

Aug. 14, 1945.

T. R. BAXTER

2,382,536

PACKAGE OF LIQUID MATERIAL AND CONTAINER THEREFOR

Filed Aug. 25, 1942

2 Sheets-Sheet 1

Fig. 1

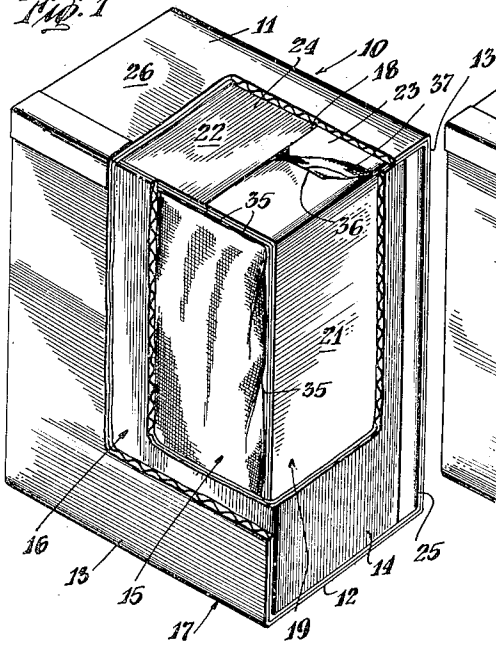


Fig. 2

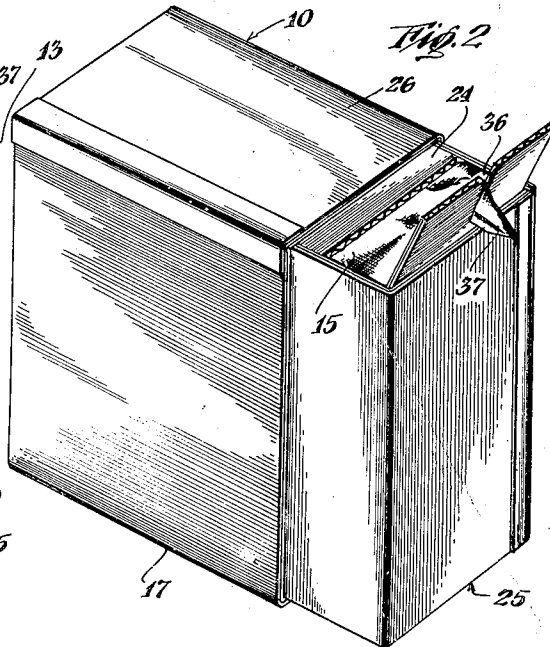


Fig. 3

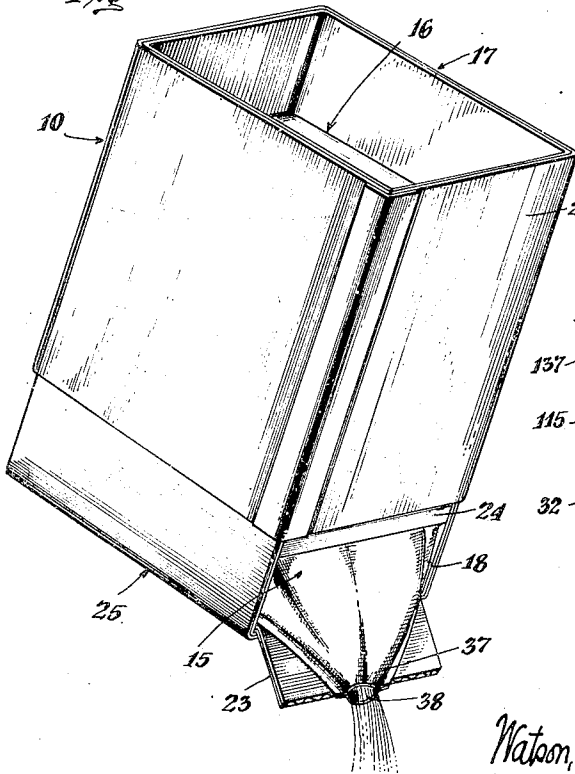


Fig. 8

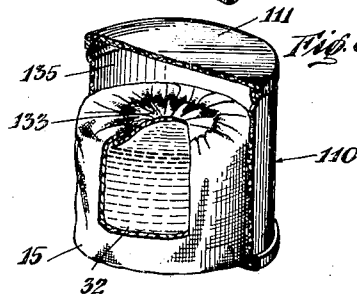
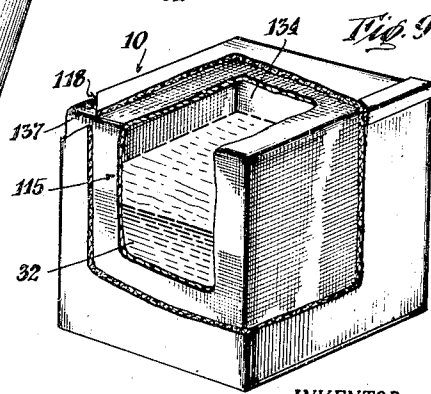


Fig. 9



INVENTOR.

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BY

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ATTORNEYS

Aug. 14, 1945.

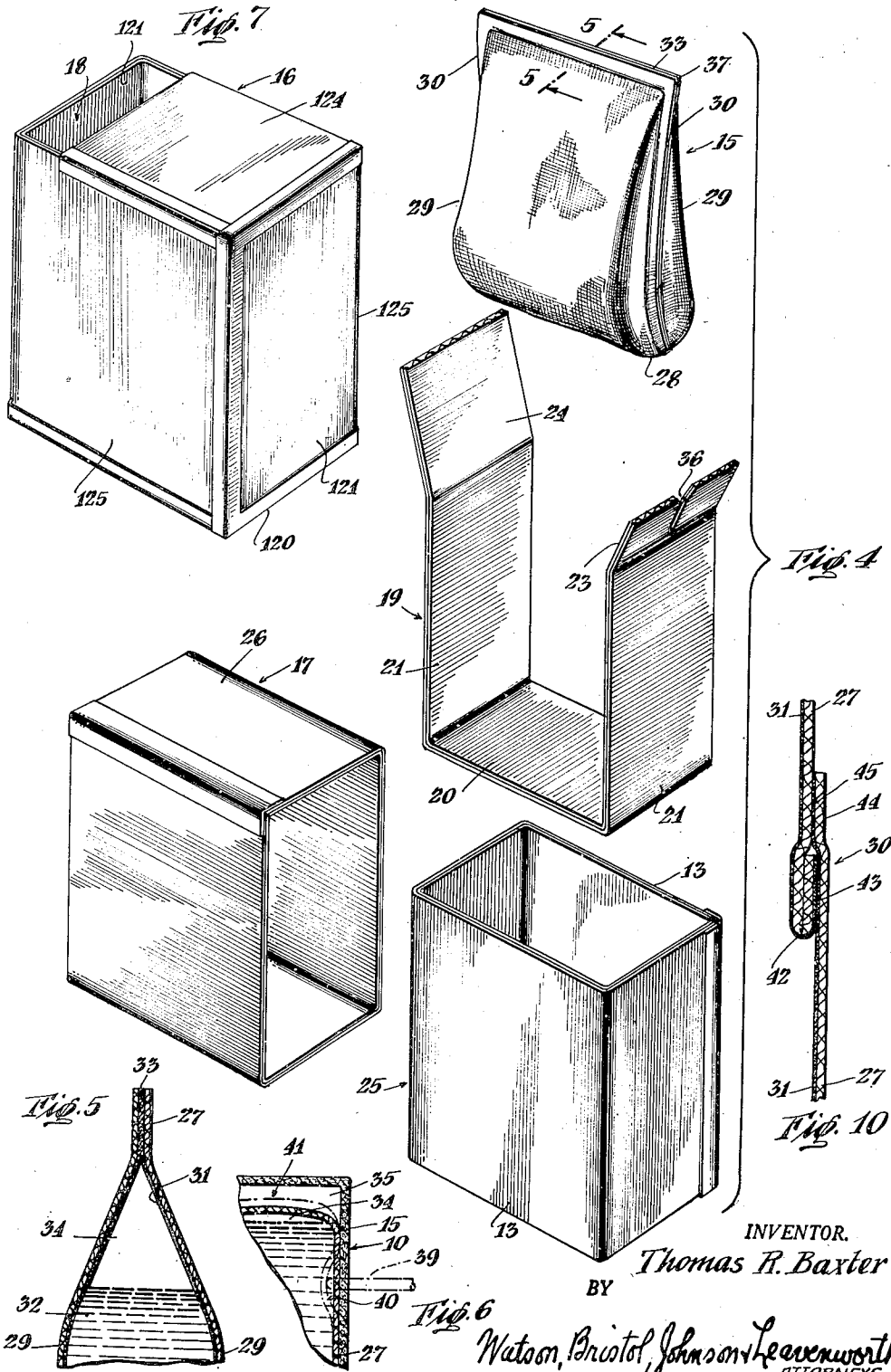
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PACKAGE OF LIQUID MATERIAL AND CONTAINER THEREFOR

Filed Aug. 25, 1942

2 Sheets-Sheet 2



# UNITED STATES PATENT OFFICE

2,382,536

## PACKAGE OF LIQUID MATERIAL AND CONTAINER THEREFOR

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Application August 25, 1942, Serial No. 456,003

6 Claims. (Cl. 229—14)

The present invention relates to packages of and containers for liquid material and, more particularly, to packages and containers adapted to easy and economical handling, storage and dispensing of a great variety of liquid materials ranging from those which are quite mobile to those which are highly viscous.

A general object of the present invention is the provision of such a package of and container for liquid materials, which container is economical and easy to manufacture, can be quickly reproduced, which may be so made or manipulated as to occupy a minimum space when empty, does not require use of metal or wood, which though the casing thereof be formed of puncturable and frangible relatively heavy paper stock will efficiently retain liquid contents without spilling even when the package of liquid material is subjected to excessive abuse such as heavy battering or dropping and piercing, which permits easy filling and closing or sealing, and which provides for ready dispensing of any part of contents without endangering the effectiveness of the contents-holding quality though only part of the contained liquid be dispensed at a time.

A more specific object of the invention is the provision of such a package of liquid materials which includes an inner flexible substantially leak-proof bag of puncture-resisting woven fabric and an outer casing of frangible relatively heavy paper stock so related to each other as to dimension and contents as to cause supporting or semi-rigid walls of the casing effectively to support the flexible bag and its liquid contents while permitting an instrument or sharp object to pierce or break through a wall of the casing during abusive handling or use without puncturing or rupturing and causing a leak in the bag.

Another object of the invention is the provision of a package of liquid material having such an outer frangible semi-rigid or relatively heavy paper casing effectively supporting and enclosing a closed flexible liquid-containing bag of woven fabric efficiently holding a body of liquid material with the inner bag having a cross-sectional dimension at least equal to the internal cross-sectional dimension of the casing and with either the inner bag or the outer casing having a space filled with air or other gaseiform fluid whereby an object bending inwardly, breaking through or piercing the casing will merely deflect a wall of the inner bag without puncturing or rupturing it.

A further object of the invention is the provision of such a package of liquid material where-

in areas of the walls of the flexible liquid-containing cloth bag are not adhered to inner walls of the frangible casing of relatively heavy paper stock thereby eliminating danger of rupture of walls of the cloth bag and resultant leakage when only part of liquid contents of the cloth bag are poured therefrom and the remainder of the contents are desirably left therein whereby such remainder may be effectively kept in an efficiently protected manner in the container until use thereof is desired.

An additional object of the invention is to provide such a package of liquid materials wherein the substantially leak-proof cloth bag is somewhat loosely disposed in a casing including a simple inner paper board carton having an access opening adjacent one side thereof normally and effectively covered by one wall of an outer tubular shell of paper stock from which the inner carton with contents is adapted easily to be partially slid to uncover the opening permitting ready access to the cloth bag and removal of a portion thereof so that contents may be effectively poured therefrom while the casing efficiently supports the major portion of the walls of the bag and provides for ready handling during pouring.

A still further object of the invention is to provide in such a package a short flap normally closing an access opening in an inner carton which flap is recessed temporarily to hold a projecting portion of the inner liquid-containing cloth bag so that when the carton and contents are partially slid out from the tubular shell to uncover the flap the held bag portion may be simply swung out therewith and then severed to provide an efficient pouring spout.

Still another object of the invention is the provision in such a package or container of a simple, efficient and readily formed seam for the coated fabric bag which when strain is placed on the bag while containing liquid material substantially eliminates possibility of coating material at the seam (which provides for adherence between layers of fabric) being pulled or stripped from the fabric to expose areas of the latter to bag contents.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described and the scope of the invention which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view with portions of casing walls broken away of a package of liquid material of the present invention;

Fig. 2 is a perspective view of the package shown in Fig. 1 with parts of the casing and the inner bag manipulated to certain initial positions during the procedure of opening the package;

Fig. 3 is a perspective view of the package shown in Figs. 1 and 2 with the inner bag opened for pouring the contents therefrom and the package held in a position to permit such dispensing;

Fig. 4 is an exploded view in perspective of the various parts of the container shown in Figs. 1, 2 and 3;

Fig. 5 is an enlarged sectional view of a portion of the inner bag taken on line 5—5 of Fig. 4;

Fig. 6 is a fragmentary vertical sectional view of a package of the present invention showing in dotted lines the position of an instrument piercing the casing wall and indicating deflection of the wall of the inner bag whereby rupture of the latter is avoided;

Fig. 7 is a perspective view of a modified form of casing carton structure which may be used as a part of the casing of the container of the present invention shown in Figs. 1 to 5, incl.;

Fig. 8 is a perspective view of a modified form of the package of the present invention showing the outer casing diametrically sectioned and with a portion of the wall of the inner bag removed;

Fig. 9 is a perspective view of a further modified form of the present invention showing portions of the wall of the outer casing and of the inner bag broken away; and

Fig. 10 is an enlarged sectional view with parts broken away of an improved type of seam which may be used to advantage in packages and containers of the present invention.

Prior to the present invention many proposals have been made to package various types of liquid materials such as milk and other foodstuffs, gasoline and other fuel oils, acids and other corrosive liquids, lubricating oil and other more viscous liquids, and the like, in lined containers and in some cases cartons lined with plied materials. However, for the most part they have in actual practice been incapable of effective use in the storage, handling, shipping and dispensing of many liquid materials. None of them have proven to be of efficient liquid-holding quality when subjected to excessive abuse such as heavy battering and dropping and breakage of outer walls by sharp objects. Some such structures have been characterized by the employment of inner bags of plied films adhered at various points to the inner walls of outer cartons of paper board. When the carton walls are broken through the inner bags usually are ruptured. When excessive battering due to dropping or slamming around of the filled package excessively distorts it rupture of the inner bag frequently occurs as a result of the adherence of walls of the inner bag to the carton. Further, when it is attempted to use such containers for viscous materials such as heavy oils, syrups, honey and the like it has been found that after the package is opened for initial dispensation the container no longer will

be efficiently suitable for holding a remaining portion of the contents when only parts thereof is poured out. The past and present demand for non-metallic containers made from materials other than wood is well known but this demand was not efficiently satisfied by any of the prior art proposals. The present invention effectively overcomes the above indicated and many other problems and difficulties of the package trade, and in a simple and efficient manner.

In accordance with the present invention a container is provided which comprises an outer frangible relatively heavy paper casing having a certain internal cross-sectional dimension and semi-rigid supporting walls in which is disposed a woven fabric inner bag.

The inner bag comprises a substantially leak-proof flexible structure of puncture-resisting woven fabric which preferably is coated on the inside with sealing material and which has a cross-sectional dimension at least equal to the internal cross-sectional dimension of the casing. This bag, by way of example, may consist of a relatively heavy woven cloth of semi-bleached cotton with the threads in the warp and woof respectively numbering about 80 per inch. The bag may be coated on the inner surface with any suitable sealing material which is preferably substantially liquid-tight and of a nature so as to provide for the adhering together of adjacent surfaces of the bag along edges thereof providing for secure closure of the sides and the top or any other seamed edges as may be desired. The coating material may be of a heat-sealing type such as a thermoplastic whereby when adjacent coated faces of the bag material are brought together and heat and pressure applied a strong adherence or bond may be formed, or it may be of a volatile solvent type wherein adherence is attained by contact and by volatilization of the solvent. Of course, the selection of such coating material will be dictated by the nature of the liquid material to be packaged. In other words it should not affect or be affected by the liquid material packaged and, for example, in the case of foodstuffs it should be non-toxic, tasteless and odorless. Such coating may be in the nature of a film of suitable material plied to or laminated with the bag fabric on the inner sides thereof. For example, a thin rubber film such as that sold under the trade name Pliofilm, or a film of resin material like the copolymerized organic and inorganic vinyl compounds sold under the trade name Vinylite, or cellulosic material or films thereof such as Cellophane might be used for this purpose. Wherever herein such bag is said to be coated with sealing material, such plying or lamination, as well as application of initially liquid coating material, is intended to come within the scope of that terminology. This sealing or coating material may preferably be of such nature as to render the bag substantially liquid- and/or gas-tight to satisfy certain requirements as to the nature of contents and protection thereof, but of course if a selected sealing material is not as thoroughly impervious to the liquid material to be packaged or to certain gases as may be desired, it is contemplated, within the scope of the invention, to make such bag substantially leak-proof or gas-tight by the employment of a suitable coating on the outside thereof.

The coating of sealing material may be provided on the inner sides of the fabric bag by application thereto of a liquid sealing material which impregnates the fabric and soaks through

between the threads to provide a coating of sealing material both on the inside and outside surfaces of the fabric. Such a structure may be in the nature of a body of sealing material in which the fabric is embedded.

Certain strength of the fabric bag and efficiency of the seals at seams may be assured by proper selection of materials so that there is an affinity between the material from which the fabric bag is woven and the sealing material with which it is coated. With this selection, possible separation between the sealing material and the fabric or stripping of the former from the latter, which might occur when certain excessive strain on the seams is developed in handling, may thus be avoided. In some cases this is of importance where the liquid material to be packaged is of such a nature as to damage the exposed fabric or will tend under pressure resulting from the weight of contents to ooze or leak therethrough at points where the coating has been stripped from the fabric. It will thus be seen that in some cases it may be desirable to weave the fabric bag from extruded fibers of suitable materials, such as those comprising cellulosic, rayon, polymerized vinylidene chloride, etc. Some such materials are odorless, tasteless, colorless and non-toxic and fabrics woven therefrom have been found to be very tough, abrasion-resistant and to be long lived under flexural fatiguing conditions. Further such materials have been found to be highly resistant to water, acids, alkalis and many organic solvents and, in the case of material comprising polymerized vinylidene chloride and the like it has been found that fabrics woven therefrom present no fire hazard since the material is self-extinguishing, are thermoplastic, have the above mentioned affinity for certain sealing materials, e. g. Vinylite, and have other qualities that may be desirable to particular uses.

In order that there will be no excessive strain placed upon the walls of the inner woven fabric bag when filled with liquid contents, the cross-sectional dimension of the inner bag should be at least equal to but preferably in excess of the internal cross-sectional dimension of the relatively heavy paper casing. Furthermore, the size of the bag and the contents thereof should be so correlated to the size of the casing that upon puncture or distortion of the wall of the casing at any point, the wall of the inner bag thereat may be flexed inwardly without rupture of the inner bag and resultant leakage of the contents. This may be accomplished either by sealing into the inner bag, at the time of filling, a body of air or other suitable gaseoform fluid such as an inert atmosphere, for example carbon dioxide, nitrogen or the like, or by so sealing the bag as to provide excess bag material around the liquid, and then leave a gas-filled space or spaces of appreciable dimensions in the outer case; or both.

The casing may be formed as a relatively heavy paper bag, a paper board can or fiber drum, or may be a paper board carton or the like formed of usual materials such as corrugated board or solid fiber board. The carton may be a single structure such as that commonly used in the trade known as "regular slotted" type, but for certain uses may preferably comprise a novel construction hereinafter more fully described including an inner carton having an access opening adjacent one side thereof and an open-ended outer tubular shell slidably receiving this inner carton with its contents with one wall of the tubular shell normally covering the access opening whereby the

inner carton may be partially slid out from the tubular shell to expose the opening and to provide access to the liquid-containing bag permitting pouring of contents therefrom while the casing supports the major portions of the walls of the bag.

These and other features of the invention will more clearly appear by reference to the drawings wherein like numerals identify like parts throughout.

In Figs. 1 to 5, incl., is shown one form of a package comprising an embodiment of the present invention which preferably comprises an outer casing 10 of relatively heavy paper stock such as frangible paper board including a top wall 11, a bottom wall 12, side walls 13, 13 and end walls 14, 14 which are relatively stiff or semi-rigid to provide support for an inner flexible bag 15 of substantially leak-proof puncture-resisting woven fabric preferably coated on the inside with sealing material.

The casing 10 preferably consists of an inner carton 16 and an outer tubular shell 17 slidably receiving the inner carton with one wall thereof, such as the top wall 11, normally covering an opening adjacent one side of the inner carton such as at 18.

The inner carton 16 may be formed by a wrapping strip 19 providing a bottom wall 20, two side or end walls 21, 21 and a top wall 22 with the strip terminating in a short flap 23 and a long flap 24 normally turned in toward each other with their respective ends opposed at one of the walls such as the top wall 22. The inner carton 16 may be completed by an encircling sleeve 25 to provide the other two opposed side walls of the inner carton such as at 13, 13. The resultant inner carton will thus have a supporting bottom wall and four supporting side walls with an open top which may be closed by the flaps 23 and 24.

The resultant inner carton may be disposed in an outer casing structure such as the open-ended outer tubular shell 17 one wall of which, such as at 26, will cover the flaps 23 and 24 of the inner carton when the latter is slidably received in the outer tubular shell.

This casing 10 is adapted to receive the inner flexible bag 15 containing liquid material which for the sake of exemplification may be a viscous liquid material such as malt syrup. In accordance with the present invention this bag is formed of puncture-resisting woven fabric which is rendered substantially leak-proof with respect to the liquid material disposed therein. As previously indicated it may comprise a closely woven cloth which is coated on the inside with sealing material such as a thermoplastic and may, if desired, further be protected against leaking by an additional outer coating. This bag may be formed of a rectangular elongated strip of woven fabric 27 which is folded back on itself along the bottom at 28 to provide two side walls 29, 29 with the edges thereof at 30, 30 sealed together in face to face engagement such as by the application of heat and pressure to cause adherence between edge portions of opposed faces of the layer or coating 31 of sealing material with which the fabric strip 27 is coated or plied. The resultant bag is adapted to receive a body 32 of liquid material and the bag may then be closed or sealed at the top 33 in a manner similar to that for forming the side seams 30, 30. When the bag 15 is closed it is, as a practical matter, easy to seal therewithin a body 34 (see Fig. 5) of gaseoform fluid such as air. Air may be used where there

are no problems of oxidation of liquid contents, or an inert atmosphere of carbon dioxide or the like may be used instead. As will be more fully explained hereinafter this body of entrapped gaseoform fluid, due to the compressibility thereof, will readily permit inward flexure of walls of the inner bag 15 but should it be desirable to fill the inner bag 15 with the liquid material excluding all gaseoform fluid, such inward flexure will be permitted by the provision of excess bag material and a gas-filled space or spaces elsewhere in the package such as between the inner bag and the casing. In either case the inner bag may be considered as being incompletely filled with the liquid.

The casing 10 has a certain internal cross-sectional dimension and the inner bag 15 is so formed as to have a cross-sectional dimension at least equal to and preferably in excess of the internal cross-sectional dimension of the casing so that strain on the walls of the inner bag will be a minimum and the semi-rigid walls of the casing will provide support therefor. In order to minimize shipping bulk the inner bag 15 is preferably so dimensioned that it with its contents of a body of gaseoform fluid and/or liquid material will fill much as possible of the space within the casing 10 as shown in Fig. 1. However with the inner bag and contents crowded into the casing 10 there will as a practical matter, be certain air-filled spaces between the two such as are indicated at 35-35.

In any case a package of the present invention will be provided therewithin, in the inner fabric bag and/or the casing, with gas-filled space which will constitute about from 10 to 20% of the total cubic dimensions of the inside of the casing or the space therewithin. This range of percentage of gas-filled space in the package may be due in part to different sizes of packages or difference in equipment and procedure. It has been found, for example, that in the packaging of a particular liquid material of a certain volume that in mass production the variation in the amount of gas-filled space in these same sized packages will vary only a few percent. When different equipment or procedural steps are employed in the filling and closing of similar packages or packages of different sizes the percentage of gas-filled space in the packages may vary as indicated.

The short flap 23 is preferably recessed or provided with a slot 36 to receive a projecting portion or corner 37 of the inner bag 15 temporarily to hold it so that it may be swung outwardly with the flap 23 when the latter is uncovered by the tubular outer shell 17 as shown in Fig. 2. With the parts positioned as shown in Fig. 2 the end of the corner 37 may be severed or snipped off to provide a pouring hole 38 and when the package is inverted to a position similar to that shown in Fig. 3 the corner 37 will be bulged out of the opening 18 by the weight of the liquid contents with the corner 37 serving as a pouring spout while the encircling sleeve 25 and the outer tubular shell 17 support the remainder of the casing 10 and the major portion of the walls of the bag 15. Without the supporting casing the flexible inner bag, particularly when loaded with a relatively large body of liquid material, is unwieldy and difficult to manage due to its characteristic flaccidity. The enclosing casing 10 eliminates difficulties attendant thereon in the dispensing of any portion of the liquid contents.

This embodiment of the invention is preferred among other reasons because the containers, i. e.

both the casings and the bags thereof, may be shipped empty in collapsed condition.

As shown in Fig. 7 the inner carton 16 may comprise a bottom wall 120, end walls 121, 121, foreshortened top wall 124, and side walls 125, 125, all secured together to provide a semi-rigid carton having an opening 18 adjacent one side thereof such as adjacent an end wall 121. This inner carton may then be used alone as the outer casing, with or without a suitable cover for the opening 18, or may be supplemented by slidably disposing it in an open-ended outer tubular shell such as 17 in the manner of the first modification described above with the opening 18 providing access to the inner bag and to permit pouring of the contents therefrom. Obviously the opening may be provided by entirely omitting the top wall of this inner carton and regulating the size thereof by the extent to which the inner carton is slid out from such outer tubular shell.

As shown in Fig. 8 the casing may comprise a can 110 of relatively heavy paper stock such as fiber board or the like and as therein shown the inner bag 15 may be substantially free of any contained body of gaseoform fluid and with the top 133 of the bag containing excess fabric material collapsed upon the surface of the body 32 of liquid material. The bag and contents are of such dimension as to leave an appreciable air-filled space 135 between the top of the inner bag and the top 111 of the can to permit flexure of the walls of the bag.

As an alternative the inner bag may be free from but of substantially the shape of the interior of the casing 10 as indicated at 115 in Fig. 9 and a substantial body of gaseoform fluid 134 may be provided with the body of liquid material 32 in the bag 115 to permit flexure of the walls of the bag. The corner of the casing shown in Fig. 9 may be removed as shown to expose the corner 137 of the bag 115 and to provide an opening 118 to be utilized for dispensing bag contents in a manner similar to that for the package shown in Figs. 1 to 5, incl. Such an opening may be formed in any other suitable location or manner, closed or covered if desired by a flap or by a cover or lid, and this container may be used alone as the outer casing or may be supplemented by an open-ended tubular shell such as 17.

In Fig. 10 is shown a particularly advantageous type of seam that may be used in the practice of the present invention. The fabric stock or sheet 27 may as previously indicated be provided on the inner surface with a coating 31 of suitable sealing material such as a thermoplastic. When opposed edge-portions of the so-coated fabric are brought together one may be folded back upon the body of the sheet at 42 and laid down upon the other to bring the coatings of both into engagement such as at 43. An overlapping of the opposed edge-portions of fair extent is provided so that the edge at 44 of one edge-portion lays adjacent the back of the other edge-portion beyond the fold 42 of the latter. Upon application of heat and pressure heat-seals are formed at 43 and at 45 with adherence at 45 serving to take the strain on the bag walls when liquid material is packaged and handled in such a bag which may form part of the container of the present invention. As a result strain at the seal 43 is eliminated and localized stripping of sealing material is avoided in that locality. Obviously such seam is adapted to use in the employment of the various types of bag fabric and coatings of seal-

ing material mentioned above. Secure bond at 45 can be assured by proper selection of materials such as bag fabrics and sealing materials having an affinity for each other or by providing a coating of sealing material on the outside of the bag fabric as well as on the inside thereof.

The package of the present invention wherein a gas-filled space is provided in either the inner bag 15 or the casing 10 or in both assures that the inner bag will efficiently retain its contents and the walls thereof will not be ruptured when the walls of the casing 10 are flexed inwardly, pierced or the like. This is due to the fact that the gas-filled space or spaces permit flow of bag contents and/or the inner bag to localities other than that at which the piercing or inward flexing of the casing occurs.

For example, as shown in Fig. 6 both the inner bag 15 and the casing 10 respectively may have gas-filled spaces 34 and 35 and when a sharp instrument or pointed object such as that shown in dotted lines at 39 breaks through the wall of the casing 10 or that wall is ruptured inwardly at such point the adjacent flexible wall of the inner bag will be permitted to flex inwardly, as indicated at 40, thereby avoiding rupture. This occurs due to the compressibility of the gaseous fluid in the space 34 as well as the fact that the gas-filled space 35 permits distortion of another wall of the bag such as that indicated in dotted lines at 41. It will be understood that in order for the package to so function effectively under the variety of types of abuse encountered in shipping and handling the walls of the inner bag 15 must be free from adherence at all points to the inner walls of the casing 10.

As shown in Fig. 8 with gaseous fluid excluded from the inner bag 15 the top 133 thereof is collapsed down snugly against the top surface of the body of the liquid material 32 and as a consequence this collapsed top portion of the bag has layers folded and lapped over on each other as suggested by the showing in Fig. 8. Thus when the wall of the outer casing is flexed inwardly or pierced by a sharp object the wall of the inner bag at that point is permitted to flex inwardly without rupture by flow of the liquid material upwardly into the fullness of the collapsed bag top thereby reducing the cubic dimension of the gas-filled space between the bag top and the casing. In a structure similar to that shown in Fig. 9 the gas-filled space in the top of the bag permits flow of liquid contents away from a point at which the casing wall is flexed inwardly or pierced. Thus the gas-filled space or spaces for permitting such inward flexure of walls of the inner bag to avoid rupture may be provided either in the inner bag, or in the casing, or in both.

Collapsing of the top of the inner bag down snugly against the top surface of the body of contained liquid when, after the inner bag is opened, a portion of the liquid contents is left in the inner bag and the package is again turned to an upright position is an incidental characteristic of any package of the present invention. The top of the bag will collapse upon the surface of the remaining portion of the body of contained liquid material. This is particularly a feature of such packages when the liquid material is viscous and, as a result, the collapsing of the top of the bag upon the remaining portion of the body of liquid when the package is again uprighted effectively cuts off the flow of liquid material and an efficient protective seal is provided; but only, of course, if the top and side

walls of the inner bag are free from adherence to the inner walls of the casing which is a characteristic feature of the package of the present invention. This free or loose disposition of the inner bag within the casing, particularly with respect to the bottom and side walls of the inner bag, is also advantageous in assuring against rupture of the inner bag when a portion of the viscous liquid contents is poured therefrom and it is intended to retain part of the contents in the package until some future time. The viscous nature of the liquid material causes the bottom and portions of the side walls of the inner bag to collapse down upon and follow the upper surface of the liquid as some of the contents is poured out and this freedom from adherence of the inner bag to the casing permits such gradual collapse. This following of the surface of the liquid by the inner bag walls would, in the case of adherence of the inner bag to the casing, place a serious strain on the walls of the inner bag at the places of adherence to the casing, tending to cause rupture. These latter advantages, however, are of much less importance than the indicated puncture-resisting characteristic of the liquid-containing fabric bag when constructed, dimensioned, filled and disposed in the outer relatively heavy paper casing in the indicated manners.

Packages of the present invention have proven to be of surprising merit and efficiency as a result of many thorough and drastic tests to which they have been submitted. The Forest Products Laboratory of the U. S. Department of Agriculture has evolved a certain design for a revolving or tumbling drum to test shipping containers. In such a drum wherein a package is tumbled about and subjected to repeated drops of from two to three feet while coming in contact with hazards such as a projecting member, packages of the present invention have stood up under as many as 500 such drops without serious rupture or break down. In one such test after 500 drops the test was discontinued since there was no clear evidence that complete failure would soon thereafter occur and further continuance of the test was deemed of little additional value. After the package was so subjected to abuse, the corners of the casing were rounded and crushed inwardly and at a number of places the casing was abraded and the walls thereof bent inwardly. However, the inner bag containing liquid material was entirely free of rupture or abrasion. In some such tests, where such a package was subjected to many hundreds of drops until the casing finally broke open, the inner bag containing liquid material was found to be still unruptured and free from leaks. Average domestic shipment will subject packaged goods to the equivalent of about fifty to seventy-five such drops and accordingly specifications in the trade usually require that a particular package stand up in such testing equipment through a minimum of sixty, eighty, or one hundred drops, as the case may be, with most of these requirements being under one hundred drops. Thus the package of the present invention has been found to be surprisingly sturdy and to have an effective life for economical packaging, handling, shipping, storing and dispensing of various liquid materials, greatly in excess of that required.

It will thus be seen that the objects set forth above are efficiently attained and since certain changes may be made in the above article, and different embodiments of the invention could be made without departing from the scope there-

of, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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

1. A container for liquid materials comprising, in combination, an outer frangible paper board casing having a certain internal cross-sectional dimension and semi-rigid supporting walls, and an inner substantially leak-proof bag of puncture-resisting closely woven cloth coated on the inside with sealing material and having a cross-sectional dimension at least equal to the internal cross-sectional dimension of said casing; said casing comprising an inner carton having an opening adjacent one side thereof and an open-ended outer tubular shell slidably receiving said inner carton with one wall thereof normally covering said opening.

2. A container for liquid materials comprising, in combination, an outer frangible paper board casing having a certain internal cross-sectional dimension and semi-rigid supporting walls, and an inner substantially leak-proof bag of puncture-resisting closely woven cloth coated on the inside with sealing material and having a cross-sectional dimension in excess of the internal cross-sectional dimension of said casing; said casing comprising an inner carton having an opening adjacent one side thereof and an open-ended outer tubular shell slidably receiving said inner carton with one wall thereof normally covering said opening.

3. A container for liquid materials comprising, in combination, an outer frangible paper board casing having a certain internal cross-sectional dimension and semi-rigid supporting walls, and an inner substantially leak-proof bag of puncture-resisting closely woven cloth coated on the inside with sealing material and having a cross-sectional dimension at least equal to the internal cross-sectional dimension of said casing; said casing comprising an inner carton composed of a wrapping strip providing top, bottom and two side walls and having opposed ends on one of the walls other than the bottom providing a short flap and a long flap, and an encircling sleeve providing the other two side walls; and an open-ended outer tubular shell slidably receiving said inner carton

with said flaps normally covered by one wall thereof.

4. A container for liquid materials comprising, in combination, an outer frangible paper board casing having a certain internal cross-sectional dimension and semi-rigid supporting walls, and an inner substantially leak-proof bag of puncture-resisting closely woven cloth coated on the inside with heat-sealing material and having a cross-sectional dimension in excess of the internal cross-sectional dimension of said casing; said casing comprising an inner carton composed of a wrapping strip providing top, bottom and two side walls and having opposed ends on one of the walls other than the bottom providing a short flap and a long flap, and an encircling sleeve providing the other two side walls; and an open-ended outer tubular shell slidably receiving said inner carton with said flaps normally covered by one wall thereof.

5. A container for liquid materials comprising, in combination, an outer frangible paper board casing having a certain internal cross-sectional dimension and semi-rigid supporting walls, and an inner substantially leak-proof bag of puncture-resisting closely woven cloth coated on the inside with sealing material and having a cross-sectional dimension at least equal to the internal cross-sectional dimension of said casing; said casing comprising an inner carton composed of a wrapping strip providing top, bottom and two side walls and having opposed ends on one of the walls other than the bottom providing a short flap and a long flap, and an encircling sleeve providing the other two side walls; and an open-ended outer tubular shell slidably receiving said inner carton with said flaps normally covered by one wall thereof; said short flap being recessed to receive and hold a projecting portion of said bag to be swung out therewith and severed to provide a pouring spout.

6. A container for liquid materials comprising, in combination, an outer frangible casing having a certain internal cross-sectional dimension and semi-rigid supporting walls, and an inner substantially leak-proof bag of puncture-resisting material capable of being closed and sealed and having a cross-sectional dimension at least equal to the internal cross-sectional dimension of said casing; said casing comprising an inner container having an opening adjacent one side thereof and an open-ended outer tubular shell slidably receiving said inner container with one wall thereof normally covering said opening.

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