

March 5, 1940.

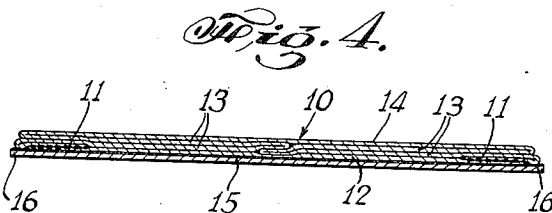
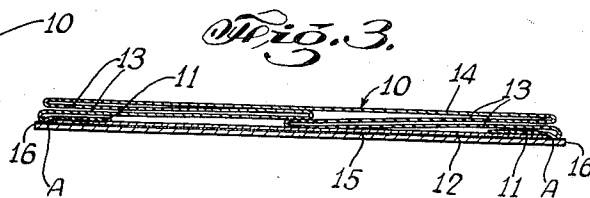
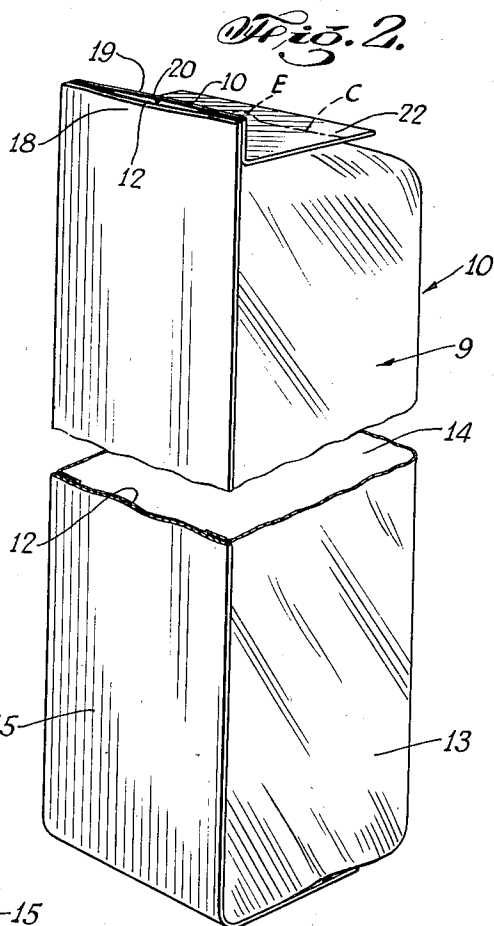
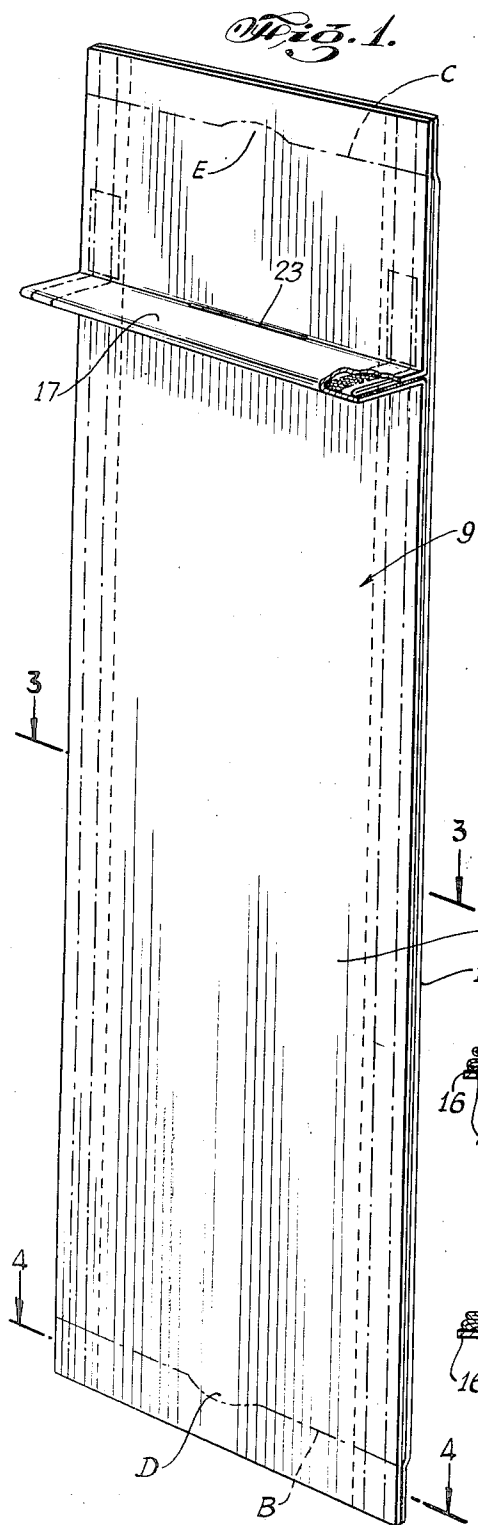
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2,192,722

COLLAPSIBLE CONTAINER

Filed March 25, 1936

5 Sheets-Sheet 1



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COLLAPSIBLE CONTAINER

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5 Sheets-Sheet 2

Fig. 5.

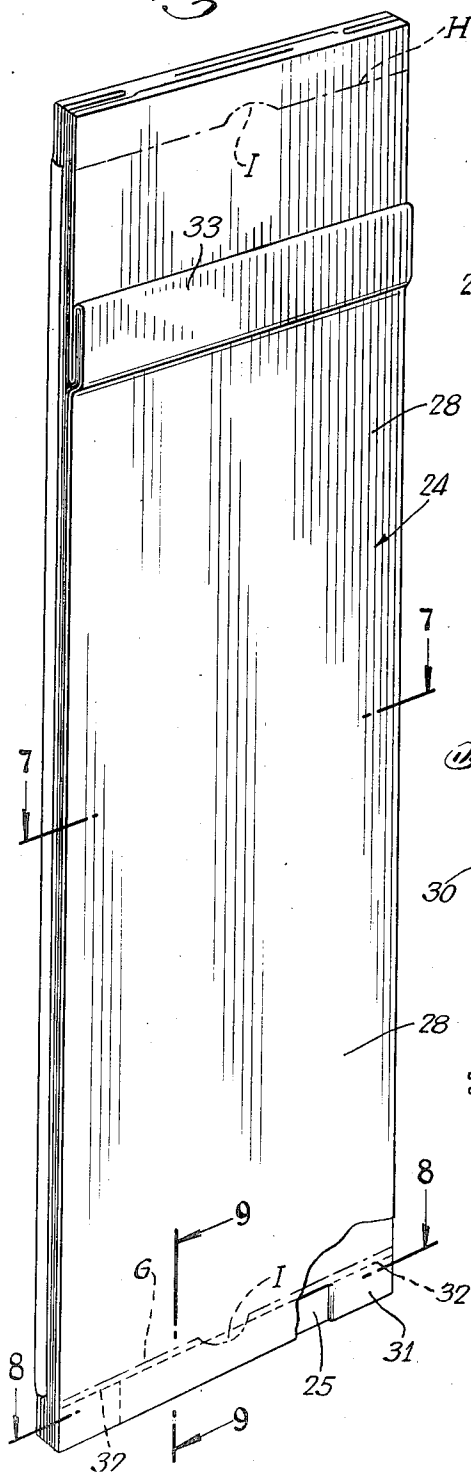


Fig. 6.

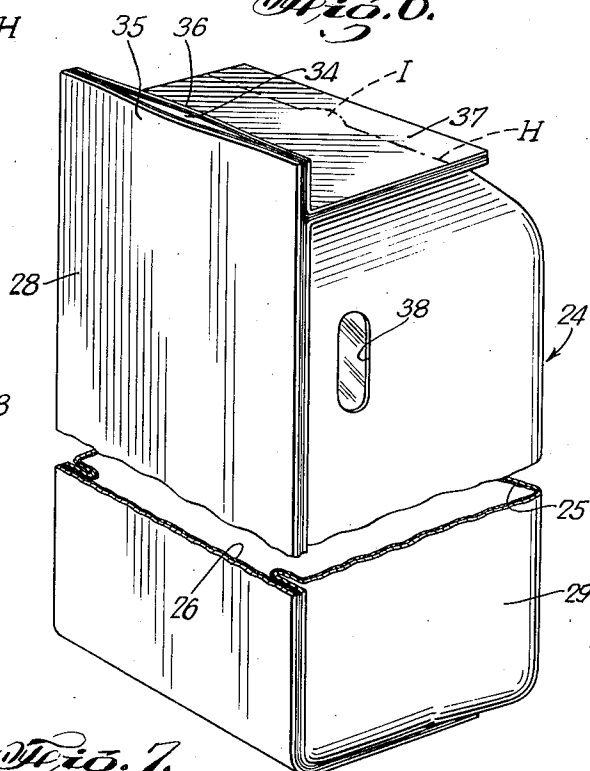


Fig. 7.

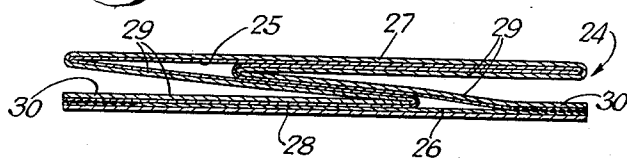


Fig. 8.

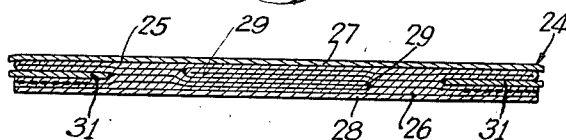
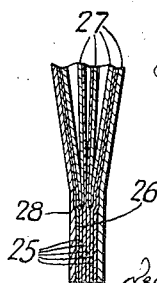


Fig. 9.



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5 Sheets-Sheet 3

Fig. 10.

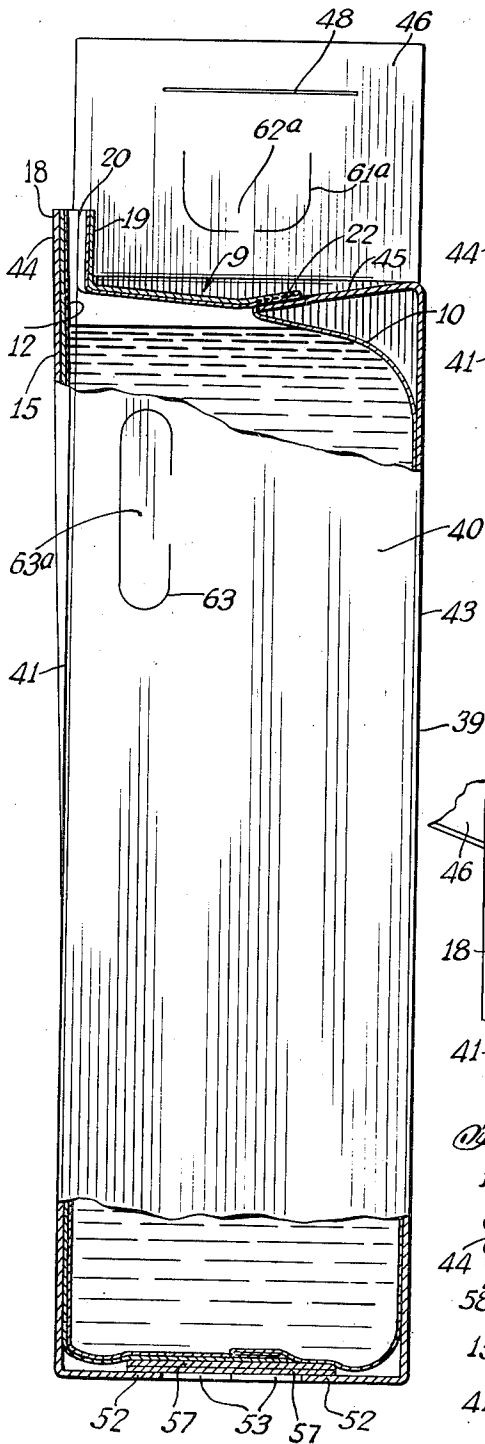


Fig. 11.

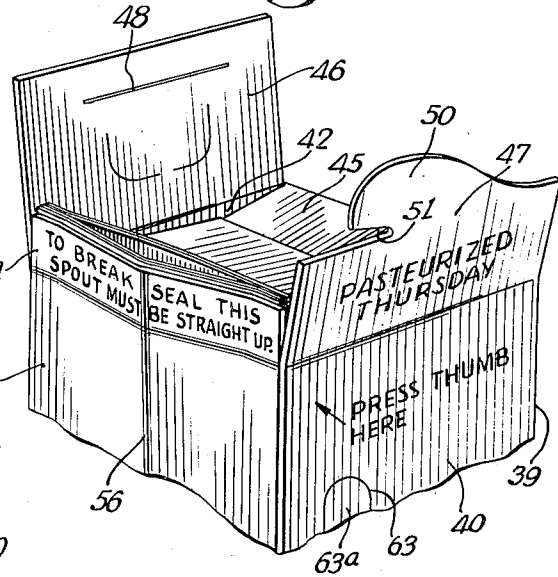


Fig. 12.

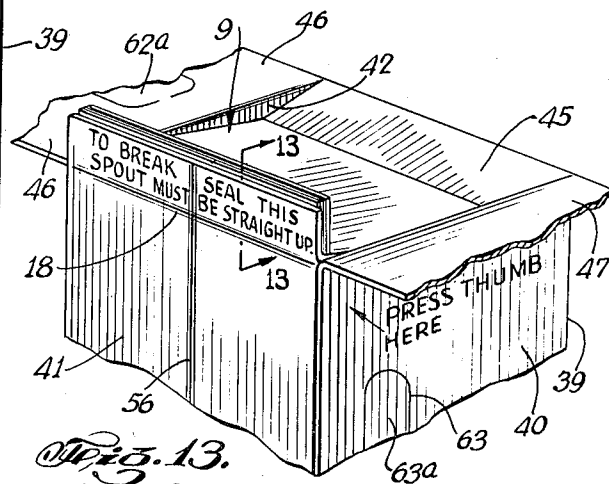
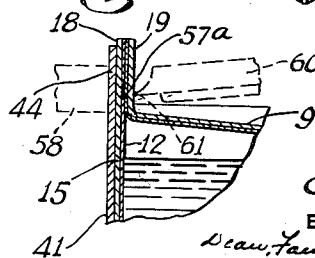


Fig. 13.



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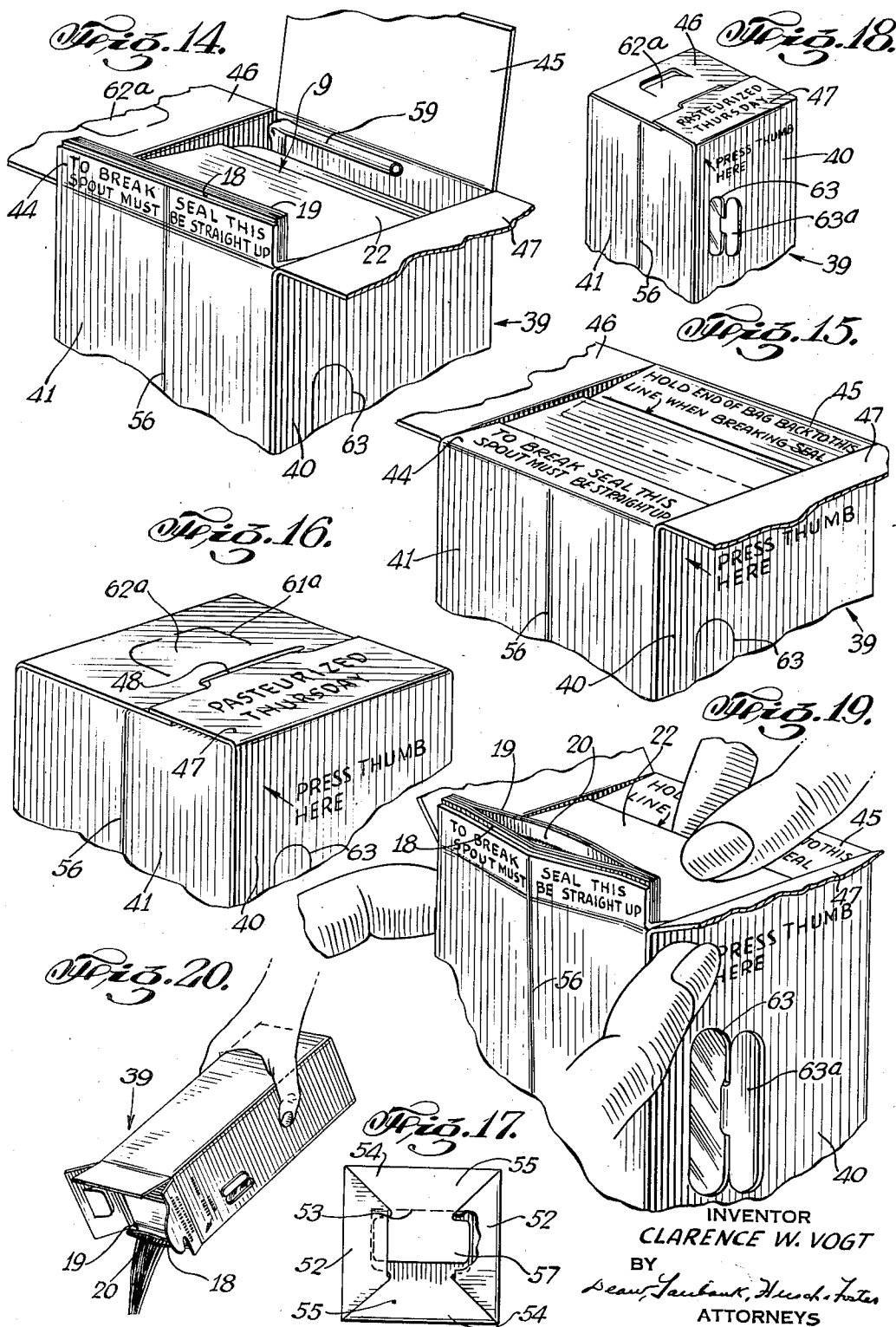
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COLLAPSIBLE CONTAINER

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5 Sheets-Sheet 4



March 5, 1940.

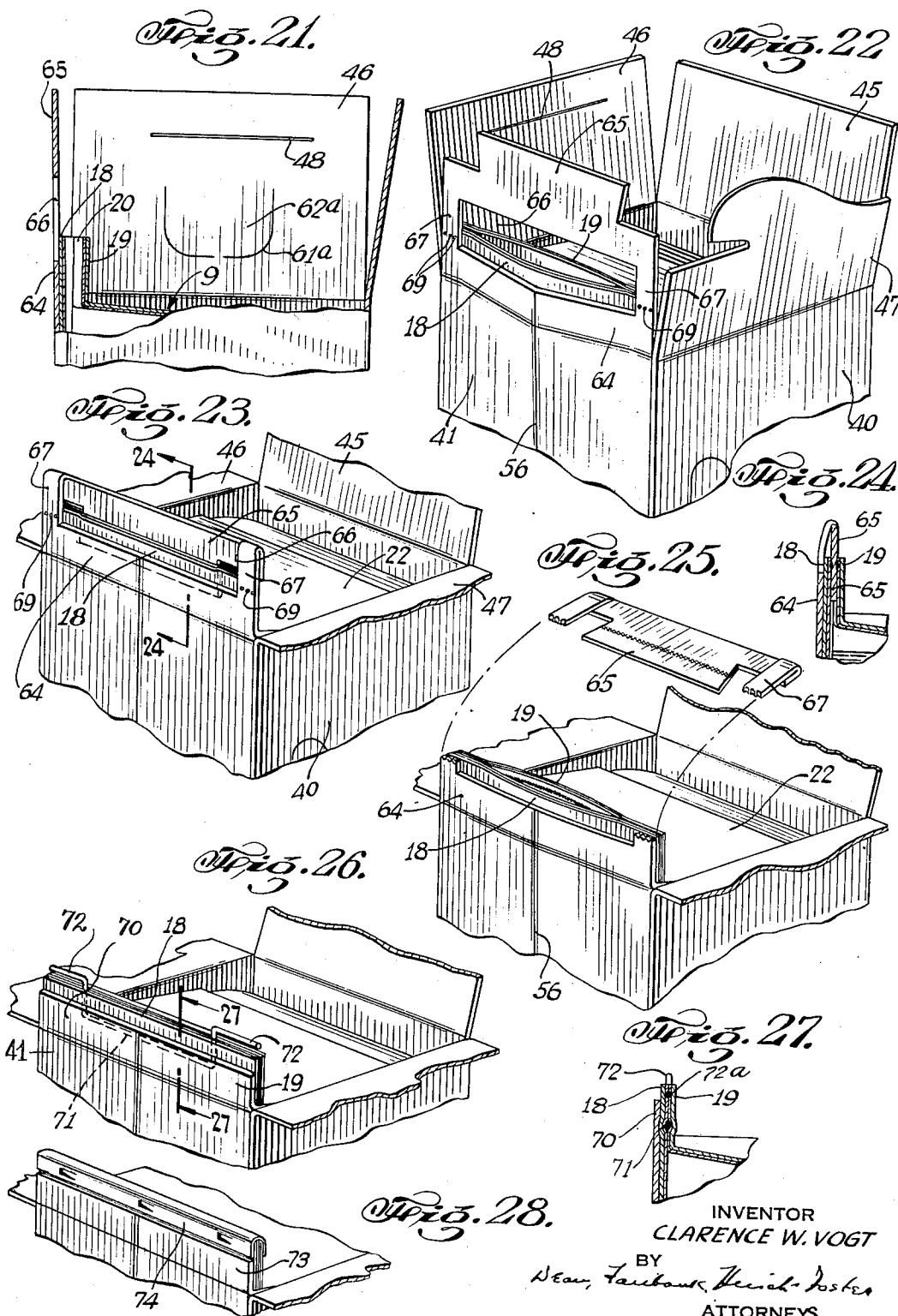
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Filed March 25, 1936

5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

2,192,722

COLLAPSIBLE CONTAINER

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mesne assignments, to Owens-Illinois Glass
Company, Toledo, Ohio, a corporation of Ohio

Application March 25, 1936, Serial No. 70,765

20 Claims. (Cl. 229—14)

This invention relates to containers which may be made and shipped in flat collapsed form and which may be readily opened up and employed for the storage, shipment and dispensing of pourable materials, such as liquids and solids in powder or granular form.

In accordance with certain aspects of the present invention, the container comprises two primary elements, an outer supporting structure, preferably a collapsible cardboard box or carton, and an inner expansible bag made of thin flexible material of such character that the superposed layers or portions thereof may be readily sealed together.

As a feature of the present invention the flexible bag is formed at its mouth with a pair of parallel lips which may be separated or bowed apart to form a filling opening, and which may be sealed together after the bag has been filled, for the purpose of storage and/or transportation. This bag is so constructed and so correlated with respect to the outer carton as to permit the ready breaking of the seal between said lips and the use of the separated lips as a dispensing or pouring spout, without the use of any tools, without mutilating the bag or carton, and without in any way contaminating the inner surfaces of the lips or the contents of the bag.

As a further feature, the bag and the outer carton are so correlated and constructed that the seal between the mouth lips of said bag may be readily broken and the intermediate portions of said lips separated by simple finger manipulation, when it is desired to dispense the contents of the bag.

As a further feature of the present invention, the mouth lips of the flexible bag are attached to an inner end flap or flange of the carton to form a reinforcement for said flap and to form a foldable unit therewith. This unit is folded inwardly across the top of the carton when the container is closed and serves as a cross brace for a pair of opposite walls of the carton.

This construction has the further advantage that after the seal between the mouth lips has been broken and a portion of the contents of the bag dispensed therethrough, the inward folding of the lips and end flap as a unit effectively recloses said lips until future use.

One difficulty in transporting such materials as cream in containers is that a certain amount of head space must be provided in the container for the cream foam. During transportation the cream is jolted and pounded back and forth against the side walls of the container so that

said cream is subjected to a churning action which causes the formation of butter particles.

The construction of the present invention in certain aspects is such that during the filling operations, the upper end of the carton must be opened. This construction permits the flap at this end of the carton on the opposite side of the lips to be manually pressed downwardly on top of the bag during filling operations. This causes the side walls of the bag near its upper end to be infolded and the head space thereof reduced in width and broken up into irregular shape. Since the filling and dispensing is accomplished from the same end of the bag, this bag is transported with this end on top, so that the infolding of the head space is not substantially disturbed during transportation. The amplitude of transverse movement of the liquid in the bag during transportation is therefore reduced and the churning action on the cream correspondingly reduced.

The construction of the present invention in certain aspects is also such as to require that the upper closure flaps of the carton be open before the seal of the mouth of the bag can be broken and before the contents of said bag can be dispensed. The requirements for an open carton during filling and dispensing operations have the advantages of permitting a sipping straw to be easily inserted in a readily accessible position in the carton before or after filling operations, and of exposing this straw to view when the carton is opened for dispensing purposes.

In the shipment and storage of containers, it is customary to have a number of these containers closely packed together so that it is difficult or impossible to grasp the side of a container and pull it out from a pack.

As a feature of the present invention means are provided whereby a container may be grasped at one end and pulled out endwise from a close pack, said means being confined within the general outline of the carton so as not to interfere with the proper end to end stacking of these containers. For that purpose, one of the end closure flaps of the carton is provided with a knockout hole through which a finger may be inserted to lift an individual container endwise from a pack.

Further features of the present invention will be apparent from a consideration of the specific forms illustrated in the accompanying drawings, or will be apparent from the following description. In these drawings—

Fig. 1 is a perspective view of a hermetically

sealed bag shown in collapsed condition and having one wall thereof laminated,

Fig. 2 is a perspective view of the flexible bag of Fig. 1, but shown in full distended condition and with a portion thereof cut or trimmed to form a filling or dispensing spout,

Figs. 3 and 4 are sections taken on the lines 3—3 and 4—4 respectively of Fig. 1,

Fig. 5 is a perspective view of another form of flexible bag shown in collapsed condition and having laminated walls throughout,

Fig. 6 is a perspective view of the bag in Fig. 5, but shown in fully distended position, and with a portion thereof cut or trimmed to form a filling or dispensing spout,

Figs. 7 and 8 are sections taken on the lines 7—7 and 8—8, respectively, of Fig. 5,

Fig. 9 is a section taken on the line 9—9 of Fig. 5, but showing portions thereof expanded,

Fig. 10 is a plan view of one form of combined carton and bag, showing parts thereof in section, and showing the bag after being filled and prior to the sealing of the lips thereof,

Fig. 11 is a fragmentary perspective view showing the upper end of the combined carton and bag of Fig. 10,

Fig. 12 is a fragmentary perspective view showing the upper end of the combined bag and carton of Fig. 10, but after the lips of the bag have been sealed,

Fig. 13 is a sectional detail taken through the line 13—13 of Fig. 12, and showing the lips of the flexible bag in the process of being heat-sealed,

Fig. 14 is a fragmentary perspective view showing the upper end of another form of combined bag and carton, with the mouth of the bag sealed.

Fig. 15 is a fragmentary perspective view showing the upper end of the container of Fig. 14 with the sealed mouth of the flexible bag folded inwardly across the top of the carton.

Fig. 16 is a fragmentary perspective view showing the upper end of the container of either Fig. 10 or Fig. 14 with the outer carton entirely closed,

Fig. 17 is a bottom view of the outer carton of Figs. 10 and 14 in closed position with parts thereof broken away to better reveal the construction,

Fig. 18 is a fragmentary perspective view showing the upper end of the container with the outer carton in closed position and with a cutout in the end flap of said carton punched through to permit the insertion of a finger therethrough for lifting purposes,

Fig. 19 is a fragmentary perspective view of the upper end of the container of the construction of Fig. 14, and shows said container in the process of being manipulated to break the seal between the mouth lips of the inner bag,

Fig. 20 is a perspective view showing the container of Fig. 14 in the process of dispensing,

Fig. 21 is a vertical section through the upper end of a container having another form of outer carton for the inner bag, and shows the bag after being filled but before being sealed,

Fig. 22 is a fragmentary perspective view showing the upper end of the container of Fig. 21,

Fig. 23 is a fragmentary perspective view of the upper end of the container of Fig. 21, but after the pouring lips of the bag have been sealed,

Fig. 24 is a sectional detail taken on the line 24—24 of Fig. 23,

Fig. 25 is a fragmentary perspective view showing the upper end of the container of Fig. 21, but after the seal on the bag has been broken,

Fig. 26 is a fragmentary perspective view of the

upper end of a container, showing another manner in which the pouring lips of the flexible bag are sealed,

Fig. 27 is a sectional detail taken on the line 27—27 of Fig. 26, and

Fig. 28 is a fragmentary perspective view showing the upper end of still another form of sealing means for the inner flexible bag.

It must be understood that the thickness of the various layers of the bag, with or without laminations, is shown in these drawings somewhat exaggerated, and that in practice all of these layers are very thin.

The flexible bag is preferably made from thin flexible sheet material of strip form, progressively assembled to form an endwise advancing tube, progressively collapsed and sealed transversely at spaced points along the length thereof, and then transversely cut intermediate of the ends of the sealed portion to form a complete hermetically sealed empty and collapsed bag 9.

The bag, in the various forms illustrated, is made of a material such that when the layers are superposed and pressed together under heat they will weld, vulcanize or hermetically unite. As an example of such material I may and preferably do employ a type of thin flexible transparent slightly elastic impervious material sold under the name of "Pliofilm", and made from a chlorinated rubber compound. This material has a thermoplastic characteristic of being readily vulcanized or sealed at a temperature of approximately 115° C. so that overlapped sections thereof may be vulcanized or sealed together by the application of heat and pressure even though the surfaces have been previously wetted by contact with liquids or moisture carrying plastic materials. Another material which may be satisfactorily used in some constructions and for some materials is a moisture-proof cellulosic material of the type sold under the trade name "Heat Sealing Cellophane." As far as certain aspects of the invention are concerned, a thin sheet material having a waterproof coating such as that sold under the trade name "Koroseal" may also be used. Also, other materials may be used, which may be fabricated into a casing by the use of adhesive or solvents to sealably secure adjacent surfaces of said material together.

The sheet from which the bag is made will hereinafter be referred to as "Pliofilm," although it is to be understood that such a term for the purpose of this case and as far as many aspects of the invention are concerned, may include any material of the type or character hereinbefore referred to.

In the constructions shown in Figs. 1 to 4, the bag 9 primarily consists of a sheet of Pliofilm 10 having its side sections 11 heat-sealed to the sides of a narrower sheet of Pliofilm 12 along its entire length to form a tube therewith and tucked inwardly from the sides of the sheet 12 to form a pair of opposed infolds 13 between said latter sheet and the center section 14 of said sheet 10. Cemented or otherwise secured to said Pliofilm sheet 12 to form a laminated wall therewith is a reinforcing sheet 15 made of paper or other flexible sheet material which will not be injuriously affected by the application of sufficient heat and pressure to effect heating, fusing, or vulcanizing of the Pliofilm.

In order that the corner of the bag 9 along the side edges of the sheet 15 be strong when in fully charged and distended condition, the sheet 15 extends beyond the side edges of the Pliofilm

sheet 12 to form marginal extensions 16, and portions of the side sections 11 of the Pliofilm sheet 10 project outwardly beyond the side edges of said sheet 12 and are directly glued or cemented at A to said marginal extensions 16. Such sealing by adhesive and by attachment of the sheet 10 directly to the paper sheet 15 at the corners has a reinforcing effect which will compensate for any weakening resulting from heating and softening of the Pliofilm at said corners.

The tube forming the bag 9 is sealed at its lower end transversely across the entire width thereof and below the line B by heat sealing, so that all of the superimposed layers of the sheets are autogenously bonded together and to the sheet 12. The top of the tube forming the bag is similarly heat sealed transversely across the entire width beyond the line C so that the tube will be hermetically sealed at both ends and along the sides.

In order to provide a mouth for the bag 9, the laminated wall of the flat tube is formed with a transverse pleat 17, the outer fold of which may be trimmed or slit to form a pair of parallel lips 18 and 19 which may be separated or bowed apart to form a filling or pouring opening 20. When the bag is charged through the opening 20, it will be distended and expanded into the shape shown in Fig. 2, with the pleat 17 extending substantially in the plane of the lower portion of the laminated wall of the bag while the end portion of the bag beyond the pleat 17 will be folded downwardly at an angle with said laminated wall, and will form a tab 22 beyond the seal line C for the purpose hereinafter referred to.

In order to facilitate the hinging of the pleat 17 into the plane of the lower portion of the laminated wall, the outer reinforcing sheet 15 of said wall is preferably provided with a score line 23 at the base of the pleat.

An arcuate central non-bonded area D is provided in the upper edge of the lower seam to provide slack at that point when the bag is distended and to thereby relieve or reduce the stress at that point. A similar non-bonded area E may be provided at the upper seam for a similar purpose.

In Figs. 5 to 9 is shown a bag 24 in which all of the walls of the bag are laminated or coated and reinforced by an outer layer, this type of bag being more adaptable for use with heavy material and more self-sustaining than the bag shown in Figs. 1 to 4. This bag 24 comprises a pair of Pliofilm sheets 25 and 26 of different widths, heat sealed together along their sides or longitudinal edges to form a tube, and respectively lined with outer sheets 27 and 28 of paper or similar reinforcing material, cemented or otherwise secured thereto. The paper lined Pliofilm sheet 25 is tucked inwardly from opposite sides of the composite sheet 26, 28 to form a pair of opposed expansible infolds 29.

In order to facilitate the transmission of heat to the overlapping Pliofilm layers when forming the bottom transverse seal, strips of the infolded paper lining 27 are cut out or eliminated from the bottom thereof to form a recess, the upper edge 32 of which extends a short distance below the transverse seam line G.

The side sections 30 of said paper lining 27 along the longitudinal seams of the tube extend downwardly along the sides of the bottom seams to form interleaf tabs 31. By this construction, the overlapping Pliofilm layers of the bottom seam facing the cut-out portions or recess of the

paper lining 27, are all autogenously bonded together, without the use of excessive heat, and the overlapping Pliofilm layers on opposite sides of the interleaf tabs 31 can be similarly heat sealed together and adhesively secured to said tabs to form a strong bottom seal.

The upper end of the tube is sealed transversely beyond the line H in a manner similar to that of the lower seal, and both upper and lower seals have non-bonded areas I provided for the purpose set forth with regard to the construction of Figs. 1 to 4.

In order to provide a mouth for the bag 24, the composite sheet 26, 28 is formed with a transverse pleat 33, the outer fold of which may be trimmed or slit to form an opening 34 between a pair of parallel lips 35 and 36. When charged, the bag 24 will be distended into the shape shown in Fig. 6, with the upper end of the tube beyond the seam line H forming a tab 37 in a manner already described with reference to the construction of Figs. 1 to 4.

One of the outer laminations of the tube is preferably provided with an elongated slot 38 sealed on the inside with the transparent or translucent Pliofilm layer, and serving as a window through which the contents of the bag may be observed.

The bags 9 and 24 in the condition shown in Figs. 1 and 5, are hermetically sealed at the ends and sides, and the outer folds of the pleat 17 or 33 are untrimmed or unslitted so that during shipment and/or storage of the collapsed bags, the interiors thereof may be maintained sealed and sterile and protected against any possible contamination. As far as certain aspects of the invention are concerned, these bags may be employed as separate self-sustaining containers which may or may not be placed in cartons. However, as far as other aspects of the invention are concerned, these bags in collapsed condition shown in Figs. 1 and 5, are secured within and attached to a collapsed carton 39. This carton as shown in Figs. 10 to 20 is of tubular form having side walls 40, 41, 42 and 43 which terminate in closure flaps at each end. The several sides of the carton are preferably of an inside width substantially equal to the width of the collapsed bag, and of a length determined by the length of the bag when the latter is filled.

In the forms shown in Figs. 10 to 28, the carton is shown combined with a bag 9 of the type similar to that of Figs. 1 to 4. However, the bag 24 shown in Figs. 5 to 9 can be similarly mounted in the carton as will be obvious from the description herein.

In the form shown in Figs. 10 to 20, the bag 9 is preferably attached to one of the side walls of the carton 39 so that the entire weight of the bag and its contents do not press on the end closure flaps of the carton, and so that the bag and the carton may be shipped as a unit in collapsed predetermined relationship. For that purpose, the laminated side of the bag 9 is cemented or otherwise adhesively secured to the side wall 41 of the carton. This side wall 41 is provided with a foldable flap or flange 44 at its upper end, and the pleat 17 is juxtaposed to said flange 44 and cemented or otherwise secured thereto substantially across its entire surface, with the outer uncut fold of said pleat extending a short distance beyond the outer edge of said flange 44.

The carton wall 43 opposite to the wall 41 is provided at its upper end with an inner flap 75

45, and the other two side walls of the carton 39 are provided at this end with interlockable outer closure flaps 46 and 47, the flap 46 being provided with a transverse slit 48, and the flap 47 having a tongue 50 adapted to be tucked into said slit 48 and having a notch 51 adapted to interlock the two flaps 46 and 47.

The bottom of the carton, as indicated in Fig. 17, is provided with a pair of opposed flaps 52 having rectangular cutouts 53 at their outer ends and cooperating with a pair of flaps 54 having frusto-conical base portions 55 and having tongues 57 with sides extending laterally beyond the sides of said portions 55. The interlocking of the flaps is effected by tucking the laterally projecting portions of the tongues 57 in the cutouts 53 and underneath the flaps 52. This particular type of bottom closure has the advantage of being substantially strong without the necessity of staples or other similar reinforcing members. Furthermore, in this type of bottom closure, outward pressure on its interlocked flaps due to the pressure or weight of the charged bag, is effectively withstood by said flaps. Also, this type of closure can be easily unlocked by merely pushing the flaps inwardly after the bag has been emptied. This feature is particularly advantageous after the contents of the container have been exhausted, since it permits the easy collapsing of the carton and thereby reduces its bulk as refuse.

The bag and carton combined as described may be shipped to a filler in a flat knocked-down condition. The filler trims the outer fold edge of the pleat 17 a little beyond the outer edge of the flange 44 to form the mouth of the bag, expands the carton, and closes the bottom flaps as indicated in Fig. 17. The separation of the two lips 18 and 19 of the mouth is readily effected by pressing inwardly on the side walls 40 and 42. This operation causes the intermediate wall 41 and the flange 44 to which the bag is secured to be bulged outwardly, and the lip 18 connected to said flange 44 to be similarly bulged. This pressing operation is preferably effected while the upper end of the tube beyond the pleat 17 extends upwardly and is inclined slightly inwardly to leave expansion space for the upper portion of the lip 19, and causes the two lips 18 and 19 to be bowed apart in the condition shown in Figs. 10 and 11. In order to facilitate the outward bulging of the wall 41 and the flange 44, these members are provided with a medial longitudinal score line 56.

After the lips 18 and 19 have been separated to form the opening 20 therebetween, a filling nozzle may be inserted into said opening while the bag is still in collapsed condition and substantially devoid of air. This condition of the bag during filling operations, materially reduces the filling time of foamable liquids. For filling the bag with pourable liquids, this bag, prior to the filling operation, is preferably expanded by directing a jet of air into said bag through the separated lips 18 and 19.

If the containers are to be used for cream, the flap 45 during or after cream-filling operation, is pressed downwardly on the top of the bag to infold the upper portions of the side walls thereof. This causes the head space to be broken up into irregular shape and to be reduced in width so that the amplitude of movement of the cream in the bag during transportation is reduced and churning action correspondingly minimized.

The filling of the bag causes said bag to be distended into the approximate condition shown in Fig. 10. After the bag has been filled, the two lips 18 and 19 are heat sealed along a narrow strip 57a near the base of said lips, this operation being effected as shown in Fig. 13 by the use of a platen 58 and a corresponding movable heated pressure member 60 having a knife or V-shaped edge 61 adapted to press along the desired predetermined seal line. Since the two lips 18 and 19 are lined on their faces with Pliofilm, this heat sealing operation forms a liquid tight autogenous bond between said lips along said predetermined seal line. In cases where the material of the bag or its coating or inner lining is not made of thermoplastic material, a strip of thermoplastic material may be previously secured to the lips along its desired seal line and said strip heated and pressed to seal said lips together along said seal line.

In the construction shown in Figs. 10-12, after the bag has been filled and the lips 18 and 19 sealed, the outer edge of the flap 45 may be adhesively secured to the underside of the tab 22 for the purpose hereinafter referred to.

If desired, a sipping straw 59 may be inserted in the corner of the carton as shown in Fig. 14 before or after filling operations. This straw 59 is desirably longer than the bag and therefore has the upper portion thereof bent transversely as shown. To permit this transverse bending, the straw is made of such flexible material as Cellophane which is not injured when bent or folded. If desired, a telescopic straw may be used made of two relatively slidable sections, one inside the other, thereby avoiding the necessity of folding or bending the straw. In the construction shown in Figs. 10-12, the straw may be placed against one of the side walls, as for instance wall 42, of the carton and if the straw is of one piece, the upper end may be folded over the top of the bag.

After the two lips 18 and 19 are heat-sealed together into the condition shown in Figs. 12 and 13, the flange 44 with the sealed lips secured thereto is folded inwardly across the top of the carton along its score line, and the other end flaps 46 and 47 interlocked into the position shown in Fig. 16 to form a closed container which may then be safely stored and/or shipped. The infolded flange 44 reinforced by the lips 18 and 19 secured thereto, forms a cross brace for the walls 40 and 42, this being specially desirable since the intermediate wall 41 has been weakened by the score line 56.

In cases where the bag material is transparent or translucent, one or more walls of the carton may be provided with slots or apertures 63 closed by hingeable flaps 63a so as to provide sight openings to permit the contents to be viewed through the walls of the bag. In the specific form shown, this aperture 63 is in position to expose the cream line if the container is employed for milk.

During storage and/or transportation, the filled containers are sometimes closely packed together so that it is difficult to grab the side walls of an individual container to extract said container from a close pack. In order to facilitate the extraction of the containers from such a pack, one of the outer closure flaps of the carton, as for instance the flap 46, has slots 61a defining a hingeable tongue 62a which may be knocked or punched through as shown in Fig. 18, to expose an opening through which a finger may be inserted for endwise lifting of the container.

When it is desired to dispense the material from the container, the two end flaps 46 and 47 are opened and the flange 44 with the sealed lips are raised substantially into the plane of the carton wall 41. Upon the opening of these end flaps, the straw 59, if present, will be exposed to view.

In order to break the seal between the two lips 18 and 19, and in order to effect the separation of these two lips, the opposed walls 40 and 42 are pressed inwardly to bulge the intermediate wall 41 outwardly along the score line 56, this action serving to correspondingly bulge or bow the lip 18 as already described with reference to the preparation for filling. In the construction shown in Figs. 10-12, with the tab 22 connected to the flap 45, this outward bulging of the lip 18 is effected against the restraining action of the flap 45, so that the seal along the line 57a is easily and effectively broken, and the two lips 18 and 19 bowed apart to form a pouring spout.

In the form shown in Figs. 14, 15 and 19 with the flap 45 free from engagement with the bag, the pressing of the opposed walls 40 and 42 must be effected simultaneously with the holding or the pulling of the tab 22 as indicated in Fig. 19, these combined finger manipulations causing the breaking of the seal between the lips 18 and 19 and the separation of said lips to form a pouring spout.

With the lips 18 and 19 separated, the contents of the bag may be sipped through the straw 59 or may be dispensed in the manner shown in Fig. 20. During the dispensing operation shown in Fig. 20, the weight of the charged bag in the wall 41 will maintain said wall outwardly bulged along its score line 56, and the two lips 18 and 19 separated without the necessity of pressing the side walls 40 and 42. The bag will collapse as the liquid or other pourable material flows out so that a smooth, steady stream without gurgling will be formed.

After the desired portion of the contents of the bag has been dispensed, the flange 44 and the pouring lips 18 and 19 are folded inwardly across the top of the carton, and the other flaps folded into their interlocked position as shown in Fig. 16. The infolding of the flange 44 and pouring lips 18 and 19 as a unit serves to effectively reclose the opening between said lips so that the container may be stored for future dispensation.

In Figs. 21-25 is shown another construction by means of which the pouring lips of the bag may be sealed or unsealed. In this construction the bag may be similar to that shown in Figs. 1 to 9, and the side walls and bottom flaps of the carton may be similar to those of Figs. 10-20. However in this form the upper end of the side wall 41 of the carton is provided with a foldable flap 64 terminating at its outer end in a tongue 65 and formed with a rectangular opening 66 defining a pair of side strips 67. The lip 18 is adhesively secured to said flap 64 with the upper end of the lips 18 and 19 extending between the upper and lower edges of the flap opening 66. After the filling operation, the flap 64 is folded across the upper ends of the side strips 67, and the tongue 65 is tucked into the opening 66 between said lips, as shown in Figs. 23 and 24. The Pliofilm linings of the two lips 18 and 19 are then adhesively secured to opposite sides of the tucked-in portion 66 of the tongue 65 to form a seal therewith.

When it is desired to break the seal to dispense the contents of the bag, the strips 67 are trans-

versely torn across the upper edges of the lips 18 and 19 preferably along perforated or weakened lines 69, and the tongue 65 pulled out from between said lips, thereby breaking the seal between said lips as indicated in Fig. 25. The contents of the container may then be dispensed in a manner indicated in Fig. 20.

Figs. 26 and 27 show another seal construction in which the lip 18 is adhesively secured to a short flange 70 at one end of the wall 41, and in which the upper edge of said lip extends a short distance above the upper edge of said flange. Extending into the opening between the lips 18 and 19 is the intermediate U-shaped portion of a very fine wire 71, the outer ends of which terminate in handle sections 72 extending along the upper edges of said lips. The Pliofilm linings of the two lips 18 and 19 are autogenously welded together along a narrow strip 72a and across the side arms of the intermediate portion of the wire 71 to form a strong seal as shown in Fig. 27. When it is desired to break the seal, all that is necessary is to grab one or both of the handle sections 72 and pull them outwardly to extract the wire from between the lips 18 and 19. The flexibility of the outwardly extending portions of the lips 18 and 19 beyond the upper edge of the flange 70 permits the handle sections 72 to be easily picked between the fingers.

In Fig. 28 is shown another construction for sealing the mouth of the bag. In this construction the upper edges of the lips 18 and 19 extend beyond the flange 73 and the extending portions of said lips are sealed by a U-shaped metal clip 74 enclosing said lip portions and pinched or squeezed so as to hermetically hold said lips together. In order to break the seal, this metal clip 74 with the portions of the lips enclosed therein, is ripped between the bottom edge of said clip and the upper edge of the flange 73.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A tube comprising a laminated strip having an inner layer of thin flexible fusible material and an outer non-fusible layer having the side edges thereof extending laterally beyond the side edges of the inner layer to form marginal extensions, and a second strip of thin flexible fusible material wider than said inner layer and having its side edge portions extending inwardly and autogenously bonded to the side edge portions of said inner layer, and having the longitudinal portions thereof beyond the side edges of said inner layer adhesively secured to said marginal extensions.

2. A normally flat distensible liquid-tight bag formed from a pair of substantially rectangular sheets of thin flexible fusible material of different widths, with the side edge portions of said wider sheet extending inwardly and autogenously bonded to the side edge portions of said narrower sheet to form side seams, the narrower sheet having an outer non-fusible lamination extending beyond the side edges of said narrower sheet to form marginal extensions, said extensions being adhesively secured to the longitudinal portion of said wider sheet adjacent to said side seams, and said laminated sheet having a transverse pleat adapted to be cut along its outer folds to form parallel lips which may be bowed apart to form an opening.

3. A tube comprising a laminated strip having an inner layer of thin flexible fusible material and an outer non-fusible layer having the side

- edges thereof extending laterally beyond the side edges of the inner layer to form marginal extensions, and a second strip of thin flexible fusible material wider than said inner layer and having the side edge portions thereof extending inwardly and autogenously bonded on its outer surfaces to the inner surfaces of said inner layer, and having the longitudinal portions thereof beyond the side edges of said inner layer adhesively secured to said marginal extensions.
4. A tube comprising a pair of laminated strips of thin flexible material of different widths, each comprising an inner layer of thin flexible fusible material and an outer layer of non-fusible reinforcing material, the respective inner layers of said strips being bonded together adjacent to their side margins to form a tube, the wider laminated strip having infolded sections between opposed walls of said tube, the outer laminations of said infolded sections having a transverse recess across one end thereof, the portions of the inner layers facing said recess being bonded together and to the inner layers of said walls along said end.
5. A container comprising an impervious tube of flexible material in flat collapsed condition, all of the walls of said tube being laminated, one of said walls having a pleat adapted to be cut along its outer edge to form parallel lips which may be bowed apart to form an opening for said container.
6. A container comprising an impervious tube of flexible material in flat collapsed condition, all of the walls of said tube being laminated, one of said walls having a pair of lips intermediate of the ends of said tube adapted to be separated to form an opening for said container.
7. A container including a carton having a pair of inner flaps and a pair of outer flaps foldable to form an end closure, one of said inner flaps being comparatively narrow, and an inner bag having a pleat adjacent to and extending beyond and adhesively secured to said last mentioned inner flap across substantially the entire inner surface thereof to form a foldable unit therewith, said pleat forming an opening for said bag when severed along its outer edge.
8. A container including a carton having inner flaps and outer interlockable flaps at one end foldable to form an end closure, and an inner bag having a pleat juxtaposed to and adhesively secured to one of said inner flaps to form a foldable unit therewith, said outer flaps being easily unlockable by simple finger manipulation to expose said pleat and to permit the use of said pleat as a pouring spout when severed along its outer edge.
9. A container including a carton, a bag within said carton and having a pair of parallel juxtaposed lips, one of which is directly attached to a wall of said carton, said lips being separable to form a pouring spout by the application of pressure tending to bend said wall.
10. A container including a carton having flaps foldable to form an end closure, one of said flaps being comparatively narrow and a bag within said carton having a pair of parallel lips attached to said narrow flap and separably sealed together along a narrow area.
11. A container including a carton having flaps foldable to form an end closure, one of said flaps being comparatively narrow, a bag within said carton and having a pair of parallel lips one secured to said narrow flap, said lips having inner linings of fusible material bonded together to form a seal therebetween, said seal being breakable and said lips being separable to form a pouring spout therebetween upon pressing the walls of said carton inwardly on opposite ends of the narrow flap when said flaps are in open position to bow said flap outwardly while restraining the other lip against similar bowing movement in the same direction.
12. A container including a carton having inner flaps and outer interlockable flaps at one end to form an end closure, one of said inner flaps being comparatively narrow, a bag within said carton and having a pair of parallel lips sealed together, one of said lips being adhesively secured to said narrow flap to form a foldable unit therewith, the seal between said lips being breakable and said lips being separable to form a pouring spout therebetween upon the pressing of the walls of said carton inwardly on opposite sides of said narrow flap when said end flaps are opened.
13. A container including a carton having end flaps foldable to form an end closure, one of said flaps being comparatively narrow, and a bag within said carton and having a pleat adapted to be cut along its outer edge to form parallel lips, one wall of said pleat being adhesively secured to said narrow flap to form a foldable unit therewith, and a tab on said bag whereby upon inwardly pressing the walls of said carton on opposite sides of said narrow flap the wall of said pleat secured to said narrow flap will be bowed outwardly while the other wall of said pleat may be restrained or pulled away from said bowed wall by means of said tab.
14. A container including a carton having end flaps foldable to form an end closure, one of said flaps being comparatively narrow, a bag within said carton and having a pair of parallel lips lined respectively with sheets of thermoplastic material, said lips being bonded together along a narrow strip to form a hermetic seal between said lips, and one of said lips being adhesively secured to said narrow flap whereby said lips form a foldable unit with said flap.
15. A container including a carton having a pair of end flaps foldable to form an end closure, one of said flaps being comparatively narrow, a bag within said carton and having a pair of parallel lips one of which is adhesively secured to said flap, a tab connected to the other lip and secured to the other of said flaps whereby upon pressing of said carton inwardly on opposite sides of said narrow flap said lips will be separated to form a pouring spout.
16. A flexible container including a bag having a pair of lips adapted to form an opening communicating with the interior of said bag, said lips having end portions sealed together with a comparatively strong seal and portions between said end portions secured together with a weaker, more readily breakable seal.
17. A flexible container including a bag having a pair of lips adapted to form an opening communicating with the interior of said bag, said lips having the end portions thereof sealed together with a comparatively strong seal, and the portions of said lips between said end seals secured together with a weaker, more readily breakable seal.
18. A flexible container including a bag having a pair of parallel lips adapted to form an opening communicating with the interior of said bag, said lips having the ends thereof sealed together with comparatively strong seals and the portions

thereof between said end seals secured together along a narrow transverse strip to form a weaker, more readily breakable seal.

- 5 19. A container including a carton, a bag with-
in the carton, and having a pair of normally par-
allel lips sealed together along a narrow strip,
one of said lips being directly attached to a wall
of said carton, the seal between said lips being
breakable to permit separation of said lips by
10 bowing outwardly said carton wall and attached
lip, and restraining the other lip from bowing
in the same direction.

20. A container including a carton having flaps
foldable to form an end closure, one of said flaps
being comparatively narrow, a bag within said
carton and having a pair of parallel lips, one at-
tached to said narrow flap and said flaps being
separably sealed together along a narrow area,
the seal between said lips being breakable by
the application of inward pressure to the oppo-
site ends of said narrow flap, while restraining
the other lip against movement with the first- 10
mentioned one.

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