filling, fitted on the filling pipe and supported on a saddle. After the sack holder is disengaged, the sack is tilted away from the filling pipe and drops. The devices locking the saddle are disengaged to allow the saddle to swing down so that the sack can drop vertically immediately.

Multiple sack-filling pipes are each opened by a cam shaft which disengages a locking mechanism from a balance beam of the weigher, actuation of such beam being under the control of a second beam connected to a plate device so as to end the feed of material to a sack when the latter has received a predetermined quantity.

In a bag-sealing machine, an endless conveyor, a series of clamps on said conveyor, each comprising a pair of parallel jaws arranged transversely on said conveyor and having a limited relative movement to open and close the clamp, springs normally holding said jaws apart, means for closing said jaws and holding the same closed during a portion of the travel of said conveyor, and means for feeding a bag between each pair of jaws just prior to its closure.

An apparatus for forming moistureproof plastic-coated or laminated paper into tubing (with the coating inside) consists of a tuber of inside former blades which, while being of the thinness required for forming the gusseted tubing, reduce rubbing friction sufficiently to eliminate overheating of the coating or laminant; rupture of the moistureproof liner is thereby prevented.
Heat-sealing bags are made similar to conventional flat or serrate-edge merchandise bags with a strip of heat-sealing material across the opening for quick complete sealing. The hot melt must have a melting point low enough for convenient use at temperatures not dangerously high and a setting point sufficiently high that summer heat will not soften it. The bags may be made of moisture-vapor-resistant materials. The use of such containers has increased rapidly and they are now employed by both the textile and food industries. Heat-sealable kraft bags, some with transparent film windows, are becoming popular for prepackaging fresh fruits and vegetables; heat-sealable aluminum foil and foil-laminate bags are ideal for many uses.


Sponge iron powder has a density of 167 lb. per cubic foot, and is packed in specially developed 5-ply crepe bags without gussets. Filling is done semiautomatically with a machine imported from Malmo, Sweden. The bags are "locked" on pallets with "Loadlock No. 4" supplied by National Adhesives.


A machine for filling and closing bags is claimed.


A machine for the manufacture of bags of the type commonly used by dry cleaning establishments for covering garments is claimed. Adhesive in the liquid state is applied to selected areas of the web, and the web is folded and formed into a tube. The machine is also claimed to be adaptable for the formation of multiwall bags.


The machine will make a variety of sizes, either valve or open-mouth style, with from 2 to 6 walls. The two units of the machine consist of the tuber and the bottomer. The tuber is available with a W. & H. 1-4 color aniline printer. Improved moisture resistance is given since the bottom of the bag is pasted and not stitched.


Practices in the United States for prepackaging potatoes in small self-service units, and types and sizes of bags used are outlined; also mentioned are packages used or planned in Norway, France, Sweden, and Holland. The possibilities and requirements for introducing potato
prepackaging in Germany are discussed. In conclusion, the marketing of peeled potatoes in England and the United States and the special problems involved (need for preservatives) are reviewed briefly.


A photoelectric register regulator is described for cutters on paper-converting machinery making paper napkins, bags, letter envelopes, and the like from paper rolls with printed designs. The reasons for improper cuts between designs and the possible accuracy of regulation are discussed.


A heavy kraft paper garment storage bag is coated on its inner surface with a heat-sealing adhesive; when a garment is to be stored in the bag, the unjoined edges are brought together and sealed by the application of a hot iron.


Means for effecting permanent engagement of the bottom turned or folded portions of paper bags.


A heat-sealed bag is adapted to contain a deodorant, insecticide, dehydrant, or the like; one or both sides of the bag may be made of wet-strength paper, and one side may be creped and used in conjunction with a heat-sealing web.


A discussion of the uses to which paper sacks were put during the war as substitutes for textile products, with particular reference to the behavior of the sacks under the various applications.


The bag-opening mechanism will handle collapsed block- or cross-bottom bags, irrespective of the degree of stiffness of the bag material.

A bagmaking machine with a rotary multimandrel wheel is used to make the lining bags from thermoplastic or metal foils, etc. The lining material is both fed to the former, folded over the mandrel, held during heat-sealing and removed from the mandrel by the assistance of compressed air and suction.

539. Hesser Maschinenfabrik-Akt.-Ges. F. Method of, and apparatus for, forming a sealed closure on bags or cartons of paper or the like. British patent 700,585 (Dec. 3, 1951); Packaging Abstr. 11:147.

A sealed, tamperproof closure is formed by pressing the open end of the bag flat, folding it over inwards one or more times and pressing it against the upstanding bag neck. A strip of paper is stuck on and around the closure and covers and seals both the folded bag end and the side folds at this end.


The sealer fits the bag around the contents, straightens the package and seals it with a folded or unfolded seam. The front sealing roller floats, assuring automatic equalization of sealing pressure on varying thicknesses of material, such as encountered in gusset and duplex bags.


Sheets of paper or cardboard are coated with a solution of formalin 5, glycerol 5, ammonium hydroxide 2, casein 5, and water 83%. Several sheets are put together and in between is placed one sheet coated with the above solution to which is added some blue coloring matter. The resulting laminated sheet is coated on both sides with a solution of formalin 10, glycerol 2, boric acid 1, sulfuric acid 1, and water 86%. The resulting product is manufactured into packing boxes, bags, wrapping material, etc.


A brief review of the operating and economic advantages shown by bags over stiff packages is given. Bags use only a quarter to a third of the raw material of stiff packages and permit simultaneous printing and sealing. Special papers and fabrication and sealing techniques are possible and automatic filling offers no difficulties.

543. Hirt, H. Manufacture of paper bags with a device for hanging them up. Dutch patent 844,110; Verpackungs Rundschau no. 2:80 (Feb., 1954); Packaging Abstr. 11:496.

The bags are made from a continuous web of material without wastage. Diagrams show how the hanging tab is cut out from an end flap of a cross-bottom bag.
An apparatus is used including a pair of pressure rolls, a receptacle containing hot liquid wax at a temperature of about 80-8° in which one of the rolls is partially immersed, means for feeding two webs of glassine paper to the rolls in opposed relation to each other with one web passing through the receptacle and around the immersed roll and separating the immersed roll from the wax, whereby, as the pressure rolls are driven, opposing surfaces of the glassine paper will be coated with hot wax adjacent the nip of the pressure rolls, an adjustable tension roll for imparting high tension to the immersed web of glassine for excluding the hot wax from between the immersed pressure roll and the web of glassine, whereby only one surface of the web passing through the receptacle will receive a coating of the wax. U. S. patent 2,158,755(Theodore A. Hodgdon and Paul E. Hodgdon, joint inventors) relates to a similar material comprising a base member of transparent glassine, a transparent wax coating thereon, opaque glassine strips secured to the second coating at the opposite side edges but spaced apart at the center portion of the base member, whereby the two coatings of transparent wax render the center portion more transparent.

A bag-filling machine of the conventional turntable type uses suction to handle the bags and compressed air to blow them open before filling.

The machine handles bags with gusseted bottoms, with or without side gussets, or flat bags, etc. A casing with four chambers rotates about a suction pipe. The bags are removed singly from a container to cover a chamber opening by suction applied within that chamber. The machine includes a pneumatic bag opener, a filling device and a conveyor.

Types of paper bags are listed with average speed of production. The development of machines for making the various types of bags, whether film, foil or paper, is outlined.
A flap closure for the top of a flat bag is claimed.

A bag is formed from flat overlying plies forming front and rear wall elements, in which the upper portion of the rear wall element is folded over the front wall element, thus providing a combination closure and handle for the bag.

Apparatus for forming bags comprising means for continuously advancing a film of flexible heat-plastic material from a roll of said material, means for folding the film to tubular form with its edges overlapping as the film advances, means for continuously heat sealing together the overlapped edges of the advancing film and thereby forming a continuously advancing tube, means for infolding the advancing tube along opposite sides thereof and simultaneously collapsing the tube, cross-sealing mechanism comprising means for periodically clamping the collapsed tube at intervals lengthwise of the tube and simultaneously applying heat by which the material is heat sealed, a severing device positioned forwardly beyond said cross-sealing mechanism, means for periodically severing the tube into individual bags, and a supplemental cross-sealing device positioned forwardly beyond the severing device and operable to effect a supplemental cross-sealing operation on each bag.

An apparatus for making multi-ply paper valve bags supports the individual valve-bag tube, opens and flattens the valve preparatory to receiving a tuck-in sleeve, withdraws, creases, glues, and cuts successive sleeve blanks from a paper-supply roll, and individually applies the sleeves to successively presented bag tubes.

Tube-forming roller arrangement for a machine for producing sacks or bags from a web of paper, plastic or regenerated cellulose.

An apparatus for manufacturing paper bags from a continuously moving paper web comprising a device for transversely perforating the web, a
tube-forming device, drawing rolls for the tube, and rotative bottom-forming means operating at higher peripheral speed than said drawing rolls effective to separate a tube section by advancing it at a higher linear speed than the remainder of the tube.


The machine is for making cross-bottom bags from a paper web. The shaping plate which forms the bag bottom is cut away or recessed at the points where it would come into contact with the adhesive previously applied to the bag.


A machine produces either bottom folds or side folds on blanks for flat or side fold bags lying in different positions.


A machine for making cross-bottom bags includes, for the shaping of the triangular pockets, forming means which are rotatable about a common main shaft and driven with variable velocity under the influence of separate and respective control means.


A cross-bottom bag with tab is claimed. Impressions, preferably circular, are provided in the material of the bag at the root end of the longitudinal edges of the tab.


A machine for making cross-bottom bags and a bag produced by the machine are both claimed.


Cross-bottom paper bags are made from a continuous length of paper tubing.


Cross-bottom valve bags, which have a short tube length in relation to the size of the cross bottom, are provided with a valve sleeve.
A side-fold paper bag with a bottom formed during filling is claimed. The side-fold surfaces are connected by adhesive to associated outer surfaces of the bag at the edge of the bottom fold. The application of the adhesive is carried out in triangular form so that an adhesive connection also occurs at the edge of the bottom fold and the transverse sides of the bottom.

Side-fold bags of paper and the like with square bottoms are made by applying thermoplastic adhesive, such as dextrin rubber latex, in a triangular pattern and bringing these adhesive-coated areas together in the bag-forming machine.

The machine feeds a flat-folded bag of paper, cellophane, or the like from a magazine, opens the bag, and fills it with flour, sugar, coffee, or other granular material. The filling means does not operate if no bag is fed.

Granular materials, such as sugar and flour, are packed to the desired degree before packaging by a plurality of rotary axially aligned auger-like compressors located in the hopper of the bag-filling machine. The power-driven compressors force the material in the hopper down toward the discharge chute until the predetermined degree of packing is obtained. The resistance then offered to the compressors by the packed material causes slippage in the friction-type power drive and cessation of further compression until the packing pressure is released, as by the filling of a bag.
The method of forming a valve bag comprising forming a bag tube, separating the bag tube into bag lengths by cutting across the tube, forming slits longitudinally of the tube adjacent the sides thereof, said cross cut running between said slits substantially midway of their length and from one of said slits to the adjacent side substantially midway the length of the slit and from the other slit to a point on the adjacent side out of line with the portion of the cross cut between said slits, thereby forming an extension on one side of the tube, and closing the bag in the accustomed manner for forming a satchel-bottom bag but leaving the flap formed from the extended side unpasted to the overlying flaps whereby it constitutes a valve.

A method of forming multi-ply bags which comprises perforating lines partially across a plurality of sheets of paper, superposing the sheets with said perforated lines in stepped relation, folding the sheets and forming them into a multi-ply tube and slitting the multi-ply tube transversely of the tube across that portion of its width where the said perforations do not occur and in line with an intermediate portion of said stepped series, thereafter pulling the tube apart and separating the plies along said series of perforations.

A multi-ply bag includes an outer ply of paper and an intermediate ply of creped sheet material, the plies enveloping a liner ply of substantially fluid-impervious extensile thermoplastic sheet material which is adhered, on its outer surface at least, to the high points of the creping of the creped ply; the plies all have a line of perforations along an end of the bag and stitching means extending through the perforations to retain the opposed bag walls in closed condition.

This is similar to Canadian patent 446,436 [see preceding Abstr.].

A plural-ply pasted end bag has a corner closure construction in which the inner ply is completely sealed. The construction of this corner is claimed.

A method is described for forming a multi-ply paper bag having a pasted end closure in which the outer ply is slit to form side and corner flaps and the closure has a corner fold formed by the flaps.


A multi-ply pasted-end bag is provided with a sealed inner ply which prevents the contents of the bag from contacting any portion of any ply except the inner ply. The method of sealing is claimed.


A multi-ply paper bag has a pasted end closure of high strength, wherein each ply is secured independently of and without necessarily relying on the strength of the other plies. The margins of the plies of the bag are so formed that each individual ply is presented at the pasted closure in a manner to accomplish this result. The method of sealing is described.

575. How are large capacity bags manufactured? Emballages 24, no. 146:7 (July, 1954); Packaging Abstr. 11:891.

At the Sacoz factory, multiwall bags are made on a tuber and bottomer by Windmüller & Hölscher. The process is described and illustrated.


The calculations are for bags made from the sheet or the reel, and with or without lining.


The author explains why certain grades, such as kraft bag and wrapping paper and tissues, will be slow in returning to market.


The bag is sealed in an air- and moistureproof manner by collapsing its mouth by bringing together the side portions and simultaneously applying a moistureproof adhesive to the exterior surfaces of both vertical collapsed side portions along the mouth and on the upper edges of these portions prior to folding the closure.

A mechanism is provided for controlling the amount of adhesive transferred to a continuously moving web of bag-forming material; the adhesive supply roller rotates in a direction opposite to the direction of travel of the web, so that a wiping action is obtained and a uniform film of adhesive is applied.


The invention covers a novel bagmaking machine in which provision is made for attaching to the bag a handle comprising a length of twine and a tag to produce nontangling bags ready for packing.


A heat-sealable paper web is fed into the machine and formed into a continuous line of open-topped bags. The bags pass under a filling device where a predetermined quantity of the product (tea, etc.) is allowed to drop into each bag. It is claimed that the correct amount is supplied to the bags at all times, including the starting and stopping operations of the machine.


A valve-type bag of 50-lb. capacity is claimed to cut storage space by 25%. The bags are passed through a "de-airing" process to remove excess air.

583. Hudson offers aluminum-kraft sack, claims it gives economical protection. Food Field Rept. 25, no. 3:29 (Feb. 4, 1957); Ind. Packaging 3, no. 2:42-3 (Feb., 1957); Packaging Abstr. 14:381.

"Foil-Wall" has a sheet of .0035-in. foil laminated to 40-lb. kraft positioned between inner and outer plies. Other constructions, including polyethylene extruded on foil, foil laminated by polyethylene to kraft and bags with foil in various ply positions, will also be available. The material protects moisture, odor and gases, and is suitable for hygroscopic, deliquescent and anhydrous chemicals and food products.


A quick-opening device in "Snap-Open Sack" multiwall bags involves a series of small perforations in one corner of the bag under the tape and
near the sewing line. By grasping the tape at this corner and pulling sharply upward, an opening is instantly started. It can be stopped and held at any point convenient for controlled spout pouring or it can be continued along the entire length of the sewing line.


The method of making a metal foil-lined bag which consists in folding edge portions of a composite foil and paper sheet over upon the metal foil surface thereof and applying adhesive thereto to form seam-forming strips having adhesive carrying exposed paper surfaces, folding the sheet about a center line into bag-forming relation and pressing together the contacting adhesive carrying paper surfaces of said seam-forming strips.


In a bagmaking machine, there is included a cylinder for the bottom-forming mechanism with front and back clamps designed to eliminate displacement of adhesive during the fold-scoring operations.


A water-tight and air-tight bag comprises a receptacle of water-tight material having an integral neck of substantial width, a pair of stiffening strips secured to the opposite sides of the neck opening in a position to rest one against the other to form a bar upon which the neck may be rolled down against an end of the receptacle, means permanently secured upon one strip and having a folded-over edge forming a pocket for holding the other strip from moving laterally thereto during the rolling operation and a flap adapted to be secured down over the end of the receptacle against the rolled neck, providing a closure capable of confining air under pressure.


The flaps which close the valves are extended towards the interior of the bag by a sleeve fixed at the central portion.

G589. Hus, S. Valve bags. British patent 716,000 (July 30, 1952); Packaging Abstr. 11:1161.

At one side of or at each bag end there is a tubular extension, one side of which is secured across the overlap of the end flaps and the other side of which is stapled to the compound flaps. This has the effect of extending the valve flap, with a saving of bag material.

Machines for the manufacture of boxes, bags and similar containers from sleeves of paper, cardboard, etc., are claimed which provide means whereby the overlapping flaps at the base of the container are held securely while the adhesive is setting. These means comprise a number of blocks (of slightly less dimension in cross section than the cross-sectional dimensions of the sleeve to be made up into a container) which project from a cylinder or displaceable belt, a number of spring-retained plates being provided which are adapted to hold the infolded seams of a sleeve threaded onto any block down to the base of the block for the setting of the adhesive on the seams during the formation of the base of the container.


A "Sac-Flattener" machine is claimed to effect a high degree of uniformity and firmness of shape to filled multiwall bags and a reduction of up to 20% in volume of space required for shipping or storage.

592. In paper bags—it’s wet-strength that counts. Resinous Repr. 8, no. 2:10-11 (March, 1947); Packaging Abstr. 4:274.

Although Uformite 467 adds no color, odor, or taste to the paper in which it is used, the wet strength of the paper ranges as high as 500% of the untreated paper. Food wraps, bags, photographic papers, toweling and wall paper benefit from the wet strength obtained through the use of Uformite 467.


The foodstuffs (alimentary pastes) are packed in a 5-kg. bag made of thin heat-sealing aluminum foil laminated to coated kraft. The forming, filling and sealing of the bag are illustrated; it is handled throughout in a light wooden box and finally packed in a reinforced light wooden box.


The problem of suitable and inexpensive containers for the transportation and storage of various materials, particularly fertilizers and sodium chloride, is discussed.

In a continuous process for manufacturing sacks, bags, etc., a stapling machine is independently advanced over a certain distance in the direction of travel and at the same speed as the bags, and performs its stapling operation while in motion.

Semisolid, plastic, and solid chemicals of hygroscopic, deliquescent, and anhydrous nature are now being packaged in multi-ply paper bags employing the protective qualities of aluminum foil. The multiwall construction includes kraft paper, foil, and polyethylene arranged in various ply positions. The bags provide maximum protection against transmission of moisture vapor, odor, and gases and require considerably less storage space when empty than do conventional drums.

Problems and the progress in the development of an automatic remote control edge alignment unit, a duplication of the manual system which had long been practiced by the operator, are discussed; very good results are reported with the unit developed by the H. G. Weber Co. and installed on the outermost roll-stand position of a multiwall tuber.

A striker or cut-off mechanism comprising a drive shaft, a pair of face plates mounted on said shaft and driven thereby, a plurality of striker blades carried by said face plates and extending outwardly therefrom, and means for simultaneously adjusting the angle at which said blades extend outwardly from between said face plates.

A bag-pressing apparatus comprising a supported delivery belt, a reciprocating plate rigidly attached to and adapted to move with a shaft, said shaft being mounted in bearings, said shaft extending a distance on both sides of said bearings, means for moving the plate down upon bags travelling on a delivery belt comprising a link, said link being actuated by an arm, said arm being pivoted about a fixed point, said arm being actuated by a cam mounted on a driven shaft, a second cam mounted to act in timed relation with said first mentioned cam, said second cam being mounted on said driven shaft, said second cam being positioned to actuate an arm, said arm being positioned to actuate a link, said link being connected with a bracket, said bracket being rigidly secured to said first mentioned shaft whereby upon actuation by said second cam said first shaft and rigidly attached pressing plate are moved in sidewise motion in the direction of the bags on the delivery belt.
The steps in a continuous strip material process which comprises continuously feeding and forming strip material at a predetermined rate, intermittently producing a slack in said formed material, cutting the material at the slack and thereupon taking up said slack. In combination, means for feeding strip material, slacker rolls in operative relation with said feeding means for receiving said strip material between said rolls, means whereby said slacker rolls control the rate of movement of said strip material, and means for intermittently decreasing and increasing the speed of operation of said slacker rolls below and above the speed of operation of said feeding means for correspondingly increasing and decreasing the rate of movement of said strip material below and above the rate of movement produced by said feeding means for alternately producing and taking up slack in said material.

During the war, the manufacture of packages for flour and meal was limited to the following sizes: 100, 50, 25, 10, 5, and 2 pounds, with no limit on sizes larger than 100. These orders were effective in all states, the millers finding them of great advantage, because they reduced their bag inventories and increased packing and shipping efficiency. The danger existed that, on rescinding WPB's orders and in the absence of legislation continuing the standardization now in effect, millers engaged in commerce in more than one state might again be compelled to carry large inventories of all sizes of bags to comply with the individual state laws. A uniform Flour and Meal Container Act has now been passed by 33 state legislatures, with only one state (Montana) turning it down. In the 14 remaining states, the legislatures were not in session, but it is expected that they will join in the adoption of the decimal sizes. A table showing the diversity of flour sacks in various states before passage of the act is included.

The Duo Tite bag is made of a natural or supercalendered bleached kraft outer shell and a liner of kraft or pouch stock that can be laminated with various materials for extra protection. To form the special bottom closure, the bag is heat-sealed and folded once, then a quick-drying paste is applied and another fold is made which glues to the bag. Through a special operation that applies a strip of thermoplastic material to the inside top of the bag, the same heat-sealed pasted closure can be made by the user on a machine built by the George H. Fry Co.

In a machine for making cross-bottom paper bags, a continuously movable conveyor, means to feed collapsed tubular bag blanks endwise, said blanks having been placed longitudinally on said conveyor, a clamping member having a straight edge, means to move said clamping member so as to place said straight edge across a bag blank and press same against said conveyor and move transversely together with said conveyor, a folding member operative in slightly spaced relation to said conveyor to enter said blank end when the blank is advanced by said conveyor and fold one wall of said end rearwardly about said straight edge upon said clamping member when said clamping member is moved transversely past said folding member, and a nozzle positioned on each side of said folding member to project a jet of air into the corners of the bag blank end defined by said straight edge of said clamping member.


An improvement in valve bags having an intake valve of a foldable collapsible type comprises a flap secured to one side only of the collapsed valve on the bag side thereof and extending beyond and below the open inner end of the valve. The flap is adapted to lie flat against the valve in operative position and aids in sealing the valve opening.


An improvement in valve bags comprising a cut-off length of a multi-ply tube of paper closed at both ends by folding in corner flaps formed at the bag corners by means of cuts and by folding over and gluing the end flaps remaining on the tube length between the corner flaps after their folding for forming flat bottoms or cross-fold bottoms, the valve through which the bag is filled being formed at one corner of the bag between the fold-in corner flap and the fold-over end flaps, is characterized in that the fold-in corner flap is provided at the valve corner of each bag with a single ply extension formed from one of the paper layers of the bag tube and from a corner of the next following length of the multi-ply tube where no valve is to be provided on the bag formed from the next following tube length.


A bag construction is described.


A bag of cans with two sides of the bag torn away to expose the cans is moved into a V-shaped receiver which is then tilted from a vertical to a horizontal position. Gates formed in the walls of the receiver are operable to allow tiers of cans to gravitate into passageways for their conveyance away from the apparatus.
Can bags are unloaded by placing the bag in a U-shaped mold, tearing one side of the bag, and tilting the mold or using a ram to eject the cans so that they will roll away by gravity.

In a new Swedish method of household-refuse disposal, heavy metal refuse bins which are noisy and unhygienic are replaced by large multi-ply paper bags. Individual bags are either fitted to a hopper under the opening of the refuse-disposal chute or attached to a metal support which holds it open. When full, the bags are closed by staples and may await disposal for several days without risk of spilling or unpleasant odors. The cost of the bags is amply compensated by increased hygiene, reduced man power, absence of noise, and applicability of ordinary instead of special types of carry-off vehicles.

A multi-ply paper bag having in one corner a filling valve in which is attached a tube of paper or the like extending into the bag beyond the folded-in valve is improved by providing the top wall of the tube with a bendable stiffening insert of metal which retains the tube in the folded position.

A filling tube attached to the filling valve of a multi-ply bag has a stiffening insert attached to the top wall, which consists of a length of iron wire bent back and forth to form stems interconnected by bends, the insert being positioned in the tube to place the stem portions substantially in the longitudinal direction of the tube; upon filling the bag through the tube, the tube can be bent to seal the valve and hold it in a sealed position.
A method is described for forming a so-called blind valve in a valve bag.


A method of forming bags or bag tubes of the character specified consisting in forming a tube from a web, transposing the sides of the tube, severing the tube with a compound cut into bag tube lengths and transposing the position of the cut edges so that the edges of the mouth of the tubes or finished bags lie substantially out of register and provide a closure flap or overlap. Apparatus for making bags or bag tubes of the character specified comprising a continuous tube-forming mechanism, means for opening and flattening the tube in a plane substantially at right angles to the plane of formation of the tube, a smooth knife for severing the tube into bag-tube lengths and means for reopening the tubes and reflattening them at right angles to the plane wherein the tube was cut.

In discussing problems, particularly that of pilferage, arising in the transit of textile goods, mention was made of special packing problems during the war. For instance, when tin lining was not available to protect stores against sea water during the beach landings, reinforced paper bags, interlined with pitch and sealed at the joints with the same substance, were used with success and improved types of packages such as these were expected to be widely adapted commercially.

At one side of or on each bag end there is a tubular extension, one side of which is secured across the overlap of the end flaps and the other side of which is stapled to the compound flaps. This has the effect of extending the valve flap, with a saving of bag material.

A group of mandrels are mounted around a central shaft through which a control rod, connected to the mandrels, operates. After the precut blanks are formed around the mandrel, the sections of said mandrel are contracted to enable easy removal of the finished bag.

A machine for making bags from a cutting, comprising a plurality of folding blocks, a plurality of stations, means for moving the folding blocks to the various stations in succession, one of said stations including means for folding the cutting U-shape around a folding block so that the lateral ends of the cutting protrude beyond the upper edges of the folding block, a plurality of folders including folders for forming the protruding ends into a longitudinal seam and a folder for folding the end of the cutting forming the upper flap of the longitudinal seam, means for forming the bottom of the bag, means for stripping off the finished bag from the folding block, said last folder travelling along with the folding block, means for holding these folders in their folding position and to press them perpendicularly against the longitudinal seam of the bag until the finished bag has been stripped off from the folding block, a carrier for the folding blocks, means for swingably mounting said folders on said carrier, a shaft for said carrier and a cam mounted for oscillation on said shaft and adapted to control the inward and outward swinging of said folders.


The installation of a new plant for producing bags from kraft paper impregnated with 40% bitumens and 60% Autol is described. Diagrams are appended.


Beating of sulfate pulp with 5% lignin content in the Jordan at 3% concentration by multiple circulation for 7 min. resulted in superior bag paper and a saving of 39% energy as compared with beating in the hollander beater.


A self-opening, satchel bottom-type paper bag is adapted for manufacture on an automatic bagmaking machine. An inner liner seals the bottom of the bag against leakage.


Method of making a bag, closed mechanically but not hermetically, and capable of hermetic heat sealing after filling.

A process of packaging is claimed which comprises forming a gusseted tube from a sheet of paper coated with impervious thermoplastic material, the coating lying on the inside of the tube, slitting the tube at four spaced points to provide bottom tab portions and bottom flap portions, folding the bottom flaps so that they overlap, applying thermoplastic adhesive in solution over a predetermined area of the folded flaps and a bottom tab, folding a bag bottom, drying the solution to form a bond, filling the so-formed bag, heating the bag bottom after filling to activate the thermoplastic material and so form a bottom seal for the bag.


A bag comprises a flexible body having an open mouth, the top of which is defined by a pair of convexly curved top edges and flexible solid round beads provided on the opposite edges of the walls of the mouth and conforming to the lengthwise shape thereof and extending inwardly in confronting relation. Each of the beads includes a fabric tube and a length of cord enclosed within the tube and extending the length thereof, the ends of the opposed beads being connected together by stitching to provide a hinge connection between the opposed walls of the mouth. The beads are offset vertically relative to each other, the opposed end portions of the beads beyond the hinges being clear of each other and the intermediate portions thereof between the hinges overlapping when brought together to closed relations, whereby the friction between the opposed intermediate portions will effect an interlocking of the intermediate portions to secure the walls of the mouth of the bag closed, with the end portions of the beads in close overlapping relation.


A summary is given of the industrial packaging uses of aluminum foil. Multiwall bags may have foil on the inside or as an inner ply. This type of bag can also incorporate polyethylene-coated kraft. Tests have shown that foil wall bags afford 3 times as much protection as bags with polyethylene. Foil-lined corrugated shipping containers have proved suitable for shipping frozen food. A plain carton is placed inside the lined one with spacers to maintain an air space. A laminated foil self-sealing overwrap is being tested for laminated wood products. VPI may now be applied to a heat-sealing foil barrier.


The invention relates to a continuous method and machine for making heat-sealed bags from multilayer tubular extruded thermoplastic stock. Stock printed with a repeat pattern is secured in registry for severing and sealing by means of a photoelectric detecting device for controlling an electromagnetic clutch and advancing the stock a predetermined distance.

Several sacks are illustrated and described. They may be valve type, one of the most recent developments being to tilt the valve opening to ensure more positive closing action; either glued, sewn or welded; gusseted or with stepped ends; and with reinforced gussets.


Bags made of kraft paper are rendered skid resistant by use of the "Lustergrip" coating, developed by the St. Regis Paper Co., which has as its chief ingredient Du Pont "Ludox" colloidal silica. Bags of standard smooth kraft paper are printed and then coated front and back. The process also improves the appearance of the bag.


By means of vertical slits a loose flap is formed which, when the top is folded down and sealed, is also sealed flat.


An attachment for bag-forming machines comprising a supporting frame, means for separately mounting a pair of paper rolls upon said frame, guide means mounted upon said frame whereby the paper webs from said rolls may travel thereover, a movable frame, means for pivotally connecting one end of said movable frame to said supporting frame, a platen cylinder journaled within said movable frame over which passes one of said paper webs, a roller journaled within the opposite end of said movable frame, a cam rotatably mounted upon said supporting frame and upon the periphery of which rides said roller, a stationary cutting knife, means for rotating said cam whereby the paper web passing over said platen cylinder will at times be moved into engagement with said knife for forming perforations therein as it passes over said platen cylinder, means for applying paste to the other of said paper webs and means mounted upon said frame for causing said paper webs to be brought into direct contact with one another whereby the paste upon one of said webs will be applied to the other of said webs and the paste caused to exude through the perforations formed within one of said webs.


The method of manufacturing duplex bags from webs of continuously advancing material which comprises the steps of forming rows of perforations at certain predetermined points along one of said webs, applying paste in strips upon one of said webs, arranging said webs in superimposed...
relation and forcing the same in direct contact whereby the strips of paste applied to one web will be transferred to the other of said webs, and squeezed through said perforations, separating the marginal edges of said webs, forming said webs into a tube whereby the separated marginal edges of each web will overlap one another and may be connected together by the adhesive applied thereto, cutting said tube in bag lengths, folding over one end of each bag length, and sealing the folded over end of each bag length by the adhesive exuding through said perforations.


A bag top closing and sealing mechanism includes opposed paste applicators and coating, supporting surfaces upon which the outwardly projected flaps of the partially closed bag tops are momentarily supported while a coating of paste is applied to the upper surfaces of the flaps, prior to folding the flaps inwardly over the bag top and sealing them together.


The tops of multiwall paper bags containing comminuted materials are formed in a neat closure ready for stitching, adhesive application, or other closing means by several pairs of co-operating rolls which bring the walls together by successive stages as the bag is advanced on a conveyor.

634. Kindseth, H. V. Bag opener. U. S. patent 2,654,519(Oct. 6, 1953); Packaging Abstr. 11:45.

In an apparatus of the class described, a supporting frame, an elongated flat member secured at one end in said frame and having its opposite end portion projecting outwardly therefrom, wing elements hinged to the opposed side edges of the projecting end portion of said member substantially the length thereof, and normally folded inwardly over said member to permit an empty bag body to be fitted over said projecting end portion, and means connected to said pivoted elements for swinging them outwardly into substantially right angular positions relative to said member, and into engagement with opposed walls of the bag body to expand and square the walls of a bag positioned on said member, said wing elements engaging substantially the entire inner surfaces of said opposed walls.


The machine folds and glues the tops of the bags; it is adjustable for bags of various heights.

In a bag-closing mechanism, a conveyor for moving filled bags in an upright position, a framework along said conveyor having a supporting member, a plurality of closing machines pivotally mounted on said supporting member for swinging movement downwardly from a retracted out-of-the-way position to a position over the conveyor at an elevation for conveniently closing the top of a filled bag for closing the same, each of said closing machines being mounted so as to stay in a retracted position or in a closing position, individual retaining means operable to retain each of said closing machines in said retracted out-of-the-way position and operable to retain each of said closing machines in a position over the conveyor and at an elevation for conveniently closing the top of the filled bag, and said retaining means comprising a pair of clamping elements, one of said clamping elements adapted for rigid engagement with said supporting member and the other of said clamping elements adapted for resilient engagement therewith.


A pasting mechanism is claimed which provides for a stream of liquid adhesive to be impinged upon a wall surface area of a bag to be sealed without otherwise disturbing the bag wall.


Improvements are claimed in a machine for filling cotton or paper bags with bulk materials such as flour, sugar, and feeds. Clamp jaws for gripping the bag during filling are employed to bounce the bag to compact the material, and a support provided under the bag is removed after filling to deposit the bag directly on a conveyor. Provision is made for carrying out the filling and conveying operations automatically, yet under supervisory control.


A top closure for a tubular bag comprises the intucking of opposed end walls, application of adhesive along the outer edge of these walls and the upstanding flaps, and folding and pressing of the flaps in overlapped relation. The closure is claimed to be siftproof for finely granulated or powdered materials.


Exactly weighed amounts of fluffy materials of low and variable density are automatically filled into bags of varying sizes and types by means of an auger which compresses the material within the bag while the bag is held tightly clamped to a filling spout. Continuous cycling of the machine is maintained by means of a timer device so that the operator's only task is to attach the bag to the filling spout.
An attachment for sewing machines having means for stitching articles successively fed in spaced relation, means including a clutch mechanism for operating the stitching means, mechanism for cutting the stitching thread outwardly of opposite sides of said articles, and bag-actuated control means for said operating means; said attachment including an elongated reciprocatory member, a forklike head on said member, said head comprising a pair of fingers diverging longitudinally outwardly of one end of said member, bracket means mounting said member for longitudinal reciprocatory movements whereby the head thereof crosses the path of travel of the stitching thread in spaced relation to the stitching means, and a flexible push rod connected at one end to said reciprocatory member and having means on its other end for connection to a portion of said clutch mechanism to be longitudinally moved thereby in opposite directions, said movement being transferred by said push rod to said reciprocatory member.

The paste-applying roller and its associated doctor blade form one end of the paste reservoir; the control of the amount of paste applied to the dauber shoes is governed by the setting of the doctor blade. Filled bags with the tops folded are carried into contact with the dauber shoes by a rotary member and discharged from this member onto a conveyor which carries the sealed bags out of the machine.

A single operator can efficiently package materials into flexible walled bags by means of the machine described. A number of belts arranged to convey the bags automatically through the filling, weighing, and closing mechanisms are controlled by an electric circuit which is responsive to photoelectric sensing means for indicating bag positions and to pneumatic means governing the action of a scale beam.

The invention deals with improvements in a machine for feeding and filling small cellophane bags efficiently and without damaging the bags. A magazine for supporting the bags in flat condition is pivotally mounted, whereby a tilting movement imparted to the magazine each time a bag is withdrawn relieves excessive strain on the walls of the bag. Provision is made for partially opening each bag top prior to its withdrawal from the magazine to facilitate the entry of a gripping device.
The bag has folded longitudinal edges. The bag blank comprises a number of layers of paper, etc., at least one layer of which is dampproof (e.g., bituminous paper). Sealing bands of bituminous material or viscous crude paraffin are provided between the layers and lie in the regions of the folded longitudinal edges. The sealing bands protect the folds.

A paper, etc., tubular valve insert has an outwardly protruding end for turning over onto the bag end to close the valve after filling, a cover sheet being attached to the bag and having a flap which can be secured over the valve end by adhesive.

The blank for the bag is scored along its fold lines and formed into a flat tube by folding along the bag wall portions only. The scoring is such that during the folding the ends of the tube open out to facilitate subsequent folding. No fold lines are provided in the ends prior to the folding along the bag wall portions.

A laminated bag formed from a bag tube with at least one block end is claimed. It has a strengthening layer of paper between the laminations of the bag tube material over the whole region(s) from which the block end(s) are formed, but not extending over the whole area of the bag tube.

A block bottom bag is formed from a blank that is scored along the fold lines in such manner that when formed into a flat tube by folding and gluing along lines corresponding to the length of the bag walls only, the ends of the tube open out automatically so as to facilitate the subsequent folding thereof.

The base of this bag opens out wide when the fingers of both hands are inserted in side panels.
Bag-folding mechanism comprising a rotatable drum conveyor structure for a bag to be folded, structure for engaging the surface of a bag to be attached to a flap adjacent the line of fold therebetween and for pressing the bag against the conveyor drum, said engaging structure being mounted external to said drum conveyor structure and movable independently thereof, a member for engaging and folding the flap along said line of fold against said surface and for pressing the fold against the conveyor drum, and means for withdrawing said engaging structure during, and prior to completion of the folding operation of said member.


A bag-forming machine comprising structure for transporting a bag-blank, bag-closing mechanism operating upon said blank during its transport by said structure, mechanism to hold the bag blank for operation thereon of said bag-closing mechanism comprising relatively movable gripper jaws carried by said structure, and blade structure for creasing the bag blank during its transport by said structure to form a thick multi-ply fold between said gripper jaws, at least one of said jaws having projections extending a short distance from its gripping surface toward the gripping surface of the other jaw to compress said thick fold at localized areas, said gripping surfaces exerting substantial pressure along said fold where not locally compressed by said projections, and said blade structure having notches to straddle those sections of the fold compressed by said projections.


A combined sealing and locking closure for application to a bag having a mouth which is collapsible into a flattened edge, comprises a sealing strip of flexible sheet material which is coated on one face with a thermoplastic adhesive and is adapted to be folded longitudinally to form two integrally connected flaps for permanently adherent association through the coating with the opposite edges of the mouth of the bag with the line of fold arranged substantially coincident with the edge of the collapsed mouth, a rip cord attached to the adherent face of the sealing strip along the line of fold with at least one of its ends projecting beyond the ends of the flaps, and a locking strip of stiff but deformable material attached to the sealing strip adjacent the edge of one of the flaps in spaced parallel relation to the line of fold with its ends projecting beyond the ends of the flaps.


Experiences in the use of wet-strength-treated paper products are discussed; some new products include garbage bags, stretchable paper, mail sacks, and paper sleeping bags.

The machine forms the square-bottomed bag from a tubular blank and applies a strengthening patch over the whole bottom from the inside of the bag.


In a bag machine, a pair of members rotatable in a circular path adapted to enter and carry a bag from a take-off position, a pair of oscillatory members movable parallel with and in a direction opposite the carrier members adapted to engage the bag on the latter to turn and pick up the bag, and means adapted to engage the bag on the pick-up members to remove the same and carry it to a stacking position.


A blank of paperboard or other material of suitable stiffness is cut and folded to form a narrow flattened band adapted to enclose the open-end portion of a bag. Portions of the structure are folded to grip edges of the bag mouth so that the closure is firmly secured.


The packaging laboratories of Akerlund and Rausing and the development of self-service are described. Deep freezing and packaging are discussed. A review is given of Swedish filling and packaging machinery. Valve bags and the Tetra-Pak are described and illustrated.


The protective and advertising features of lined and unlined block-bottom bags and heat-sealable flat bags for mass production are discussed, with particular reference to the possibilities offered by tasteful and pleasing multicolor printing. The flexographic process is used for this purpose to the greatest extent; gravure printing, particularly for large editions of quality products, is gaining ground.


A bagmaking machine for feeding and tubing multiple webs incorporates a mechanism for cutting a pouring flap in one of the intermediate webs prior to tubing, a device for folding the flap against such web, and a cutting device for severing the tube into bag lengths.

The article discusses the possibilities for partly or entirely replacing imported Scandinavian sulfate pulp by home-made sulfite pulp for the manufacture of bags and sacks in Germany.


A discussion of the evolution of the paper bag since 1900 is presented, with emphasis on the demand for increase of strength properties.


A heat-sealed bag is provided with seals without substantial pressure.


In the method of making open-mouth bags, the steps comprising advancing a web of heat-fusible material, angularly deflecting and engaging said web along a line longitudinally thereof and intermediate its side edges to fold said web into a doubled web in which the thicknesses of said doubled web lap one another in predetermined relation with the free edges thereof residing adjacent one side of the doubled web and defining therebetween the open mouths of the bags, engaging the folded edge portion of the web with a member operable to tuck said folded edge portion inwardly of the lapped portions of said web to provide a re-entrant fold longitudinally thereof, transversely heat-sealing the doubled re-entrant folded web from edge to edge thereof in pairs of relatively narrow closely spaced zones spaced at intervals along said doubled web, and then severing open-mouth bags from said doubled web transversely thereof in the spaces residing between the narrow closely spaced pairs of transverse heat-sealed zones of the web.


The author reviews different types of machinery for the automatic and hand-operated packing of chemicals in multiwall paper shipping bags, such as valve bag packers, screw packers, weighing and sewing equipment, oscillating packers, ram-type packers, etc. Because bag-filling conditions vary greatly, each packaging problem must be studied individually, and the many variations in production and product characteristics must be taken into account.

The author discusses the different applications of multiwall bags constructed from 3-6 sheets of relatively lightweight kraft paper so arranged in tubular form, one within the other, that each bears its shape of the burden. Directions for filling, closing, storage, handling, and transportation conditions are given.


The article describes different combinations of paper and textiles for heavy duty bags, the paper serving as liner and the textile bag as supporting element. A proper liner must be able to bend, flex and stretch in unison with the outer bag, so that the latter will absorb all shocks and strains, hence it must fit perfectly into the outer container. Extreme care must be used in the choice of size, insertion of liner into the bag, and the filling and closing of the package. Creped kraft paper (single stretch or double stretch type) treated with different coatings was found to give satisfactory service for loose paper liners. More recent developments include creped paper laminated to burlap and cotton using asphalt or rubber latex as adhesive.


Scutan is an asphalt-infused kraft paper, the infusion process consisting of the immersion of the preheated paper into the specially blended hot asphaltic bath, and passing the coated paper over water-cooled rolls for rapid restoration to normal temperature. Scutan-treated paper is claimed not to bleed at any atmospheric temperature and to stand sub-zero temperatures without cracking. It is available in either the single or double-infused type and is used as a liner in many large and small duplex and multiwall bags. Other applications include its use in house building, in laying cement roads, in the walls of refrigerated railroad cars, and for providing moisture resistance for many types of containers.


In this review of packaging methods in all kinds of containers, reference is made to textile bags with a creped paper liner and to multiwall paper bags.


Reference is made to the use of heavy-duty, multiwall paper bags for shipping pulverized chemicals not only for the domestic but also for the export market. These containers were found to stand the rough handling satisfactorily, the breakage being under one per cent. The use of paper bags as heavy-duty shipping containers is closely related to the development of automatic bag filling machinery. A description of several types of such units is given.
Excerpts from a report of the U. S. Dept. of Agriculture, Southern Regional Laboratory, are given in which the market for cotton textiles in bags is reviewed. Significant changes have taken place as a result of the impact of the war and the readjustment of relative price levels of cotton, burlap, and paper shipping sacks. Before the war, bags were the third largest end use of cotton. Preliminary data for 1946 indicate that consumption of cotton fabrics for this purpose is less than in 1939, but that the consumption of both burlap and paper is continuing to climb. These trends may have serious long-term repercussions on the market for cotton and cotton textiles. Paper bags have replaced cotton bags during the last five years to a considerable extent for packaging such important commodities as sugar and flour. A trend toward bulk handling must also be taken into account. In 1925, 84% of all cement moved in cotton bags and only 7% was handled in bulk. In 1943, 19% was packaged in cotton bags, 36% in paper bags, and 42% was handled in bulk. Cotton bags climbed in price much more during the war than did burlap and paper bags; currently, they are relatively much higher than before the war. Cotton fabrics have had an advantage over burlap bags wherever cleanliness was desired. Recently, however, advertising has stressed that paper is superior to cotton for packaging of foods. Paper bags require more costly equipment to handle; once the change is made, they require less labor and are less costly to fill than are fabric bags.

The invention covers a pouring spout in an inner ply of a multiwall bag, so arranged that, when closed, it permits the sealing of the outer ply of the bag. The spout is extensible through the upper edge of the outer bag when the latter is opened to an extent equal to the width of the spout but less than the width of the inner bag body.

Heavy-duty multiwall paper bags have replaced barrels and textile bags in many industries, such as rock products, food, and chemical industries. A brief description of their manufacture is given; several continuous webs are staggered, folded into tubular form, glued, and pressed flat. During the latter procedure each sheet of paper is properly tensioned in both directions. The tubes are then cut and printed, if desired. Illustrated directions are given for the correct handling, shipping, and opening of the bags. Their salvage value depends largely on the previous contents and the care used in opening them.

Apparatus for forming collapsed sealed bags.
Apparatus for making bags of flexible laminated material, said apparatus including means for progressively advancing a web of heat-sealable material and a web of protective material, means for successively cutting transverse slots in said web of protective material at intervals lengthwise thereof corresponding to the length of the bags, means for bringing said slotted web into superposed relation to the first named web, means for progressively shaping the laminated web thus produced to tubular form, means for sealing the longitudinal edges together to complete the tube, means for infolding the sides of the tube to form pleats extending lengthwise thereof and for collapsing the tube, said transverse slots being positioned to be included in and extend transversely of the pleats, means for heat-sealing the tube transversely along said slots, and means for severing the tube along the transverse seals to form individual bags.

An alternative form of valve construction is provided in a gusseted multi-ply paper sack of the type claimed in U. S. patent 2,811,300 [see Abstr. No. 679]. The valve is located in the middle of the double gusset at the valve corner and folded inward to provide areas which will be caught in the end-closure seam.

Multi-ply paper shipping sacks are provided at each side edge with gussets all of which may be secured at the nonvalved corners by the closure seams at the ends of the bag. This construction permits one of the gussets to be turned in at one corner to form a valve extending inward far enough to be caught in the closure seam and secured against displacement.

Specially constructed St. Regis multiwall paper bags for shipping launching grease are now used by a Pacific coast petroleum company. The product, composed of paraffin waxes and other residual wax derived from petroleum refining, is used for greasing the outside ship walls preparatory to launching. It has a melting point of about 135 to 137°F. and is poured into the
paper bags at a temperature of 143°F, by means of a hose from the holding tank. The tops of the bags are folded over and closed by a hand stapling machine. After hardening of the wax, the bags can be stacked and are ready for transportation and shipment.

681. Lansing, K. H. New anti-rancid bags are coated with oatplant flour. Paper Converters Envelope Ind. 11, no. 4:16 (April, 1937); B.I.P.C. 7:312.

Reference is made to so-called "avenized" papers, treated with "Avenex," an antioxidant prepared from oat flour. They are recommended for wrapping edible merchandise containing fat or oily substances on account of their rancidity-preventing properties.

682. Late model Smith & Winchester 3-wall tuber installed. Am. Paper Converter 23, no. 2:26 (1949); Packaging Abstr. 6:274.

The three-wall tuber for satchel-bottom bags has cross pasting units for pasting the plies together at the ends, an electric eye-controlled compensator for keeping the printing of preprinted rolls in register with the cut-off and a drive which eliminates gear changes.


Flour is packed in 1.25, 2.5 and 5-kg quantities in bleached kraft bags which are then packed in a duplex kraft sack holding 25 kg. Sugar is packed in 1-kg quantities in bleached duplex kraft bags which are then packed in triple kraft sacks holding 30 kg.


This is an extensive discussion of the possibilities and limitations of bagasse as a papermaking raw material. The possibilities of manufacturing bag papers is discussed.


In a bag-filling machine having a hopper, an auger for removing material from the hopper, drive means for said auger, and control means for said drive means, the combination of horizontally extending spout means including an internal spout and an external spout assembly, said internal spout being mounted on said hopper and communicating therewith, and said auger being rigidly mounted and extending from said hopper into said internal spout, said external spout assembly comprising an external spout disposed substantially concentrically with said internal spout and surrounding the same in radially spaced relationship, and a floating frame on which said external spout is mounted, means for supporting said floating frame for movement in a substantially vertical direction whereby said external spout will move relatively
to said internal spout in a radial direction, and a flexible seal closing off
the annular space between said internal spout and said external spout, said
control means being actuated by the movement of said floating frame.

686. Lee, Chesman A. Cutting costs with multiwall bags. Chem. Eng. 64,
no. 4:296(April, 1957); B.I.P.C. 27:969; Packaging Abstr. 14:764.

Damage to multi-ply paper bags during automatic filling and subsequent
handling may be prevented by methods such as mechanically retarding the drop
of a batch of material from the machine hopper into the bag, building a
little "give" into a conveyor onto which filled bags are dropped by cantilevering a section of the conveyor, using a counterweighted cradle to reduce
the velocity of a filled bag as it slides down a chute, and filling bags
loosely for easy handling and stacking.

687. Lee, H. E. Apparatus for perforating webs of fibrous material
such as paper. British patent 52,369(Oct. 25, 1941); Packaging Abstr. 8:429.

Apparatus for perforating and mutually arranging webs of paper for use in
forming multi-ply tubing intended for separation into bag lengths, comprises
means for advancing superposed webs through a device for perforating the webs
at bag-length intervals along lines transverse of the direction of movement
of the webs, means for separating the perforated webs from each other, means
for further advancing the webs mutually separated and means for subsequently
assembling the webs upon each other preferably after at least one web during
the separation has been carried past a device which transfers adhesive to
the face of the web which is directed towards another web, the separating
means being adjustable through devices for varying the length of the paths
which the webs travel during the separation, so that the webs are superposed
with their perforations in predetermined relationship.

688. Lee, Harry E. Method of and apparatus for producing valved or

A machine and method for securing a supplemental sleeve-forming sheet
in the open corners of valve bags are described.

689. Lee, Harry E. Method of and apparatus for producing valved or

A method and apparatus are described for the formation of a paper bag
incorporating a tuck-in sleeve which is constructed in such a manner that
sifting at the junction of the sleeve and the bag is prevented.

(Jan. 1, 1946).

A method of producing a multi-ply valve bag having an intermediate ply
of the valve extended farther than the other plies.

691. Lee, Harry E. Superposing, perforating and severing webs of
paper, as in tube and multi-ply bag manufacture. U. S. patent 2,307,142
(Jan. 5, 1943); C.A. 37:3607.
A method which comprises superposing a plurality of webs of paper, producing perforations through the superposed webs along a certain line, separating the webs and again superposing them with the lines of perforations shifted with respect to each other, and again perforating the superposed webs along another line, again separating them, and again superposing with the perforations along said other line shifted with respect to each other.


In a multi-ply bag having an intermediate ply extending beyond the other plies at a corner, the extended portion of the intermediate ply forms a single-ply flexible valve flap extension which is pressed up against the inside top portion of the bag by the contents to check sifting through the valve.


Apparatus for valving bags comprising means to spread apart the side walls of a bag adjacent one corner thereof, means to bend the corner between the spread-apart side walls and towards the median line of the bag, means to insert adhesive between the bent-in corner and the spread apart sides, means for bringing the spread-apart walls together over the bent-in corner, the adhesive-applying means comprising pads, means to move the pads in a line substantially parallel to the bent-in corner at the time the adhesive is applied, means to apply paste to the pads when they are removed away from the corner, and means to press the bent-in corner against the pads when the pads are inserted between the corner and the spread-apart walls.


A closure for bags is claimed having an expansible gusset strip portion consisting of an expansible portion and a marginal portion. The expansible portion is inserted into the bag end to place the marginal portions of the gusset strip inside and adjacent the marginal portions of the strip and are folded to engage the outside marginal portions of the bag. Means are provided for attaching the skirts to the marginal portions. An inverted V-shaped cover strip encloses the skirt and stitching passes only through the cover strip, skirts and marginal portions, thus leaving the expansible portions of the gusset free for expansion. The idea is to provide an auxiliary guard against the entrance of moisture into the bag, to protect the threads of the sewn seam, and to provide a closure which can be partially attached to the bag factory and finally closed when the bag is filled.


Comparative test shipments of lettuce in multiwall paper bags indicate completely successful performance of the package. The lettuce is packed in a uniform pattern, 12 heads to a bag, and the bags are packed 10 high, in
shipments of 200 bags or more. The use of the multiwall bag for packaging lettuce has been made possible by the development of vacuum cooling; the bags are made of wet-strength paper.


In a bag-forming machine of the character described in U. S. patent 2,626,494 (Jan. 27, 1953) [see Abstr. No. 696A], improvements are provided to permit the formation of bags of a variety of sizes and a double package having a small and a large compartment. A driving mechanism for imparting step by step drive to crimping and sealing rolls in the machine is adjustable to vary the magnitude of the steps and to provide a period of "dwell" between steps.


A package-forming and -sealing machine provides a pair of sealing rolls and a means of leading strips of packaging material (paper, cellophane, etc.) to and between the rolls. The packages, for solid and granular articles, can be edge and end sealed.


The machine is for making multiwall paper tubes, in bag lengths. It is particularly suitable for the production of tubes for stepped-end bags to be subsequently formed into finished bags on a bottoming machine.


A machine is adapted for the manufacture of multiwall paper tubes for stepped-end bags. The tubes are subsequently formed into finished bags on a bottoming machine.


A multiwall paper bag for packaging tacky polymeric materials (such as butyl rubber) comprises an inner layer to which is bonded a polyethylene film by a low melting-point wax. The polyethylene layer bonds to the butyl rubber, and fracture of the wax layer facilitates removal of the material from the bag. Alternately, an oil-saturated clay coating may be applied to the inside of the bag tube with a second coating of resin such as polystyrene, etc., the clay coating acting as the fracture layer and the resin adhering to the rubber upon removal from the bag.

The innermost ply of a multiwall paper bag which is designed for the packaging of citrus fruit (e.g., lemons, oranges, grapefruit, and the like) is impregnated with paraffin or other mineral wax (m.p. 150-60°F.) which incorporates a fungicidal agent such as diphenyl; the latter substance serves to prevent or inhibit mold growth on the fruit.


A multiwall paper bag for the shipment of peat moss and the like is impregnated with a suitable fungicidal agent, such as mercury compounds, chlorinated phenols, and metallic naphthenates. The bag is preferably made of wet-strength paper and at least the inner and outer plies are impregnated. The inner ply may be coated with polyethylene or impregnated with a wax composition containing the fungicidal agent.


The invention pertains to the packing of materials subject to cold flow (e.g., butyl rubber) in a multiwall paper bag made up of several paper tubes disposed one within the other. The inner ply of the bag is coated with polyethylene, a clay coating surfaced with casein, cellulose acetate, etc., which, on unpacking, will readily become detached from the paper base without permitting paper fibers to adhere to the rubber. The coating material can then be stripped from the rubber surface without difficulty.


A machine for filling and weighing bags of dry noodles uses separate apparatus for the two functions to increase speed and limit noodle breakage.

Little gadget that does a big job. Produce Packaging 1, no. 5:193 (Aug., 1955); Packaging Abstr. 12:804.

The Rippatape bag sealer made by Paynes of Nottingham uses 2 in. of cotton industrial strapping tape to seal the gathered neck of any bag.


A composite sealed moistureproof paper package comprises an inner wrapper sheet folded over and completely enclosing the commodity, and an outer bag enclosing the wrapped commodity. Opposite bag walls at the upper end thereof are coated on their inner surfaces with adhesive and provided with spaced
intermediate longitudinally disposed slits for a portion of their extent, the outer surfaces of the walls outwardly of the slits being coated with adhesive and folded inwardly in contact with the inner surfaces of the intermediate wall portions in conjunction with the remaining inwardly folded opposite bag walls adhesively secured to the outer surface of the inner wrapper sheet to provide opposite adhesively coated flaps of multiple thickness. The flaps are in turn folded inwardly in overlapped relation over the inwardly folded and adhesively secured remaining opposite bag walls and adhesively secured thereto and to each other.

706. Livestock and poultry feeds are successfully packaged in kraft paper multi-wall valve bags. Packaging Parade 19, no. 218:88-9 (March, 1951); Packaging Abstr. 8:448.

Machines for filling multiwall valved paper sacks with animal feeding stuffs have been developed by the St. Regis Paper Co.


A container has two generally oppositely disposed wall portions movable relatively toward and from each other, one of the wall portions having a mouth opening therein, a member permanently supported between the wall portions and movable toward and from each of the wall portions, the member having a closure plug thereon for seating outwardly in the mouth opening of the one wall portion while the other wall portion continues free to spread relatively away from the member.


Manufacture of expandable paper bags for containing cement and the like.


Sales possibilities in the field of industrial specialty selling, particularly for custom-made bags for cans, cushions, felt products, furniture, rugs and carpets, and meat products; covers for appliances, automobiles, boats, caskets, haystacks, and lumber; and liners for barrels, freight cars, garbage cans, etc., are pointed out.


A machine provided with devices for evacuating and heat sealing bags made of thermoplastic materials is adaptable to a wide range of bag sizes and is suitable for packaging contents of varying shapes. The product is held away from the suction nozzle, and tension is applied to the bag during evacuation to prevent the bag material from drawing in and closing off the suction.

The technique of selling all the way through, selling not only to the customer but also to the customer's customer, has shown results for developing a new market and extending the market for established products. One example illustrating the technique is the packaging of flour in multiwall bags, which today account for 90% of the output compared with 10% 10 years ago.


Porous material such as wallboard, bags, cups, etc., is hardened by subjection to the action of terpinol hydrate at a temperature equal to or above the melting point of the latter. The apparatus is described.


A sheet of bag paper is passed between scoring rolls where the fold lines are defined; the bag bottom is folded and the tube formed in a single pass between folding rolls which also carry the conveyor bands for transporting the folded bag out of the machine.


Paper bags are formed without the unnecessary creases ordinarily caused in the bag bottoms by the prolongation of the longitudinal creases of the bag body. This eliminates the formation of air channels when the bag bottoms are pasted and prevents the leakage of granular materials packed therein.


In experiments to investigate the merits of various types of packaged in protecting potatoes from loss of market quality, the following types of bag were used: solid paper, double wall, wet strength; paper, with mesh window, double wall, wet strength; purple or orange 1/5 in. cotton mesh, with a tightly woven band round the center; purple or orange paper mesh, made of 1/4 in. twisted paper mesh material; elastic top polyethylene, unperforated and perforated; elastic top Pliofilm, perforated; tied top polyethylene, unperforated and perforated; and draw string FF Pliofilm, perforated. All the bags were in 10-lb. capacity, except those of Pliofilm, which were 5 lb. Special consideration was given to the influence of type of package on greening resulting from exposure to light, and studies of the effect of washing and different degrees of drying on keeping quality were also made. The bags of potatoes were stored at various temperatures between 63° and 71°F. (17 and 22°C.) and relative humidities from 16-32%. The amount of greening which
occurred was in proportion to the amount of visibility which the package permitted, solid paper bags giving better protection than any of the other packages; waxing with red-colored wax masked somewhat, but did not prevent, greening of the tubers. The cooking quality of both waxed and unwaxed potatoes was adversely affected by greening, particularly if severe and if the potatoes were boiled without peeling. During holding for 1 week in mesh bags, loss of weight was about 2-5%; it was slightly less in solid paper bags. The Pliofilm bags tested were unsuitable for potatoes owing to their tendency to tear. Stretch-top polyethylene bags were satisfactory if perforated, otherwise moisture condensed inside them and mold and decay developed. The tied polyethylene bags permitted condensation of moisture, even perforated, unless the potatoes were dry when packed. When potatoes in bags which permitted visibility were exposed to moderate amounts of light of about 25 ft. candles for periods of 9 hr. per day, greening was generally not serious until after 3 days. Packing the potatoes wet appeared to have no adverse effect on the packages or on the master containers during either storage or transport. Colored wax added to potatoes which were dried only with a water eliminator did not stain the outside of paper bags but resulted in red spots on the inside of polyethylene bags where water had collected in droplets.


A nonslip strip composed of rubber latex or microcrystalline waxes with an abrasive material such as sawdust, sand, or pumice is applied by roller coating or spraying to the center portion of both sides of large paper bags, especially multiwall bags. The coated areas of stacked bags are in contact to prevent slippage in the stack. Only a very thin coating of the material need be applied so that printed information on the bag is not obscured.


A mechanism is especially adapted for folding and closing the open ends of paper bags or cartons when containing merchandise or other commodities.


A paper bag which is adapted for the packaging of solidified, initially fluid or plastic materials (e.g., tar, wax, rosin, heavy grease, and the like) is provided with a reinforced folded bottom structure, in which the joints of superimposed folds are relatively offset and sealed.


A conventional automatic bag formed from a two-ply gusseted tube is rendered siftproof by a heat-sealed inner ply which is independent of the outer ply. The latter is pulled into the usual side diamond fold, and the sealed inner ply collapses into a rectangular preformed bottom which allows the bag to stand upright.

The type AKBS machine has an output variable between 22 and 40 bags per min. The bags are closed by double folding and gluing.


Model 84RKW produces S.O.S. bags which, because of their gusseted construction, stay open and facilitate filling.


In this section on packaging machinery—interspersed with advertisements—the following articles may be of particular interest to the paper and board converting industry: Labeling machines and devices, p. 408, 412, 414; wrapping equipment, p. 416, 418, 422, 424, 426; tight wrapping equipment, p. 426, 428; carton loading and closing equipment, p. 430; bag filling and sealing, p. 438, 440; box and bag stapling equipment, p. 442, 444; case packing and sealing machinery, p. 446; materials handling equipment, p. 448, 452, 454.


A description of the machinery and procedure for making block-bottom bags is given as well as directions for avoiding certain troubles which are liable to occur.


A machine for the manufacture of paper bags of the block-bottom type from blanks in the form of flattened tubes not closed at their ends is claimed. The machine receives the unclosed tubes from another machine known as the "Tuber" and then folds the bottoms, adheres and seals them with adhesive and ejects the finished bags. (Block-bottom type bags have two closed bottoms, one of which is provided with a tubular element, also of paper, for filling purposes, which, after filling, is flattened so as to close the bag.)


The machine is designed for the manufacture of the "Bates" type of paper bag, i.e., a bag with two closed bottoms, one of which has a paper tubular element for filling. After filling, the tubular element is folded to close the bag.

Bags with plain, flat, heat-sealable mouths are filled with merchandise and placed on a horizontal turntable. The table is constructed to support a plurality of bags horizontally beneath open-bottomed heads positioned for downward movement. Each head contains a heat-sealing unit and means for evacuating a bag before it is sealed. Provision is made for the injection of any desired gas into the bag before it is sealed.


A discussion of problems associated with the large-scale impregnation of jute bags with lindane emulsions is presented. Use is made of 0.1% agar-agar in the emulsions to increase their viscosity and decrease the affinity of the fabric for the lindane. A sulfated oil is necessary for stable emulsification. Drying of the impregnated fabric at higher temperatures or washing it with water does not materially reduce the lindane content of the fabric or its insecticidal potency.


A high-speed machine (1,200 bags per min.) for making bags in a range of sizes from 1-1/2 to 12-in. by 6 to 20-in. is described and illustrated. It handles types of paper without tapes as well as foil webs.


The manufacture of different kinds of flat bags from punched-out sheets and the necessary machinery are described.


The text of the recommended practice, adopted in 1944, is given. Fourteen illustrations are included, depicting the correct procedures for lifting, carrying, loading, patching, stacking, and opening of paper shipping sacks for a variety of dry chemicals.

730. Marathon Corp. Home-use bag in cartons. Modern Packaging 21, no. 9:212, 214 (May, 1948); Packaging Abstr. 5:408.

Freeztex bag-in-carton containers are described. The carton is made of bleached sulfite paperboard, Manila lined. The inner wall has an extra heavy wax coating and a light paraffin coating outside which can be easily marked by stamping, pencil or ink. The ends have lock-end construction. The bag is made of heavyweight, wet-strength, plasticized, full-bleached paper. The paper allows up to 3% expansion without rupture. A wax-rubber type coating
on the bags gives it heat-sealing qualities and a low water-vapor permeability rate. No brittleness is encountered at 0°, according to the manufacturer. Sealing temperatures can range from 180 to 400°F. The bag is a gusset-style with a glued side seam.


A machine-made bag or carton is formed from paper, cardboard or other flexible sheet material which can be creased and folded, having a rose-bottom and longitudinal creases extending from the points of the bottoms, thereby forming out-turned gussets at the sides of the bag. The bag has longitudinal cuts at its open end positioned on the corners of the bag when opened out, such cuts serving to form flaps which may be folded in to seal the open end, and also a transverse crease adjacent to the open end to facilitate turning in the edges of the walls at the open end to seal the bag. The longitudinal creases providing the out-turned gussets are formed by continuously marking or grooving the web in the bagmaking machine at any stage before such web is brought into tubular form. The cuts for the flaps are formed by a cutting device in the bagmaking machine after the bottom of the bag has been closed. Apparatus for continuous production of these bags is also described and claimed.


A machine-made plain or satchel- or rose-bottom bag, with or without gussets, is claimed, having longitudinal cuts at its open end formed during the operation of the bagmaking machine and positioned at the corners of the bag when opened out, such cuts serving to form flaps which may be folded in to seal the open end. Apparatus for forming longitudinal creases to provide out-folded gussets and to make the cuts for the flaps and the method of continuous production of these bags are also claimed. A bag so made, when opened out, e.g., by hand pressure from the inside, forms a bag of square or rectangular section which will stand up, and is then substantially indistinguishable from the self-opening satchel.


Recent moves toward greater use of paper boxes and bags in preference to wood, cloth, and metal containers and advances in the paper products to effect applications to new uses are discussed. The production of solid fiberboard, corrugated board, and paper bags is outlined, and typical formulations of waterproof adhesives are given.

A device to give additional tension to bag tubing when the block bottom is being formed is claimed.

736. Materials and supplies directory for the envelope and bag industry. Converter 18, no. 8:18, 20, 22 (Aug., 1944); Am. Paper Converter 19, no. 8:15-17, 21 (Aug., 1945); B.I.P.C. 15:100; 16:63.

A directory of machinery, materials, and supplies of interest to the envelope and bag converting industry is presented.


Bags made of several thicknesses of kraft paper are used for 25, 50, and 100-lb. lots of salt.

738. Maunder, Margaret. Asphalt-sealed bags adapted to wartime shipping. Converter 18, no. 7:10-11 (July, 1944); Paper & Twine J. 18, no. 5:7-8 (July, 1944); Packaging Parade 12, no. 138:35-7 (July, 1944); Am. Paper Merchant 41, no. 8:9, 30 (Aug., 1944); B.I.P.C. 15:22; Packaging Abstr. 1:39.

Reference is made to the variety of waterproof bags made in the St. Louis plant of the Central States Paper and Bag Co., ranging in size from a few inches to boxcar size. They are used for penicillin and blood plasma, matches, dried foods, soap, mattresses, ammunition, machinery parts or entire units, etc. The boxcar bag, a quite recent development, is made in five sections for lining a regulation size boxcar for carrying grain to distilleries, etc.


Adhesive material is applied by roller means to marginal surfaces of a strip of paper which is folded along parallel spaced lines to form a continuous length of bag tubing. Power-driven rotary, folding, and sealing cylinders are arranged to sever the tube into bag lengths which are sealed on one end.


A bag-forming machine comprising in combination, bag material holding means, folding means whereby adjacent edges of the bag material are folded in overlapped relation with each other, an electrically heated roller mounted in the path of the bag-forming material, a resilient cushion in operative position with respect to said roller, means whereby the bag-forming material is folded and sealed on itself, and a cutting member for severing the formed bag from the strip of bag-forming material after the material is folded upon itself and sealed.

A mechanism is provided for cutting, folding, and heat-sealing the bottoms of bags during the manufacturing process.


A bag is claimed which is closed except for a small valved filling opening and the material of which is practically impervious to air but is perforated by means of an electric arc so that the holes are not large enough to let powder out of the bag, but allow the air to escape during filling.


Bags made of asphalt paper are difficult to fill because of their imperviousness to air and necessitate the use of a larger bag than would normally be necessary. Perforation with an electric discharge is difficult in the case of such paper. It is facilitated by incorporating a substance of a lower electrical resistance (e.g., graphite, carbon black or aluminum, bronze or other metallic powder) in the layer of asphalt.


A multi-ply bag is constructed of paper or similar thin, flexible air-impervious sheet material which has been electrically perforated to permit entrapped air to escape through the walls as the bag is being filled.


A heavy duty machine has a rigid filling spout, with releasable bag-clamping means at each side controlled for clamping by a bag-feeler switch having an actuating lever which is operated by the upper edge of the bag.


An agitating device is connected to the beam of a gross weighing apparatus to hold it in a fixed position during agitation.


A multi-ply sack has at least one ply coated with thermoplastic, and this ply has a superposed strip of paper along the edge(s) which overlaps to form the sack side seam. The strip provides a paper-to-paper joint for the seam and a double thickness of thermoplastic as a moisture seal.

748. The Medway Sac-Sealer. World's Paper Trade Rev. 135, no. 11:774 (March 15, 1951); Packaging Abstr. 8:360.
The applications of the Medway Paper Sacks, Ltd. stitching machines are described. Paper, jute, cotton and multiwall sacks may be sealed either by stitching or taping and stitching. Each model may be fitted with a conveyor component.


The use of multiwall bags and waterproof laminated bags over cartons for packaging subsistence items is discussed.


A new machine for cutting openings and inserting mesh windows in multiwall bags has been developed by H. G. Weber & Co., Inc. Designed for use with existing tubing or bag machines, the unit incorporates a new method of cutting that eliminates the need for costly dies. Instead of cutting all three plies of paper simultaneously, the machine cuts the opening in the outer ply at one station and the inner two plies at another. Since the size of the outer opening is smaller than that of the inner openings, registering problems are minimized and a neater window results. In operation, the sides of the opening are slit first and the top and bottom are cut independently to match the slits.


A machine of the character described for sealing the open mouth of a bag, said machine comprising means for sealing the bag, means spaced from said sealing means for removing air from the bag, and a pair of endless belts having parallel reaches opposed to each other and extending between said air-removing means and said bag-sealing means, means for urging said reaches together to compress between them the mouth of the bag being transferred, means to move said belts whereby said belts transfer said bag from said air removing means to said bag sealing means after the air has been removed therefrom while holding the mouth of the bag closed during such transfer so as to prevent re-entry of the air before sealing of the bag.


In a bag with internal, e.g., polyethylene coating, the connecting gussets consist each of two bag portions overlying each other. The end seal is formed by heat-sealing the end portions of the sides one to another and to the gusset portions.


Small parts are protected against water and water-vapor by packing in paper bags lined with aluminum foil, and heat sealing.

In British patent 750,611, blank material is fed between successive rollers, and a folding blade and clamp on the respective rollers co-operate to form a transverse fold line in the material and superpose the material on opposite sides of such line. A folding blade on the second roller co-operates with a clamp on a third roller to form another fold line to the rear of the first line and effect a further superposing of the material on opposite sides of the second fold line. In British patent 750,688, adhesive is supplied to one edge of the blank material and a hem is folded up along such edge. A second fold provides the bag walls after cutting off a length of the blank. The hemmed edge provides the bag mouth and the free side edges are joined by sewing. In British patent 750,689, the bottom of the bag of British patent 750,688 is constituted by inwardly folded hem portions of the wall panels with their opposed faces sealed together.


Flat bags or tubular wrappers are formed from two moving webs by sealing the latter transversely along spaced lines and cutting down the center of the seal lines. The sealed edges of each tube so formed are folded over and sealed to one wall of the tube.


Various types of bags, such as bellows-folded seamless bottom bags, are formed from paper, cellulose acetate, regenerated cellulose, and similar materials in a continuous process by an apparatus which slits and applies adhesive to the web, cuts the web to length, folds the sheets longitudinally, and seals the seams to form the finished bag.


A bag machine is claimed in which paper is fed from a supply roll and folded on one or both edges to provide bottom or side bellows portions in bags formed when the material is cut transversely at intervals spaced to include front and back panels which are folded and pasted in continuous sequence.

An attachment of the class described having a strip-supplying roller and means to mount said strip-supplying roller, a guide roller over which the paper passes, means to supply adhesive adjacent opposite side edges of the strip as it passes over the second mentioned roller, comprising a pair of adhesive-applying wheels, receptacle means to contain adhesive and in which said wheels operate, means suspending said receptacle means whereby gravity will maintain the wheels in contact with the strip, said guide roller being disposed between the strip-supplying roller and said second mentioned means, and means to reverse the direction to movement of the strip after leaving the guide roller and applying it to another strip below and beyond the strip-supplying roller on the side of the axis of rotation thereof opposite to the guide roller.


A gusseted paper bag with reinforced mouth is attached to a frame which supports the bag in level position and which may be used to open and close the bag mouth without tilting the bag.


In apparatus of the class described: support means including a body having a guiding edge to receive a pair of extended members and guide the same inwardly along a path of motion transverse to their length; means in said support means to hold a supply of adhesive tape; means to support an end portion of said tape adjacent said edge in position to encounter said members as the same are moved along said path of motion; normally stationary, movable pressure means adjacent said path, engaged with said tape portion, and positioned to be driven by said movement of said members to apply pressure to said tape against said members whereby to secure the same together; and cutting means including a normally stationary, movable member positioned and adapted to be operatively engaged by said extended members and moved by said inward motion whereby to sever said end portion from said supply of tape and permit withdrawal of said extended members secured by said end portion.


Grained ammonium nitrate is conditioned by treatment with 1% of a petrolatum-rosin-paraffin wax mixture followed by 4% of kaolin, subhydrate (calcium sulfate, 1/2 water), talc, or kieselguhr, immediately before discharge from the graining kettle, and is stored in paper bags with waterproof plies. The two-stage treatment is necessary to obtain both freedom from caking and good drilling properties.

A flexible crinkled-paper bag is constructed with the grain direction of its walls lying at an angle of 10-30° with its transverse axis.


A multi-ply paper bag of the type closed by folding a piece of closure tape over the bag-mouth edges is provided with strips by means of which the ends of the closure tape may be affixed to the bag during its manufacture. The intermediate portion of the tape is not secured until after the bag has been filled.


In January, 1938, the St. Regis Paper Co. opened its one-story plant at Vancouver for the production of automatically filled multiwall paper bags in heavy duty sizes. The new two-story building in Kitsilano (section of Vancouver) was occupied in April, 1947. The new plant purchases all its paper (about 725 tons a month) from Pacific Mills, although the laminating that is necessary is done by the Powell River Co. Over 2,000,000 bags are produced a month, working on a single shift. An illustrated description of their manufacture and a history of valve bags are given. Because it has developed an ingenious line of patented automatic filling machines, the company is in the unique position in this field of being able to lease equipment while guaranteeing a regular supply of bags.


A metal plate and strap for closing the mouth of a bag are claimed.


Bag-sealing devices, in which a soft fibrous shackle encircles and seals the gathered bag mouth and then passes through a hard metallic guard piece and a soft metal seal, are improved by utilizing a sharp cornered guard so that any unauthorized meddling with the device will cause the shackle to be frayed or severed by the guard. The construction also simplifies application and removal of the device.


An annual catalog which contains reviews on the following subjects: types and uses of heavy-duty multiwall bags, filling, sealing and closing machines and bagmaking machinery.
Duplex kraft bags are used for Mixtite, an asphalt powder mix. The closure is formed by a double-fold and stapling.

Lamo-Pak is sandwiched between two sheets of lightweight kraft and is up to twice as effective in controlling moisture as asphalt-laminated kraft. It also is free of odor. Another advantage claimed is that when multiwall bags are closed, the sewing needles do not become gummed.

A water-resistant adhesive is formed by a composition containing low-soluble white corn dextrin 78, boric acid 10, dimethylol urea 10, and sulfated fatty-acid monoglyceride detergent two parts. When one part of this composition is cooked in five parts water to 190°F, a soft paste is produced suitable for paper-bag manufacture, paper-tube winding, or paper lamination.

A semirigid bag is formed of a cradle of a metal foil laminated to a paper sheet and a bag of the gusset type formed of heat-sealing cellophane or Pliofilm. The closure of the cradle provides a means for hermetically sealing the mouth of the bag after filling.

A bag is provided which may be hermetically sealed by the manufacturer to protect the merchandise from moisture, dirt, and insects; the bag can be formed of transparent or translucent sheet material, such as regenerated cellulose, rubber hydrochloride, waxed or oiled paper, or resinous materials.

The method of forming an end closure on a container having a mouth at one end thereof which consists in tucking the ends of said mouth inwardly and drawing the inner surface of the sides of said mouth into contact with each other and the inner surfaces of the tucked ends of said mouth, applying heat and pressure to activate a lacquer coating on said engaging surfaces to cement said surfaces together and form an impervious seal across said mouth, and simultaneously impressing a plurality of aligned indentations in said sealed portion across the width of said container to provide a line of severance whereby the container may be readily opened.
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775. Morgan, G. W. L. Containers for powdered or granular materials. British patent 652,312(April 12, 1948); Packaging Abstr. 8:443.

A block-bottom "Sisalkraft" multiwall paper sack is provided with a rigid neck to act as a filling aperture and pouring spout. The neck is threaded to receive either a screw-on cap or a screw-in plug closure.

776. Motley, Lewis. Apparatus for waterproofing sacks, bags, etc., of textile or other materials by treatment with fluid substances. U. S. patent 1,745,437(Feb. 4, 1930); CA 24:1751.

An apparatus for coating bags consisting of a casing constructed to provide two chambers which are partially separated by a partition, one of the chambers below the plane of the bottom of the other chamber constituting a receptacle for fluid, openings through the outer walls of the casing, an endless carrier with which bags are associated, a plurality of rollers for guiding the carrier and bags associated therewith into and out of the receptacle for fluid and then into the other chamber, means for heating the second chamber, and means for connecting the chambers so that vapor generated in the second chamber will be discharged into the first chamber.


The sacks described are of the cross-bottom type, and have large square or rectangular bases. They can be used for shipping filled bags or other small packages and have even been used for glasses packed in wood wool. A machine for filling small packages into the shipping sack is made by Erwin Behn Verpackungsbedarf GmbH, Krefeld. It will pack from ten 2.5-kg. packages to forty 0.5-kg. packages into each shipping sack. The sacks are cheaper than fiberboard cases.


The author objects to the usage of the term "coarse" papers and suggests "wrapping," "packaging," or "industrial" as a better descriptive term for this grade of paper, which includes multiwall sacks, bleached kraft foodboard, and even some gift wraps. The growing importance of unbleached kraft papers is emphasized by data which show a total increase in production since 1937 of 117%. Examples of progress in the production of various products are cited.


The Auger-matic (E. D. Coddington Mfg. Co.) is for filling valve bags and has a built-in scale with a shaker that jolts the bags during filling. For use with fluffy or fibrous material a Feedermatic unit ensures free flow of materials without loss of speed.

Bates Valve Bag Corp., Sao Paulo supplies ten million multi-ply (4 to 6-ply) paper bags for packaging powdery materials, such as sugar, flour, cement, lime, and fertilizers. Filling and closing operations (by pasting or sewing) are performed mechanically, with savings in labor.


A description is given of the Renka, a machine which forms flat bags with reinforced edges against the grain and gusset bags that have neither center nor bottom seam; this is achieved through the use of a vertical construction where the web travels downward through the bag-forming stations. Versatility in sizes and materials handled, high-speed production, greater bag strength, and improved centering for subsequent printing are advantages claimed for the unit.


The slip-resistant pattern is built into the kraft outerwall by an embossing process, with no reduction in strength. Breakage losses are substantially reduced.


The Sta-Stak flour bag, it is claimed, will not shift when stacked, will not slide off loads or trucks, is easier to handle than the ordinary multiwall bag and the flour will pour clean leaving no residue in the bag. The Sta-Stak bag is made in the 100-lb. open mouth style and in the 100-lb. tuck-in-sleeve valve style, it is stated.


A special valve for pasted multiwall bags is designed to reduce sifting. It is known as the Lock-Rite and is made by Arkell & Smiths.


The quick-opening device, on which a patent has been applied for, is achieved by placing a series of small perforations in one corner of the bag under the tape and near the sewing line. By merely grasping the tape at this corner and pulling sharply upward, an opening is instantly started. It can be stopped and held at any point convenient for controlled spout pouring, or it can be continued along the entire length of the sewing line. The bag is available in both open-mouth and valve types.

The valve alters the flow of material during filling, forcing the valve upwards and closing it, to eliminate sifting both during and after the filling process. The "tilted" valve is also said to facilitate fitting the bags onto filling spouts.


A 3-ply bag with asphalt lamination staples shut for mailing small items of clothing.

Multiwall paper bag adapted to baling of Army clothing. Am. Paper Merchant 42, no. 1: 10 (Jan., 1945); Am. Paper Converter 19, no. 1: 22 (Jan., 1945); B.I.P.C. 15: 212.

A new multiwall paper bag was developed by Army officials at the Philadelphia Quartermaster depot for shipping clothing from the manufacturer to depots. The garments are packed into a bag held in a wooden form to keep the bag from bursting while it is being filled. It is sealed with gummed tape, removed from the wooden form, and tied with twine. Substantial savings in fiberboard and steel strapping are claimed for the new method.


Multiwall paper bags are now used in the place of galvanized steel drums for packing hot rosin. The packaging of this material in paper was extremely difficult, because a bag had to be designed which would prevent the hot rosin from penetrating the paper and the needle holes at the end of the bag. Finally, a specially constructed inside ply was developed into which the rosin does not penetrate in hot condition. The bag is sewn on both top and bottom except for a small opening used for inserting a spout through which the rosin is poured into the bag at about 300°F. Each bag holds 100 lb. The hole is staple closed and the filled container transferred to cooling racks. The rosin requires about 24 hours to solidify. The bags have proved an efficient and economical way of packaging and shipping this product.


Multiwall paper bags are a combination of several bags in one, so arranged, one within the other, that each carries its share of the load. In a 19 question-and-answer-type article, the purpose, construction, materials used, sizes available, types of closure, and the knowledge required for efficient selling are outlined. Since multiwall bags have to be custom-made for specific purposes, the salesman has to know pretty much everything about the physical characteristics of the product, its manufacture, shipment, handling, and storage to be able to offer appropriate suggestions.
The manufacture of all kinds of multi-ply kraft bags at William Palfrey, Ltd. in Rochester, England takes place largely in the airplane hangers vacated by Short Bros., makers of Empire and Sunderland flying boats. Overhead traveling cranes move the paper rolls from storage to the U-shaped production line, which comprises tubing, bottoming, capping, stapling, and sewing machines, all operating 24 hrs/day. An expansion which will add 50,000 sq. ft. of floor space is expected to be completed in 1957.

A review is given indicating the potentialities of this container and the problems involved in its adaption to various types of products. As these paper sacks should be made to fit the task they have to perform, the following factors should be considered: (a) nature of the materials to be packed; (b) quality (and cost) of the materials used in the manufacture of sacks; (c) amount of mechanical, atmospheric and other kinds of protection required; (d) length of time the materials are likely to remain in the sacks; (e) quantity of material to be packed in a specified time; (f) methods of filling, handling and transporting; and (g) available storage conditions.

The manufacture of the sacks is outlined.

A three-ply pasted multiwall sack with square ends, developed by the St. Regis Paper Co., is used. It is now available in two forms: coated with a new double-weight clay release medium for packaging talc-covered bales of synthetic rubber, and uncoated for packaging plastic-wrapped bales.

The unit is capable of producing four-wall flat or gusseted tubes, at a speed of 300 ft. per min. Lengths produced range from 30 to 102 in.; widths from 24 to 64 in.

In the manufacture of bags, the method which consists in forming a continuous tube from stock material, severing the tube into a series of blanks in such manner as to define a projecting tab at one end of the blank and a cut-out portion defining the tab at the opposite end of the blank, and then forming a bottom fold at the end of the blank having the cut-out portion.
A bagmaking machine is claimed which is provided with a device for inserting a string and sealing the mouth of the bag.

Five fumigants were injected into grain in insecticide-impregnated bags under nonairtight conditions. Ethylene dibromide completely controlled insects when applied at the rate of 10 cc./200-lb. bag for individual bags and 7.5 cc./200-lb. bag for bags arranged in stacks. Impregnation of the bags improved the efficiency of the fumigant, by insuring death of insects escaping from the bags.

The four basic types of paper bags (flat, square, satchel-bottom, and automatic), materials used in their construction (bleached and unbleached kraft, sulfite, glassine, cellophane, Pliofilm, polyethylene, parchment, waxed-paper, woven-paper, and laminated bag stocks), and definitions and miscellaneous information are covered in this compilation of basic product data.
National Waterproof Papers, Inc. is producing a complete line of crinkled kraft multiwall bags. The bags are made in two to six plies and are used for bulk shipping of farm and meat products and various kinds of powdered, crystal-line and granulated products. Single or laminated sheets of regular or wet-strength kraft are used for the containers. In addition, wax-impregnated, asphalt-laminated or polyethylene-coated plies may be incorporated to protect moisture-sensitive products.

A multi-ply paper bag has a tightly closed, pasted corner construction avoiding excessively stiffened areas.

The bag is composed of one or two layers of two-ply crinkled paper whose plies are bonded with bitumen, synthetic resins, waxes, etc. The plies have a percentage crinkle of 5-18% and the weight per unit area in the uncrinkled condition is 60-100 g./sq.m. The bag is said to be very resistant to damage.

A tubular insert is provided on the under side of the part which projects over the valve lip with apertures for the contents to fall through. Through the small apertures and connected with an insert band projecting a little above the valve lip are side flaps, which extend far enough into the interior of the bag to be held from below by the contents. The contents press the sides flat against the cover insert and thus the contents are prevented from getting into the valve.

The extension, which is used for filling, is folded in after filling to effect a closure.

A bag closing machine comprising means to advance a succession of partially filled bags in an upright position, a tucking device having a plurality of radially extending arms and being rotatably mounted about an axis spaced above said bags, means for driving said tucking device, each of said arms having means extending rearwardly for cooperative engagement with the front wall of a bag and having means extending forwardly for cooperative engagement with the rear wall of a bag, clutch means between said driving means and said tucking device, means to lock said tucking device in a position in which the rearwardly extending means of one arm will be engaged by the front wall of a bag so that a portion of said wall will be tucked, and means actuated by the advance of said bag for releasing said locking means after said front wall has been tucked, said clutch means being operative upon displacement of said arm by said bag after said locking means has been released to establish a driving connection between said driving means and said tucking device to rotate said tucking device at a greater linear speed than the speed at which said bag is advanced, whereby said forwardly extending means of an adjacent arm will engage the rear wall of said bag so that a part of said rear wall will be tucked, said clutch means including means for breaking said driving connection prior to the time that said forwardly extending means engages said rear wall.


The author briefly summarizes the successful applications of paper and board packaging materials in the place of metal and wood containers. Paper bags are now used in the place of jute bags for shipping cement, wholesale foodstuffs, wholesale drugs, flour, etc.


Large kraft accordion-pleated paper bags, including creped, waterproofed and jute-reinforced bags, are being made by Sherman Paper Products Corp., for such uses as kitchen ranges, furniture, etc. An air vent is placed at each corner of the bag to permit the escape of pocketed air without affecting the dustproof qualities of the bag.

New bag for calcium chloride. Packing & Shipping 76, no. 6:14 (Sept., 1949); Packaging Abstr. 6:1004.

The new Dowflake bag is made from 55-lb. kraft paper treated with a coating of asphalt adhesive to which a mesh of strong cord is added. The treated paper is joined with another sheet of 55-lb. kraft paper and run through roll presses. This laminated sheet is then machined into a tube and the ends are sealed by stitching and taping.

New bag seam gum and specialty adhesive. Packaging Parade 12, no. 143:74 (Dec., 1944); Paper Ind. & Paper World 28, no. 12:1686 (1945); Packaging Abstr. 2:313.
A water-resistant liquid adhesive, V-seal 27, used for bag seams and sealing asphalt paper, meets the U. S. Army Specification 100-L4A for types C, L and M paper and Specification AXS 1074 for grade A and B adhesives.


More than 100 bags in five different constructions were filled with calcium chloride and placed in the company yard to observe the effect of outdoor winter storage on the product. Four months later the bags were opened and tests showed that the bags with an outer layer of polyethylene over the printing kept the contents free-flowing. The printing had faded on all bags not protected by the polyethylene coating. The polyethylene-coated bags were of the lightest construction of any tested. Further tests are being conducted.


The bag tops are folded and sealed with a saddle-back label. The machine is designed for grocery products.


The Fluopacker uses a new principle, called fluidization, to fill multi-wall paper valve bags with hard-to-pack powdery and granular products.


A new filling machine at the Baldwin-Hill Co., Trenton, N. J., automatically bags rock-wool insulation, eliminating the presence of dust, formerly an occupational hazard. The difficulty of controlling uniformity of weight is also overcome, making the process more economical. This same machine can be used for packing asbestos fibers, beet-sugar pulp, and soybean pomace.

New block bottom bag making machines. Polygraph 5, no. 11:270 (June 5, 1952); Packaging Abstr. 9:598.

Two models "Combi" and "Tempo" (Fischer & Krecke, Bielefeld) can be had in a variety of sizes, with side or center seal.


The "Exacta 1" is made by Gartemann and Hollmann, Bielefeld. The block bottom is formed at 4 stations.

The container is made of two No. 50 heavy kraft sheets between which a layer of macerated newspaper, serving as cushioning material, is fastened. Asphalt adhesive is used as a binding agent, but also helps to make the bag moistureproof. The edges are sealed and laminated.


Lustergrip utilizes a new principle of coating multiwall bags with a nontoxic coating which provides an even, clean surface. Printing is done prior to application of the coating and since smooth instead of rough finish paper can be used, a better printing job is possible. Laboratory and field tests have shown that the new coating provides a nonskid quality greater than rough finish paper with nonskid inks, in addition to a better-looking and cleaner package.


Jet-Pak VC1 bags safeguard metal parts from rust and corrosion up to 10 years. The bags have a cushioning sealed within double walls of sturdy moisture-resistant kraft which thoroughly protects the contained product from rough handling, dampness, and damage in transit. The bags also have strong loop stitching on each side forming an outside lip which acts as an extra buffer against shock. Jet-Pak VC1 bags are especially suited for shipping and storage of electrical and electronic parts, precision instruments, laboratory equipment and similar items.


The gusset areas of the bags are reinforced by placing structural strips of kraft paper between two walls. No gluing is required on valve bags, but the structural strips are spot-pasted in sewn open-mouth bags to prevent shifting.


Among new machines offered by A. Edler, Ltd., is a "multiwall sack" machine which produces the new-type combined hessian-and-paper sacks, combining the strength of jute with the siftproofing and other protective qualities of kraft paper. The machine takes the material and produces tubes at a speed of from 80 to 100 per min., pasting the combined material.


Six photographs and a description of the action are given of a high speed bag machine designed by B. M. Haldeman with a range from 1-1/2 in. to 12 in.
in bag widths and from 6 in. to 20 in. in bag lengths. It has a practical speed range up to 1,200 bags per minute and is so designed that it can handle various types of papers without tapes and is especially adaptable to foil webs.


Recent developments by the Union Bag & Paper Corp. are described. They include a kraft paper honeycomb buffer for packaging books, a multiwall sack with a chemical coating to prevent slipping and a creped paper handled carrier bag designed to carry a tin of paint.


The valved sack principle is applied to a new type of valved block-bottom bag of siftproof construction. Two "Honsel" machines available from A. Edler, Ltd., are required to form the base and the special valved top. The bags are self-sealing.


Low stretch crepe union kraft paper laminated with bitumen is used to market potato fertilizer in hundredweight amounts.


The bag is made by the Union Bag and Paper Corp. It has 3 layers of wet-strength paper and a series of perforations which act as drains for the melted ice water.

829. New improved type of large paper bags. Packing & Shipping 75, no. 8:19 (Nov., 1948); Modern Packaging 22, no. 4:154 (Dec., 1948); Packaging Abstr. 6:64.

A machine is announced which will manufacture flat-type bags with sealed bottoms and ends, by a high-speed continuous process. A feature of interest is an accordion pleating operation which will produce bags up to 60 in. high and 24 ft. in circumference.


The bags are of paper laminated on the inside with aluminum foil which in turn is plastic coated, providing an efficient heat seal.

Printed kraft bags with mesh windows and carry-home handles for pre-packing oranges, potatoes and onions, are illustrated. The bags are economical, convenient, and offer visibility, ventilation, and brand identity. Being semi-rigid, they are easy to fill.


Announcement of a new multiwall, moistureproof paper bag that has a capacity five pounds greater than the container it replaces, yet requires no more storage space, was made recently by Heyden Chemical Corp., Garfield, N. J. The new bag has a capacity of 80 lb. and is used for technical pentaerythritol.


Printed material can be inserted in a "literature pouch" in the back of the bag and easily removed by the consumer by tearing the plainly marked tab.


An automatic multiwall bag machine coupled with a two- and four-color printing press developed in Sweden, is being introduced to the American bag trade. Four types of machine cover the full range of bag sizes, including the multiwall S.O.S. type bags, with special attachments for window, viscose and dustproof bags. These machines also produce grocery bags at high speeds.


Bags which will protect water-soluble materials (e.g., salt) when exposed to the elements are constructed of a combination of plain kraft (treated with high wet-strength resins) and asphalt laminated plies. A special waterproof end closure ("Aquatex") is used for the bag. The wax used in combination with a crinoline flannel tape for this closure is deposited inside the sewing lines of each ply by dipping. Sun, rain, snow, sleet and temperatures below freezing and above 90°F have been withstood by this bag.


The length of the pasted bag is shortened for improved pallet loading and the size of the gussets is increased to obtain the same volume. A small sleeve and large valve are said to prevent sifting, even though the width of the gussets is increased. Light scoring along the edges adds to the square shape of the bag. After the bag is filled, it moves on a conveyor to a vibratory flattener which flattens the bag and contributes to easy palletizing. The square shape of the bag also reduces the possibility of slippage of the pallet load.
Scrimtex, a product of Mosinee Paper Mills Co., has a mesh of fiberglass yarn, supplied by the Owens-Corning Fiberglas Corp., incorporated into the paper as the sheet is formed. Melamine resins, supplied by the Owens-Corning Fiberglas Corp., is incorporated into the paper as the sheet is formed. Melamine resins, supplied by American Cyanamid Co., are also incorporated into the paper to give it wet strength. The sacks are sewn closed and opened with a rip cord type of sewing. Tested by the U. S. Post Office Dept. under weather conditions ranging from -66° in Alaska to +200° in the holds of ships, the new bag has been found to hold up well. The sacks are expected eventually to be put in use on many overseas parcel post shipments.

The new plant for silicone-impregnated paper is for British Celofilo Ltd., West Kent Works, Hosey Hill, Westerham, Kent, and will first manufacture multiwall bags for bitumens and resins. The impregnant is cured into the paper and cannot escape.

A high tenacity rayon thread by the American Enka Corp., has been tested and approved by the St. Regis Paper Co. for the manufacture and closure of multiwall paper bags.

The "Mr. Little" valve reduces the chance of moisture getting into the bag through the wick action of hygroscopic products. At present it is supplied principally for the fertilizer trade although it is being tested for use with powdered materials.

Jet-Pak Inc. of Newark, N. J., announces a new bag featuring a strong loop stitching that affords added durability as well as an outside lip that acts as an extra buffer against shock. It consists of a sturdy kraft lining with reliable, resilient padding carefully packed and securely sealed within double walls. The package is waterproof.

These lined paper bags are now available in a new box shape for easy handling, stacking and display. (An Alkaflex bag has a lining of polyethylene and a Flav-O-Tainer a pliofilm liner).

844. New surface treatment may suit paper sacks to putty. Packaging News (London) 4, no. 4:7 (April, 1957); Packaging Abstr. 14:570.

Quintolan W., a chromium-stearic acid complex made by I.C.I., is being used on multiwall bags by Bowaters Multi-Wall Sacks Ltd., to prevent the permeation of the paper by oil in putty. It is nontoxic, has excellent "release" characteristics and gives protection against abrasion.


The Sakweld method (Sackweld, Ltd.) makes possible last minute repairs to filled sacks. A quick-setting cement compound is applied to a patch by a Field "lick" roller and pressed firmly on the sack. The compound prevents subsequent fraying of the torn edges and stays as pliable as the material it joins.


Instead of die cutting the window opening in all three plies of paper simultaneously, the outer ply is cut independently at one station and the inner two plies at another station. The window opening in the outer ply has smaller dimensions than that of the inner two plies, making registering less exacting.

847. New uses for paper. Southern Pulp Paper Mfr. 12, no. 6:19 (1949); Paper Trade Extracts 12, no. 23:1 (June 24, 1949); Packaging Abstr. 6:704.

Many new uses for paper calling for new standards of lightness and toughness are now being put on the market. Two of these are paper bags to package ice and paper for polishing silver.


A description is given of a multiwall 98-lb. kraft paper container for packing and shipping flour, which has been perfected by the Bates Valve Bag Company, Ltd., in Canada.

A machine is adapted for the production of paper bags from a continuous length of tubular material.


A paper bagmaking machine is characterized by the fact that the seam adhesive device is movable laterally of the direction of travel of the web and its movement in one lateral direction or another is controlled by the lateral movement of the paper web in such manner that the respective movements of the web and the seam adhesive device are substantially simultaneous and in the same direction so that they move together step-by-step. The apparatus is described and illustrated.

Nichols, C. T. Apparatus for packaging commodities with trough member supported between plates. U. S. patent 2,640,638 (June 2, 1953); Packaging Abstr. 10:731.

A unit for use in filling and holding bags is claimed.


A method and machine are claimed for forming a bagmaking tube in a manner which does not give definite creases to the edges; thus producing a tube which is not flattened, and then applying pressure transversely of the tube to induce the leading edge of the upper wall to lift by reason of the resiliency of the material from which the tube is produced and so to open the leading end of the tube sufficiently for it to engage a folding nose.

Nicolas, M. A. Bag closure. U. S. patent 2,343,571 (March 7, 1944); Packaging Abstr. 1:197.

A metal tie closure for bags consists of an elongated deformable strip of a length greater than the width of a bag to which it is to be applied, thus providing securing tabs and a wrapper enclosing this strip. The strip is crimped longitudinally in one direction through an area located intermediate the securing tabs, and the securing tabs are crimped longitudinally in the direction opposite that of the intermediate crimping.


Bonded webs of textile fibers—which handle like paper but have the properties of cloth—offer some interesting possibilities in packaging. During the war, the nonwoven textiles had very limited production and the available supply was taken for a few essential uses; their peacetime applications have scarcely been explored. Reference is made to the three types now in production, Webril, Bonnlinn, and Masslinn. The entire output of Webril (the heat-sealing type) was used for the manufacture of silica gel bags; both Webril and Bonnlinn find application for tea bags. The flannel-
like Maslinn has made an important packaging contribution as the wax-absorbing inner component of the Aquatex closure for multiwall paper bags. An illustrated description of the manufacture of tea bags, silica gel bags, and multiwall bag closures, and of the machinery employed is given. Future possibilities for this type of material are mentioned.


A heat-sealed bag closure device consists of a triangular blank having edges meeting at right angles and being folded about lines perpendicular to the edges at their midpoints. One of the folds is inside the bag and the other coterminous with the mouth of the bag.


In the Pap-O-Net process, paper string emerges from the knitting machine in the form of a tube which can be made into bags by gluing the lower edge. The process was developed by C. G. Marks of Enterprise Inc.


In a bagmaking machine, in combination, means for feeding a tube of bag material intermittently, a cutter for severing bag lengths periodically from the tube, means for tucking in the corners of the leading end of the tube in advance of the cutter while the tube is idle to provide upper and lower tabs, tab turning means comprising a suction roller for lifting the upper tab away from the lower tab, a folding roller for turning back the lifted tab, and co-operating tube supporting rollers spaced from the suction roller and the folding roller in non-gripping relation thereto, and means for operating said rollers in harmony with the intermittent tube-feeding means when the tube is being fed.


In a machine for making plural ply bags, in combination, means for feeding a plurality of webs into juxtaposed but laterally staggered relation, and means for simultaneously gumming corresponding margins of the webs, means for securing said gumming means in different adjusted positions laterally of the machine, and means for driving the gumming means in all adjusted positions thereof.


In a method of forming satchel-bottom bags, the steps which consist in folding a web into tubular form, holding opposite faces of the formed tube flat and in spaced parallel relation, tucking the corners of the forward
end of the bag tube into the space between said faces while maintaining the tube and fully distended, advancing the bag tube, and cutting off a blank length from the forward part of the bag tube having the tucked-in corners.


In a unitary apparatus of the character described, means for forming a tubular bag blank, means for folding the bottom flaps of said bag blank, means for oppositely disposing the points of said flaps, means for continuously advancing the blank, means for applying a patch to said flaps while the blank is in motion, means for folding the flaps across said patch, and means for adhering said flaps to said patch. The method of making a patched satchel-bottom bag which consists in forming a tube from a web, inwardly tucking oppositely disposed portions of the tube to form parallel flaps, severing the blank from the tube, raising one of the flaps and folding it back upon the blank, gumming the flaps, applying a patch to the gummed areas of the flaps, gumming said flaps and said patch, folding said flaps across the patch, and pressing said flaps and patch into adhesive contact with each other.


Printing presses in shipment are protected from rust by a bag made from Ferro-Pak, volatile-corrosion-inhibitor paper.


In apparatus of the character described, the combination of a rotary member having spaced heating elements and adapted to be driven for advancing strip material in overlying relation to said heating elements, and means providing for the flow of air under pressure toward said member during one portion of its travel and away from said member during another portion of its travel whereby the material is pressed against said elements during said one portion of the travel of the rotary member and the severed sections are dislodged from the rotary member during said other portion of its travel.


The article reviews tests and practices currently available, and suggests the need of additional tests. Three tables list points for the inspection and evaluation of all types of bags with special reference to sewn and pasted bags.

The open end of a paper bag is slit and folded in such a manner that it can be folded shut and its folded portions interlocked to prevent the sifting of granular material.


Simple and efficient means are claimed for attaching the mouths of flour bags onto a filling spout without damage to the bag by nonconformities between the shapes of the bag and the spout. Provision is made for a bag-expanding device that does not contact the filling material during the filling operation.


In a machine for manufacturing bags from tubes of sheet material, a core over which the tube is sleeved, movable friction means engaging the tube on the core for advancing the tube a predetermined distance to cutting position, means for then cutting the tube at a point beyond and spaced from the core, means for retracting the tube to remove the cut end from the cutting means, means for folding inwardly some of the cut edge portions about the end of the core, means for supplying adhesive to at least one edge portion of the tube, and means for folding said adhesive portion over the other folded portions to secure the closed end of the tube.

867. One multiwall sack, same style, same printing, accommodated 77 different items. Packaging Parade 20, no. 233:54-5 (June, 1952); Packaging Abstr. 9:640.

Honeggers & Co. use one sack only for 77 different feed and agricultural products with a tag system. The sacking and loading processes are briefly described.


Reference is made to the project of replacing the 325-lb. jute bags with 100- to 125-lb. paper bags for shipping raw sugar. Sugar chemists support the view that the raw product can be satisfactorily packed, stored, and shipped in paper bags; the cost of handling, particularly where manual labor is employed, is materially reduced through the smaller units.


The Model 134 portable bagger holds 200 bags and blows air through a simple filter to open them individually.

A paper shopping bag is provided with a flexible cord handle; the load is distributed over a large area of the flap of the bag by rows of stitching extending laterally across the flap and through the cord handle.


The seamed and the unseamed panels of a satchel bag are so reinforced that the strip on the unseamed panel will be sufficiently heavier or stronger than the corresponding reinforcing strip along the seamed panel that the resultant strength along the median width of both panels will be approximately equal. The bag can have registering apertures through the reinforced panels and tongues struck out of the panels to provide a carrying means.


A machine for inserting valve sleeves in large multi-ply gusseted paper bags for bulk pulverulent or granular material is claimed. It comprises mechanisms in sequence to cut sleeve blanks from a roll of blank material, give the necessary conformation to the blank, apply paste thereto, open the mouth of the bag to condition the prolongation (I) to receive the sleeve, bring the sleeve into contact with and press it into adhesion with (I), and infold the corner of the bag bounded by (I) and the sleeve blank to form the sleeved valve.


The invention relates to an improvement of the valve-sleeve transfer and inserting mechanism of the machine disclosed in U. S. patent 2,708,392 (May 17, 1955) [see preceding Abstr.].


In a bag machine; a conveyor for progressing a series of flattened gusseted paper tubes; means for spacing said tubes on said conveyor; means for closing one end of each of said tubes while the same are being moved by said conveyor; intermittently operable fastener applying means mounted for operation on said tubes adjacent the opposite ends thereof while the same are being moved by said conveyor; and means for causing operation of said fastener applying means synchronized with the movement and spacing of the tubes on said conveyor to cause the application of fasteners to said tubes only within the area of the gussets.

Because a sealing string is used in sealing the junction between the bottom and the side gusset of a multiwall paper valve bag, the bottom is not sharply creased and thereby weakened during storage; the string is also used for ripping open the bag. The bag is designed for the packaging of heavy powdered or granular materials, such as cement, plaster, or the like.


A paper bag with gusseted side walls is provided with registering open-ended recesses at the upper edge of its front and back walls. A handle is formed across the recess by stitching a textile cord transversely on one face of the bag and securing the front and back walls together. Provision is made for a window of open-mesh material on the front wall of the bag.


A bag closure comprises an enclosing V-shaped cover strip over the mouth of the bag and adhesively attached thereto; after closure, the cover strip and enclosed bag mouth assume a substantially rectangular shape composed of compacted zig-zag elements and forming a rectangular handle.


Granular material, such as chemical fertilizer, is packed into bags at high speed by an apparatus in which a scale mechanism actuates microswitches controlling an electric circuit for starting and stopping motors used to feed the material. Timing devices in the circuit are claimed to prevent the operator from interfering with the operation of the machine except when this does not affect the accuracy of the weighing mechanism.


The plies of a multi-ply block bottom bag are transversely perforated at the bag length to form shoulders and notches, so that when assembled the plies have staggered end margins. The plies are slit longitudinally adjacent the end margins to provide corner forming parts, and the slits are staggered to provide the corner forming parts with portions of increasing width from the outer to the inner ply, to provide exposed portions of each ply for adhesive sealing. With this construction the risk of tearing at the slits or seepage of the contents is reduced.


A multi-ply block-bottom paper bag, wherein the bag-tube plies are transversely perforated at bag length and are longitudinally slit, is claimed. The slitting of the various plies is performed at different distances from
the longitudinal axes of the webs. When the webs are assembled, the slits are staggered and corner-forming parts of varying width are formed which provide exposed portions of each ply for adhesive sealing.


A method is provided for the manufacture of a multi-ply stepped-margin bag having a block-bottom closure sealed to more than one ply at the stepped-end transverse margins of the face flaps and to two or more folds at the corners. The closure is of the normal or diamond-fold type, capable of being adhesively closed in a standard bag machine.


Pennsylvania-Central Airlines have conducted successful test shipments of fresh fish using a special nonrefrigerated kraft container with a kraft-foil inner lining. The PCA container differs essentially in the inner bag, which is a moistureproof lamination of aluminum foil and kraft instead of Pliofilm. The fish themselves may or may not be wrapped in Pliofilm, no appreciable difference being noticeable in the temperature upon arrival. The kraft-foil bag is heat-sealed within a corrugated kraft box and the box, in turn, is placed in a larger corrugated fiberbox with corrugated pads in between to provide a dead cell for thermal insulation. The sealed containers were flown on a scheduled flight from Detroit to Washington without being given a special position in the cargo department. On arrival, the temperatures were tested on the top layers and in the center; it was found that they had risen only 4 to 6° on the top layers, whereas in the center, the rise was not more than 2°.


Ordinary paper bags are provided with a handle made of a strip of kraft paper folded to give four thicknesses which is glued around the bag and will support up to 100 lb. The bags have been used for prepackaging produce.

884. Packaging and Display Encyclopedia. London, George Newnes Ltd.

This annual catalog contains reviews on types of bags, their manufacture and uses, heavy duty multiwall bags, as well as on bag and sack filling and sealing machines.

885. Packaging change brings 80 per cent savings in man-hours on car loading. Packaging Parade 22, no. 260:90 (Sept., 1954); Fibre Containers 39, no. 9:112-13 (Sept., 1954); B.I.P.C. 25:140.

A granular chemical, anhydrous sodium thiosulfate, is being shipped from the Bridesburg, Penna. plant of Rohm & Haas Co. in "Drumpak" heavy-duty corrugated containers. The hexagonal container is lined with a waterproof crepe paper bag. Savings have been realized in reduced time and cost of loading.

In this review of equipment to be shown at the 17th Chemical Exposition in New York, one section is devoted to packaging equipment and shipping containers. While most references are to metal drums and containers, some are to new types of paper bags and packers for filling them.


A new way to pack aerated materials such as cement, plaster and stucco into multiwall valve bags, by using filtovent tape, has been developed by St. Regis Paper Co. The tape, placed on one or both ends of the bag, is perforated, and allows air to escape between the stitch lines and through pinhole perforations, producing a more solid bag.

Packaging machine. Food Packaging 34, no. 4:64 (1953); Packaging Abstr. 10:495.

The Simplex-O-Matic can have either net weight or volumetric measuring devices and is fully automatic. It forms single or duplex bags from plain or printed roll stock, flat or gusseted, then fills and seals them at rates up to 35 per min.


Among items shown were paper sacks impregnated with a resin known as "Melacoll M 1/45" which is included in the beater and renders the paper waterproof (Stickstoff-werk, Friesterwitz).

Pack-o-Mat, a block bottom bag closing machine. Verpackungs Rundschau no. 9:353 (1952); Packaging Abstr. 10:188.

The machine glue-seals block bottom and other bags up to 250 mm. in dimensions at speeds of 60 per min.

Packs one- to five-lb. bags with dry, free-flowing solid materials. Chem. Processing 20, no. 4:167 (April, 1957); B.I.P.C. 27:1131.

A machine is described which packs cement, chemicals, and granulated plastics in square-bottomed, self-opening paper bags with capacities of 1-5 lb. The fully automatic bag-filling machine operates at 1200-1900 bags/hr., and can be equipped with a checkweigher and a baling machine for unitized packing of the filled bags.

Padded shipping bags. Printing Mag. 77, no. 3:76 (1953); Packaging Abstr. 10:535.

Jiffy Mfg. Co. Jiffy padded shipping bags, suitable for shipping printed matter and printing plates, are constructed of moistureproof kraft with built-in padding to protect contents from moisture and damage in transit.
Properties and methods of manufacturing water-resistant adhesives from hydrolyzed or nonhydrolyzed starch treated with various synthetic or natural resins and rubber latices are reviewed. Laboratory and commercial experiments indicate that urea-formaldehyde used with or without ammonium chloride is the preferred agent. The urea-formaldehyde-modified starch adhesives are useful in the manufacture of wet-strength paper bags, spinning bobbins, multiply boards, etc.

Palletized shipments of multiwall and small paper bags by Bemis Bro. Bag Co. have resulted in large savings to customers in handling and storage costs. Different types of pallets are described and the factors to be considered in evolving practical palletizing operations are discussed.

The inner receptacle has a closure embodying an ear having separable plies of material extending from a pair of walls of the receptacle and united around the free edges of the ear and the outer receptacle has a closure embodying a plurality of flaps successively folded over and adhesively secured to one another to form an end wall for the package. Provision is made for a tubular dispensing spout communicating with the interior of the package.

Means for closing a paper bag whose mouth is formed with closely spaced walls joined by side folds, comprising a substantially flat plunger adapted to be lowered between said walls and spaced from said side folds, the plunger tapering to sharp edges at the sides, and means outside of said walls to press them against the plunger and against each other beyond said edges, whereby to constitute the plunger a hermetical closure for said mouth, wherein said walls converge in downward direction to form a neck for the bag, the plunger being tapered in downward direction to conform with the gather of said walls, a vertically-reciprocable support, and a series of rods depending from the latter and adapted to be lowered into said neck to separate the walls thereof on the downstroke of the support, said rods passing through the plunger.

Various kinds of paper were tested for porosity to city gas and air. Hydroloid paper (made by sizing paper with animal glue and hardening with formaldehyde) was much less porous and hence more suitable for making sacks for storing suits, uniforms, etc., than sulfite or soda process paper or the latter type impregnated on one side with bitumen.

This is a history of the development of the paper bag and paper-bag machinery in the United States. Numerous illustrations of the various steps involved in modern bagmaking, from the pine log to the testing of the finished container in a modern mill, are included.

The paper bag: some historical aspects of paper bag manufacture. La Revue des Papiers (April 10, 1945); Paper Making 63: 55-6 (Summer, 1945); B.I.P.C. 16: 185.

The historical development of paper-bagmaking machines is outlined, from the simple paper cone to machines making flat-bottomed bags. The present high-speed machines combine the three operations of bagmaking, printing, and applying various kinds of fastenings.

Paper bag and sack making machinery. Packaging 31, no. 229: 46-7 (July, 1949); Packaging Abstr. 6: 563.

The machines discussed include the “Honco” fully-automatic paper cement bagmaking and printing machine, which combines the making of gramophone record bags, large display wallets, etc., with aniline printing in one or two colors; a complete package-making and setting-up machine which produces a complete carton with foil, waxed or plain paper or greaseproof liner and a film or paper overwrap; three film bagmaking machines for making flat sachet-type bags with a floating liner; and several models of cement bag and sack-making machines.


The advantages of using large multi-ply paper bags for disposing of domestic wastes are outlined. Advances along these lines in Sweden and France are mentioned.

The paper bag more than holds its own in America. S. African Packaging & Sales Promotion 1, no. 9: 40-1, 71 (1953); Packaging Abstr. 10: 918.

Some of the products of the Union Bag & Paper Corp. are described. They include a wet-strength bag for packaging frozen chicken parts, and a sift-proof bag with asphalt paper liner for packaging rose bushes.

Paper bag packing. Rubber Developments 9, no. 1: 8-12 (Spring, 1956); B.I.P.C. 26: 1022.

Paper bag packing is applicable to most forms of natural rubber except sole crepe, but is unlikely to become popular except where a definite advantage accrues to the manufacturer by the supply of small clean bales of rubber. A premium in excess of two Malayan cents/pound should cover the
cost of bags and possible extra handling and shipping costs. The paper bags consisting of four multiwals of paper with a polyethylene liner have proved satisfactory; shipment using this type of bag can be recommended, but preference for between-deck stowage should be indicated. Advantages in handling and identification of these bales are established and their use should be encouraged where suitable.


"Palco Pete's Mulch," a shredded redwood-bark soil conditioner produced by The Pacific Lumber Co., is now being packaged successfully in a special Bemis multiwall bag consisting of two walls of heavy-duty kraft and an inner impregnated moisture-vaporproof paper liner. The top closure of the filled bag is reinforced with sewed 90-pound creped kraft tape. The bag is suitably decorated and printed with the necessary information regarding the product and its manufacturer. Earlier packages were penetrated by the moisture in the product, which damaged the mulch and caused the bags to lose their strength and rupture.


A paper bag with a laminated polyethylene lining and window is made by the Flexothene Division of Vitaloid (Manchester) Ltd., the window being part of the lining and not stuck on. The bag can be heat sealed.


Block-bottom bags are provided with perforations 6 mm. in diameter in zig-zag formation on both sides. Further holes can be provided in the base to permit the leakage of soil, etc. The perforations do not affect the strength of the bag.


Technical hints on the manufacture of bag paper and use of bags are given.


Paper bags instead of baskets or crates are being used by large rubber concerns in Deli, Sumatra, to ship rubber sheets. Recently some 25,000 kg. of rubber were shipped to Europe by this new packing method, which results in a considerable saving in freight charges and cargo space.

The article describes the properties required of paper bags as carriers of heavy articles, including resistance to certain chemical reactions, the advantages of multiwall bags and methods of manufacturing them, bag filling machines and methods for closing them. Correct handling methods and problems involved in the disposal of waste bags are also discussed.


Two dozen 1-lb. polyethylene carrot bags were placed in 3-ply paper master containers for shipment in refrigerated cars. They were stacked ten high in alternate layers of four crosswise and six lengthwise. Top icing was eliminated. The tests caused no damage to the carrots or the plastic bags.


Test shipments made in perforated, multiwall, wet-strength paper bags have proved satisfactory. The lettuce is packed 12 heads to the bag and is vacuum cooled, which eliminates the need for top icing.


Reference is made to pasted paper bags and textile yarn bags which have replaced jute bags in many instances.


St. Regis Paper Co., (Canada) Ltd., and The Consolidated Mining & Smelting Co. of Canada jointly developed a four-ply, polyethylene-lined kraft bag for packaging fertilizer-grade ammonium nitrate, a chemical which absorbs moisture readily. Consignees report that the product arrives in a drier condition and empties better from the bags than before when asphalt-laminated five-ply bags were used. The polyethylene ply remains strong and pliable during cold winters and hot summers. Other satisfactory applications of polyethylene-lined bags include the packaging of peat moss, powdered milk and meat scraps in freezers.


J. H. Huber ship their paper clay in valve-type bags, which are de-aired as they come from the packer. They are then palletized with the fiberboard sheet separators to prevent chafing and interlocking.


Brief reference is made to various grades and qualities of paper suitable for use as bags or liners in cartons for various products and use requirements.

Descriptions are given of a sack-filling machine and two machines for packing bags into outer bags, manufactured by the Swedish firm of AB Kvarnmaskiner. The former is a lock and worm filler for valve sacks which incorporates a weighing and vibratory settling mechanism. The other two machines pack filled paper flour sacks into a multiwall paper sack. A vibratory mechanism settles the contents of the unitized load. One of these machines requires hand positioning of the flour sacks in the filling trough, the other is designed to operate with automatic bag-filling machinery.

Paper sacks, their manufacture and application. Papier-Ztg. 67, no. 10:224-6 (May 9, 1942); Svensk Papperstidn. 45, no. 12:254 (June 30, 1942); B.I.P.C. 13:200.

In spite of the fact that the raw materials for jute, linen, and hemp bags were plentiful in America, the paper sack originated in this country, practical and economical factors being decisive. As early as 1870 paper bags for flour were manufactured; they were made from 2-4 layers of strong manila paper couched together upon cylinder machines. In Europe, interest in paper sacks did not manifest itself before the turn of the century. The suitability of paper sacks for cement was investigated by the Verein der Zellstoff- u. Papier-Chemiker und Ingenieure in 1907. The difficulty was to find a paper of sufficient strength which could be converted to bags upon machines. Although it was known that duplex and triplex paper was manufactured into bags upon special machinery in America, European converters hesitated for a long time before the first practical experiments were made by laminating two or three layers of kraft paper. The paper had been made on Fourdrinier machines and sacks were at first pasted by hand. The next step was the utilization of machinery in the manufacture of bags composed of several layers of paper whose grain ran at right angles in the different layers. This development was an important step forward; from then on the application of paper bags to all kinds of materials made enormous strides.


Medway multiwall 70-lb. paper sacks are now being used by Spillers Ltd. for their cake flour, instead of the 140-lb. jute bags. The risk of sack fiber being found in the flour is entirely eliminated.

Paper sacks for flour. Packaging 30, no. 2:51 (Jan., 1948); Food Mfg. 23, no. 1:35 (Jan. 1, 1948); Packaging Abstr. 5:147.

The use of stout paper sacks for flour shipments as against hessian, jute or linen has been demonstrated.


Among the types mentioned are those for confectionery bags.
A chart is presented showing in twenty pictures the right way and the wrong way of handling paper shipping sacks.

An outline is given of the manufacture of the five major types of shipping sacks: sewn valve, pasted valve, sewn bottom open mouth, pasted bottom open mouth and open corner sacks. This manual is designed to stress the main precautions to be taken in handling, storing and shipping sacks to prevent their damage. To this end instructions are given for: lifting and carrying sacks; the manipulation of hand trucks, platform trucks, skit platforms and pallets, and stacking conveyers; loading (including loading two-wheeled hand trucks, small wooden pallets for two-wheeled hand truck loading, loading four-wheeled hand trucks, palletizing, loading motor trucks, goods wagon loading and loading ships); unloading goods wagons and vessels; storage of filled and empty paper sacks (suitable storage rooms, including humidity conditions, reconditioning of too dry paper sacks, a temporary method of humidifying storage rooms and warehouse stacking of filled sacks); exposure; reclaiming or repairing damaged sacks; and emptying paper sacks.

The various types of paper sacks are described and illustrated. Their storage is also dealt with. Closure methods for valve-type sacks are fully illustrated. The importance of palletization in handling, shipping and storage is stressed. Carloading methods are shown and recommendations made for overseas shipment.

A new type of pallet, which weighs less than three pounds and supports a load of nearly a ton, comprises a sheet of paper and two spiral-wound chipboard tubes. The pallet, called Accopak, was developed by American Cyanamid Co. and is being used with multiwall bags arranged in a stacking pattern. The paper sling is a 90-pound basis weight kraft containing melamine resin.
Paper bags are now used in place of jute ones for cereals in Sweden and from a sanitary viewpoint are more satisfactory. They are also more resistant to dust, moisture, etc. Multiwall bags are used also for packing cement, chalk, phosphates, plaster, potash salts, fodder mixtures, etc.


Cindus X-Crepe, a kraft paper creped diagonally in two directions made by Cincinnati Industries Inc., Cincinnati, Ohio, is produced in a single thickness, in laminations with cloth, fibers, films, or foils, and impregnated with wax, resin, rubber, or asphalt. The manufacture, numerous applications, and unusual properties of the paper are described; bags and liners form water- and vaporproof barriers. The material can be sewn, taped, cemented, or handled in any of a number of other ways in the production of finished goods.

927. Paper wraps for rubber. Verpakking 1, no. 10:18(June, 1949); Packaging Abstr. 6:615.

A successful pack for baled rubber was found to be a multiwall paper sack with a paper inner wrap which does not stick to the rubber.


The advantage of the invention is that the cost of these bags is little higher than that of ordinary bags, but they have greater strength and they can be packed more regularly into packing cases. In addition, no inner lining is needed with powders and they are easy to fill. The two walls of the bag tubing, without lateral folds, are stiffened prior to pasting the tubing by means of a strip of pasteboard having a width equal to the width of the walls and a length such that the closed bag is provided with two pasteboard side walls, a pasteboard bottom and a pasteboard top.


Paper, board, aluminum foil, cellophane, and cotton or jute fabrics serve as carriers for extrusion lamination or roller coating with polyethylene to give two-, three-, and four-layer packaging materials for the manufacture of bags, sacks, folding boxes, and corrugated or solid fiberboard shipping containers. The resulting laminates are resistant to water, water vapor, acids, oils, fats, and certain gases, can be heat sealed at 110-115°C, and withstand temperatures from -50 to +80°.


The author discusses the industrial and technical advantages of selling small quantities of foodstuffs in "original packages," with special reference to the possibilities of substituting paper bags for textile bags.

A tubular formation of sheet material has portions removed from one end thereof so that the remaining portions can be converted into a liner, protective cover, or a container. The product can be used as a liner for a cylindrical container or as a flat-bottom bag with cylindrical side walls. A square liner or bag having a square flat bottom can be transformed to a round flat bottom and the side walls can be transformed from square to cylindrical shape in cross section.


In a machine of the type described, the combination of means for directing a continuous sheet of paper or the like and a continuous ribbon along respective individual paths merging at a point in which the two materials are moving in the same direction, means for severing and doubling upon itself the advancing ribbon to form it into successive folded strips prior to its arrival at said point, power-actuated means for feeding the ribbon in the initial portion of its path at a rate substantially greater than that of the sheet advance so as to compensate for the greater length of ribbon required to match to length of sheeting in view of the doubling of the ribbon, said power-actuated means also being effective to feed the severed and folded portions of the ribbon at a slower rate matching that of the sheet substantially at said point of path merger, and means for attaching successive folded strips to the advancing sheet while the sheet and strips are advancing at matched rates.


The Rawe bottomer for flush cut and stepped-end tubes up to 6 ply, will produce single or double-pasted bottom multiwall sacks in one operation. The unit bottoms both ends of the tube simultaneously by passing the tube through the machine sidewise.


The author emphasizes that pasting paper bags for heavy duty can be carried out in a satisfactory manner.


This multiwall bag for fertilizer gives a more positive valve closure on granular and pulverized materials. The valve is strengthened by a full insert which adds paper to the valve area. The bag has an opening tab.

While most pasting of paper bags is done by machinery, small lots of odd-shaped bags are still pasted by hand. Directions for shortcuts in pasting various types, some of them lined, are given. A number of diagrams help to facilitate the directions.


The air- and moisture-impermeable bag made of thermoplastic material (polyethylene film) or thermoplastic-coated material for fluids, powders (carbon black), and similar contents, is formed from seamless gusseted tubing continuously fabricated by an extrusion die machine. The unique feature lies in the means for the across top and bottom heat sealing of the bags without contamination by the contents of the areas to be sealed.


In a bagmaking and filling machine, means are provided for advancing in a straight path a connected strip of filled and sealed bag sections a distance of one bag length each cycle of operation.


The machine comprises a continuously moving carrier for workpieces, a heated nozzle and an extruder for forcing a solid, thermoplastic coating material through the nozzle to extrude it molten against a moving workpiece.


A trigger-controlled, power-actuated extruding mechanism is adapted for paper-bag sealing machines by means of which small controlled amounts of coating material are extruded directly upon the surfaces to be sealed. Cement in rod form is pushed through a heated nozzle and fed forward by a solenoid-controlled, lever-operated toothed disk. Proper adhesion is provided by a continuously acting presser in the form of a driven belt.


In a mechanism for dispensing closures constructed to provide a body of flexible sheet material having an opening therethrough and a slot extending from the opening to an edge of the closure to define laterally flexible arms at opposite sides of the slot and opening which comprises: a guide element having a guideway terminating at one end in rests spaced laterally from each other on which the side portions of the closure are supported while the
central portion of the closure is left unsupported to render said arms of the
closure free for flexing laterally outward from each other between said rests
by pressure of a contracted bag mouth against said edge of the body at said
slot thereof, so as to widen the slot sufficiently for the passage of the
contracted bag mouth into said opening of the body, to thus apply the closure
to the bag; and means correlated with said end of the guide element and
operable in response to movement of the mouth of a bag toward said slot to
guide the bag mouth to the slot and flatten the bag mouth sufficiently for
it to be entered edgewise into said slot.


Kwik Loks are bag closures made of Styron 475, and can be applied at
the rate of 2,000 per hour on the Paxco bag closing machine. The closures
can be printed with name, date, etc.

Pearce, J. H. A new system for storing wheat. Northwest. Miller
231, no. 11:13a(1947); Index Lit. Food Invest. 20, no. 1-2:45(June, 1948); Packaging Abstr. 7:661.

It is suggested that in the U.S.A., wheat should be stored in multiwall
paper sacks in inexpensive structures adjoining the wheat fields, instead
of in large elevators in crowded city areas. The grain is washed and dried
in a flash drier if necessary and poured into the sacks with a stream of
dry air to replace humid air in the sacks. The sacks are closed with a
continuous stapling ribbon, sprayed with a waterproofing and rodent-deterrent
coating, after which sawdust is blown on to them to give an antiskid effect
when the sacks are piled.

Pearce, L. H. Apparatus for holding a bag or sack. British

A frame for holding open the mouth of a sack for filling is claimed.

Pearson, F. H. Manufacture of paper and like bags. British
patent 675,375(Jan. 3, 1951); Packaging Abstr. 9:678.

A method and machine are described for forming wrapper blanks which are
to be made into bags. The bags have tapered triangular gussets in opposing
sides which, when the bags are folded, lie against the inside of the front
faces of the bags. The fronts of the bags may be pulled out by extending
the gussets to facilitate access to the bags.

19, 1945); Packaging Abstr. 3:755.

A lock-seam gusset bag is formed without a joint or seam in the bottom
from a length of material such as paper or cellulose film which is folded
with a fold extending at right angles to the length of the material in order
to produce the bag bottom, the opposite sides of the material being double-
folded with one half of the length of the first fold pasted on the reverse
side while the front side of such fold is half or fully pasted thus producing in the final operation a lock-seam gusset bag with no seam in the bottom. In manufacturing these bags a continuous web of material is passed through a machine which first applies paste to the parts which are to form the reverse sides of the first folds at both sides of the web, only one half of the unit lengths of such reverse sides being pasted. The first fold is then made by the usual means and one half of each length pasted down to form the lock seam. The second folds are then made and the front side of each first fold pasted on either the whole or half its length, after which the pasted and folded web is cut into bag lengths and folded across to produce the bottom and to close the sides where they are pasted, for forming the gussets. The folding of the web may provide a projecting lip at one side of the mouth of the bag.


In lined gusseted bags, such as the self-opening satchel, rose shape and block-bottom types, in which two webs are pasted together and creased and folded to produce the bag, the web which constitutes the liner is cut at the parts which will be the corners of the top of the bag above the line where the top is to be formed and the two webs are stuck below this line. Some or all of the line between the cuts and above the line is free from adhesive connection to the outer ply so that the free parts which form the loose flaps can be turned down on the material in the bag before the outer ply is turned down to close the bag. Thumb cuts may be made in the outer web to facilitate folding down of the flaps.


A method and machine for producing a continuous tube for the manufacture of bags, particularly block-bottom bags, with lateral longitudinal panels, are claimed. Several superimposed strips may be processed simultaneously to make lined bags.


A flattened tubular partly-formed cross- or block-bottom bag blank is releasably gripped at the leading edge of one of its flat walls by a gripper which moves the bag against a nose-piece, the latter entering the bag end and engaging the upper wall while the lower moves beneath it in known manner.


252. Pennekamp, O. Uses of paper and pulp yarns. Textilber. 30:58(1949); J. Textile Inst. 40, no. 8:4316(1949); Jute Abstr. 13, no. 3:20(July-Dec.,
Paper and paper-jute yarns are woven into wide webbing for bags and sacks.


A description of the multiwall bag research laboratory at the Pensacola, Fla. Kraft Center of St. Regis Paper Co. is given.


Multiwall sacks are proofed in the U.S. with 5 mg. pyrethrins and 50 mg. piperonyl butoxide per sq. ft. added during sizing or sprayed on. Printing inks can also be impregnated. The cost is high. They retain their power for more than a year in temperatures above 150°F.


The use of Avenex, an edible antioxidant prepared from oat flour, for sizing parchment, greaseproof, and glassine papers, as well as cardboard materials, for retarding rancidity and oxidative deterioration of fat-containing foods when wrapped in such treated products, is described. Reference is also made to glassine liners for coffee bags.


A slit sleeve which is adapted to be inserted into a preformed bag valve by a mechanical inserter can be firmly engaged by and supported on the inserting element during the folding and inserting operations. The inner portions of the sleeve can be separated at the fold line after the sleeve has been inserted.


The machine forms and inserts a soft paper or other liner in the valve as the bag is conveyed from the valve forming to the sewing mechanism. One end of the liner extends beyond the valve and can be folded or crushed against the valve to seal the valve opening and prevent the seepage of fine material through the valve.


Bag tubes, especially multi-ply tubes, cut to bag length are fed from the bottom of the pile by the device claimed which elevates the pile while the bottom tube is withdrawn by friction elements which move said tube into
engagement with a conveyor for delivery to the proper finishing machine. A stop assembly prevents the feeding of more than one tube with each rotation of the feeder shaft.

959. Peters, Harry, and Pierson, Clyde D. Sleeve inserting device for valve bags. U. S. patent 2,442,431 (June 1, 1948); BoI.PoCo. 18:611; Packaging Abstr. 5:388.

In a valved bag of the sewed type, the formed and tucked bag section or blank is stitched across both ends thereof to close the ends, except the valved filling opening; this invention provides a mechanism which will insert a sleeve in the valve of a bag on the conveyor which moves the bag to the sewing mechanism.


The mechanism inserts a tuck-in sleeve in the valve of a paper bag after the valve has been folded and the bag is being conveyed from a valve-forming to a sewing mechanism. Means are provided to form a sleeve with a folded-over cuff at its inner end; a device is employed for separating the side walls of the valve when the sleeve is inserted and adhered in the valve.


Apparatus for filling valve bags comprising a substantially horizontal spout adapted to enter the valve of a bag, a substantially vertical member beneath the spout, a pivotal support for said member near its lower end, a support pivotally mounted at the top of said member for supporting the bottom of a bag being filled through said spout, the vertical plane of the pivot of said bottom support passing between the center of gravity of a filled bag thereon and the entrance end of the spout, the vertical plane of the pivotal support of said member being nearer to the entrance end of the spout than is the vertical plane of the pivot of said bottom support, and means limiting the movement of said member about its pivotal support.


In apparatus of the class described, a weighing device, a spout mounted on said weighing device, a bag saddle for holding a bag in filling relation with said spout, a gate for governing a flow of material through said spout, a fluid actutable power cylinder having a piston operable to perform a power stroke divided into a first part and a second part, manually operable means for initiating the first part of said stroke, an operative interconnection between said gate and said piston for opening said gate in response to the first part of the power stroke means responsive to weighing movement of said weighing device for closing said gate, a bag discharge device responsive to the second part of the power stroke of the piston for discharging said bag, and a governor for controlling a flow of fluid to said
power cylinder for controlling the duration and speed of the second part of
the power stroke thereof whereby a predetermined time interval is interposed
between the closing of said gate and the discharge of the bag.

The apparatus is for use with a machine which folds a closure tape
astride the mouth of a bag and then sews the closure. Light frictional
contact is made at fairly rapid intervals with the bag mouths so that they
are properly positioned for the taping and sewing operations.

A bag support for an automatic filling machine is mounted on a vertical
screw which may be rotated in either direction to elevate or lower the
support; in this manner, bags of various lengths may be accommodated.

A material of fluffy nature (sodium silicate, kaolin, diatomaceous
earth, or the like) to be packed in paper valve bags, etc. is agitated
within the receptacle while suction is applied to reduce the volume and
density of the material.

The feed gate of a bag-filling machine is constructed so that the usual
objectionable binding action of the material (e.g., cement) on the gate is
avoided, with the result that the slide or gate may be freely opened and
closed.

This filling device is adapted to filling valve bags with light fluffy
materials and incorporates a horizontal filling tube that extends through
the valve. A positive feed to the screw conveyor, which operates within the
filling tube, is maintained by a combination of screw conveyors and paddle
wheels which extend upward into the hopper.

An apparatus is described for sealing valve bags by means of heat and
pressure (in one form of the invention pressure alone is used). The unit
consists of means for spreading the wall surfaces of the valve sleeve, the
pressing together of the inner surfaces by means of the clamp, and of the
application of heat and pressure to seal the valve to which adhesive has
been applied.

Before being filled, bags are impregnated with a solution of sodium carbonate.


As possible replacements for the latex-coated bags used for the storage of mercury fulminate in water or aqueous alcohol, a number of plastic-impregnated fabrics were submitted for determination of their suitability. Tests to determine their waterproofness, resistance to 30% alcohol, and absence of action on mercury fulminate showed that two commercial vinyl resins and a resin addition composition were suitable for the manufacture of waterproof bags.

Phillips, W. R. Where do we go from here (re food packaging?). Food in Canada 4, no. 9:26 (1944); C.A. 39:1696; Packaging Abstr. 1:450.

In designing food packages, consideration must be given to the characteristics of the particular food being packed. Fresh apples should be packed to reduce moisture loss. Moistureproof cellulose film is just permeable enough not to suffocate most varieties of apples. Glassine wax-laminated to manila paper and waxed kraft (30 lb, waxed 40) are also beneficial. Moisture-resistant glues and stitching applied to paper bags for potatoes overcame bag breakdown owing to sweating of the potatoes in closed railway cars during transit. Wet-strength paper bags will be of value even after jute is again available, because the paper package is a barrier to the transmission of disease. Efforts are being made to develop paper containers more satisfactory for brine or syrup packs in freezing because of their advantages in contrast to dry packs. If the oxygen content is reduced from 21 to 2%, the storage life of dehydrated foods may increase 200%. Some wrapping materials show a monthly gain of weight of 0.03% per 48.6 sq. in. surface area per lb. at a high relative humidity. Wax-coated cellulose film showed weight increases of 0.2 to 0.4% per month. With smaller packages the increased surface area per unit weight is a disadvantage.


A closure for bags of paper, cellophane, or similar flexible material is intended for facilitating the opening of such bags and providing reinforcement to the edges while the contents are being removed. The closure consists of a rectangular paper blank divided by score lines into two outer and two inner panels, the latter of slightly less width than the former; the panels are folded in accordion-fashion and their bottom is adhesively secured to the top of the bag. For opening the closure is slit along one of the top score lines.
A blank of paper having a series of parallel spaced cuts and folds is formed as an insert for closing the mouth of a paper bag. When portions of the insert are folded and sealed over the bag mouth, an area may be easily torn open to provide a dispensing aperture.

A closure device consisting of a blank cut from material such as paper or cellophane is inserted in a bag of the type having gusseted walls and is folded and sealed with the mouth of the bag to form a durable closure. Perforated lines provided in the blank facilitate opening the bag to form a pouring spout for the contents.

A recent development of the American Perforator Co., Chicago, is American Model 700, a photoelectric code-dating perforator for coding heat-sealed or stapled bags. This machine requires no operators or attachments, is self-powered, and automatically perforates and counts 200 or more bags per minute, depending upon the size of the item and the speed of the conveyor. Mounted on a pedestal-type stand, the complete unit may be moved, raised, lowered, or tilted without disrupting production.

The article is a study of the possibilities of the aniline printing process with special reference to suitable inks and machinery, rubber stereotypes and rubber rolls in particular. The methods of printing in several colors are described, as well as the different procedures for printing upon various kinds of wrapping and bag papers, such as kraft, glassine, cellophane, etc.

The machine automatically transfers a bag made of pliable sheet material from a container forming machine, fills the bag, vibrating the contents to settle them into the bag, tucks the end walls of the top of the bag, while bringing the side walls together to form a flat closure, and heat-seals the closed end.
A bag-filling mechanism with a supporting frame, a reciprocable filling spout and movable bag top expanding means is claimed.

A length of flattened flexible tubular material is transversely bead sealed at one end and then opened up and refolded to permit additional seals to be made in the material to provide a square bottom structure. This is accomplished by folding corner portions along lines at right angles to the bead seam and sealing these triangular portions in superimposed positions over the bead.

Bags made of paper, cellophane, and similar material are opened to permit entry of the filling spout of a packaging machine by a plurality of resilient fingers located between the bag opening and the filling spout. As the spout moves downward to enter the bag, it exerts pressure against the base of these fingers, bending them down into the bag and thus holding the bag mouth open until completion of the filling operation. When the spout is withdrawn, the fingers spring out of the bag.

A mechanism is provided for dispensing bags from a supply in connected roll form. Each bag is separated from the end of the roll by a tearing operation, while the next bag is held against advancement by a hooklike member adapted to project through an aperture in a perforated line separating each bag in the roll.

The method of making bags, which comprises, forming a continuously advancing collapsed tube of stock and removing successive sections from an end of the tube by simultaneously transversely shear cutting one layer and impact tearing the other layer along offset lines of cleavage.

Open-end tubular containers such as paper bags are removed from the mandrels of a container-forming machine and drawn by suction through a transfer chute to the mandrels of a filling machine.
A packaging machine of the type which moves a paperboard container by conveyor to a station where the container is filled is provided with an apparatus which vibrates the container during the filling operation, thus settling the contents. The apparatus comprises a vibrator frame reciprocally mounted beneath the conveyor at the filling station and driven by a separate motor.

In combination, a table, means for folding the edge portions of a sheet of material being advanced along said table into overlapped position and for joining said edge portions to form a flat tube, a pair of members movable toward each other longitudinally of the tube and extending thereacross, one of said members being co-operable with one wall of the tube some distance from its free end and the other being simultaneously co-operable with the other wall to fold the free end of said walls over one of the walls, and means for fusing the folded end areas to said one wall and to each other.

The invention deals with improvements in a machine for longitudinally and transversely sealing superimposed webs of flexible material and thereafter cutting the sealed material to form a plurality of bags. Longitudinally and transversely extending heating bars and co-operating cooling bars are provided for placing seams in the material at spaced intervals.

An illustrated description is given of the production, filling, and handling of square-bottomed kraft bags; the equipment at the Standard Bag Corp., Long Island City, N. Y. includes three Potdevin supermarket bag machines.

The apparatus comprises (1) an opposed pair of sewing machines mounted for relative movement toward and away from one another for stitching closed the ends of open-ended flat tubular bag blanks of various lengths fed through the apparatus with their open ends travelling under the needles of the machines, and (2) means for feeding bag blanks of various lengths through the sewing machines comprising a pair of parallel endless chains having feeding lugs thereon, the chains being mounted for relative transverse movement toward and away from one another.
Kraft paper multiwall bags are now being used extensively in the West Coast fishmeal industry. Most bags are made of 50-pound kraft paper with three to five plies. One ply of asphalt paper is usually used in long-distance shipping to reduce fire hazards caused by heating meal.

Attempts were made to insectproof jute bags with DDT, dieldrin, aldrin, and lindane. Lindane proved to be the most powerful, but effective only for some commodities. Other insecticides, besides being specific, were required in quantities large enough to contaminate the foods. Combinations of dieldrin-lindane were satisfactory for protecting a variety of common foods; a 35:35 mg./sq. ft. concentration of lindane-dieldrin gave 1 year's protection, and was found to be safe.

An automatic vacuum filling machine, for filling powder into flexible containers, bags, etc., incorporates a clamp for both holding the material of the bag in airtight relation to the filling head and preventing collapse of the bag when subjected to vacuum.

The side and bottom of the bag are sealed by a strip of pressure-sensitive adhesive capable of effecting a seal at a temperature not exceeding 100°F, and the top closure is made with a thermosetting adhesive having a melting point of at least 180°F. The bag may be made on high speed machinery.

During 1943, more than 325 distinctly different types of commodities were shipped throughout the world in paper shipping sacks. The range in construction of these sacks varied widely. Some were single-wall sacks of a few pound capacities for home consumption and others were heavy-duty six-ply multiple-wall paper shipping sacks of 100-lb. capacity for export shipment of hygroscopic chemicals or foodstuffs. Depending on the commodity to be packed and its reaction under varying climatic, storage, or shipping conditions, these multiwall sacks are built to fulfill certain use requirements according to specifications. Reference to various sealing methods is made.
Over two billion multiwall shipping sacks were in service during 1949: 27.59% was used for agricultural products, 29.19% for building materials, 33.47% for chemicals, 7.26% for minerals, and 2.49% for miscellaneous products. The total volume produced was 12.25% less than in 1948; however, packers and shippers reduced their heavy inventories, so that actually more sacks were used than during any previous year. There are at least 450 different types of commodities for which suitable multiwall constructions have been developed since 1925; examples of their extensive versatility are given. In 1945 there were 34 plants in the United States producing multiwall shipping sacks; today there are 46. The Technical Committee of the Paper Shipping Sack Manufacturers' Association has for years encouraged the research consciousness of its members.

Polyethylene thin film acts as liner-core for multi-wall bags. Can. Plastics no. 79-80 (March-April, 1953); Modern Plastics 31, no. 4:144 (Dec., 1953); Packaging Abstr. 11:167.

The polyethylene is bonded to the inside of the kraft or in the middle of the plies, depending upon the application.

Polyethylene-coated kraft for multi-wall bags. Paper Box Bag Maker 107, no. 7:11 (July, 1949); Packaging Abstr. 6:763.

The polyethylene multiwall bag is a superior container for the packaging of hygroscopic materials, particularly in the chemical and food fields. The efficiency of the polyethylene-coated bag has been tested and approved under plant conditions. These tests included the packing of meat rinnings, calcium chloride, powdered skim milk, and synthetic resins.


Polykote, a sheet coated with a combination of polyethylene and wax for use in multiwall bags, is a development of Arkell & Smiths, Canajoharie, New York. It is as alkali and acid resistant as polyethylene and is well suited for packaging hygroscopic materials such as synthetic resins, chemicals, fertilizers, etc.

Polymer bags. India Rubber J. 116, no. 924 (1949); Research Assoc. Brit. Rubber Mfr. 27, no. 8:687 (1949); Packaging Abstr. 6:889.

With reference to the packing of carbon black in polymer bags there are several points to be considered apart from the easy removal of the bag without damage to the multiwall paper overslip, such as the right polymer exhibiting the most suitable properties, for ballooning in the internal mixture with a consequent dust blast is one of the main troubles.

Four-ply, polyethylene kraft bags developed by the St. Regis Paper Co. (Canada) Ltd. in co-operation with the Consolidated Mining & Smelting Co. of Canada are now replacing the five-ply multiwall bags with two asphalt laminations for shipping fertilizer-grade ammonium nitrate. The product is claimed to arrive in a drier noncaked condition and to empty better from the bags than before. Although polyethylene is more expensive than asphalt, the difference in shipping weight results in a slight reduction in delivered cost.


Methods developed for the use of waterproof paper in sealing for export are described. Procedures are outlined for wrapping cartons, making bags for case-linings, and sealing them after insertion in case and packing. Illustrations are included. The methods are not claimed to be the only correct ones in existence; however, they have actually proved satisfactory and are offered as a help to others.


Details are given for the manufacture of a bellows-fold flat-bottom type bag which is substantially siftproof.


In the making of bags, those steps which consist in making nonrectilinear cuts in a web, folding the web into a bag tube so that said cuts are central of one wall thereof, severing the tube into bag lengths by transverse cuts, the line of severance of the tube well having the central cuts therein being along a line which meets the outer ends of said cuts, the line of severance of the other wall being from side to side of the tube and offset from the first said line of severance so that the edge of the wall of the tube which has been severed from side to side projects beyond the edge of the wall having the central cuts therein, and subsequently severing both walls of a bag length along a line within the edge of the wall having central cuts therein.


In a bag machine, the combination with a former about which a web of paper is adapted to be wrapped to form a bellows bag tube, wing plates adapted to engage the tube and to form bellows folds therein, one edge of each wing plate having cutting edges for severing one ply of the bellows fold.
The method of making a paper bag which consists in making oblique cuts in a web of paper within the margin thereof, folding said web to form a bag tube, continuously advancing the web and tube, severing one wall of said tube along a straight line meeting one end of said oblique cuts and the other wall along an irregular line connecting the other ends of the same cuts, said irregular line having a central portion of trapezoidal shape thereby producing a recess at one end of said wall and a complementary projection at the other end of the same wall, the walls of the bag being offset longitudinally, the end of the wall provided with a recess constituting a closing flap at the bag mouth; forming a tongue in both bag walls of a size and shape to fit into said recess when said flap is folded over onto the opposite bag wall, and subsequently closing the bottom of the bag by folding along a line including said projections but not including the remainder of the bag wall of which said projection forms a continuation.

Method of making a bellows fold siftproof bag.

A foldable locking tongue is formed from a double thickness of the flap section of a conventional flat paper bag; this tongue, when locked in closed position, and lines of severance cut in the bag flap secure a ticket strip, memorandum, or the like in view on the front of the bag. 13 figures.

The method of making an envelope bag, which comprises taking a bag tube, which has longitudinal cuts at intervals in the length thereof, and severing both walls of the tube along lines which connect both ends of the cuts. Apparatus for forming bags or the like, comprising a support for a roll of material, a slitter roll over which the material passes, diagonally arranged blades on the roll, a former, and means to draw the material over and wrap it around the former, if extended, intersecting the blades. A paper bag having a front wall, a rear wall and side folds, a top flap which is a prolongation of one of said walls, said flap having side edges which are prolonged beyond the side folds of the bag.

The weakened tubulated web used for the formation of paper bags is simultaneously gripped between two sets of rollers with the weakened portion
of the web interposed between the two sets. The timing of the rollers is such that the main body of the tubulated web is temporarily slowed down slightly while the bag blank to be separated is temporarily advanced at high speed. The pull thus produced effects separation of the bag blank from the remainder of the web which is immediately released and allowed to proceed at its normal speed. Means are provided to adjust the length of time that the tubulated web is slowed down to adapt the mechanism for the different production speeds incident to the formation of bags of different lengths.


A paper bag providing for the attachment of a ticket to the bag flap can be produced on a conventional automatic bagmaking machine by providing an appropriate die-cutting roll for cutting the slits and lines of severance defining tongues in the bag web prior to tubing. When properly folded, the interlocking tongues and flap of the bag serve to close the bag and retain the ticket.


A paper bag of the type claimed may be made as inexpensively as ordinary paper bags and in the usual automatic bag machine, since the mouth-closure locking tongues may be severed to define tongues which inter-register when the flap is folded by an appropriate rotary die cutter incorporated in the machine.


A method is claimed for closing the mouths of paper bags by means of a series of slits cut through the paper and through which a band of paper or a folded data ticket may be inserted.


The method of rolling a sheet metal pack to reduce it to a predetermined thickness and cross-sectional contour, which method consists in passing the pack at least twice through a stand of rolls having roll factors predetermined with respect to the initial shape or cross section of the pack, whereby to effect two major reductions while forming the pack with a predetermined cross-sectional convexity and passing and repassing the pack through a second stand of rolls having roll factors predetermined with respect to the shape or cross section of the pack as modified in the last pass through the rolls of the first stand, whereby to effect in the second stand two major reductions in the first two passes and such minor reductions in the succeeding passes as may be required to reduce the pack to the thickness and cross-sectional contour which has been predetermined.
The process of making a paper bag which consists in making successive transverse cuts in the respective wall of a bag tube creating a slack in the tube prior to making the first transverse cut and creating a further slack between the time of making the first and second cuts. In a machine for making paper bags having mechanism for forming a bag tube and having spaced transverse cutting edges for severing the walls of the tube to form individual bags; the combination with means for severing one wall of the bag tube, means for feeding the bag tube and means for subsequently severing the other wall thereof.

In a bag machine, the combination with a former about which a web of paper is wrapped to form a bag tube, and feed rollers for advancing the tube; of means for perforating the web prior to folding thereof along lines which define a bag tube section after the web is folded, pinch bar mechanism operated at a greater peripheral speed than the feed rollers and acting to separate successive bag sections from the main tube, and means for subsequently bottoming the bag tube sections, said pinch bar mechanism acting to feed a severed bag section directly to the bottoming mechanism.

The method of making a window bag which consists in making cuts in a web of paper each cut defining an outline substantially one-half of the portion to be eliminated from the bag wall in the finished bag to form a window therein, folding the web to form a bag tube, severing the tube into bag sections and bottoming successive sections with the cut-out portions intermediate the ends of a bag section.

The process of forming a compartment paper bag which consists in applying a line of paste adjacent one edge of a web of paper and another paste line separated therefrom a distance equal to the desired width of the compartment, folding said web to form a tube, severing the tube transversely into bag lengths in such a manner as to form complementary flaps at its respective ends and closing one end of the bag length to form a bag bottom.

In a bag machine, the combination with a support over which a web of paper passes, a former about which the web is wrapped to form a bag tube and feeding means for the web, of means for making a pair of longitudinal cuts in the web prior to folding the same about the former, said means
including a pair of dies and means to move said support to bring said web and a pair of dies into co-operative relation at intervals during the feeding movement of said web and means for varying the interval of time during which the web and dies are maintained in co-operative relation.


A bag machine having a former about which a web of paper is wrapped to form a bag tube, with means for continuously advancing the tube and web; in combination, cutters for making cuts in the web at bag section intervals apart, means for rotating said cutters, said rotating means including two gears, each gear being so mounted that it may be made to describe an eccentric path during a rotation, and means whereby the degree of eccentricity of each may be varied in equal and opposite degree, the degree of eccentricity having a definite relation to the surface speed of the web.


In a bag machine, the combination with bag-tube forming mechanism and means for feeding a web of paper to said mechanism, of a paste-applying disk, a shaft upon which said disk is mounted, a second shaft, means for driving the same and a separable connection between said disk shaft and said second shaft.


A multiwall paper bag of the offset or notched-corner type is described in which the major portion of the bag end is closed by a transverse line of stitching; a sealing closure tape overlies the entire bag end, including the offset or notched-corner portion, and can be readily displaced from its overlying position for filling purposes.


The open end of a multiwall paper bag of the offset or notched-corner type is closed by a line of stitching which is disposed in a plane slightly above that of the horizontal shoulder portion of the notched corner and which terminates in a free end extending a distance at least equal to the length of the notched corner; a sealing strip or closure tape is provided with a line of weakened areas in at least the area of the notched corner, so that the corner can be opened for filling purposes by grasping the freely extending portion of the stitching which is adjacent to the notched-corner area and ripping the closure tape along the aforementioned weakened line.

A multi-ply valve bag formed from a continuous tube, of the type having an intermediate ply of greater length at the valve corner than the other plies, is provided with a reinforcement sheet positioned adjacent to the intermediate ply to reinforce the bag corner opposite the valve corner which was weakened by the removal of the valve-corner extension of the succeeding intermediate blank.


A portable bag sewing machine weighing about 10-1/2 lb. has been marketed by the Thames Sack & Bag Co., Ltd., who are the sole agents in this country. The closure can be used for textile bags and paper bags of the type used for spring interior mattresses. The machine makes stitches at four to the inch unless otherwise specified, and it is claimed that the closure obtained is actually stronger than the surrounding material. The machine can be held in one hand while the other holds the top of the bag.


The portable electric sewing-machine for sealing bags, produced by El-Cu, Milan, reduces labor costs and makes possible the use of shorter bags. Sealing is instantaneous. The bags thus sealed occupy less space and do not open of their own accord. The machine sews jute, cloth or paper bags (even in several thicknesses, or tarred), without modifications or adjustments.


A heavy paper bag for live poultry (e.g., chickens, ducks, etc.), is provided with a head opening and is equipped with quick-tying means for binding the open end of the bag around the legs of the fowl.


Many changes in packaging materials and techniques came about as a result of the war and wartime restrictions. Many of these were doing the best they could under prevailing circumstances, but not all of the substitutes were satisfactory. During 1944, 60 million dollars were paid out in loss and damage claims arising from inadequate packaging, a sum 36% higher than that of the preceding year. The need for careful packaging is apparent and a return of prewar standards is eagerly awaited. However, many changes were in a forward direction, and all who package and handle chemicals will profit from the wartime experiences. In order to help producers to select the best materials for their products under consideration of the necessary economy, a review of the various packaging materials and forms of packages is presented, including steel drums, multiwall bags, cloth and paper-cloth bags, fiber drums, fiber boxes, metal foil, wooden barrels, alloys, tank cars, plastics, and palletization. Illustrations are included.

The appeal of visibility packaging, the convenience of a ready-to-use product, and the quality implicit in the grading and washing procedure are building increased sales for potatoes. Experiences of packagers in Maine and Idaho showed a preference for prepackaging; multiwall bags with mesh windows were second to polyethylene bags in packaging materials preferred. The latest steps in convenience for the customer are peeling and even slicing the potato for French frying. A special preservative is necessary for preventing the peeled potatoes from oxidizing and turning brown.


Bag blanks with gusseted sides are spread at one corner and infolded at the same time. A supplemental sleeve sheet is folded and inserted, and the bag blank and valve sleeve are folded together; the completed valve bag is then discharged from the machine.


A bagmaking machine comprising in combination web-advancing means and a pair of rotary notchers at opposite sides of the machine rotatable about axes parallel to the direction of travel of the web, the notchers of each pair being offset with respect to each other so as to provide pairs of notches in the opposed edges of the web, the notches of each pair being half a bag length apart.


A bagmaking machine comprising in combination web-advancing means and a pair of rotary notchers at opposite sides of the machine rotatable about axes parallel to the direction of travel of the web, the notchers of each pair being offset with respect to each other so as to provide a pair of end notches and a pair of intermediate notches in the opposed edges of the web, means for folding the opposite edges of the web at one side of the intermediate notches inwardly upon the web, and paste-applying means for applying paste to the body portion of the web at the other side of said intermediate notches in line with said folded over edges.


A machine for making paper sacks consisting of a paper body and a chipboard bottom is claimed. The sacks are produced in a flattened condition for convenience in transporting.
In a bag-making machine, the combination of forwarding rollers, pinch rollers for slowing the progress of the bag-making material through the machine to provide slack therein, a ring driven about an axis transverse to the direction of travel of the bag-making material, striker bars carried by said ring and extending parallel to the axis of rotation of the ring, said ring being mounted off center with respect to the line of travel of said bag-making material and being so timed with respect to the forwarding rollers and pinch rollers as to bring a striker bar into co-operative relation to the bag-making material while there is slack in the bag-making material and while the striker bar is moving rearwardly as compared with the forward advance of the bag-making material, successively to sever the bag-making material into bag lengths.

In the making of bags, the method which comprises bottoming successive bag lengths, then positively and directly stacking the completed bags on end, while raising the top of a bag of the stack at regular intervals above the tops of the other bags of the stack. A machine of the class described, comprising in combination means for continuously advancing a web, tube-forming mechanism in the path of said web, severing mechanism in the path of the advancing tube for severing the tube into bag lengths, a rotating bottoming drum in the path of the advancing bag lengths having a plurality of slots in its periphery, means for tucking the ends of the bag lengths into said slots, grippers for engaging the tucked end of the bag length to hold the same to the drum during part of the revolution of the drum, a connecting station, a cam for opening said grippers for the release of the bags directly to said collecting station, fingers co-operating with said grippers and a cam controlling said fingers in timed relation to the opening of said grippers momentarily to hold certain of said bags out of alignment with the other collected bags.

In a bag machine, the combination of a rotary bottoming drum provided with a gripper for attaching the leading end of one wall of a traveling bag length thereto, rotatable means adjacent the periphery of said drum and provided with means for gripping the leading end of the other wall of the bag length, the said rotatable means rotating oppositely to said drum, whereby the leading end of the bag length will be opened and one wall folded back upon itself, a plate adjacent the periphery of the bottoming drum curved to the contour of the drum and adapted to be moved toward the drum and in the direction of advance of the bag length to fold over the opposed sides of the bag length after one wall has been released by said rotating means, revolvable scoring blades for scoring the bag length after the same has been engaged by said plate, and a cam rotatable on the axis of revolution of said scoring blades for controlling the movement of said plate.
In a bag machine, cross-scoring mechanism comprising in combination a scoring blade for depressing the area of a bag blank to be scored and a pair of scoring jaws for receiving the depressed area of the blank, the active face of one of said jaws being sloped away from the other jaw whereby only the apex of the depressed portion of the bag blank will be gripped by the jaws.

A machine of the class described, comprising in combination means for forming a traveling web into a tube with a seam in one wall thereof, means for continuously advancing the tube with its seam wall uppermost, severing mechanism for severing the tube into bag lengths, forwarding mechanism for forwarding the bag lengths lengthwise to a printing station, and means in the path of travel of the bag lengths for turning the bag lengths end for end and for inverting the bag lengths so as to present the unseamed wall of each bag length to the impression roller of the printing station, bottoming mechanism and means for continuously advancing the printed bag lengths to said bottoming mechanism.

A machine of the class described comprising in combination a perforator-plate extending lengthwise of the machine and provided on opposite faces with grooves, smooth perforators mounted on opposite sides of said perforator-plate, means for bringing the said perforators and the grooved perforator-plate into operative relation with respect to each other with the smooth perforators extending across said plate intermittently to perforate the tubed material through both walls between the grooves in the perforator-plate and at bag-length intervals while leaving intact those portions of the tube overlying said grooves. A machine of the class described comprising in combination a former-plate, a plate slideable therein, a pair of rollers immediately adjacent the forward end of the former-plate, and a perforator carried by each of said rollers and co-operating with the faces of said slideable plate.

A bagmaking machine comprising in combination bottoming mechanism, forwarding and conveying mechanism for forwarding the bottomed bags through the machine and for discharging them from the machine, a portion of said conveying and forwarding mechanism being shiftable at will to by-pass the bottoming mechanism whereby unbottomed bag tubes are discharged from the machine.
A machine of the class described, comprising in combination a delivery drum for advancing bags and delivering the same successively at a collecting station, a rod extending lengthwise of the drum, friction blocks carried thereby and overlying the drum, fingers adjacent the drum periphery and the collecting station, actuating means therefor for projecting the fingers intermittently into the path of the leading edge of a bag thereby to arrest the progress of the same, and a rod connecting said actuating means and the first mentioned rod whereby as the fingers are actuated the friction blocks will engage the face of the arrested bag adjacent the trailing end thereof.

A bagmaking apparatus comprising in combination, mechanism for continuously dividing tubing into bag lengths, forwarding mechanism for the bag lengths, trimming mechanism for trimming the trailing end of each bag length, heat-sealing mechanism for heat sealing the opposite end of each bag length, and bottoming mechanism for bottoming the heat-sealed ends of the bag lengths, the heat-sealing mechanism delivering the heat-sealed bag lengths to the bottoming mechanism.

Cut-off mechanism for bag- and tube-making machines comprising in combination a relatively thin fixed plate in the path of the tubular material being handled and disposed so as to be telescoped thereby, a movable member out of the plane of one face of said plate, a fixed knife out of the plane of the other face of the fixed plate, said movable member being movable in a direction to divide one wall of the tube across the end of the fixed plate and the opposite wall of the tube across the edge of the said knife, and means intermediate the said fixed plate and fixed knife for maintaining the edge of said knife and the face of the plate out of contact with each other at all times.

A lined valve for gusseted bags is claimed which prevents sifting of the contents between the bag plies and presents a flexible sealing element.

A machine of the class described, comprising in combination a tube-forming mechanism, means for advancing the tube, slitting mechanism for slitting one wall of the moving tube, severing mechanism for severing the tube into bag lengths with the slits at one end of the bag length, forwarding mechanism for forwarding the bag lengths lengthwise to a bottoming station,
means in the path of travel of the bag lengths for turning the bag length end for end during its lengthwise movement, bottoming mechanism, and means for continuously advancing the bag length to said bottoming mechanism.


In a bagmaking machine, mechanism for separating bag material into bag lengths along a weakened line in the material, the combination of two pairs of forwarding rollers rotating at the same surface speed for effecting the continuous advance of the bag material at a constant speed, separating mechanism intermediate the said forwarding rollers, said separating mechanism comprising a pair of rollers, each provided on its periphery with a separating bar disposed transversely of the advancing bag material, one roller lying adjacent one face of the bag material, the other roller lying adjacent the other face of the material, said bars extending into the path of the bag material, and being so disposed relatively that the bars will engage the opposite faces of the bag material simultaneously, one bar engaging one face of the material, the other bar engaging the opposite face of the material in the region of the weakened line.


In apparatus of the class described, the combination of feed rollers for continuously advancing a flexible web or strip, feed rollers for continuously advancing sections of a second and narrower flexible web or strip in superimposed relation with respect to the first web or strip, one of said strips eventually constituting the front wall of the bag and the other of said strips constituting the rear wall, means for applying adhesive adjacent the edges of the wider web or strip, folding mechanism for folding the pasted edges of the wider strip over and upon the superimposed sections of the narrower strip to secure the same thereto.


The method of making bags which comprises notching the opposed side edges of a traveling web at predetermined intervals, severing the web transversely into bag lengths at the end of alternate notches intermediate its ends and a projecting flap on one end, folding over the side edges of that part of the bag length which is to one side of said intermediate notches along a longitudinal line adjacent each edge of said portion of the bag length, pasting the folded-over edges to said portion, then folding the bag length along a transverse line which intersects said intermediate notches and folding the edges of the remainder of the bag length along a longitudinal line adjacent each edge thereof and over upon the outer face of the bag thus formed and securing the last-mentioned folded-over edges to said face.

In the making of bags and the like, the method which comprises forwarding a web of material, notching opposite sides of the traveling body of the web with alternate pairs of large and small notches, severing the web transversely from a large notch on one side of the web to the opposed large notch on the other side of the web, while maintaining the line of severance within the edges of said notches, thereby to provide a section of material having a pair of opposed notches substantially midway of the section and a flap at each end of said section.


In bagmaking, the method which comprises tubing the bag material, dividing the bag material transversely into bag lengths to provide a projecting flap on one wall of each bag length, and then preparing the leading end of the bag length for bottoming by removing a narrow longitudinal strip of the material from each wall of the bag length to provide slots adjacent the sides of said flaps, the bottom of said slots being concaved.


In the making of bags, the method which comprises continuously advancing the bag material in the form of tubing with arcuate slits spaced at regular intervals lengthwise of the tubing in one wall thereof, severing the tubing into bag lengths in predetermined relation to said slits to provide one wall of the leading end of the bag length with a tab-carrying projecting flap, and the trailing end of said wall with a complementary thumb notch, and to provide the trailing end of the opposite wall of the bag length with a flap extending the width of the bag length and projecting beyond the thumb-notched wall, trimming the trailing end of the bag length back of the flap so as to remove the flap and trim the trailing end of both walls of the bag length, so that the edges of this end of the bag length are smooth and unserrated, and then folding over the tab-carrying flap at the leading end of the bag length to bottom the bag.


The process of forming a bag which consists in making nonrectilinear cuts in a web, folding the web into a bag tube so that said cuts are central of the seam wall thereof, severing the other wall of the tube from side to side, severing the seam wall along a line which meets the outer ends of the said nonrectilinear cuts to provide a bag length with a thumb notch in one wall at each end, the other wall projecting beyond the notched wall, and subsequently severing the top of the bag length including both walls along a line within the top of the shorter bag wall and then bottoming.

The process of forming bags from a web of material which process comprises notching opposite edges of the web, folding the web edges toward each other along lines intermediate the bottom of opposed notches to overlap the web edges and to bring the notches in overlapped relation into one wall of the tube thus formed, with the notches terminating short of the sides of the tube, and then severing the web transversely intermediate the sides of the notches to form bag lengths with a longitudinal notch in one wall at each end of the bag length.


Web-cutting mechanism comprising in combination a pair of rotary cutting elements adapted to receive the leading end of a continuously advancing web between them and to impart a predetermined shape to the web end, a second pair of rotary cutting elements to the rear of the first pair and adapted to receive the continuously advancing web between them and arranged completely to sever the web to the rear of the shaped leading end after the completion of the shaping of the leading end, means for rotating said cutting elements at a fixed number of revolutions per minute, rotatable means for effecting continuous advance of the web through said cutting devices, means for varying the linear speed of the web without varying the peripheral speed of the cutting elements and means for varying the peripheral speed of the cutting elements without varying the revolutions per minute of said cutting elements, whereby the severed sections of the web may be varied in length, the cutting elements when contacting the web travelling at a predetermined peripheral speed relationship to the linear speed of the web.


A bagmaking machine, comprising in combination a longitudinally movable plate extending lengthwise of the machine, tubing mechanism for tubing the material of the bag about said plate, a pair of rollers, cutters carried thereby, said cutters rolling in contact with said plate while the latter is in motion, intermittently to cut through the upper and lower walls of the tubing at bag-length intervals, partially to divide the tubing into bag lengths, and cutters adapted to finish the dividing operation.


A bagmaking machine, comprising in combination tubing mechanism, means for continuously advancing the tubing, cutter carrying rollers in the path of the advancing tubing, for partially dividing the tubing into bag lengths, forwarding rollers adapted to engage the tube during said dividing operation, a second pair of rollers travelling at a higher peripheral speed than said forwarding rollers, the said second pair of rollers engaging the partially divided tubing to exert a pull on the tubing in the direction of the length to complete the dividing operation, and cutters adapted thereafter to cut back
the opposed corners of the trailing end of the bag length to provide cut-backs being so shaped that the bottom of each of said cut-backs forms an inverted V when the bag length is opened.


In the making of bags and the like, the method which comprises tubing the bag material, cutting through the upper and lower walls of the tubing transversely of the tubing from adjacent one edge of the tubing to adjacent the other edge, partially to divide the tubing into bag lengths, and cutting the tube edges with a curved cut to provide a bag length with a concave cut at the opposite corners of one end thereof.


In the making of bags and the like, the method which comprises tubing the bag material, cutting through the upper and lower walls of the tubing transversely of the tubing from adjacent one edge of the tubing to adjacent the other edge with a smooth cut, partially to divide the tubing into bag lengths, placing the tubing under longitudinal tension to complete the dividing operation, and then trimming one end of the bag length in an area confined to the corners thereof.


In the making of bags and the like, the combination of continuously advancing means for a web of bag material, floating means for applying yielding pressure to the advancing web at spaced areas, perforating means for perforating the web transversely from edge to edge and at bag length intervals intermediate said spaced areas, while the material is in the web and moving forward, means for forming the perforated web into a tube, and tensioning rollers for dividing the tubed material into bag lengths at the perforations by imposing sudden longitudinal tension on the tube in opposed directions at each side of the perforations.

1058. Potdevin, Adolph, and Richmond, Robert, L. Apparatus (with photo-electric unit control) suitable for regulating the shifting of webs of paper in bag manufacture, etc. U. S. patent 2,203,181 (June 4, 1940); C.A. 34:6816.

Various structural and operative details.


The model 62X tuber, the Potdevin 2 and 4 color oil-ink printing press, the model V3 valver, the model SV3 sleeve valver, the single or double end sewing machine and heavy duty conveyors are described and illustrated.
Potdevin makes automatic can bag machine. Paper, Film and Foil Converter 28, no. 12:60 (Dec., 1954); Packaging Abstr. 12:95.

Model 17 produces lightweight, disposable shipping containers for empty waxed milk cartons, spirally wound tubes and containers, and tin cans. It makes satchel bottom bags in a variety of sizes up to 34 in. long by 48 in. wide, with a 21 in. bottom width. The bags are made from two webs of material: a kraft web forming the body of the bag and a chipboard web the bottom of the bag.


Prepackaged carrots in one-pound polyethylene bags have been shipped successfully in multiwall master containers of three-ply, wet-strength paper, transported in refrigerator cars with bunker icing.

Prepackaging potatoes at shipping point. Packaging Parade 15, no. 169:30 (Feb., 1947); Packaging Abstr. 4:242.

Potatoes are prepackaged at the shipping point in wet-strength paper bags which are perforated to permit the potatoes to breathe and absorb moisture without disintegrating. The bags are made of two or three plies of paper, depending on the weight they must carry.


The device grips the mouth of the bag and acts as a closure. Discharge of free-flowing material inside is effected by drawing out a pluglike member to open a passage in the device.


Heavy-duty multi-ply paper sacks are manufactured in a variety of types, each adapted to the particular task the sack is to perform (to resist abrasive or moist materials, rough handling, and long-range shipping). They have up to six plies of strong kraft paper, often paraffin-impregnated, bituminized or plastic-coated, to make them moisture-resistant. These sacks are either of the block-bottom type, with individual plies usually glued separately, or of the flat valve-bag type, with ends closed by stitching or stapling. The strength of the sacks is determined by drop tests, which specify the requirements for each type. Some of the recent developments in the manufacture of multi-ply heavy-duty sacks include improvement of chemical resistance and moistureproofness by the use of polyethylene-coated kraft paper, and strengthening of the seams by the use of nylon or terylene yarn for stitching.

Apparatus is described, and a continuous method is employed which involves printing in multicolored in predetermined areas of a transparent flexible sheet of regenerated cellulose, the latter being provided with a transparent moisture-proof surface coating containing a cellulose derivative and wax. This surface coating being deleteriously affected by the printing operation, directly printing a thin transparent coating over at least the printed indicia with a transparent moistureproofing composition containing a solvent which does not deleteriously affect the printed indicia or the original moistureproof material, and evaporating the solvent at an elevated temperature to produce a thin lustrous transparent moistureproof coating not over .0001 of an inch thick and adhesively bonded to the printed indicia. Various examples with details are given.


The Crepesac is a multiwall sack of creped paper plies, which has increased strength, can be stacked vertically without deformation or risk of slipping, and is easier to handle.


The ever greater percentage of produce being packaged by the grower and the increasing tendency for large chains to break up or reduce their central warehouse systems are two important trends affecting the paper salesman, giving increasing opportunities in handling packaging materials for prepackaged produce. The various materials used include plastic films, paper bags, boards, trays, and cartons. Types of bag closures, heat-sealing equipment, and labels are covered in the general discussion.


The Revol bagmaking machine permits the manufacture of block-bottom bags from cellulose film, films such as polyethylene, and paper. A cardboard reinforcement for the bottom of the bag can be inserted automatically. The machine can also be adapted for producing flat or gusseted bags or Monobox boxes.


After briefly referring to the purpose and goals of dehydration, possible savings, and types of foods to which the process is applied, the packaging problems are discussed. Paperboard and paper seem to present the only likely candidates, with paperboard preferred because of the added protection afforded by its strength and structural characteristics. The necessary refinements of paper containers for protecting dehydrated foods consist principally of means for keeping oxygen and other gases out of the package, keeping desired gases inside the package, and reduce the moisture-vapor transfer to the vanishing point. Most efforts for accomplishing these aims have been along the lines of
adding special liners to paperboard or inserting special bags in paperboard cartons. These linings and bags up-to-date have been as follows: (1) glassine laminated to paperboard with an asphalt compound (Tredonia board), (2) moisture-vaporproof cellophane bags which are heat sealed (Thermophane), (3) bags of lead foil, sandwiched between sheets of paper, using asphalt compounds or waxes for laminating, (4) bags of wax-coated parchment.

1070. Proofing sacks or the like containers against insect attacks. British patent 602,917; Packaging Abstr. 5:488.

Sacks, particularly jute sacks, to be used for seeds or grain, etc., are treated with aqueous emulsions of compounds of the formula \(X_3C--CH\alpha\) (where \(X\) is a halogen and \(Y\) and \(Z\) are monovalent aromatic radicals of the Benzene series not containing salt-forming substituents), obtained by dispersing in water organic solvent solutions of the compounds containing a sulfonated oil. A suitable compound is D.D.T.


Waste cement bags (I) can be successfully used as a blend in the manufacture of bag paper. They must be, however, thoroughly dusted before their conversion to pulp. Although, the strength properties of bag paper containing 20% of (I) were only slightly lower than those of paper made of 100% virgin fiber, the use of (I) would result in considerable savings of wood.

1072. Railroads approve paper bags as grapefruit carriers. Packaging Parade 20, no. 228:82, 84(Jan., 1951); Food Eng. 24, no. 2:162(1952); Packaging Abstr. 9:332.

Union Bag and Paper Corp has developed a bag made from 3 layers of wet-strength paper. Perforations provide the necessary ventilation.


In a bag-forming machine of the class described, comprising a rotating gripper cylinder for conveying a bag blank on the periphery thereof with one end of the blank opened and flattened preliminary to forming a folded bottom on the end, gripping jaws carried by the cylinder, a tucker blade for engaging the blank on a line transversely of one of the side flaps of the end thereof to tuck the blank between the jaws, the blade retracting from the jaws as they close to grip the blank, the improvement, which comprises a clamping device, engaging the blank on a transverse line arranged in proximity to and in advance of the line of engagement of the tucker blade to clamp the blank to the periphery of the cylinder during the retracting movement of the tucker blade.


The top edge of the bag is folded over. The ends of the handle are fixed to a reinforcing strain-distributing strip which is fixed to the side of the bag.
A method and apparatus particularly for the production of bags from bag tube lengths having serrated end edges is claimed in which the adhesive is applied right up to and along the entire length of each serrated (or straight) edge of the bottom closure flap. Thus, the bottom closure is made without loose edges and is powderproof.

The method and machine obviate the lodging of granular substances between the internal gussets at the lower end of the partly opened bag (which interferes with the full opening of the bag when being filled) and the subsequent leakage of the bag.

The invention dispenses with the use of former plates.

The bags have powderproof bottom end folds.

An improved method of making paper and other bags with siftproof bottoms is claimed.

An apparatus is provided for making bags from machine-made continuous bag tubes formed from webs of material such as paper and cellulosic films. To overcome a tendency for the material to curl after application of adhesive coatings to selected masked areas, the tube is held longitudinally extended and tensioned before being severed to produce separate bag lengths.

Satchel bags are cut from a continuous length of paper tubing formed with longitudinal gusset side folds by means provided in this invention. The
material is fed from a supply roll, adhesive is applied by roller means, and the material is passed between outside forming means to crease the gusseted folds and shape the tube. Roller means for directing the material into the formers have lateral slots to by-pass areas of adhesive previously applied. Bottoms in the bags are formed by conventional means.


A transverse stripe of adhesive applied to the inside surface of a tubular bag side wall near its open end is exposed by means of a cut-away area in the opposite side wall. The end portion is folded to secure the adhesive to an outer surface of the opposite side wall and again folded to secure the fold against a second transverse stripe of adhesive on the same outer side wall, to form a self-proof end closure.


Leakproof bottoms are formed in paper bags and envelopes made from paper tubes by a double fold, double adhesive-strip closure, in which the first strip covers both a portion of the internal wall of the closure flap and an adjacent portion of the opposite external bag wall.


The machine turns over one edge of a web of paper, metal foil, plastic sheet, etc., to overlap the other edge and seals the seam by means of adhesive or heat. The machine is for use in the manufacture of bags or tetrahedron packages, etc.

1085. Rausing, R. Directions for constructing, filling and closing packaging bags. Dutch patent 122,152; Verpakking 2, no. 124 (Sept., 1949); Packaging Abstr. 6:976.

A tetrahedral bag is formed from a single sheet of paper.


The device is suitable for making bags with flat or diamond-shaped bottoms.

The device comprises (subsequent to known means for opening and flattening down the side flaps of a paper-tube end portion from which the bag is to be formed) novel means for cyclically swinging folding fingers, one on each side of the path traveled by the paper tube. These fingers mounted on traveling carriers enter the leading and the trailing bottom portion of the paper bag to form its bottom.


Pins on an endless conveyor pierce the bottom of a paper bag and a valve insert position therein, so as to retain them in correct relative location while the bottom is closed.


The bag has an infolded, sleeve-lined valve and is closed at each end by stitching through a reinforcing strip. The lining sleeve has a wire included in the stitched closure at the valve end, to prevent the valve from opening and allowing the contents of the bag to escape, as is possible especially if the bag is incompletely filled.


A bag weighing and filling machine is claimed.


Rock wool, asbestos, and like materials are weighed, then packaged in a bag held at the end of the delivery chute by an adjustable duckbill. Features of the device are an air stream to cut the column of falling material and divert excess material to a recycling system and a ram operated by an air cylinder to pack the materials in the bag after a weighed charge has been delivered. A pressure-actuated switch on the duckbill prevents operation of the filling cycle if the bag is defective.


Several constructions are described and illustrated.


The Rectaplis bag consists of two plies of paper of high mechanical strength, the inner ply being virtually impermeable and the outer ply a tough kraft. Sizes range from 50 g to 10 kg. After folding over in the special machines available it may be closed either with a wire staple or
metal clip. A hand or pedal-operated device clip-seals the bags with the metal strip. Small sizes have a narrow band of thermoplastic adhesive across the inner side of the top of the bag for heat-sealing. By cutting the corner of the top diagonally it is possible to withdraw the gusseted portion, which then forms a convenient pourer-spout.


An apparatus and a method for the application of plastic coating to paper bags for shipment of chemicals, flour, feed, cement, plaster, etc., are claimed. The bag in the flattened position is carried on a conveyor through a spray chamber for the application of the coating and then through a drying chamber using infrared lamps and equipped with a suitable exhaust system for solvent recovery.


A multi-ply paper bag for acid fertilizer is sewed with thread (e.g., cotton, sisal, jute, linen, monoacetylated cotton, paper cord, or viscose rayon) which has been impregnated with about 20% by weight of triethanolamine.


The reinforcement consists of strips of kraft paper between plies at the bag's top and bottom, giving the effect of an extra ply at the points where most sewn multiwall bag breakage occurs.


An envelope-type paper bag for the packaging of relatively light merchandise incorporates an integral carrying and locking structure which is adapted to hold a closure flap securely in place.


A top closure and hand hole are provided on a paper bag (preferably a strong shopping bag for use in the prepackaging of such items as potatoes, oranges, etc.) by the incorporation on the front and back panels of rectangular extensions and cutout hand holes which interlock by means of flaps. Two rectangles of suitable material reinforce the panels, and additional strips of cloth are used at points of stress.


Heat-sealing means are included in a bagmaking machine.

A paper mill has been supplying a converter for a number of years with a special kind of offset paper for making flat bags for seeds. The last shipment although of the same quality as usually supplied was rejected because the paper broke at the fold of the bottom flap, so that the contents dropped out. An investigation showed that the paper was not to blame, but that the bagmaking machinery was incorrectly adjusted; the device for turning up and folding the bottom fold was probably too tight so that the paper broke or burst at the edge.


Some examples are given of specifications for the bulk packaging of chemicals in multiwall paper bags.


The bags are for the bulk packaging of hygroscopic chemicals, resins, or other products requiring high moisture protection. It has been found that they afford about three times more protection against moisture gain than does a polyethylene-lined multiwall bag.


Consumer packages of whipped-cream topping are completely sealed in a wet-strength kraft bag which protects the metal dispenser from contamination and tampering during delivery, identifies the brand, gives instructions for using the container, and reminds the user to return it. Both sides of the bag are coated with nitrocellulose lacquer which imparts a glossy surface over the heat-dried printing inks.


This is a rather comprehensive study of the possibilities of packaging in paper bags, in which the author discusses in turn the principal requirements; types and shapes of bags; machines for making bags; raw materials (paper, plastic foils, metal foils, and laminations); auxiliary techniques (pasting, stitching, sewing, sealing, and special methods); advertising by different printing methods (letterpress, aniline, offset, and intaglio); packaging systems, machinery, and closures; and planning and testing procedures (testing the article to be packaged, the raw materials of which the bags are made, the finished bags, and the complete package).

This machine fills, folds the flap, and seals bags made of flexible material such as cellophane or paper. Sealing is accomplished by a number of means, depending on the bag material and the contents. The flap may be heat sealed, stapled, crimped, etc.


A bag of polygonal cross section made from an integral blank of material comprising an open top, a smooth continuous bottom and at least two opposite smooth continuous sides, each of two other sides having therein an over-and-over folded, sealed seam wherein the edges of the blank lie together and covered by the folded portion thereof, each of said folded seam portions lying in substantially the same plane as the associated side of the bag. The method of making a bag from a unitary blank of material which comprises folding said blank into substantially U shape to form a smooth continuous bottom for the bag, bringing the adjacent edge portions of the blank together and folding them along parallel lines to form the sides of the bag and to provide the bag with a pair of opposite seam portions each consisting of a double thickness of blank material extending outwardly from the bag, folding each of said double thicknesses over upon itself to close the seams, flattening each of the thus folded seam portions into the plane of the associated side portion of the bag, and adhesively sealing to one another the overlying thicknesses of said folded and flattened seam portions.


The bags are made from paper or film having a facing of thermoplastic material. A liquid-tight, siftproof square bottom is formed in the bag by suitably folding and heat sealing the end.


A machine is described for making bags from a strip of heat-sealable material.


A method and machine are claimed for making square-bottomed bags from bag tubing coated on the inner surface with material of suitable moisture-resisting and heat-sealing properties. Thermoplastic adhesive is applied and the bottom sealed against seepage of liquids or pulverulent materials.

The apparatus forms square-bottom bags with hermetically sealed bottoms from paper, film, or laminates in flat or tubular form coated on certain portions with thermoplastic adhesive.


Automatically bottom-gusseted bags have their bottoms formed at a series of consecutive stations during dwell periods as the bag line is intermittently advanced through the machinery.


Bag tubing is severed into lengths by superimposed cutters with serrated edges which make a smooth cut when the paper is forced against the cutter by the striker bar. The latter is mounted to operate in the gap between the cutters and the pinch rolls which hold the tubing while the striker forces the tubing against the cutting edges.


The Potdevin double differential compensator is described for controlling the travel of the previously printed paper in the bag machine in order that the printed design will always occur in its proper location on the finished bag.


The results of a study on feed bags are given. Feed bags are made of burlap, cotton and paper; the advantages and disadvantages of each are discussed. Other topics considered are types of bags, re-used bags, sterilizing used bags, operating a bag return program, assembling and reconditioning bags, comparative costs of new and used bags, bags versus bulk delivery, growth of the use of paper bags, bag inventory problems, controlling bag damage, and the importance of accurate weight.


Present trends and recent advances in the large and varied field of flexible packages for food products are discussed. Factors to be considered in selecting a packaging material include the physical nature of the food-stuff, causes of food deterioration, degree of protection required, and cost. Present trends are an increasing use of multiwall bags, palletization, single-unit packages, and vacuum and gas packing in flexible containers.

Comments are made on the use of jute for papermaking and the structure of this fiber and its behavior toward the common scouring and bleaching agents are discussed. Conditions for processing waste jute materials for (a) strong brown wrapping papers, (b) semibleached buff envelope and bag papers, and (c) high quality bleached papers are described. Pulps prepared by some or all of the methods described should be made into standard sheets and tested by the usual recognized methods; this further investigation is required before the value of this fiber as a papermaking material can be fully assessed.


Made from bleached greaseproof or vegetable parchment, these bag-type containers can be filled with dripping, cooking fats and similar products in a hot molten state without leakage. Manufactured in other materials they can be used for powdered or granulated products. They have a reinforced base and a metal strip closure which makes them practically airtight.


A paper sheet having heat-sealing properties on the side destined to become the inside of a bag has its two opposite marginal portions folded towards each other to bring the inner faces of the two opposite borders of the sheet into juxtaposition for heat sealing.


An apparatus for making paper and like block-bottom bags is characterized in that the nosepiece comprises a horizontal table disposed so as to be substantially in longitudinal alignment with the line of approach of the bag tube, with a pillar mounted on the table and projecting vertically, the pillar being displaced or having a portion displaced to one side of the center of the line of approach of the bag tube, and by the provision of two fingers adapted to rotate on horizontal axes disposed transversely of the line of approach of the bag tube, the fingers being disposed in planes one on each side of the nose pillar and being disposed at different angular positions on their axes so as to assume vertical positions in succession.

Robinson, E. S., Robinson, A., Davies, K. W., and Nicholas, J. Bags made of paper, cellulose or the like materials. British patent 582,372 (Sept. 25, 1944); Packaging Abstr. 4:85.
In bags made of paper, cellulose, etc., having the inner surfaces coated or impregnated with a moistureproof and heat and/or pressure sealing substance, the edges meet with the inner surfaces in contact. The edges are turned over on to one wall of the bag and the outer face of one edge is secured to the outer face of the wall by means of adhesive.


A machine for the manufacture of multi-ply paper bag tubes comprising in combination, a plurality of perforating devices mounted in spaced relation, each perforating device comprising a rectilinear dead knife provided with a series of spaced oblique cutting edges and a rotary knife co-operating with the dead knife, one of said knives being interrupted at spaced intervals to provide noncutting portions, means for rotating the rotary knives of said perforating devices, means for feeding a plurality of webs of paper one between each of the co-operating knives of said perforating devices for perforation transversely by said knives, tension-controlling means associated with the webs for individually tensioning the webs, means for assembling the webs of paper in superposed relation after perforation by said perforating devices, tube-forming mechanism to which the superposed webs are led for forming into a multi-ply tube, and means for dividing the formed tube into lengths by rupturing along the lines of perforations.


Mechanism for opening the end of a flattened multi-ply paper or like bag tube comprising curved plates for engaging and arching the tube end transversely, movable suction devices associated with said curved plates for applying suction to the faces of the tube end while the tube is held by said curved plates, and means for moving said suction devices relatively to each other while the suction is applied to effect opening of the end of the tube.


The method of forming a seam for bags of the class described which comprises turning outwardly opposed marginal portions of the walls of the bag, securing a strip by means of adhesive over said outwardly turned portions with the longitudinal central portion of the strip left unsecured, bringing said outwardly turned portions together with the strip folded over upon itself between them, folding over the longitudinal edge portions of the two walls against a side of the bag, and stitching the seam by means of a line of stitches extending through said folded edge portions and said strip, the line of stitches being spaced a distance outwardly from the edges of said unsecured central portion of the strip. A bag having its edges closed by a seam comprising a strip folded longitudinally upon itself and secured by adhesive to the inner sides of the walls of the bag, with its longitudinal edges spaced inwardly from the edges of the bag and with the central portion of the strip innermost and left unsecured, said edges of the bag being folded
over against the side of the bag, and a line of stitches extending through said secured edges and through the folded portions of the strip, said line of stitches being spaced outwardly from said unsecured portion of the strip.


A machine is adapted for use in the manufacture of paper bags or liners. The bag material comprises two plies of crinkled paper, which are separately crinkled and laminated together by means of an asphaltic or other suitable asphaltic adhesive.

1125. Robinson, Francis T. Lining for containers and machine for and method of forming the same. U. S. patent 2,121,053 (June 21, 1938).

Method of forming a seam for closing one of the edges of a bag of crinkled paper.


The method of forming bag linings of the class described which comprises feeding longitudinally two strips of crinkled paper of different widths, the crinkles in the paper extending transversely thereof, bringing the strips together into superposed relation with the longitudinal edges of the wider strip projecting beyond the longitudinal edges of the other strip, folding the projecting edges of the wider strip over the longitudinal edges of the other strip, applying lines of glue to the strips whereby said edges are secured together when said projecting edges are folded over to form a tube, severing said tube into bag tubes, closing one end of the bag tubes, and folding over the longitudinal margins of the tube previously to severing the tube into bag tubes. In a machine for use in the manufacture of bag linings, the combination of means for feeding two sheet portions of crinkled paper longitudinally, said sheet portions being arranged in superposed relation, comprising two sets of feeding devices for respectively engaging opposite longitudinal edge portions of the material, means for folding over the longitudinal margins of said material as it is being fed comprising two sets of folding devices engaged to act respectively on the longitudinal edges of the material, and means for adjusting one set of said feeding devices and the associated folding device toward and from the other set of feeding devices and the other folding device.


In forming a nested series of bag tube lengths, several paper webs are perforated transversely at distances corresponding to the length of a single bag, assembled with the perforations in stepped relationship and folded to form a tube, bag lengths being formed therefrom by rupturing along the line of perforations. Paper webs are drawn separately through pairs of rollers provided with pins for making transverse perforations and knives which make longitudinal slits. The outer web or layer is perforated and is slit longitudinally; the perforations in the central layer form a straight line,
and the inner layer is perforated and severed. The webs are assembled with the perforations in stepped relationship and folded to form tubes having gusseted sides, bag lengths being obtained by passing the tube through uniformly rotating gripping rollers to a pair of intermittently acting rollers which rotate at a higher speed than the gripping rollers and pull a bag length away from the remainder of the tube. In the resulting tube, the edges of the individual layers are staggered inwardly at the inside of one flat side and outwardly at the other side. When the layers are folded inwardly the edges of opposite flat sides of each individual layer lie one upon the other and all the edges may be glued simultaneously.


In the manufacture of block-bottom multi-ply valve bags as described in British patent 343,447, 443,920 and 443,950, it is claimed that perforating the web for the innermost ply on transverse side to side lines to leave a longitudinally projecting integral tongue for the head of one bag tube length with a corresponding recess at the tail of the next adjacent length, assembling the tongued web with the other perforated webs and forming the bag tube with the perforations in stepped or staggered relations and rupturing the innermost ply with the other plies under tension to form the bag lengths and subsequently forming each block-bottom valve closure with the tongue extending inward produces a sealing member which functions more flexibly and sensitively than the collection of plies of the valves and effects a more positive seal.


An improvement on British patent 623,313 relating to the manufacture of block-bottomed multi-ply paper sacks is claimed.


A block-bottomed bag, preferably of the multi-ply type, is provided with triangular extensions at the corners formed by folding end flaps inwardly and outwardly and securing the side flaps together over the outwardly folded portions of the end flaps. The respective sheets are cut from webs by parallel and oblique cuts and assembled to present headings on the two sides, the oblique cuts intersecting at joints on the longitudinal fold lines. The nested tube is formed by gumming the respective longitudinal margins together, and the top opened in the usual manner to present side flaps and end flaps. The points are then lifted and turned outwardly until they coincide with the corners thereby forming triangular pockets, the headings being gummed together as the side flaps are turned inwardly to cover the double-folded end flaps. The tube may be gusseted. For forming a valve in one or two corners, the tube is slit longitudinally and the point is covered by a gummed U-shaped strip embracing the end flap on both sides. The side flaps are then folded in to include a part of the end flap.
A method of forming composite tubes for making into block-bottom multiply bags comprises cutting sheets or severing blanks from webs with sides (which are to form the ends of the bag tubes when folded) having transverse lines joined by oblique lines disposed to form notches and shoulders, assembling the sheets or blanks together so that the tube-folding lines will pass through or adjoin the oblique parts and folding the sheets or blanks to form bag tubes so that the oblique parts form a V-shaped notch at the ends of the tube folds.

Valved paper bags are described of the kind having a valve formed by folding in a corner of the bag and having a sleeve or liner of paper or similar material, which sleeve is wider at its outer end than its inner end or which is so folded that the outer end can readily assume a greater width than the inner end and thereby conform to an adequate extent to the tapered spouts or nozzles employed for filling.

In this addition to British patent 527,268, the tube or sleeve located in the valve projects outwardly beyond the valve opening and has its exterior surface coated with self-sealing adhesive. A detachable paper positioned on the exterior of the sleeve, prevents the adhesive coating of the sleeves of adjacent bags sticking together before use (e.g., when stacked) and can be removed when the bag is to be filled, the sleeve being sealed after filling of the bag by folding the outward, projecting portion of the sleeve upon itself externally to cause adhesion of the self-sealing coating.

Bag tubes are conveyed into the machine with the valve end of the bag in the spread and flattened condition ready to receive the valve sleeve. A conveyor with suitable gripping devices carries the bag tube through the machine while adhesive is applied, the sleeve insert cut from a supply roll and brought into contact with the band of adhesive at the proper point, and the end of the tube refolded to the point where the bag is discharged from the machine ready for stitching.

A device for applying a bottom-strengthening patch in a cross or block-bottom bag machine acts in co-operation with an opening and bottom-forming mechanism to cut off a patch from an endless band, apply parallel glue strips to the patch, and apply the patch to the interior of a bag prior to folding bottom flaps against the patch.

Rohdin, H. A. Bag and method of filling same. U. S. patent 2,373,340 (April 10, 1945); Am. Paper Converter 19, no. 8:45 (1945); Packaging Abstr. 3:32.

A flexible walled bag is claimed having a heat-sealable inner surface at least adjacent its mouth; a flexible filling tube extending into the bag, extending longitudinally of the bag and having its outer end extending across the heat-sealable surface and terminating adjacent thereto and integrally attached to a wall thereof in an area below the intended line of sealing of the bag mouth.


A multi-ply double side-seam bag is claimed having an infolded gusset at each end, the side seams being sewn.


The method of making bags which comprises freely superimposing on a rectangular sheet a similarly shaped sheet of lesser dimensions so as to leave exposed margins of said first-named sheet; folding both sheets about a common line to bring into face to face contact approximately equal portions of the free surface of said second-named sheet, and the exposed margins of said first-named sheet; then folding, upon the body of the bag, and along parallel lines spaced inwardly from the margins of said second-named sheet, the portions of the folded sheets lying outside said lines; then subjecting, in the area of said folded portions, the entire structure to heat and/or pressure while preventing the interior of that portion of the bag lying between said parallel fold lines from being sealed under the effect thereof, whereby to form sealed seams between the mutually contacting portions of the respective sheets in said area. A bag formed of a sheet of impervious, flexible material heat sealable on both surfaces, said sheet being folded about a line intermediate the length thereof to bring the coextensive portions of a single surface thereof on each side of said line into face to face contact, the margins of said surfaces being heat sealed in the area of such contact and said heat-sealed margins being folded against the outside of said sheet and heat sealed thereto, the inner surfaces of the bag walls underlying said folded margins being free of each other and the lines on
which said heat-sealed margins are folded including unsecured portions of
the contacting inner surfaces of the bag walls adjacent an edge of said
heat-sealed margins.

1140. Rohdin, Howard A. Bag and method of making same. U. S. patent
2,442,936(June 8, 1948); B.S.P.C. 18:809.

A method is described for forming a bag of flexible sheet material, the
entire inner surface of which is heat sealable; the outer surface is formed
of pervious fibrous material. A strip of impervious material (e.g., a
vinyl resin) is placed between the seam and the mandrel prior to the appli-
cation of the heat and pressure. The process can be applied to flat or
gusset bags.

U. S. patent 2,401,109(May 28, 1946); Packaging Abstr. 3:518.

A method for producing a double-side seam bag having a seamless bottom
is given.

2,202,431(May 28, 1940).

For producing paper bags with block bottoms, the combination of a pair
of feed rollers arranged to engage a flattened paper tube at a point spaced
from one end thereof and to feed the tube in a direction transversely to
its length, a pair of suction members arranged to rotate in opposite direc-
tions coaxially and in unison with said feed rollers for opening the leading
part of the flattened tube at one end, a pair of grippers arranged at an
inclination to the direction of feed of the tube and rotatable in opposite
directions, so as to engage and force the sides of the tube apart and form
a pocket at said leading part having a side in the form of a right-angled
isosceles triangle, and rollers having their axes extending in a plane at
right angles to the direction of feed and to the plane of the flattened
tube and arranged to flatten the pocket formed by the grippers, to bend up
the sides of the flattened tube adjacent the pocket at right angles to the
plane of the flattened tube and form and flatten a corresponding pocket at
the rear part of the tube end.

(July 17, 1956); B.S.P.C. 27:258.

A manually operated machine is claimed which will crimp the neck of a
bag and, after a wire tie having looped ends is positioned around the neck
of the bag, twist the wire to close the neck of the bag firmly.

8:183; B.S.P.C. 21:293.

A bag comprises an inner ply of flexible opaque paper having a window
opening formed in at least one of the walls, with an outer ply of a flexible
transparent viscose sheet disposed over and covering one face of the inner ply.
A duplex bag for food packaging comprises an inner paper ply and an outer cellophane ply; the inner ply has a window opening in one or more of its walls, and the outer ply is secured to the inner ply around the window. It is claimed that this construction prevents the leakage of the packaged contents into the space between the plies.

A paper bag for packing granular materials is provided with a stiff paper insert designed to hold the bag in the proper shape.

A bag with an improved base construction which will facilitate folding and sealing operations has an end portion in which a portion of each triangular flap, including the apex, consists of a single thickness of material.

A bag-making apparatus includes means for folding a web of heat-sealing material around a former in the shape of a continuous tube; the edges of the web overlap to form a longitudinal seam.

An apparatus makes bags from a single web of paper, film, or foil (preferably a heat-sealing material) by wrapping the material around a tubular former and joining the edges in a longitudinal seam; the end of the resulting tubular web is sealed, folded back, and secured to the wall of the tube to form the base of the bag. A knife assembly cuts the tube transversely at the required length to sever the completed bag.

An improvement in straight or square cut bags having coinciding lip portions is claimed to adapt them for use with automatic bag-filling devices. Aligned apertures are formed in the mouth portion of the bag for engaging a hanger arm in the filling device. A plain or unseamed side of the bag is slit inward from the lip to the aperture.
Rosin is now one of more than 300 products packed in heavy-duty multiwall paper bags. The bag designed for this operation is sewn on both the top and bottom except for a small opening which is used for inserting a 2- or 2.5-in. spout through which the hot rosin is poured into the bag at about 300°F. The inside ply or bag is specially constructed so the hot rosin will not penetrate the paper.


That step in the process of sealing the interfolded pasted bottoms of paper bags which comprises following the pasting of the bottoms of the bags, delivering a succession of said bags in a substantially continuous stream with the bags moving endwise and with the pasted bottom of each bag folded underneath the bag into a substantially continuous moving stream of bags moving sidewise and arranged in an overlapping shingled relationship with the pasted bottoms of the bags overlying each other and with each pasted bottom folded underneath its bag, and bringing pressure to bear upon the pasted bottoms of the bags as they are advanced sidewise in such substantially continuously moving stream. Apparatus for sealing the pasted bottoms of paper bags comprising continuously advancing supporting means adapted to receive a succession of paper bags for sidewise advancement thereby, and continuously advancing pressure means superimposing said supporting means to exert a pressure upon that portion of the bags which rests directly upon the supporting means, said pressure means comprising a plurality of weighted members freely adjustable during their advance to adapt themselves to the formation of the paper bags therebeneath.


The bag is closed by a flap with a lengthwise slit at the middle. The ends of the slit engage an endless string loop and hold it open when the flap is closed so that it is more comfortable to hold. The loop on the side opposite the flap is shorter than the first loop.


A multi-ply sack having the innermost ply (of kraft or crepe paper) coated with polyethylene or other thermoplastic is designed for handling on high-speed machinery while providing an especially moisture-resistant side seam. This is accomplished by overlapping one of the seam margins of the inner ply upon itself, then abutting this double edge against the other seam edge to form a paper-to-paper joint which is also reinforced by two thicknesses of thermoplastic.

Model HBK fills 400 to 800 sacks per hr. with a capacity of 20 to 100 kg. An operator feeds the sacks which are discharged automatically onto a conveyor belt when filled.


An inexpensive patented flat-bag construction with attached tags cut from a single blank may involve one or two tags, each printed on either one or both sides for advertising purposes. A modification provides a combination of two flat bags, also cut from a single blank, for sample packages with complementary contents, for introducing a new commodity with an old one, or similar purposes.


A material suitable for making bags, etc., is prepared by coating a web with a uniform layer of a cellulosic compound, lacquer, varnish, oxidizing oil or condensation resin, and then forming rugosities conjointly in the web and coating.


A web of material stretchable on its longitudinal and lateral axes and comprising a plurality of layers of stretchable paper, said paper characterized by a single set of lines of rugosities imparting the stretchability thereto, said lines being located aslant to said axes, and the said lines being oppositely disposed in at least two of said layers.


The package is essentially a bag made from paper creped by the positive adhesive action of a suitable binder, such as bitumen or some other thermoplastic or adhesive substance.


The purpose of the invention is to separate the walls of a bag tube in a continuous length and by continuously acting means. After the bag tube has passed through the first set of pinch rolls, it is inflated with air or other gas; this body of gas remains in one place while the bag tube travels and continuously acts to effect a separation of the walls of the traveling tube. An apparatus for this purpose is described.

The method of forming a bag which comprises forming a plurality of cutting sections at spaced intervals longitudinally of a web of bag material, forming the web into a tube having substantially flat and parallel sides, cutting the tube transversely of its length and directly adjacent one marginal edge of a plurality of said cut out sections to form bag blanks, folding one end of each blank upon itself once to form a bottom for said bag, and connecting said folded portion by adhesive applied between the fold; the transverse cuts being so positioned that a plurality of notches will be provided in the web in such a position that when the bag blank is folded upon itself to form a bottom, such notches will be in one wall only of said bags whereby adhesive may contact with the other wall through said notches.


The method of making lined bags with a smooth-edged thumb notch in one wall of the open end thereof, which consists in providing a pair of independent webs of bag material; preforming circular apertures in said webs substantially centrally of the same; bringing said webs together and in superposed relationship with one edge of each web extending beyond the adjacent edge of the other web and said apertures in registry; developing such duplex web into flattened tubular form with said registering apertures in one wall only of the same; severing such tube by straight transverse smooth-edged cuts diametrically through said registering apertures, such operation producing successive bag blanks with a notch in one wall at each end of the same, and thereafter folding and securing one end of said blanks to form a bag bottom.


In the preparation of multi-ply webs for the manufacture of multiwall paper bags, producing a printed web in continuous lengths, associating therewith a web of transparent material in continuous lengths and in direct contact with said printed surface, and causing said transparent web to be maintained in fixed position with respect to said printed web for subsequent formation into multiwall bags by the application of adhesive to said printed web prior to the association therewith of the transparent web; said webs being laterally spaced with respect to each other with one edge of the paper web projecting beyond the adjacent edge of the transparent web and one edge of the transparent web projecting beyond the adjacent edge of the paper web.


An air blower and duct are provided to deliver a blast of air in proximity with the mouths of a stack of flat folded bags supported in a magazine. The bag support is movable from an inclined position to bring the top bag in the stack into alignment with the air blast and cause its inflation. Product guide members are located adjacent to the mouth of the bag to facilitate bag filling.
Details of the valve closure are given; the valve opening is coated with self-adhering adhesive.

In a bag-making machine for the manufacture of bags from a roll of sheet material, a plurality of rollers for feeding said material through the said machine at a constant rate of speed, said rollers being driven at a constant rate of speed, means for folding said material to form a continuous tube with the edges of the material lapped, means for sealing the lapped edges of the tube together, rotating means for sealing the tube transversely at predetermined intervals to form the bottoms of the bags, rotating means for cutting said tube into bags of a predetermined length, comprising a pair of cutting knives mounted diametrically opposite each other on a shaft rotated synchronously with said last mentioned sealing means, a rotatable roller, sheet material passing over said roller and presenting to said knives a surface against which said tube is cut, said material being of a density which will prevent the adhesion of the two adjacent edges formed by the knife, means for moving said material at the same rate of speed as the tube during the cutting operation and means retracting said material a distance less than the amount of advance whereby a new surface is presented to the knives for each cutting operation.

The Svenska Sockerfabriks Aktiebolag has replaced cartons by S.O.S. bags. The bags hold 1 and 5 kg of sugar and are wrapped in kraft paper for distribution to the wholesaler and retailer.

The apparatus fills bags with fertilizer or other material having a tendency to clog by feeding the material in a continuous flow and diverting the flow from one bag to the next when the first is filled with the desired weight.

A window and flap are cut in the upper part of the two principal faces. The juxtaposed flaps are folded across the openings and laid against the upper part of the package.
The bag claimed has at least one protruding stepped corner flap, of which at least one ply has an extension and at least one other ply a recess. The extension and recess are of equal length relative to the average transverse separation line between the tube sections. At least one outer ply of the corner flap(s) has its end coinciding with the average separation line, thus being neither extended nor recessed.


An improvement of British patent 711,879. The bag tube has stepped ends folded into a flat bottom.


An illustrated description is given of the St. Regis' integrated plants at Oswego, N. Y., including a machine shop for making converting machinery and packers, a paper mill, and a bag plant for making multiwall paper bags. The mill uses unbleached Swedish kraft pulp; the production of the 20-year old paper machine, originally designed for 100 tons of paper per day, has been increased to an average of 180 tons. The operations involved in making the multiwall bags are outlined, including printing prior to conversion, forming the tubes, cutting, folding the valves, and sewing the ends. Dipping the sewn ends into a waterproofing composition is considered unnecessary for most present commercial uses. In conclusion, the possibilities of multiwall bags and their future are discussed.


Apparatus for sealing the valve of a valve-type bag having valve portions with opposed wall surfaces carrying adhesive comprises clamping means which compress and seal a preselected portion of such opposed wall surfaces, spreader means which enter into such preselected portion of the bag valve and operate to bring the wall surfaces of the valve into a generally parallel sealable position prior to clamping and mechanism for withdrawing the spreader means after the clamping means engage such valve portion but prior to the application of full clamping pressure to the spread valve portions. The clamping means may be carried on a bag-filling machine adjacent the filling spout.


The device is for opening the extremities of bag tubes of the less stiff varieties of paper by means of suction cups and thereafter forming the side and corner flaps.

The apparatus described in British patent 706,800 is provided with an improved end spreader means for forming the bag bottom.


A multiwall paper bag has a normally flattened tubular body portion with a corner turned in to form a valve within a multi-ply valve flap centrally creased to form the normally lower edge of the flap, the top edges of the bag being secured together in closed relationship by a sewed seam, the seam acting also to secure together the top edges of the valve flap, and having a supplemental sheet folded to form a flattened sleeve within the valve and extending inwardly to form a flexible valve flap extension the lower edge of which is substantially in alignment with the lower creased edge of the valve flap. The upper edge of the flattened sleeve is secured by the sewed seam, the sleeve is slit along its lower edge from the inner end back for a substantial distance towards the outside of the valve, and the upper inner corner portion of the sleeve is cut off along a line extending from adjacent the inner upper edge of the multi-ply flap diagonally downwardly and inwardly of the bag, whereby when the bag is filled and expanded the lower inner portion of the sleeve will be caused to overlap at the slit while assuming a position up against the inside of the top of the bag under pressure of the bag contents, the supplemental sheet being normally folded along the lower creased edge when the bag is empty and being folded along different lines to close the valve opening when the bag is filled, the edge of the sheet being provided with a slit along each of the lines and being unslit between the lines and the lower creased edge.


The object is to provide a sewn or stapled paper bag with a heat seal of thermoplastic material inside the seam with provision for taking up the major part of the stress by the seam rather than by the seal. In the multi-ply bag the paper outer ply or plies envelope a liner ply of fluid impervious material, the plies all having a line of perforations along an end of the bag. Fastening means extend through the perforations to retain the opposed bag walls at this end in closed condition. The opposed wall surface areas of the inner ply, at least along a band just inside the line of perforations, are formed of thermoplastic material and are adhered and sealed together. The liner ply is freely extensile with respect to the outer ply (plies) at least sufficiently to compensate when the bag is filled for the relative shortening of the liner ply due to such sealing, so that the stress applied to the liner ply will be largely transmitted to the outer ply (plies) to receive the adhered sealed areas of stress.


Paper, etc., valve bags are formed by a machine which interposes supplementary sheets, to form valve sheets, between webs to be formed.

The packing of sodium silicate, magnesium silicate, diatomaceous earth, kaolin clay and similar materials into multiwall valve bags is facilitated by deaeration. The deaerated bags are easier to stack.


1181. St. Regis Paper Co. Method and apparatus for producing valves or sleeved bags. British patent 598,461(Sept. 5, 1945); Packaging Abstr. 5:311.


Meat trimmings are automatically packed in 75-lb. "Plyolene" multiwall paper bags with a polyethylene-coated inner ply.


A new multiwall bag construction developed by the company comprises structural strips of kraft paper used to reinforce gusset areas and edges of the bags; by adding one set of strips to a five-ply bag, the strength of the bag is comparable to that of a six-ply bag.

1185. St. Regis Paper Co. Packs meat in valve-type bags. Food Ind. 22, no. 10:1735(1950); Packaging Abstr. 8:38.

A machine, the 400-S, for packing meat in multiwall paper valve bags with a polyethylene-coated inner ply is described and illustrated.

1186. St. Regis Paper Co. Paper bag provided with a filling valve. Dutch patent 130,382; Verpakking 2, no. 9:315(May, 1950); Packaging Abstr. 7:570.

A multiwall paper bag has a filling valve in one corner.


The object is to provide a multi-ply bag in which only the inner ply is in contact with the contents and in which nothing can pass from the outside through the inner ply. In such a bag the closure is formed so that it completely seals the inner ply. The corner closure construction consists
of an inturned end flap adjoining along diagonal fold lines a pair of over-
lapping side flaps which are respectively folded in along base fold lines.
The inner ply of the end flap extends inwardly along the other ply or plies.
For completely sealing the inner ply a line of adhesive extends continuously
from side to side of the end flap inner ply on the outer surface of its
extending portion. This line of adhesive is adhered continuously to the
inner ply of the underlying side flap which is folded over in contact there-
with and to a portion of the inner ply of the overlying side flap which is
folded over in contact therewith. A line of adhesive extends along the edge
on the outer surface of the inner ply of one side flap for sealing the edge
directly to the inner surface of the inner ply of the other side flap which
overlies the edge. Additional adhesive seals the inner surface of the inner
ply of the end flap to at least one side flap inner ply portion along a line
extending from a diagonal fold line to approximately the juncture of the first
mentioned line of adhesive with the fold line of the side flap.

19, 1947); Packaging Abstr. 6:590.

A valve bag formed of thin sheet material comprises a normally flattened
tubular (paper) body portion with a corner turned in to form a valve, and
having a supplemental sheet extending inward from the inturned corner to
form a flexible valve extension flap, the sheet being normally folded along
a crease line which constitutes the lower edge of the valve flap when the
bag is empty, the sheet being slit substantially along the line of such crease
from the inner edge of the extension back for a substantial distance toward
the outside of the valve, the slit in part, veering off for a short distance
to one side of the line of such crease, the flexible extension flap at the
side of the slit being also formed with a crease line extending generally
along the slit and spaced a short distance from the greater part thereof,
whereby such side of the extension flap along its lower edge is deflected
from the plane of the adjacent part of the flap and whereby when the exten-
sion flap portions are flattened toward the top of the bag upon filling of
the bag, the edges of the material along the opposite sides of the slit will
slide into overlapping relation.

G1189. St. Regis Paper Co. Valve bags and method of making the same.
British patent 600,990(Oct. 22, 1945); Packaging Abstr. 5:460.

A multi-ply valve bag has an intermediate ply extended further than the
other plies at the corner. This corner is folded in to form a valve.

Papier-Rundschau no. 15:772(Aug. 5, 1954); Packaging Abstr. 11:977.

The sides of the valve are attached to the inner walls of a multi-ply
sack at least as far as the shoulder line of the sack.

patent 639,404(April 28, 1947); Packaging Abstr. 7:625.

An apparatus is claimed for use in the formation of sleeves of the tuck-
in or valve plug extension type in bag tubes.

For packaging 25 to 100 pounds of chemical products, a valve packer and multiwall valve bags have been developed which eliminate the necessity for any closing equipment. The valve bag is constructed of several independent walls of tough kraft paper which is custom made to protect products in transit and storage. Except for a small opening in one corner called the valve, the bag is factory-closed; in other words, the top and bottom are closed by sewing or pasting and one small opening is left in one corner, which serves to admit the material to the bag (valve). It closes automatically because of the internal pressure of the contents of the bag. To prevent the possibility of sift and to protect against micro-organisms, the valve of the bag may be equipped with a sleeve which is tucked into the valve as soon as filling is terminated. The packing machines used for these bags are of four types: screw, belt, impeller, and gravity, depending upon the methods of propelling the materials into the bags. A diagram of a belt-type machine is included.

St. Regis Paper Co. Wrapped unit-loads of bags have built-in slots for lift truck forks. Chem. Processing Preview 12, no. 11:56 (Nov., 1949); Packaging Parade 17, no. 203:77-8 (Dec., 1949); B.I.P.C. 20:252.

Reference is made to the arrangement of 1000 to 2000 multiwall paper bags into one unit with two built-in expendable, either rectangular or circular paperboard slots, into which the forks of any standard lift truck may be inserted. The unit is subjected to pressure to compress the bags into a solid, flat, and compact bundle, which is wrapped in protective kraft paper and steel banded. This unit load system avoids the possibility of stacked pallets collapsing and distorting the bundle. In addition, there is no loss of space in stacking.

St. Regis Sales Corp. Package 66% more graphite with valve bag system. Chem. Processing Preview 11, no. 4:6-7 (April, 1948); B.I.P.C. 18:528.

All grades of graphite, being black, entail a dirty packaging job, unless the filling machines and containers are especially designed for the products. The solution was found by changing from wooden barrels to a system employing seven valve bag-filling machines and 50-pound multiwall valve bags. A brief illustrated description of the operations involved is given.


A bagmaking and filling machine is claimed.

A package-forming machine comprising, means for feeding plural layers of ribbon packaging material, roller means for crimping said layers upon both sides to close the edges thereof for forming a continuous tubelike packaging structure, a motor for continuously driving said roller means, intermittent means for forming said tubelike structure into envelopes, said intermittent means comprising crimping and severing means for intermittently transversely crimping and severing said tubelike structure in predetermined lengths, and feeding means for feeding said tubelike structure from said roller means to said intermittent means.


The cement-bag industry had its beginning in Germany 40 or 50 years ago. The development of this industry in the United States stimulated the improvement of German cement-bag manufacturing. Initially, the bags were made from kraft paper imported from northern Europe; because of import controls and the increased demand for paper bags, a shortage of domestic kraft paper resulted. The quality of the paper deteriorated with the partial substitution of sulfite pulp. The expansion of the Japanese cement-bag industry is encouraged.


A machine for the continuous manufacture of block-bottom or rose-bottom bags from a traveling web is claimed. The web is formed into a tube and provided with semicircular cuts, which penetrate the upper wall only of the tube, by the co-operation of a rotary knife having a flexible blade and a stationary knife of the shape of the cuts.


A tubular bag body blank of the intucked type includes a relatively wide wall which projects above the top edges of the remaining walls to provide an integral closure flap; the upper marginal edge portions of the intucked walls are disposed at an elevation between the upper and lower edges of the relatively wider walls of the bag, so that when the projecting closure flap is folded into flat engagement with the opposite wall on a line which is coincident with the top edge of that wall, the projecting ends of the intucked walls are simultaneously folded into flat engagement with the front wall and adhered thereto by a suitable thermoplastic adhesive. A closure is effected which is leak- and siftproof.

A tin-tie closure is provided for flexible-walled containers in which the rear wall of the container or bag body is extended upwardly above the remaining walls to receive a metallic strip, and in which the upper end of the rear wall is slightly longer than the metal strip. When the extending wall portion is wrapped around the strip, the latter is completely concealed, and undesirable raw edges are eliminated.

1201. Schisler, R. Method and apparatus for the manufacture of containers such as (satchel-bottom) paper bags. British patent 651,326 (Feb. 24, 1947); Packaging Abstr. 8:353.

The folding lines and slots are formed in the bagmaking strip by two cylinders turning in opposite directions at the speed of translation of the strip. The cylinders have ribs and grooves to produce the folding lines and cutters to simultaneously produce the slots.


The invention includes two claims: (1) a method of manufacturing kraft bags characterized by the application of a noncreped paper whose mean elongation to breaking point, averaged over the longitudinal and transverse values, is at least 6%; and (2) the bags made by such a process.


The combination in a bag-forming machine of means for severing a tubular stock transversely, a cutter operating upon the stock at the rear of the transverse cut, and formed to cut longitudinally and transversely of the stock to form wings on opposite sides of the center line thereof, and movable gripping means adapted to seize the upper panel of the stock and move it rearwardly to form a diamond fold.


The method of cutting a recess in one side of a bag which comprises separating the sides of a bag by flexing the end portion of one side toward the other side at a relatively short radius while allowing the end portion of the other side to flex in the same direction at a relatively long radius, releasing one side of the bag and introducing a cutting element into the mouth of the bag, and then actuating the cutting element. The combination of a relatively movable punch and die for forming a thumb hole in a bag, means for holding the bag in position relative to the punch and the die, means for effecting relative reciprocatory movement of the punch and the die transversely of the plane of the bag to cause the punch to move over the free end of one side of the bag and to enter the mouth of the bag during a stroke in one direction and to form the thumb hole during a stroke in the opposite direction.

The method of making an article from sheet material of the class described which comprises cutting one or more of a plurality of superposed plies against an adjacent ply by passing a cutting edge through said one or more plies directly toward but not into said adjacent ply, while supporting the latter ply along the line of the cut being made.


The method of making a bag which comprises supplying stock in the form of a substantially flat tube having its opposite walls disposed against each other, and cutting spaced slits through one wall of the tube only while flattened against the other wall thereof to define the free edges of adjacent bag blanks on the one wall of the tube.


A fiber-drum construction is adapted for the shipment of liquids in quantities of 50 gallons or more. The fiber drum is fitted with a flexible liner bag which can be formed of impregnated, laminated, or coated paper; for some applications it is preferable that the liner be made of a plastic material, such as polyethylene, polyfluorinated ethylene, polyvinylidene chloride, or similar inert, flexible, synthetic polymer.


The author discusses the principal methods of laminating plastic films and paper, extrusion lamination in one operation, and coating of paper with aqueous plastic dispersions, and the application of the resulting products, particularly in the form of bags, to different use requirements.


In a bagmaking machine, in combination, means for delivering tubular blanks, a cylinder, means coacting with the cylinder to form a tuck in the leading end of the blank, means carried by the cylinder for gripping the tucked portion, tends in advance of the tuck to form a bag portion of double tube thickness, means coacting with the cylinder to form a second tuck in the material of double tube thickness, means carried by the cylinder for gripping the second tuck, means for effecting the release of the bag material at the first tuck to leave free the end portion of double tube thickness in advance of the second tuck, means for gumming a portion of the blank body adjacent the second tuck, means for folding over the end portion of double tube thickness against the gummed portion, means coacting with the cylinder to take over
control of the feeding of the blank, means for effecting release of the bag material at the second tuck, means for ironing down the folded and gummed portion of the bag and means for conducting the finished bag away from the cylinder.


This article on the origin of the paper bag is essentially the same as Abstr. No. 412.


An apparatus for forming bags from confronting sheets of fusible material is claimed.


In a bagmaking machine, a mandrel adapted to have sheetlike material folded thereabout in tubular form with overlapping edges on top of the mandrel, means operable for intermittently advancing the material a specified distance, means adapted for cutting the material a slight distance forward of the mandrel after each advance and for folding the projecting portion of the material over the front edge of the mandrel to form an overlap, means adapted for heat sealing the overlapping portions of the sheet material, and means for operating the advancing means, cutting and folding means, and the heat-sealing means in timed relation.


Sheets of hydrochlorinated rubber and paper in a stack are cut with a heated die, whereby the edges of the contacting sheets will become fused and attached together.


A gripper to be mounted in the cords which close the mouth opening of a bag is claimed.


Granular or powdered products may be filled uniformly into open-mouthed bags of paper, cotton, burlap, or other flexible material by means of an improved filling apparatus. A pair of co-operating upper and lower ring members are movably mounted on the filling tube for holding the bag in
telescoped position over the tube. The ring members are provided with gripper elements for engaging the inside and outside of the bag during filling and for automatically releasing the bag when filled.


A bag has a stitched side seam and an open bag mouth. A draw-type closure comprises a length of raw-edged woven narrow fabric, the length of fabric being woven into the bag adjacent its mouth and arranged flatwise with respect to the bag body with its ends caught in the bag side seam, the length of fabric having relatively closely spaced longitudinal yarns and relatively widely spaced transverse yarns, the width of the length of fabric being such that it is caught by several stitches of the bag side seam.


A heat-sealable multiwall bag is designed for the vacuum packaging of coffee and other foodstuffs. The wall structure comprises an inner layer of rubber hydrochloride film, a middle layer of regenerated cellulose, and an outer paper wrapper; if desired, the three plies can be bonded together with a suitable adhesive to form a laminate.


The author recommends the use of a wax coating, which may be mixed with natural or artificial resins of other nonvolatile organic substances, for producing waterproof paper bags. A very uniform coat is essential; an apparatus for producing such a film is described and illustrated by a schematic diagram.


A list of industrial bags and the most common users of each is presented, including manufacturers of numerous products, dry cleaners and launderers, egg and poultry shippers, grain elevators, hospitals, retail stores, railroads, and storage warehouses.

1220. Sell the bakeries; many types of paper products used behind the scenes and in front. Paper & Twine J. 23, no. 12:11-12 (Feb., 1950); B.I.P.C. 20:507.

An important outlet for paper products is presented by bakeries, which use a variety of paper items and packaging supplies. Among those mentioned are bakery bags.

A bottom closure is formed on a flat folded bag body by first spreading the sides apart at one end and folding one side portion against the bag body to form triangular corner flaps. Glue is applied over areas of the initially folded end before folding operations are completed to form a flat bottom closure having outer corner tabs integrally formed from the adjoining side and corner flap areas. An apparatus for making the bag closure employs pivotally mounted suction cups for arranging portions of the closure during its formation.


Model S3 by the Potdevin Machine Co. is designed for use with their multiwall tuber. It sews one or both ends of the bag and produces a sift-proof seal by applying selvage tape over the sewing. Bags ranging from 10 by 20 to 26 by 54 in. are sewn at a rate of 30-50 per min.

1223. Sews 3,800 filled 100 lb. bags in 8 hr. Food Processing 14, no. 1:31(1953); Packaging Abstr. 10:262.

The table-type machine makes plain or tape-bound closures on medium to large textile or paper bags.


A soft paper valve sleeve which is adapted for use in conjunction with cement bags and the like is claimed to reduce leakage of the bagged material.


A method of providing the intermediate plies of a multiwall bag with serrated ends is described.


A valve sleeve for cement bags and the like can be inserted mechanically during the manufacture of the bag.


The herein described method of making bags, which consists in continuously forming a flat tube with opposed portions of its walls internally gummed at intervals and then opening the partially sealed end of said tube for folding into a closed bottom with said internally gummed tube areas in contact with previously ungummed tube areas.
This frozen food container is available in one and two quart sizes, suitable for both dry and liquid packs. It is of double-wall construction, the outer ply being a bleached kraft and the inner formed from Shellene.

The object of the invention is to enable the necessary reinforcing or stiffening pieces to be applied to a paper or like bag as it is formed automatically on a continuous web machine. The reinforcing strips or pieces are applied to the flat continuous web from which the bag is made, such strips or pieces being secured to the web by an adhesive and spaced apart in such a manner that when the web is folded over on itself in the machine to form the bag body, the strips are on two opposed faces of the bag and in register. The bags may be of the type which have hand-holes or tongues.

A description is given of Inner-Pac Corroflex, a new lightweight flexible corrugated kraft paper for use as an inner pack, featuring patented crisscrossed indentations which permit easy folding in any direction, and a large flat machine-made accordion-pleated bag of kraft and special papers, including creped, waxed, or stainproof.

A method is described for the formation of a window in a wall of a multiwall paper bag; a transparent patch, which constitutes the window, is bound to the plies of the bag wall in such a manner that leakage or sifting of the contents from the bag around the window is prevented.

The 1954 production of unbleached kraft paper amounted to just over 2,500,000 tons, more than in 1953 and only slightly below the 1951 record. In reviewing the demand by major grades, there was a decline in demand for wrapping paper; new high records were made in production of bag and sack papers, and the demand for paper for shipping sacks fell 8% short of the 1951 record.
A wet-strength paper bag was filled with 100 lb. of cracked ice and tested for tensile strength on a laboratory rail transit simulator. In 24 hours, the ice melted and the bag was refilled. After two days of transit jolting, the paper was thoroughly wet but no breaks had occurred and the bag could be safely handled.

An apparatus is described by means of which a single web of bag-forming material can be used to produce a plurality of continuous tubes from which bag or tube lengths can be severed.

An end closure is provided for a flattened tube so that the material of the tube itself will form a loop whereby the package can be suspended from a hook in a display rack.

A method is claimed for selectively heat sealing less than all of a plurality of superimposed plies of flexible material.

The sacks are made by William Palfrey Ltd., and Medway Paper Sacks Ltd. They have been tested with bitumen and a bitumen compound.

For clothes, sacks, masks, and the like, a product is utilized consisting of special paper reinforced by cloth. The bonding of the paper to the cloth is achieved by means of a cement on the basis of a resin, rubber, or latex.

The Jagenberg "Primus" is easily adjustable for bag sizes from 2-3/8 to 12 in. in length and up to 8 in. in width and glues, folds down and presses the mouths of 40-60 bags per min. The bags are offered manually between 2 rubber belts.

Widely adaptable for different sizes of bags, and capable of sealing from 70 to 100 units per min., the Eick-Pack machine provides for the double-fold sealing and gluing of paper block-bottom and S.O.S.-type bags.


A bagmaking machine is illustrated which will construct leakproof bags suitable for holding liquids prior to freezing. It makes gusset bags up to 12 x 3 x 20 in. in size.


Cotton thread is replaced by spun paper or by polyvinyl alcohol filaments. Contamination of food products or of paper stock by unassimilable cotton fiber is avoided. The value of used paper bags as a papermaking resource is enhanced.


A sewing thread, dispersible in pulp reclaiming, is formed of a plurality of plied, unsized, paper ends each composed essentially of a twisted paper-pulp material of manila-fiber pulp.

Skeins, D. M. Improved method of sealing paper bags. British patent 560,708 (March 5, 1943); Packaging Abstr. 1:94.

An inexpensive method of rendering a paper bag leakproof consists in having an extended rear wall adapted to provide a flap extending beyond the bag mouth formed between the upper edge of the front wall and the opposed surface of the rear wall, the outer face of the front wall being provided with a strip of adhesive (e.g., rubber latex or a thermoplastic adhesive) which co-operates with a similar strip of adhesive applied to the outer face of the rear wall extensions. The adhesive strip on the outer face of the rear wall extension is approximately adjacent to the extreme top edge thereof and the adhesive strip on the outer face of the front wall is disposed parallel with, and spaced from, the upper edge of the front wall so that in doubly folding the flap to bring the adhesive strips into contact, the first fold embraces a small transverse area at the top of the front wall so as to form a pocket between the two folds.
A method of attaching a cord handle to a paper bag is proposed in which, when the bag is opened, the cords lie below the bottom of the bag and cannot escape laterally to lose the bottom-supporting function.


Paper bags for shipment and storage of batts of thermal insulation are closed by folding the ends in overlapping triangular flaps, placing the ends of the flaps between a folded fiberboard or heavy paper reinforcement and stitching or stapling through the reinforcement and the contained flaps.


The firm manufactures multiwall tubers, flat bag tubers, cross pasters, bottomers, etc.


In a machine for making window bags, in combination, means for forming a partial tube from a relatively wide web of material, means for applying a relatively narrow web of material to complete said tube, means to slit smoothly said relatively narrow web transversely thereof at predetermined intervals prior to the point at which said webs are combined, and means to sever serrately the remainder of the tube transversely and coincidently with the said slits.


This is an improvement to the machines covered by U. S. patent 1,571,983 (Feb. 9, 1926) issued to H. G. Weber (see Abstr. No. 61384). It provides a simple means for adjusting the claw or paper-engaging portions of the grippers, which is so designed that the adjustment of the clearance between the finger and the drum does not involve shifting the location of the fingers transversely of the drum.

1251. Solution to bag shipping problem. Flow. 9, no. 3:104 (Dec., 1953); Packaging Abstr. 11:301.

When shipping phthalic anhydride, the Monsanto Chemical Co. builds up a 25-bag unit on an expendable fiberboard sheet. The bags are glued together. Interlocked but unglued bags, to be removed manually, are stacked at the car unloading door.

Brief reference is made to the fact that simple testing machines, such as a Schopper strength tester, a tearing strength tester, and a bursting strength tester, are still missing in most bagmaking factories, and that too little information is given by the buyer with regard to use requirements of the bags. This results quite often in the incorrect selection of paper weights and grades, either too weak or too strong paper being chosen, which in both cases signifies a preventable waste.


The following are briefly described: wet-strength duplex kraft bags for ice; wet-strength bags for iced fresh maize; wet-strength bags for frozen chicken; bags for the pulp remaining after the extraction of juice from lemons, which is used for animal feed; bags for powders, such as Coprox powdered paint for waterproofing cement; "Pikup" bags to facilitate the carrying home of large tins of paint.


Apparatus for making gusset-type containers from flexible webbing is claimed.


A knock down container comprises a cut and scored blank having panels secured together to provide an outer carton with side walls and bottom closure sections, each of which has a bellows fold therein, and an inner bag having a flat bottom and side walls with re-entrant folds. The bag is secured at its flat bottom to a bottom closure section of the carton with one of its re-entrant folds secured to a side wall panel of the carton, and a side wall of the bag is secured to an adjacent side wall of the carton. The panels, upon being squared, automatically close the bottom closure sections and automatically open the inner bag for filling.


A bag is formed of fibrous sheet material having a coating of heat-sealing adhesive and marginally pierced areas in the walls providing openings therein without any of the web material being removed therefrom to provide exposed numerous fibrous tentacles in the openings; the marginal portions are heat sealed in face-to-face relationship.


A sheet material for bag construction is described in which the seam areas are pierced to provide numerous openings into which an adhesive is added to provide an anchorage for all the seam layers and to give an interlocked seal construction.
A bag transformer comprising means adapted to receive empty bags which have bottoms lying against one side and partly extending from the body of the bag, bending means beyond said reversible means adapted to receive the extending portion of said bag bottom and to bend the bag to cause the other portion of said bottom to angle out of the plane of the bag, said reversible means withdrawing the bag from said bending means, and means to hold said angled portion of said body as the bag reverses movement, whereby said angled portion is folded against said extending portion.

Permeability to moisture, as measured by increase in weight of meal during storage, and strength, as measured by repeated throwing from shoulder height, of various types of bag for herring whole meal, were investigated. The best results were obtained with a bag consisting of 5 layers of unglazed kraft paper and 1 layer of crepe/asphalt. A 6-layer kraft paper bag, although stronger, was too permeable to moisture; a second layer of asphalt weakened the bag without providing additional protection. Paper bags with a polyethylene film lining appear to be promising, but the gluing of the seams must be improved. In all, 29 bags of 11 types were tested.


Union Bag & Paper Corp. has developed a bag of duplex construction with an inner liner of Unithene (Union kraft coated with polyethylene). The smooth interior surface which the Unithene provides facilitates the complete emptying of the package. After filling, the top of the bag is heat-sealed, then folded over and pasted.

A simple, efficient, low-cost machine for automatically forming individual sleeves from a long paper strip and inserting them into valved bags comprises a mechanism with a pair of opposed gripper rolls adapted to grip the opposite top edges of a bag, open it, and flatten the valve-forming fold; means for forming, pasting, and folding a sleeve to the valve portion of the bag while it is thus flattened by the gripper rolls; means for feeding bags to and removing them from the gripper rolls; and means for folding and smoothing the sleeved valve as the bags are withdrawn from the gripper rolls.
Storage experiments were carried out with so-called "valved" bags, both of plain and of bituminized paper, holding 4.5 kg. of sugar; jute sacks were used as control. The valved bag possesses a lateral tubular mouth of crepe paper, through which it is filled and which is closed by folding. Normal and severe conditions of storage and transport were simulated in respect of temperature and relative humidity, and deterioration assessed by measuring purity, color, water, invert sugar, and ash contents, and by extent of agglomeration. Deterioration was most marked in the controls, bituminized bags being far superior. Plain bags are unsuitable under adverse transport conditions. Further tests on bituminized bags are planned.


An apparatus for filling bags with sugar or the like includes means for removing flattened bags from a stack, delivering them to a filling apparatus, opening them, filling them with a preweighed quantity of sugar, folding over and applying adhesive to the mouth portions, and pressure sealing the closure. Detection means prevent the operation of the filling device if a bag is not delivered to the filling station.


A manufacturer of multiwall shipping bags discusses some of the demands placed on the paper he buys for converting, including uniform basis weight (not higher than nominal) and correct strength, porosity, surface finish, pH (near the neutral point), and moisture. The reasons for these use requirements and troubles resulting for the converter from their nonobservance are outlined briefly.


These bags cover a wide range and are for a wide variety of products, including groceries of all kinds, garments and laundry, millinery, etc. The manufacture of mesh woven paper bags used for fruit and vegetables is described.


The Triumph makes single or duplex gusseted paper bags from 250 g. to 5 kg. capacity at up to 500 per min. It will print the bags by means of a coupled aniline printer or preprinted reels can be used.

The class 80 series of machines by the Potdevin Machine Co. makes paper bags from 110 g. to 15 kg. in capacity at speeds of 275 to 450 per min. The machine can be coupled to a rotary aniline printer.


Compositions are described for coating fibrous packaging materials to prevent adherence of contents to container. A coating composition for use with paper bags, cartons, etc., is: fine talc 1600, kaolin 400, protein 220, caustic soda 11 lb., plasticizer 3, and water 380 gal. Plasticizers recommended are: glycerol, dextrin, sirup, and molasses. A composition for use in packaging asphalt is: fine talc 1000, bentonite 220 lb., plasticizer 6, and water 275 gal. Other compositions are described for use with gums, waxes, etc.


An improved discharge valve is claimed for a filling apparatus, in which powdered or granular materials are fluidized by currents of air and discharged from a tank through a valve spout. The valve is in the form of a flexible tube and is controlled by a device which weighs the bag being filled from the spout. A pair of bars, arranged on the sides for pinching the tube, is connected by a scissorlike linkage to a pneumatic cylinder for effectively closing off the discharge of material.


The cutting shoe claimed requires only the simplest adjustment of the cutting knives. Bag material may be severed or partially severed by the cutting knives for subsequent separation.


Two home-made devices for preventing static electricity on paper bag machines are described. In the first case, some sacking or blanketing is folded and placed into a tray filled with water; the damp cloth should be one inch or more higher than the sides of the tray when installed beneath the paper web in such a manner that, when the machine is running, the web will rub on the damp cloth. Enough moisture is taken up by the paper during its travel to overcome the static electricity. In the second case, the underside of the paper web is brought in contact with a revolving brush, dipping about two inches into an iron water tank. The brush should be driven in the direction opposite to that in which the web is running, and just a little faster. In the case of very thin paper—when the brush is soaking the sheet too much—a breaker bar may be fitted to rub the brush by about 1/4 inch just after it leaves the tank. When this equipment is once adjusted, it needs no further attention from the machine operator.

Machine-made bags made from the roll are manufactured in a variety of patterns, such as flat and folded (satchel) bags with one pasting, cone-shaped flat bags, block-bottom bags, flat bags pasted on both sides, box-shaped varieties, and large sacks of different kinds and shapes. In this article the procedures and machinery employed for preparing flat and folded (satchel) bags from the roll are described.

Stepped-end bag. Packaging Parade 25, no. 6:112 (June, 1957); Packaging Abstr. 14:764.

A pasted valve bag in which the ends of each ply are cut in a stepped relation to each other, thus allowing each ply to be pasted to itself, is being produced by Crown Zellerbach Corp. The bottom of the bag is completely closed, while the top is closed except for one corner which is left open for filling on a valve packer.

Stepped-end multiwall bags. Tappi 48, no. 4:123A (April, 1955); Packaging Abstr. 12:566.

In this type of bag, the individual plies are staggered at each end so that the stepping on the one side is in reverse order from that on the other. When the bottom is formed by folding over and pasting, each ply overlaps itself, forming a construction regarded as the strongest and the most flexible thus far developed for multiwall bags. The bag is for cement and is made by the St. Regis Paper Co.


A paper bag has a siftproof closure for its mouth which consists of a flap, which is at least as wide as the mouth of the bag and which is a continuation of the bag wall at one side of the mouth. The flap has transversely extending fold lines defining three panels arranged to be folded over the mouth of the bag and reversely upon themselves along one of the fold lines. Stitching extends entirely across the mouth of the bag and through the bag walls and the panel adjacent thereto. Adhesive covers the entire inner side of the stitched and the remaining two panels, sufficient adhesive being applied to the inner face of each outer panel completely to cover and seal the holes produced by the stitches.


A supplemental gusset adhesively joined to the main gusset of a paper or other flexible mattress bag enables the bag to be opened up to larger-than-normal size to facilitate insertion of the mattress. The container can then be reduced to normal size to insure a snug fit.
The "Package engineering handbook," published in 22 installments, represents an effort to collect in one place for ready reference available information and technical data which have been widely scattered. It starts with a chapter defining the duties and responsibilities of the packaging engineer and a well-integrated package engineering department. The second chapter deals with examples of comprehensive package engineering in the distributive industries (Spiegel, Inc.), the manufacturing industries (General Electric Co.), and Government agencies (Forest Products Laboratory, Madison, Wis.). In the third chapter, organizations furthering package engineering work are discussed, including the American Management Association; the American Society for Testing Materials; the American Standards Association; the Associated Cooperage Industries of America, Inc.; the National Committee on Prevention of Loss and Damage, Freight Claim Division, Association of American Railroads, Chicago; the Division of Simplified Practice of the National Bureau of Standards; the Flexible Packaging Institute; the Folding Paper Box Association of America; the Freight Loading and Container Section, Operating-Transportation Division, Operations and Maintenance Department, Association of American Railroads, Chicago; the Industrial Packaging Engineers Association of America; The Institute of Paper Chemistry; the Consolidated Classification Committee; the National Furniture Traffic Conference, Packaging Committee; The Shipping Container Institute; the Technical Association of the Pulp and Paper Industry; the Forest Products Laboratory; the Packaging Institute, Inc.; and several other organizations. The fourth chapter is entitled "The tools of package engineering" which covers, among other subjects, bags and sacks. The final chapter is entitled "How to write packaging specifications."

A process for forming window-bag material comprises the steps of feeding two webs of suitable bag material (e.g., paper, glassine, and the like) in face-to-face contact, die-cutting the desired window aperture in both webs as a unit, separating the webs for travel along spaced paths, and then directing the webs so as to return them to closely spaced paths. The separation of the webs after the die-cutting operation provides space for a supply of transparent window material; the transparent web is sandwiched between the two die-cut webs at the point at which they reconverge.
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Material such as kraft paper is coated with a flexible adhesive, and reinforcing fibers are superimposed in a cross-laid pattern on the adhesive. One or more sheets of this material are then wound into a setting-up roll and allowed to harden and induce adjacent surfaces of the roll convolutions to adhere to each other. The material is then split and peeled from the roll and rewound to result in a material surfaced with fibrous material consisting of part of a split base sheet.

1281. Stillir, --. Use of paper bags for packaging basic slag. Arbeitsschutz 12:252-4 (1934); Chimie & industrie 34:76 (1934); C.A. 29:6757.

The stringent requirements which must be met by paper bags used for packaging basic slag are discussed.


Experience and concentration on military packaging are paying dividends at R and R Paper Converting Co., Los Angeles by the combining and engineering of papers which reduce over-all packaging costs and still meet specification standards and the adaptation and development of packaging for civilian needs. The company, which is engaged principally in fabricating cushioning materials and cushion packaging, has succeeded in combining a neutral barrier and a cushioning agent by lamination into a single wrapping medium, without altering either material, thus reducing wrapping costs. One development, termed the Speed Bag, is formed of a neutral barrier, cushioning material, and kraft paper inner bag and outer bag of kraft-backed foil; other products are also described.


In an 18-question and answer article the pertinent facts about the use and manufacture of storage bags are discussed. A storage bag is a protective bag designed to hold articles of clothing (usually woolen) when they must be put out of use for a prolonged period. Since they must last a considerable length of time, they are made of strong kraft, usually in 50-lb. weights. The sales possibilities of this article are discussed in a paper in the same issue under the title "Prevent moth sabotage with storage bags."


The closure made by the St. Regis Paper Co. utilizes rayon thread and flat kraft tape and is available on sewn-valve bags and factory-closed ends of open-mouth bags. It is possible to wax dip both rayon thread and flat tape.
The inability to obtain cotton fabric for sacking during the war forced the development and use of paper packaging for sugar, there being almost 100% conversion. The California & Hawaiian Sugar Refining Corp. uses duplex square-bottom kraft bags which are closed by stitching over crepe-kraft reinforcing tape. Master bags for unit packages are four-wall kraft containers closed similarly to the small sizes. Brown sugar is packaged in lined cartons made on a double-package maker. Wax paper is formed around a block and heat sealed. The carton is made around the block and liner and glued. Cartons for powdered sugar are supplied folded flat, but with the side seams glued in place. Shipping cases for consumer packages are closed by preferential adhesion; a band and diamond-inked design prevents the glue from adhering to the portions of the surface so covered. Hundred-pound quantities are handled in multiwall paper bags. Palletizing is used for all materials not conveyed on belt systems.

A sample linen bag of a type which some members of the sugar industry intend to use for the packing of sugar has been examined and tentatively approved by the South African Railways Administration. They have added, however, that "only observation and experience will show whether it will be as satisfactory as the jute containers previously used." The Administration together with the Association of Chambers of Commerce, have disapproved the use of paper bags for conveying sugar by rail or cartage vehicles; a series of observations on sugar transported in paper bags in full truckloads showed that the bags were not strong enough and did not give enough protection.

The bags are for the packaging of carpets up to 12 ft. by 15 ft. and other large objects including poles, pipes, lumber and rolls of textiles and linoleum. They are made flat or gusseted in single or double-wall construction.

A strip of plastic sheet material incorporated within a stitched bag closure is claimed to grip the stitching and secure the closure. Indicia can be printed on an enlarged area at one end of the plastic strip. This tag can be grasped to tear away the strip in opening the bag.
A strip of plastic or other resilient material is bent about the edge of a sack and incorporated in a stitched closure. The device is claimed to allow convenient and rapid opening of the sack and to prevent the closure threads from unraveling.


Square-bottom paper bags for flour are a recent development now universally used in Sweden. Other packages are also described.


The retail packaging of sugar and flour in paper bags of different sizes; the shipment of drinking glasses in tight-fitting bags stiffened with a corrugated board, a cushioning material consisting of wood wool enclosed in a kraft paper tube wound around heavy or fragile articles prior to their insertion into multiwall bags; and "Kraftfoil" bags for the packaging of hygroscopic foodstuffs are described.


The factors to be borne in mind in devising a package for synthetic rubber are: (1) protection from dirt, dust or cinders; (2) a material which will strip clean from the tacky rubber; (3) the cold flow of synthetic rubber; (4) price and quantity available at short notice. For lend-lease shipments, moisture protection is also necessary. The U. S. Rubber Reserve has now adopted a three-ply bag (60 lb. inner ply coated with clay or talc, laminated to 50-lb. kraft, and this to 80-lb. crepe). Where weatherproofness is required, a five-ply bag is used (60-lb. kraft, 70-lb. kraft, asphalt-laminated sheet and an 80-lb. crepe sheet). The bags have passed storage tests over a six-month period at temperatures up to 120°F. The outer creped sheet prevented slipping in stacking, and the use of a bag 14-1/4 by 7-1/4 by 36 in. reduced the effects of cold flow.


A new unitized carton carload is the latest development in the shipping of carbon black; this unit carton comprises a large fiberboard container with a telescoping top which holds 40 to 50 of the 25-pound multiwall bags of carbon black. The unit cartons are stacked two high and two across in a 50-foot boxcar. With this unit the outer bag of the usual multiwall sack can be eliminated.

1294. Tate, J. H., and Cooke, N. Filling supports for bags, sacks and the like. British patent 582,114; Packaging Abstr. 4:86.
A filling support for bags, sacks or the like comprises two arms or jaws each pivoted at one end about a horizontal axis and bent or formed substantially L-shaped so that their other end portions lie in substantially the same plane and can be moved towards or away from one another by movement about their pivotal axes or axis while together forming the two opposite sides of a substantially rectangular or curved bag-supporting frame which is open at one side to permit the upper end of a bag to be inserted between the jaws and its edge then rolled outwards over them. The bag supporting parts of each arm or jaw normally lies above the pivot or pivots so that the weight of the bag tends to force the jaws apart.


A machine is provided for making multi-ply bag tubes having an intermediate ply extending beyond the other plies at a corner and forming a valve-flap extension adapted to seal the bag. Flap-cutting and -folding devices in the apparatus are disposed ahead of the tube former to produce a tube with preformed flaps.


Although this article is primarily concerned with the manufacture and use of the different types of textile bags, one section is devoted to combinations of textiles with paper liners, either as a loose liner or laminated to the fabric. The properties required of the liner and the types of adhesives used are briefly outlined; in the case of separate liners, special attention must be paid to the closing of the bags. The liners and outer bags must always be closed separately to avoid strains and breakage.

1297. The Packaging Catalog. New York, Packaging Catalog Corp.

This catalog, issued annually, contains reviews on types and uses of paper bags, bag closing and sealing methods, and heavy duty multiwall paper bags.


Paper, plastic or fabric bags are easily closed by means of steel wire ties.

1299. 37,000 Million paper bags. Paper Making 75, no. 1:61 (Spring, 1956); B.I.P.C. 27:328.

The 250 paper-bag manufacturers of the United Kingdom produce 37,000 million paper bags annually. Sulfite and kraft papers are used principally, as well as foil laminates, regenerated cellulose, polyethylene, and other materials. Postwar prosperity, self-service stores, and the emphasis on hygiene are factors causing the greatest demand for bags and bag machines since 1946.
This converter bags profit with shopping bags. Paper, Film and Foil Converter 31, no. 3:367(March, 1957); B.I.P.C. 28:127.

The converted products division of Canada Paper Co., Windsor Mills, Que., produces 15 million paper shopping bags annually. A machine twists a roll of unbleached kraft paper into twine and rolls it onto bobbins, and a sack machine produces single- or double-walled printed shopping bags. Handles are stapled to a strip of ninepoint board and inserted and adhesively secured to the bags.


Apparatus of the character described comprising a horizontally disposed rotor element having a plurality of sets of radially extending guide means thereon, said guide means sets being equally spaced from each other, means for intermittently rotating said element a distance equal to the circumferential spacing of said guide means sets, a plunger mechanism disposed over said element, means for advancing said plunger mechanism radially outwardly and substantially immediately over one of said sets of guide means, and means for synchronizing the movement of said plunger mechanism with said rotation of the element whereby said plunger mechanism will advance over said one of said sets of guide means at the end of a cycle of rotation of said element.

Thomas, B. Flour storage in paper sacks. Die Mühle 77:439(1940); Index Lit. Food Investigation 16, no. 4:309(March, 1945); Packaging Abstr. 5:532.

Storage tests with flour in paper sacks showed that the same changes in quality of flour took place in paper as in jute sacks, but the latter had hygienic advantages.


Bags made of paper, light board, cloth, and other flexible material and used to package granular solids (such as sugar, salt, rice, or cereals) are provided with a paneled collapsible stiff liner sleeve adhered to the inner panels of the bag. When the bag is erected prior to filling, the stiff liner sleeve holds the flexible bag in the desired shape and permits it to be filled with free flowing materials without bulging or becoming rounded at the corners and edges.


Stiff reinforcing panels of paperboard or plastic material are adhesively attached inside an improved paper-bag structure, coextensive with the height and width of the front and rear faces, to maintain the filled bag in a rigid nonbulging condition.
In a bag machine, the combination of a rotatable pasting segment and a
drum adapted to co-operate therewith to engage opposite surfaces of the spread
and flattened end of a bag tube, means operated in timed relation with the
rotation of said segment for forming a V-shaped crease in one infolded flap
of the bag tube during the period of engagement of the tube by said segment
and drum, and a shaft to which said pasting segment is secured for rotation
thereby, said crease-forming means comprising a pair of members, one rigidly
secured to said shaft in substantial radial alignment with a portion of said
segment and the other of said members secured to said drum for rotation there-
by, one of said members having a V-shaped groove therein and the other of said
members having a correspondingly shaped projection thereon whereby the V-shaped
crease is formed in the flap of the bag tube when said projection and groove
are aligned and in engagement with opposite surfaces thereof.

In the method of satchel ending a bag tube which includes opening and
flattening the end of the tube so as to provide inwardly directed corner
flaps and longitudinally extending side flaps, and folding over the side
flaps in overlapping relation and pasting them together so as to provide a
satchel end with one of said corner flaps constituting the under flap of a
valve, the improvement which consists in the additional step of creasing the
under flap of the valve when the end of the bag tube is in said opened and
flattened condition so as to provide a hinged portion adjacent the end of the
upper wall of the valve when the satchel end has been completed, the hinged
portion tending to cause the under flap of the valve to lie tightly against
the underside of the upper wall of the valve when the bag is filled and the
valve is permitted to close.

In the manufacture of rubber sponge-lined paper bags or laminated con-
tainers, a gas-impregnated rubber latex, released and deposited on a base
material (i.e., paper), is vulcanized and integrally united to the base
sheet.

The Tape-Tyte bag sealer uses Scotch brand self-sealing tape for closing
plastic and paper bags.

Tubing and tubular bags. Paper & Twine J. 23, no. 6:11, 24-6
Tubular paper bags are paper tubes with the bottom sealed, usually in turn-up or pinch-bottom style; the sides can be fluted for easy opening. They are made of almost any stock that will not permit the adhesive to seep through. A special adhesive must be used for food packages. The bags are made to order and therefore require careful specifications. In general, flexible paper tubing is classed as flat, fluted, and padded and is available as plain kraft, butted, combined, lined, fluted, duo-tone, overlap, double, and padded tubing, each of which is described. A partial list is given of articles commonly packaged in paper tubing.


Directions to paper-bag machine operators about printing from rubber stereos are given. The importance of kiss contacts is emphasized; hence, great care should be taken to ensure that the stereo is the correct thickness as specified by the makers of the machine. A stereo which is too thin is easily remedied by the insertion of a sufficient number of underlays, whereas it is more difficult to remedy one which is too thick. A little extra time spent on the make-ready will be more than compensated for by a job that will run free from ink troubles and continued stops for cleaning. Stereos should never be washed with paraffin or turpentine; aniline printers should use methylated spirits, whereas a special rubber wash is obtainable for letterpress printers.


The walls of the bags are separated pneumatically.


The machines make bags and fill and seal them. Both square-bottom and pillow types can be made. The machines handle any free flowing item such as beans, rice, and salt, besides shredded products, by use of special attachments. Bags can be made from heat-sealing material, regenerated cellulose, pliofilm, papers or foil.


Dust, powders, chippings, wood waste or any similar material of light bulk weight flowing through a duct can be branched off to either of two terminals by means of the valve described. This facility for alternation is useful where continuous bagging, or a similar method of handling, is desired.

The closure is in the form of a heat-sealing strip. Type A is for flat bags and is of a rectangular shape with a groove in the middle for easy application. Type B is for block-bottom and gusseted bags and has an overlap at each end. Plastic bags are sealed with a simple board strip; bags which are not made of thermoplastic materials require strips which are either laminated or coated with a heat-sealing material.


The market for a wide range of British-made paper-converting machinery which exists in Canada is reviewed. Brief descriptions are given of corrugated paper and box, folding-box, setup-box, paper-bag, envelope, and stationery machinery, winders, guillotines, and miscellaneous machinery. The method of conducting business, promotional activities, competitive advantages and disadvantages with U.S. machinery, and customs duties and other taxes are discussed.


Multiwall paper bags, 24 in. by 46 in., consisting of three bags pasted or sewn together to form a durable protective unit, delivered bread fresh under tropical conditions. The bags can also be used for packaging coffee.


Two hundred bags each holding 27-1/2 kilos were used in a trial shipment of oranges to the Netherlands. They arrived in such good condition that further shipments will be made. These bags, made of heavy waterproof paper with a patent fastener, are said to cost less than the locally made crates, and their use may mean considerable savings to the industry.

1318. Ulm, Frederick A. Bag and composite material. U.S. patent 2,434,892(Jan. 20, 1948); B.I.P.C. 18:419; Packaging Abstr. 5:175.

The material used for the manufacture of bags consists of a plurality of sheets of paper arranged in superposed relation and crinkled and corrugated in directions transverse to each other with the crinkles and corrugations of the two sheets arranged in nested relation, the corrugations being flattened so as to cause them to be generally of dove-tail form in cross section. At least the outer sheet is made of a plurality of plies secured by means of a waterproof adhesive, the two sheets being secured together substantially by the nesting of their crinkles and corrugations.

A rugged, one-trip paper mail sack being tested by the U. S. Post Office Department comprises a Scrimtex Fiberglas-reinforced sack treated with wet-strength resins. Experiments in Alaska revealed that annual savings of $100,000 in transportation cost alone could be effected; other advantages in the use of the paper mail sack are pointed out.


A bag for prepacking moist produce is made of wet-strength kraft paper with a moistureproof transparent film window attached with a moistureproof adhesive. The bag is available in a range of sizes in both square and automatic styles (both types are illustrated) and is sold under the trade name "Wet Pack Pak".


A machine is now available which automatically weighs and packages rock wool insulating material in multiwall paper bags. The elimination of overweight bags and the reduction of a packaging crew from four or five to two men will affect great savings. The machine-packed kraft bags are rectilinear in shape, look much better, are readily palletized, and occupy 10% less space than the old containers. A description of the machine is given.


Of duplex construction, the bag's inner liner is made of special Scutan paper, which has the necessary insulating characteristics.


The "Sta-Kold" bag was developed to stimulate sales of frozen foods, ice cream, and other goods which must be kept cold until they reach the consumer's refrigerator. Though made of paper, the bag is said to have extremely high insulating characteristics, and to cost considerably less than competitive insulated bags, because it can be made at high production speeds on standard machines. Moreover, having a third dimension in the form of a gusset, it is easier to fill and has greater capacity.


The bag holds 40 one-pound polyethylene packages. It has small ventilation holes on the face, back, top and bottom and is constructed from a special wet-strength kraft paper. After a 6 days journey, there was still 2-3 ft. of top ice on the bags, without a single bag failure.
Union bag operating in new Los Angeles plant. Pacific Pulp Paper Ind. 12, no. 2:20-2(Feb., 1938); B.I.P.C. 8:249.

Reference is made to the recently completed bag factory of the Union Bag and Paper Corporation in Los Angeles with a production capacity of 5,000,000 bags per day.


Bags of carbon black are flattened by passing through a Rollpac machine. They then stack better and take up 20% less space.


Damage sustained in multiwall bag shipments which frequently resulted from loose strapping is eliminated by slipping a large corrugated (Drumpak) container over a three-foot pile of bags arranged in interweaving patterns on the bottom cap, adding the top lid to the bag pile projecting above the box body, and compressing the filled box under a hydraulic compressor. Top and bottom lids are held firmly in position by steel strapping inserted in precut ears.

Use of paper mail sacks grows. Paper Trade J. 141, no. 29:16 (July 22, 1957); Packaging Abstr. 14:842.

The sacks were developed by Bemis Broo Bag Co. and Mosinee Paper Mills Co. They are lighter in weight than conventional canvas sacks and can be thrown away after one trip. The paper for the sacks, known as Scrimtex, has a mesh fiberglass built directly into the sheet at the time of manufacture.


The bags are made by Jet-Pak, Inc., and protect metal parts from rusting and corrosion up to 10 yr. The cushioning is sealed in double walls of moisture-resistant kraft.

Valve bag packer and settler. Flow 9, no. 6:117(March, 1954); Packaging Abstr. 11:467.

The settler works during the filling operation. The machine is automatic.


For packaging 25 to 100 lbs. of chemical products, a valve packer and multiwall valve bags have been developed which eliminate the necessity for any closing equipment. The valve bag is constructed of several independent
wells of tough kraft paper which is custom-made to protect products in transit and storage. Except for a small opening in one corner called the valve, the bag is factory-closed; in other words, the top and bottom are closed by sewing or pasting and one small opening is left in one corner, which serves to admit the material to the bag (valve). It closes automatically because of the internal pressure of the contents of the bag. To prevent the possibility of sifting and to protect against micro-organisms, the valve of the bag may be equipped with a sleeve which is tucked into the valve as soon as filling is terminated. The packing machines used for these bags are of four types: screw, belt, impeller and gravity, depending upon the methods of propelling the materials into the bags. A diagram of a belt-type machine is included.


A 2,500-lb. unit load of 50-lb. valve-type bags is 69 in. high in contrast to 84 in. for a unit load of conventional bags.


Mixtures of jute and sodium nitrate when heated in a slow stream of air show an initial ignition temperature (increased rise in temperature) at 215-225°C, and an inflammation temperature of 280-300°C. Both temperatures are lowered considerably (to about 140-160°C and in one case to 125°C) when magnesium chloride is present, especially if accompanied by sodium iodate or sodium perchlorate or both, which are normal impurities in Chile nitre. When such nitre is packed in jute bags the amounts of magnesium chloride and sodium iodate in the fabric of the bag gradually increase due to hygroscopicity of the mixture and eventually reach such proportions that a fire hazard due to the lowering of the ignition temperature is present. The risk is due to the formation of magnesium nitrate. Safety regulations are discussed and it is suggested that "diskraft" paper bags should be used for packing instead of jute.

Vancouver bag plant expands cellophane division. Western Pulp and Paper 1, no. 5:18-20 (Dec., 1948); B.I.P.C. 19:305.

A description is given of the development of Bartram Paper Products Co. Ltd., Vancouver, the largest Canadian paper bag manufacturer west of Toronto. Among the new machines installed in the recently opened extension are a large Meisel five-color press and a Heinrich-Cottrell four-color aniline press for use with cellophane.


A substitute for cotton, which can be used for sanitary purposes and for textiles, is prepared from used bags of hemp, flax, or linen from oil and wine presses. They are first placed together with their linseed, grape, etc. residues in water with 0.1% soap and 0.2% Na₂SO₄·9 H₂O for two hours at the boiling point in order to degrease them. The bags are then washed in
1% sulfuric acid for 30 min. They are then placed in a bath containing 1% \( \text{Na}_2\text{SO}_4 \cdot 9 \text{H}_2\text{O} \) and 1% calcium chloride for 8 hours, rinsed, and washed in a bath containing 1% acid. The bags are then immersed for 8 hours in a 1% sodium peroxide solution and washed again. The fibers thus obtained are mixed with 10% cotton floss, to facilitate wadding and carding. Fibers are prepared in the usual way.

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Means are provided for forming a fluid-tight closure for the mouth of a bag consisting of means for supporting the bag, means for forming an elongated closure in the mouth, including a pair of spreader blades, means for lowering the blades into the open mouth of the bag, means for moving the blades apart laterally to cause opposed walls of the mouth of the bag to be brought together, means for swinging the blades to present the latter at an acute angle with respect to the top of the bag, means for grasping the ends of the elongated closure and stretching the same to provide a substantially wrinkle-free contact between the opposed walls of the closure, and means for sealing the closure while it is maintained in its stretched condition.


In a container-forming machine, in combination, a rectangular forming block about which the container-forming material is wrapped to form a tubular body portion having one end extended beyond the block, and means for folding down said extended end to form the bottom of the container comprising a pair of pivotally and yieldingly mounted folding plates adapted to engage and fold down two opposed portions of said extended end, and a plurality of rotating brushes adapted to engage the remaining opposed portions of said extended end and to fold them down in overlapping relation to the underlying folded down portions, said folding plates being arranged to be vertically reciprocating into and out of operative engagement with their respective opposed portions of said extended end.


The machine has provision for shaping a flat bag into rectangular form to provide a bag suitable for use as an individual container or as the inner bag or liner for a carton. It has an expansible mandrel or forming block for shaping the bag.


A container-forming machine which is adapted for the construction of paper-lined cartons embodies means for feeding a web of thin paper lining material into operative position to be wrapped about a forming block to form a bag or inner liner for a package.
Finely comminuted flowable solid material, such as flour or powdered gelatin, may be rapidly filled into a number of successive flat flexible containers. Filling heads adapted to engage the inside surface of the containers are each provided with a suction opening leading to a source of vacuum and a material opening connected to a supply hopper of material. Supporting devices having hollow hinged portions are provided for enclosing the containers in five pockets which restrict the amount of material that can be deposited.

The invention provides an apparatus for making individual filled bags from an elongated web of heat-sealable material. By folding the web longitudinally and sealing spaced transverse portions, a strip of connected bag sections is formed. Provision is made for severing the sections from the strip and supporting the bags during the deposit of a charge of a commodity in each bag. After filling, sealing devices are applied to close the bags.

A method of preventing the formation of air channels in block-bottom bags made of stiff paper, consists of making longitudinal grooves or creases in the bottom flaps and the corner folds of the block bottom. These sections are thus divided into narrow longitudinal zones, which, because of the elasticity of the material, tend to revert to their original position under the influence of the folding. When the bottom of the bag is pressed flat, these zones lie close together and make the flap-creases quite air-tight.

The object of the invention is to enable a paper sack to be filled as full as a textile sack. This is effected by providing an ordinary (nonvalve) opening which is very little wider than the filling tube in addition to the valve opening. Having filled the sack by means of the valve opening and having sealed this, the filling is completed through the other opening.

A strip of soft rubber or other elastic, porous material is inserted in the valve.

Means are provided for performing this operation smoothly.


The valve channel is formed to effect a tighter closure when a filling spout is removed.

Victory fuel bag. Modern Packaging 17, no. 6:72 (Feb., 1944); Packaging Abstr. 1:107.

Petroleum is carried in a 7-gallon bag made of water-resistant material lined with petroleum-proof impregnated, creped cellulose wadding. The bag is fitted with rope handles and grommets at each end. It can be slung over the shoulder.


A machine and method for assembling bags into a series or chain are claimed. The bags made from paper, etc. are attached to tapes coated with adhesive (preferably thermoplastic) for convenience in handling and filling operations. At the conclusion of the filling operations, the tape may be released from the bag or it may be folded over the bag opening and employed as a seal.


A number of separate open mouth bags are interconnected by thermoplastic pressure-sensitive or self-sticking adhesive elements, not forming an integral part of the bags, adjacent the open mouths. The arrangement facilitates the opening and filling of the bags.


Bags to be passed through filling and other operations are fastened to a tape or tapes by means of a thermoplastic or thermosetting adhesive. These tapes may be perforated at intervals to ensure register of the bag with the filling or other equipment. The tape may be removed to release the individual units or severed and used as a sealing strip in the bag closure.

A method of and apparatus for making packaging material in the form of a number of bags connected in chained relationship and each having an open and closed end are claimed. The bags may be made from flattened tubular casing (waxed, kraft, and parchment paper, or polyvinylidene chloride).


The machine is for filling prefabricated bags connected together in a chain by a pair of longitudinal tapes.


Bags with a closure flap are fastened in a chain with thermoplastic adhesive, and the flap of one bag is sealed to the bottom edge of the preceding bag; the bags are likewise joined in pairs back-to-back with a short tab. After filling, the seals are released and the bags handled as units.


A method of handling bags is described wherein the bags are connected with one or more flexible strips of paper to assist in the advancement of the bags and in the opening, closing, and sealing operations. The bags may be attached to either side of a strip bent to form an inverted V and resting on a horizontal support. The bags are connected to the strip by a heat-activated adhesive and, after the filled bags have been sealed, the temperature of a sealing area is raised to free the bag from the strip.


The bags have a heat-sealable inner layer and outer protective layer. They are connected by a pair of accordion-pleated tapes.


A method is described for handling bags made from paper or thermoplastic sheet material through a filling and closing machine. Paper tapes with a thermoplastic coating are tacked, one to each side of the bag near the mouth, and these tapes carry the bag through the opening, filling, and sealing operations, after which the tapes are removed for re-use.


An apparatus for filling bags which are connected together at their upper ends as a chain and by means of flexible strip material connected to the bag, is claimed. The bags are heat-sealed and then separated from one another.
The bags are gusseted and detachably connected by strips.

A method of connecting a series of flat-bottom, gusset-type bags comprises the cutting of two or four flaps from the top of each bag. The two flaps on the front panel are detachably secured (e.g., with heat-activated adhesive) to the adjacent bag or flaps from it. After the filling or packaging is completed, the flaps are detached and assist in providing a siftproof closure.

The invention provides for the connection of a number of bags into a chain and serves to facilitate filling, sealing, or other handling.

A machine for filling prefabricated bags connected together in a chain by a pair of tapes is claimed.

A brief description is given of a very sturdy construction of a disintegrator for reworking used kraft paper bags, for instance, cement bags, which quite often contain impurities in the form of sand, stones, wires, or similar hard particles liable to damage breaker beaters or kollergangs.

A (paper) bag with a tubular body comprises an outer sheet of flexible nonheat-reactive material having predetermined portions of its bottom edge cut away, an intermediate sheet of flexible heat-sealable material interiorly of the outer sheet and covering its cut-away areas, a liner sheet of flexible nonheat-reactive material disposed interiorly of the intermediate sheet, and a closure at the bottom of the bag comprising sections of the tubular body folded inwardly from opposite sides and providing a bag bottom section and endwise flap sections, one of the flap sections being folded upon the bottom section and heat-sealed to it, and the other of the flap sections being folded upon and heat-sealed to the bag bottom section and the one flap section, the cut-away bottom edge portions of the outer sheet exposing areas of the heat-sealable intermediate sheet centrally through the bag bottom and flap sections and providing direct contact between heat-sealable surfaces of the folded over flap sections and bag bottom section.
The bag consists of an outer sheet of flexible nonheat-reactive material having predetermined portions of its bottom edge cut away, an intermediate sheet of heat-sealable material on the interior of the outer sheet and covering the portion cut away, a liner sheet of flexible nonheat-reactive material within the intermediate sheet, and a closure at the bottom of the bag comprising sections of the tubular body folded inwardly from opposite sides thereof.

A construction is proposed for a bag of the bellows-folded side-wall type having a completely heat-sealed self-opening or automatic bottom which is siftproof and air tight. Pliofilm can be used as the heat-sealable material; however, cellophane or other material coated with a thermoplastic adhesive is suitable.

A machine is provided for applying supplemental sheets to valved kraft-paper bags to form sleeves in the respective valves.

In the method of making multi-ply bags, the steps comprising forming transversely spaced pairs of openings in a web of paper at predetermined intervals therealong, duplexing a web of thermoplastic material on said paper web, forming the duplex web into tubular form with re-entrant bellows-folded side walls which include the transversely spaced pairs of openings in the paper web, the said tubular form having the thermoplastic web residing interiorly thereof with its edge portions extending longitudinally in lapped relation beneath an overlying edge portion of the outer paper web, supporting the overlying edge portion of said paper outer web remote from the lapped edge portions of the thermoplastic inner web, applying heat directly to said lapped edge portions of said thermoplastic material to fuse the same together while the overlying edge portion of the paper cutter web is remotely supported, and then lapping and securing together the edge portions of the paper outer web in overlying relation with respect to the inner web.

Quantities of merchandise are inserted into bags by a mechanism which picks the bags serially from the bottom of a stack. A hopper structure is employed to receive and retain merchandise in position to be inserted in a bag which is gripped to enclose one end of the hopper.
"Alathor" moisture-resistant, heat-sealable coated paper bags are used for packaging fertilizers, chemicals, foods and medicines.

Bags and like containers are sealed and closed simultaneously, the gases being simultaneously withdrawn by a machine which includes a hollow member having at least one of its cross-sectional dimensions a small fraction of the corresponding dimension of the bag mouth. The hollow member is adapted to be inserted into the mouth of the filled bag and means are provided for flattening the terminal regions of the mouth about the member, thereby to displace the major portion of the regions into opposed face-to-face sealing position, approximating the final sealing position, for transversely flattening the mouth in a zone below and adjacent to the first flattening means, thereby to complete displacement of the bag mouth into final sealing position, and for permanently sealing the bag in the zone. A heat-sealing process is described.

A method is described for forming a bag having a bottom of the automatically opening type in which complementary lines of adhesives are provided along predetermined lines of the material of the bag which is subsequently going to form the bottom in such a manner that these lines are brought into co-operating relation and form a continuous dam or wall interposed between the folds of the bottom and the exterior of the bag. The base is siftproof and subsequently fluid tight.

A weevil- and vermin-resistant bag which is adapted for the vacuum packaging of nuts, flour, grain, and the like is formed of a laminated sheet material which comprises an outer paper sheet and an inner impervious sheet of plastic-coated metal foil. A siftproof duplex bag which incorporates an automatically opening bottom is coated with lines of a suitable adhesive on predetermined regions of the bottom; the adhesive is adapted to be fused after the formation of the bottom structure to convert the bag into a siftproof, and in some cases, fluidtight structure.

Machine for manufacturing bags.
In a bagmaking machine, means to adhere overlapping surfaces of material together comprising in combination, a heat-sealing element, a backing member co-operating with said heat-sealing element provided with a rubber covering capable of resisting high temperatures.


In a method for the manufacture of bags and the like, the steps which comprise printing a band of liquidproof adhesive along each of the longitudinal marginal edges of a single side of a web of liquidproof, flexible material and other bands of liquidproof adhesive in spaced relation transversely of the same side of said web, folding the web to bring the first named bands of adhesive into face-to-face contact, forming a bond therebetween, thereby forming a tube, and so severing said tube as to provide a plurality of bag blanks open at their ends, and having a continuous band of adhesive located at one of said ends.


A container is described for the vacuum packaging of ground coffee and other materials. A cushioning layer generally not fusible or fluid tight in character is used to reinforce the liner in the region where it is exposed to the mechanical effects of the content but leaving intact the region where a heat seal of fusible material is to be provided. Thus, paper is coated with a suitable thermoplastic material to which is bonded a self-sustaining thermoplastic layer or film by means of heat and pressure (e.g., Pliofilm to paper).


A fluid-tight bag has a preformed bottom which is constituted of a sheet material fluid tight and fusible on at least one face thereof, said material being converted into a bag by means of completely flat and fluid-tight seams in a single plane.


A method of forming a seam incident to the making of a bag from flexible sheet material is claimed.


A package is described for holding units of merchandise substantially conforming to the cross section thereof which comprises a bag adapted to hold a plurality of such units, and at least one air outlet port in the lower portion of the bag to facilitate the escape of air therefrom during filling.
The final success of dehydrated fruits and vegetables depends upon three equally important factors, namely, the preliminary treatment of the products, the actual dehydration process, and the packaging of the finished product. Unless containers as foolproof as vacuum-packed tins are developed, the future of the industry beyond the present emergency is not assured. Recently, the use of a 3-in-1 container (utilizing specially treated paper, fiber, and wood) was permitted for Army and Navy needs. The new package is made of laminated paper with two or more sheets of paper and lead foil fastened together with adhesive coatings that make them waterproof. Five gallons of dehydrated food are placed inside a laminated bag of glassine. This is placed into a moisture-proof and insect-resistant heavier bag, whose inside layer is vapor-proof cellophane, the outside being a kraft paper laminated to lead foil. The main bag is placed in a weatherproof carton, and two of these cartons are placed in a single shipping case which may be weatherproof solid fiber or a wooden box. This type of package is only specified for fruits, vegetables, and soup mixes.

A multi-ply bag for insulating batts includes a tear-tape so that the bag may be opened readily without rupturing the paper-covered batt.

In the production of potato bags made from paper strips, woven like cloth rolls, of kraft paper 30 in. wide are slit into 1/4-in. strips, treated to make them impervious to water and heat, and twisted into "yarn." The bags are of the open mesh type.

In a machine of the class described, the combination with mechanism for advancing a paper tube, of means for forming a lip in the tube during the advance thereof including a cutter having its operating portion normally moving at a different speed than said tube and adapted to automatically conform to the speed of the tube while in engagement therewith.
of motion of the paper at a speed less than that of the paper and for per-
mitting said knife to be carried along by the paper, said supporting and
swinging means being placed so that the path of said cutting edge passes
through the path of said paper, and means for preventing the paper from
being pushed out of its path by the knife comprising a supporting surface
at each side of the path of the knife and a narrow elongated supporting sur-
face placed so as to lie in the gap between said two parts of said cutting
edge when said knife passes through the path of said paper.

1386. Weeks, N. E. Manufacture of articles, such as valved bags, made

A paper-cloth material laminated with asphalt may be used to make the
bag. To print the material, the laminant is heated locally in the desired
pattern, until it bleeds through and stains the outer surface of the
material. A method of concurrently heat-sealing a valve sleeve within the
mouth of the bag and printing the bag is described.

1387. Weeks, N. E. Method of adhesively securing valve sleeves to bags.

A paper valve sleeve is coated with a transverse stripe of thermoplastic
adhesive which serves to unite the sleeve to a cloth bag.

1388. Weeks, N. E. Methods of adhesively securing valve sleeves to

A method is described for adhesively uniting valve sleeves in bag valves
by means of a thermoplastic composition. The process is designed to be
carried out on the apparatus described in U. S. patent 2,489,210(Nov. 22,
1949) [see following Abstr.].


An apparatus is provided for adhesively uniting sheet materials, particu-
larly paper valve sleeves in bag valves, by means of a thermoplastic adhesive.

1390. Wehmeier, W. Machine for preparing flat bags. German patent
809,999; Allgem. Papier Rundschau no. 14:605-6(July 26, 1951).

When the paper web is passed through the cutting device and then to the
folding device slipping and waving occur. This is obviated by placing the
cutting and folding devices at the same station.

1391. Weingart, Vernon R. Packaging apparatus for packing perishable

A bag held in the apparatus may be filled with perishable food, such as
sweet corn, together with crushed ice. A bottomless container for holding
the crushed ice may be rotated to deposit ice in the bag alternately with
amounts of food.

An oblique cutting movement interposed between longitudinal cuts produces web strips with spaced longitudinal flaps adapted for making flat bags. To obtain accurate cutting, the rollers used to make these cuts are provided with a variable-speed drive.


A machine for continuously manufacturing heat-sealed flat bags from a coiled strip of paper, etc., is claimed. It comprises means for cutting the strip into lengths and for folding, doubling up and sealing them. The sealing means comprises a number of heat-sealing elements disposed on the circumference of a cylinder and co-operating with pressure elements on a pressure roller.


The author discusses the progress which has been made in the replacement of metal and rubber by cellophane for packaging frozen foods, cheese, frozen eggs, coffee, dehydrated foods, emergency rations, and canned foods. The leading types of containers are the bag-in-box packages, laminated fiber containers using cellophane as an integral part, and multiwall bags. Not all of the newer packages are equal in every respect to those which they replace; in other instances, the newer packages are proving themselves to be superior to the previous packaging.


The device consists of a portable means for applying a strip of thermoplastic or thermosetting material over the marginal edges of the falls of a flattened bag top; sealing is effected by electrically heated rollers.


The seal comprises a deformable seal body with tie cord openings, a tie cord extending through the openings so as to form a constrictive bag neck encircling loop, and an axially compressible convolute spring sleeve.


A self-cooling container for water or other liquids comprises a liquid-holding bag at least one wall of which is made of fabric having small openings large enough to permit seepage therethrough but in uncontrolled quantity,
means to control the seepage comprising an impregnator which consists of the solid residue resulting from the evaporation of a liquid dispersion of a substance that is amorphous, water insoluble, relatively hard at low temperatures, relatively soft at high temperatures, and increasing in softness as the temperature rises, the impregnator being distributed throughout the fabric of the bag to constrict the size of the openings thereby to control the rate of seepage therethrough. The size of the openings is so controlled by the impregnator as to transmit water through the fabric to form a film on the exterior of the bag and to keep the water transmission to amounts substantially within the evaporation capacity of the atmosphere as the condition of the atmosphere changes, whereby the evaporation of the water from the film will draw heat from the liquid within the bag and restrict the rise in temperature of the liquid.


An apparatus of the type described for filling a bag having a drawstring closure with a predetermined number of articles, closing the mouth of the bag, tying the drawstring and discharging the filled bag, the combination which includes a series of radially extending arms rotatable as a unit about a fixed axis, a member carried at the end of each of said arms for supporting a bag in open-mouthed position on each of said arms, said members including grippers engaging with the sides of the bag, operating levers connected to the grippers and a drawstring-engaging member engaging with the drawstring of the bag, an intermittent movement connecting said arms for moving the arms as a unit about the fixed axis and positioning the arms sequentially at a series of spaced positions, a feed mechanism located at one of said positions for delivering a predetermined number of articles to the bag at said position, cams engaging with and operating the gripper-operating levers upon movement of the arms, said cams being positioned to bring the grippers into engagement with the sides of the bag prior to the bag-filling position of the arms and to release the grippers from engagement with the bag at the position of the arms, following said bag-filling position, a pivoted platform located beneath the filled bag at said bag-releasing position, said platform being tiltable downwardly under the weight of the filled bag, a reciprocating hopper located at the position of the arms following said bag-releasing position, said hopper being positioned to receive the filled bag from said tiltable platform upon movement of the arms, a knotting mechanism positioned to engage with the drawstring of the bag as the bag is moved from the platform to the hopper, means for operating said knotting mechanism to tie a knot in the drawstring and means for simultaneously raising the hopper during operations of the knotting mechanism.


A machine for tying a knot in a drawstring of a bag is claimed.


The machine forms a strip of material into a spirally wound continuous tube.
Westbrook, Francis A. Speed changers solve bag machine problem. Industry and Power 55, no. 3:100(Sept., 1948); BoIoPoCo 19:166.

In the multi-ply bagmaking process, machines called tubers cut the required number of plies, form them into tubes, and glue them along the seam; one end of these paper tubes is folded over and glued by another machine, called the bottomers. The tubes are cut into the required lengths by cutoff knives which operate at a constant rate, so that when a longer tube is wanted, the rate of drawing the paper through the machine must be increased. Formerly these speed changes were accomplished by means of gear sets. Since the shortest bag is 9 inches and the longest 39 inches long, 120 variations were possible and 75 sets of gears were needed. Each change required about 20 minutes and considerable labor. The installation of mechanical gear speed changers or speed variators permits the changes to be made accurately and rapidly by the mere turning of a handwheel or by remote control. The machines can turn out about 15,000 bags per hour.


A wet-strength kraft bag has been specially designed for shipping potatoes. The bag, made of Aqualite, was developed to counteract the effect of humidity and changing temperature on the bag and contents and is sealed at all seams with waterproof adhesives and paper treated to withstand dampness and scuffing.

Wet strength paper for bags and other containers, specially treated to resist humidity, oil and grease. Packaging 27, no. 185:430(Oct., 1945); Packaging Abstr. 3:5.

The use of "Parez 607," a melamine resin manufactured by the American Cyanamid Co., in the production of wet-strength paper is briefly discussed. Applications of such paper are in multiwall bags for outdoor storage, and in bags and wrappers for meat or fish.

Wet-strength bag allows prepacking of wet produce. Am. Paper Converter 20, no. 8:10-11, 25(Aug., 1946); Packaging Parade 14, no. 161:33 (June, 1946); BoIoPoCo 17:77.

Reference is made to wet-strength paper bags made by the Union Bag & Paper Corp. and merchandised under the name of "Pek." The bags are fitted with a window of cellophane through which the contents can be seen by the purchaser; they are used extensively for prepackaging fresh fruit, vegetables, potatoes, etc. Another wet-strength bag without the cellophane window and resembling an ordinary kraft bag is the Dolphin for packaging wet or damp objects, such as ice cream or cold beverage bottles which otherwise "sweat" their way through a regular bag. In the potato industry, particularly, the use of wet-strength bags is making great strides. A new shipping method has been introduced whereby a "master" bag is used which holds five 10-pound bags or four 15-pound bags. The smaller sizes are made of two-ply paper, whereas the 50-pound size is made of three plies. The bags carry the grade, weight, shipper's name, brand name, and state in which the product is grown, as required by law. Wet-strength bags also find application in the ice industry.
for the sale of cracked ice or ice cubes. For the mining industry, special tamping bags are now made from wet-strength paper; they can be filled with damp sand without breaking and can be safely stored in the damp, humid atmosphere of the mine.


A brief popular description of the significance of kraft paper, its manufacture, and uses as a wrapping material and for bags is given.


A paper bag is provided with a sheath at the flap end which has an entrance slot and a tongue which bridges the open end of the bag. The tongue may be made in two parts, one for detachably closing the open end of the bag and the other for sealing it. The tongue may be placed off center to the slot in the sheath to provide a friction hold.


Products made by coating du Pont's "Alathon" polyethylene resin on paper, paperboard, aluminum foil, and regenerated cellulose film are described. The packaging materials thus produced are flexible, nontacky, and resistant to grease and moisture.

1408. Williams, Floyd E. Coated paper bag suitable for holding oil for an extended time. U. S. patent 2,244,795(June 10, 1941); C.A. 35:6112.

Use is made of paper associated with a relatively nonvolatile, oil-resistant softener such as a polyglycerol which prevents the paper from cracking on creasing during manufacture and use of the bag which might otherwise occur due to the character of paper used, and the softener is sealed into the paper by a thin adhering oilproof coating covering both sides of the paper and comprising a rubber hydrochloride.


A bottomer for forming self-opening square bottoms on gusseted paper bags is adapted to operate on tubing of different widths and gusset sizes, automatically compensates for variations from mean bag dimensions, and is adjustable to obtain proper folding back of the bottom flaps for different sizes of bags.

Multi-ply paper bags having a minimum longitudinal seam width without sacrificing seam strength are made with the longitudinal overlap seams of each ply offset from each other; the adhesive bonding the seam also bonds each ply to the adjacent ply.


An empty flat bag body is placed on an expandable mandrel and the mandrel is expanded to shape the bag.


A cartonlike bag is formed from a collapsible rectangular paperboard tube having paper tubes glued to each end to form conventional bag closures.


A closure for the mouth of a bag or the like consists of a band of adhesive along one margin of the mouth, a removable protective strip covering the band, a cover tape covered on one side with adhesive and attached thereby to the other margin of the mouth and extending beyond the margin, and a removable V-shaped protective strip having one side attached to the extending portion of the cover tape by the adhesive on the cover tape and having the other side freely movable.


In a bag of the type used for finely divided material (e.g., fertilizer), a flexible sleeve is provided in the filling valve which allows for reverse folding of an inner portion of the sleeve to block the valve upon removal of the bag from a filling spout after the bag has been filled. The sleeve is weakened along its longitudinal center line by cutting a rectangular slit which is covered with a piece of flexible, crease-resistant material such as polyethylene or cellophane film.


In a bag-forming, filling, and sealing machine of the type in which bags are formed by longitudinally folding a web of heat-sealable material (e.g., treated paper), severing sections of the folded web, and heat sealing the three open sides of each section, provision is also made for heat sealing the fourth, or folded edge, in order to strengthen the bag.

The basic purpose of the invention is to provide a machine with simple adjustable means to enable it to make bags in a relatively large variety of sizes. The machine has a regular mechanism for controlling the action of the transverse sealing element, to permit the passage of a predetermined length of bag material before operating on it, and to operate on it at a proper speed. The bags are designed for tea, coffee, or the like.


A machine is provided with simple adjustable means by which bags can be made in a relatively large variety of sizes; this is accomplished by varying the spacing between successive seals. The machine has a regulatable mechanism for controlling the action of the transverse sealing element to permit the passage of a predetermined length of bag material before operating thereon.


Novel and improved devices are claimed for supporting a flat flexible container in operative relation to a vacuum filling mechanism to avoid any stress on the container material and for varying the measured charge of finely comminuted solid material deposited in the container. This machine is similar to one described in U. S. patent 2,768,653 (Oct. 30, 1956). [See Abstr. No. 1341.]


A packaging machine comprises a supply roll of bagmaking material; advancing grippers, each with a pair of jaws adapted to grip and draw the material from the roll, the jaws being adapted to be opened in the shape of a V and to be closed to grip the material between them; and a guide for directing the material between the opened grippers and folding it along its longitudinal axis. The guide comprises a central longitudinal downwardly sloping finger, to centrally depress the material between the jaws, side longitudinal fingers outwardly extending to spread the paper outwardly into engagement with the opened grippers, and a transverse bar extending above the grippers, adjacent to their upper ends and adapted to engage the edges of the material between the opened grippers.


In a bag handling mechanism, the combination comprising: a traveling bag-holding head; drive means for intermittently moving said head around a fixed axis; a pair of members movably mounted on the head and having at one end bag engaging and supporting portions; movable cam means for actuating said members to move the bag engaging and supporting portions toward and away from each other, said cam means including an annular cam mounted to oscillate about said axis; and means for moving the cam means independently of and relative to said head to actuate said members.
Windmoller, A. Bag making machine. British patent 707,346(April 14, 1954); Packaging Abstr. 11:578.

The heat-sealing apparatus comprises two parts, one located above and the other below the web of material, which move at the same speed as the continuously advancing web. The sealing operation is thus considerably speeded up. The machine also comprises a tube former, a cutting device and cooling means.


The device is provided with a pair of rotating expanding fingers, driven by a cam. These fingers interlock in the end of the tube (bent up vertically to the plane of the tube and opened slightly by aspirators or pegs) and then spread out. By guiding the expanding fingers, the front triangular pocket is kept unfolded until it is taken over by a conveyor belt. Thus, a folding rule on the fold-line of the tube end bent up at 90° can be used throughout the whole of the folding process. A diagram is given.


The machine makes block-bottom bags with or without side folds, the bottom being formed over a bottoming roller. Devices enable the operator to adjust for change of size within wide limits, without any tool change. The working is explained with the aid of a diagram.


A multilayer block-bottom valve bag has the layers of the side flaps, except one finger layer on one side flap of each bottom, folded inwardly without incisions or notches. The outer layer of that side flap of the bottom which is the last to be turned over is provided with incisions for the formation of a single-layer cover flap.


Bags with bottom and closure flaps extending from the same wall to fold over against the other wall are made by providing a paper web with transverse weakening lines each separating two bag sections. The web of material is folded to form a flat tube, and such lines are so formed that succeeding sections have flaps extending from upper and lower walls, respectively, the sections being fed to a folding machine which bends the bottom flaps of succeeding sections alternately upwards and downwards.
The mechanical control elements of an apparatus for controlling paper feed speed are driven from a photoelectrically controlled power source through an infinitely variable transmission and a differential gear, regulation of the feed speed being effected through a further differential gear in the main drive to the apparatus and such power source being derived from the drive of the machine.

A multiwall square bottom bag is composed of an inner ply of heat-sealable composition material and an outer ply of different composition. These four walls are all laminated sheets composed of rubber hydrochloride film or vinyl chloride-vinylidene chloride copolymer, a polyvinyl derivative, glassine, regenerated cellulose, paper or other suitable material in any desired combination to produce mere moisture-tightness or tightness to oxygen or other gases, etc. The bag is formed from a tube of multiwall material. The front, back and side walls at the bottom thereof are brought together at a straight-line seam across the middle of the bottom of the bag by uniting opposite inner surfaces of the inner ply by a heat-seal. Extensions of the side walls between the bottom edge and the seam are folded over to form two right isosceles triangles at each side of the bag with apexes on the straight-line seam across the bottom of the bag, and lateral sides extend from the straight-line seam diagonally across the bottom of the outside corners of the bag. The inner surface of the upper triangles forms the surface of the interior of the bag. The bottom surfaces of these upper triangles contact and coincide with the upper surfaces of the lower triangles. The bottom surfaces of the lower triangles contact the inner surfaces of the extensions of the front and back of the bag between the bottom edges of the front and back and the seam across the middle of the bottom.

A gusseted bag composed of an outer ply of paper and an inner ply of heat-sealable synthetic material, preferably rubber hydrochloride film, has an improved bottom closure. The lining material is not laminated to the paper covering at the bottom because when such a laminated sheet is sealed in the manner described and then folded over, the number of thicknesses of lining and paper varies greatly over the area of the bottom from many overlapping thicknesses at the seal to a single thickness of lining and paper along two of the opposite edges. In this improved structure the number of thicknesses is relatively uniform over the whole bottom area. The inner surfaces of the lining material are brought together in flat contact and without re-entrant folds, and the closure of the paper flaps at the bottom is formed by folding the four unfolded rectangular flaps located on the four sides of the bottom of the bag towards the center.
Multi-ply paper sacks suitable for chemicals and fertilizers are claimed. They have an innermost ply of kraft union paper united with bitumen or latex. In order to avoid failure of the sacks at the fold lines, where failure usually commences, due to lack of bitumen, a suitable lubricant is applied, prior to the folding of the plies, to those parts of the sacks where the folds are to be made. This lubricant reduces the heat generated by friction at the fold lines in the folding operation, which is the cause of the dispersal of the bitumen from the fold lines.

A multi-ply paper sack, suitable for fertilizers, chemicals, etc., has gussets along the sides. It includes at least one ply of union paper and additional plies of crepe paper and/or kraft. The union ply is innermost and consists of two sheets of crepe paper, or one sheet of crepe paper and one of kraft, bonded by bitumen, latex, etc. The additional plies are secured to the union ply adjacent only the top and bottom of the sack, but are otherwise unsecured to each other.

A multiwall paper sack has a block bottom provided with an opening in which is secured a metal screw-neck receiving a screw cap or plug.

A valve bag having an internal or external valve-sleeve of paper has two flat strips of springy material (such as cellulose acetate sheeting) secured to the sleeve, being secured respectively to one and the other of the opposed walls of the sleeve when the latter is flattened.

In a valve bag or sack of paper, the valve opening is sealed by applying a coating of a synthetic resin product to the inner surface of the tucked-in flap which forms the valve or of a projecting sleeve secured to the tucked-in flap, flattening the valve mouth or sleeve to bring the opposed resin-coated surface in contact, and applying heat to cause the opposed resin-coated surfaces to adhere to one another. The coating extends over at least so much of the inner surface as will ensure complete closure of the valve opening when the operation is completed.
In the method of sealing the valve opening of a valve bag or sack or the like as claimed in British patent 591,577 (May 14, 1945), the improvement and/or modification consists in the substitution for a synthetic resin product of a moisture-resistant adhesive composition comprising rubber or a rubber-like substance or mixture of such substances which is capable of being caused to adhere by the application of heat.


The bags have lines of separation by means of which the outer ply may be readily torn off, to prepare the bags for use a second time.


A U. S. Dept. of Agriculture study of handling and shipping techniques used for prepackaged Florida oranges is reported. The results of the shipping tests indicate conclusively that oranges in mesh bags require a loading method that limits the weight superimposed on the bottom layers of bags. The double-deck car fits this need quite satisfactorily, while stacking bulk bags on crates is but a makeshift expedient. The two-bushel wire-bound crate is a structurally satisfactory master container for consumer bags that facilitates handling and permits effective refrigeration in transit, but its use adds considerably to the container cost. The kraft multiwall bailer or overbag is also a structurally satisfactory container for bags of take-home size, but it greatly retards cooling and thus promotes decay development. For this reason it is open to serious objection unless decay can be overcome by the use of effective decay inhibitors.


K. B. emulsions permit the use of asphalt in the form of an aqueous emulsion which is either incorporated into the fibrous pulp or applied immediately after sheet formation between the individual layers of paper and cardboard. The chief products which can be manufactured with K. B. emulsions include waterproof wrapping and bag paper.


In the manufacture of bags from tubular stock, the process of concurrently cutting through opposite plies of the stock while the plies are in contact by oppositely directed cuts passing through each ply only and against but not entering the adjacent ply.


A bag has a long real panel which forms the closure flap for the bag and a two-ply pull-tab which, when pulled, initiates separation of the gummed areas on the flap to open the bag.

This patent relates to a means for applying a web of reinforcing material to a web of paper and forming therefrom a bag with a closure flap forming a locking tongue.


A method is proposed for securing a mouthpiece in one end of a paper or fabric bag adapted to be used with a vacuum cleaner.


The patent refers to the construction of a paper bag which is reinforced to provide strength for the handle and body of the bag.


In a valved bag, a tucked-in valve flap extends inwardly into the bag and has an inside edge; a sleeve liner in the flap has an inside edge close to that of the flap; a line of stitching joins the flap and liner close to their adjacent inner edges, the sleeve extending outwardly beyond the outer edges of the flap and the portion of the liner which extends outwardly is turned over the seam to cover it.


A tuck-in sleeve of supplementary flexible material which can be adhesively secured to one of the inner corners of a valve-type paper bag by means of a mechanical device is claimed. The material reinforces the closure and forms a pouring spout.


A method of securing a tie string to a nonwoven bag containing a desiccant is claimed. The bag may be suspended for long periods by the string in packages containing machine parts, etc.


Paper bags of suitable porosity to delay combustion, e.g., of slack or small coal, impregnated with sodium silicate solution, are suitable for using household residue fuel.
Wrap-Trap unit. Packing & Shipping 31, no. 5:9 (Aug., 1954); Packaging Abstr. 11:1044.

The machine is a continuous, straight-line bag packaging unit, which forms, fills and seals the bags and handles all heat-sealing materials. It will package explosive mixtures like TNT, tetryl, mercury fulminate, etc.


The uses of polyethylene in packaging, particularly for chemicals, are reviewed. The production of polyethylene-coated multiwall kraft bags and polyethylene-lined drums is described. Polyethylene may be applied to paper as a hot melt at temperatures of 400-450°F. Arkells & Smiths have developed a method of sealing multiwall bags so as to close the needle holes in the bottom to give a completely moistureproof construction for hygroscopic materials.


Select Louisiana sweet potatoes are packed in five-pound open-mesh bags, ten of which are put into a 50-pound shipping bag. This outer bag, consisting of three plies of 60-pound, multiwall, heavy shipping paper, takes its rigidity from the smaller bags inside. The packer believes that housewives will increase potato consumption by buying these five-pound bags of potatoes; formerly a three-pound sale was the average.


Large, industrial- or agricultural-type bags capable of standing in open expanded position without auxiliary help are formed by adhesively attaching a rectangular bottom wall of relatively stiff paperboard to a continuously advancing open-ended tube portion of paper, the tube being cut to the required length to form the bag. This is a continuation-in-part of U. S. patent 2,511,031 (June 13, 1950).


A large multiwall paper bag which is suitable for covering divans, arm-chairs, and the like is so designed that more than one width of a jumbo roll can be utilized in its fabrication. The bag is constructed with flat front and rear walls and pleated side walls.


An apparatus and method are described for forming multiple-walled gusset tubes for paper bags from a plurality of rolls of paper of substantially the same width.

A bag construction is provided in which bags of large circumference with a deep bottom gusset may be manufactured by a continuous mechanical process from large rolls of paper such as the jumbo roll. Such bags would be suitable for covering items such as divans and armchairs and for lining boxes and cartons.


A description—similar to that in Abstr. No. 108—is given of the high-speed bagmaking machinery being introduced to the United States by the manufacturers, Beasley, French & Co., Ltd., of Bristol, England. In addition, a brief history of the company is included.


The results are given of a survey made to determine the new products which the leading adhesive manufacturers have developed as a result of wartime and postwar research. These new adhesives, along with the claims made by their manufacturers, are listed according to their function, e.g., those used in the envelope and bag industries, water-resistant resin emulsions, laminating adhesives, those used for making cellulose acetate decorative laminations to printed papers, labeling adhesives, and specialty adhesives.

Cocoa shipping in paper bags. Food Ind. 7, no. 553 (1935); Index Lit. Food Investigation 8, no. 1:153 (March, 1936); Packaging Abstr. 6:95.

Low-cost, multiwall kraft paper bags were found satisfactory for local truck deliveries and for carload shipments requiring no handling or transfer en route.

New gas packaging method retains quality of peanuts. Food Ind. 20, no. 5:677-9, 826-7 (1948); Packaging Abstr. 5:412.

Details of the "Flex-Vac" method of packaging are given. The package, which is moisture-, grease-, insect-, and dustproof, offers physical protection to the product and the vacuum and nitrogen method of packaging gives protection against chemical change or deterioration. At the filling station, a Flex-Vac bag, made of thin gage aluminum foil laminated to regenerated cellulose and bleached kraft paper, is hand formed over a wooden mandrel. A corrugated carton is placed over the bag. Both bag and carton are then removed from the mandrel. Peanuts are filled into the bag and weighed to a net weight of 30 lb. The top of the bag is then shaped for heat-sealing and the carton flaps are held in position on the side of the carton by a wooden or metal frame. The package is inserted in a Standard Cap and Seal Corp. vacuum chamber, with the top of the bag inserted between heat-sealing
bars. After the vacuum chamber and the relief valve are closed, the vacuum valve is opened. The vacuum valve is closed and the nitrogen valve opens automatically. Nitrogen then enters the chamber under 40 lb. pressure. When about 5 in. of vacuum remains in the chamber, the flow of nitrogen is automatically cut off. The bag is then heat-sealed at 315°F. The carton is removed, closed and then taped.


An airtight closure for open-end bags is made from paper or like material by coating one side of a rectangular sheet with adhesive and folding into an M-shaped piece with the adhesive-coated side inward. The center leg or fold is inserted in the bag mouth, and the outer flaps seal against the outside walls.


The author reviews some of the significant changes in the packaging industry, including, among others, multiwall-bag combinations, standardization, and the trend toward performance standards. 21 references.
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<td>215,952</td>
<td>1335</td>
</tr>
</tbody>
</table>