

April 13, 1965

H. W. LAYNE

3,178,064

CARTON

Filed July 25, 1962

2 Sheets-Sheet 1

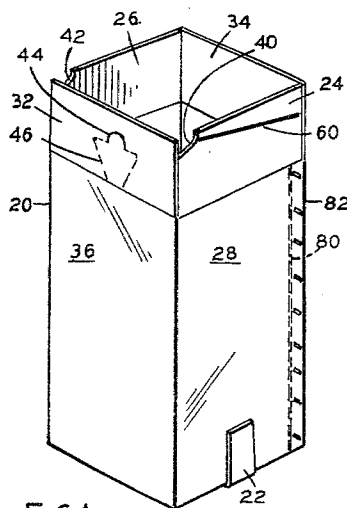


FIG. 1

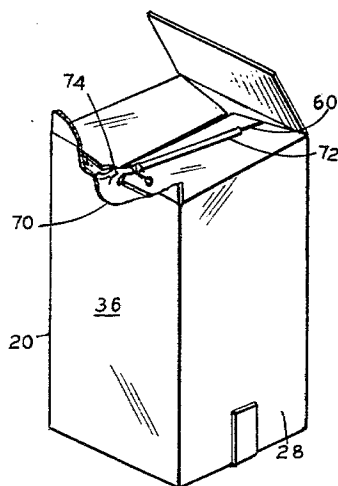


FIG. 2

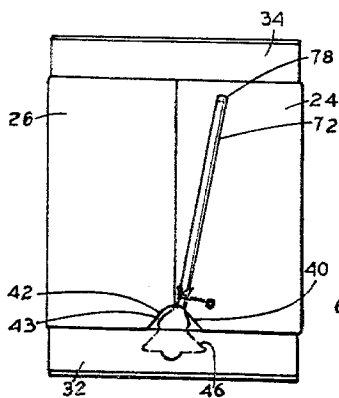


FIG. 3

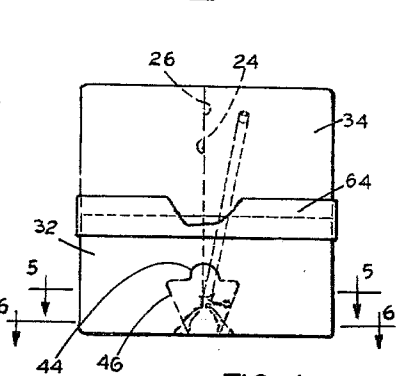


FIG. 4

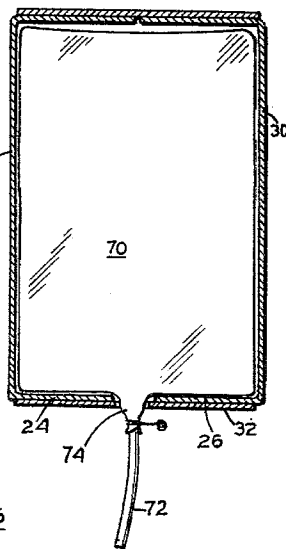


FIG. 6

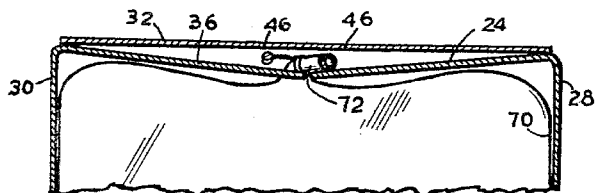


FIG. 5

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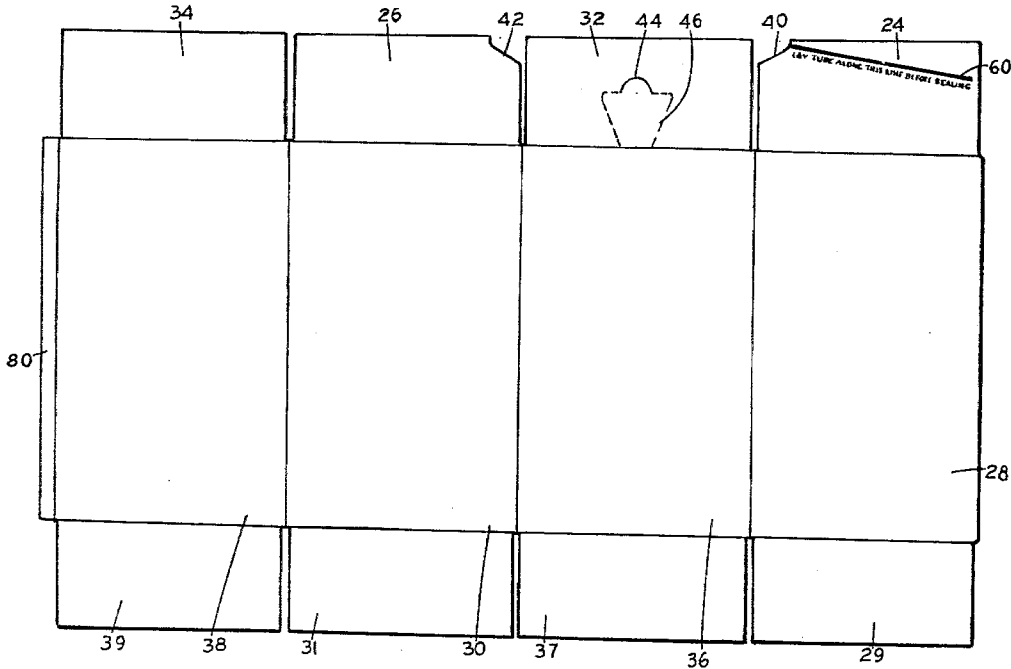


FIG. 7

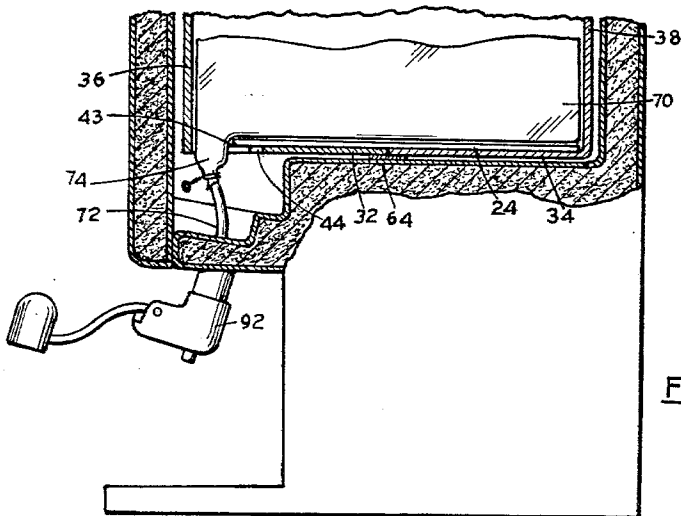


FIG. 8

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3,178,064
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4 Claims. (Cl. 222—105)

This invention relates to dispensing and shipping and dispensing packages for liquids such as milk, ice cream mix and the like, and of the type employing a thin plastic liner supported within a carton of corrugated fiberboard.

In containers of the type referred to, the plastic liner comprises a somewhat over size bag to which is attached a filling and dispensing hose which may be of rubber, plastic or the like. In prior packages developed, as shown in Patent No. 3,007,608, it was considered desirable that the carton be provided with a breast element at one end in addition to the carton to provide space for the hose, and to provide a smooth support for the bag when the package was inverted for dispensing. Subsequently, as disclosed in copending application Serial No. 30,342, filed May 19, 1960, now Patent No. 3,117,695 granted January 14, 1964, the additional element was dispensed with, by employing a flap scored intermediate its width, to permit the same to be bent inwardly to afford limited space for the hose during shipment, and which flap would flatten out on inversion and withdrawal of the hose end for dispensing. In both of these forms, the breast, and the scored flap, a circular hole through which the hose could extend was provided. In addition sealing strips of gummed paper, are required in unusual locations, and the removal of a portion of such gummed paper was required for access.

The present invention is directed to a further improvement in the carton structure, which provides space for the hose during shipment, and a flat support for the bag on inversion after withdrawal of the dispensing hose end. More particularly the invention contemplates the employment of a carton, substantially square in girth, the flaps of which are rectangular and meet at the transverse center lines of the carton ends. The inside flaps of the filling and dispensing end, which may be referred to as side flaps, have a small portion of two adjacent front corners removed, to provide an aperture through which the hose and its attachment to the bag may project, and one of the outer flaps, which may for convenience, be referred to as the front flap, is provided with a perforated finger pull section overlying such aperture and capable of ready removal from the carton flap. Space for the hose during shipment is provided by merely depressing the inner flaps inwardly of the carton end to provide a broad base isosceles triangular sectioned space defined by the planar inside faces of the outer flaps, and the adjacent outer faces of the inside side flaps, which are angularly disposed with respect to each other, by being depressed inwardly of the carton by an amount sufficient to provide space for the hose of the carton.

The carton is readily filled, following which the inner flaps are folded in with the hose and attachment disposed in the aperture formed by the removed flap corners, after which the hose end is plugged and is laid along one of the flaps which are depressed slightly into the carton, after which the outside flaps are closed, and sealed by a single strip of gummed tape.

When the filled carton is prepared for dispensing, the outer flap finger pull section is removed to provide an aperture for access to the hose, which is disposed between the inner and outer flaps, and which may then be drawn out through the outer flap aperture. Upon inversion of

the carton, the inside flaps flatten out against the outside flaps and provide a flat support bed for the bag end, while the hose end and portion of the bag attached thereto projects through the aperture formed by the removed corners of the inner flaps to form a funnel feeding into the dispensing hose. The carton blank is readily formed, set up and filled with a minimum of effort and sealed by standard procedure. No threading of a tube through a flap or breast element aperture is required.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein like reference characters indicate like parts:

FIGURE 1 is a perspective view of the front and one side of a carton with its upper flaps open;

FIGURE 2 is a perspective view of the carton with a filled bag therein, with its dispensing hose, and the hose attachment portion of the bag disposed in portion after closing the side flaps and depressing the same slightly into the carton;

FIGURE 3 is a top plan view of a filled carton, with the inner flaps closed and the outer flap open;

FIGURE 4 is a top plan view of a carton with parts broken away of a filled and sealed carton, ready for shipment;

FIGURE 5 is a sectional view taken on line 5—5 of FIGURE 4;

FIGURE 6 is a sectional view of the same carton, inverted, and with its perforated front flap section removed and the dispensing tube withdrawn from the carton;

FIGURE 7 is a plan view of a carton blank; and
FIGURE 8 is a fragmentary sectional view of the container in dispensing position.

Referring to the drawings there is shown a carton 20 with its bottom inside side flaps closed, and the bottom front and rear outside flaps closed and sealed as by a strip of gummed adhesive tape 22. The upper end of the carton has inside similar side flaps 24 and 26 formed as extensions of the side walls 28 and 30, and outside front and back flaps 32 and 34 formed as extensions of the front and back walls 36 and 38 of the carton. The flaps 24 and 26 have a corner removed as at 40 and 42 of substantially the shape shown, and the flap 32 is provided with a semicircular cut out, push in portion, 44 integral with a perforated tear out portion 46 of generally keystone shape.

The box is formed from a box blank as shown in FIGURE 7 wherein the two side, front and back walls are indicated at 28, 30, 36 and 38 respectively, with the bottom flaps 29, 31, 37 and 39 integral therewith. A suitable and highly efficient size carton from the standpoint of area of fiber board required, for holding 5 gallons liquid measure may have side panels approximately as shown, and in each case the side end flaps are rectangular and each pair such as 29 and 31 form a complete smooth flat inner closure surface, and the flaps 37 and 39 form a complete smooth outer closure for the bottom, when the container is being filled and prepared for shipment. Likewise, the flaps 24 and 26, except for the removed corners 40 and 42 form a relatively complete and smooth inner closure for the upper end, and the flaps 32 and 34 form a smooth external closure for the upper ends. The blank has a narrow flap 80 adapted for attachment to the edge of panel 28, as by staples 32 or otherwise.

In practice, the carton is set up in the manner shown in FIGURE 1, and a tubular plastic liner 70, having a filling and dispensing hose 72 is placed within the carton. The liner has greater girth and length than the internal perimeter and height of the carton, and is placed within the carton collapsed or deflated, with the hose extending upward out of the carton behind the front flap 32, and centrally in respect thereto. The hose is connected to a vacuum filler apparatus, such as shown and described in copending application No. 3,344 filed January 19, 1960, now Patent No. 3,108,901 granted October 29, 1963, which completely collapses the bag and rarifies the air in the filler hose, following which the liner is rapidly filled by flow under pressure through the tube, during which the liner fills out without stress, into supporting contact with the inside carton wall surfaces. When the requisite quantity of liquid has been introduced into the liner, which causes the same to nearly fill the carton, the hose is disconnected from the fill apparatus, and provided with a sanitary seal at the end 78. Flaps 24 and 26 are then folded inwardly, with the hose, and a small hose attachment portion 74 of the liner projecting through the aperture 43 formed by the cutaway corners 42 and 40. The flaps 24 and 26 are depressed inwardly of the upper end of the carton as is indicated in FIGURES 2 and 5; the hose laid along the marker line 60, and the outer flaps are thereafter folded over, and a strip of adhesive tape 64 applied over the end and upper sides to seal the carton. It will be seen that by depressing the flaps 24 angularly inwardly of the plane of the top opening, space for the hose in the form of a shallow isosceles triangle is provided before sealing the outer end flaps 32 and 34.

When the carton is subsequently to be emptied, removal of the tear out portion provides access to the flexible hose for withdrawal of the hose end and its bag attachment 74 through the opening thus formed. The carton, on inversion, for dispensing by means of the hose, presents a flat inner end surface to the liner for support thereof, since the flaps 24 and 26, under the weight of the contents of the bag are caused to flatten out against the outer flaps 32 and 34. The carton as thus provided does not require "opening," or the removal of adhesive tape, or any other operation akin to opening a carton. The mere depression of the finger portion 44 and breaking away of the keystone section 46 from the front flap, and the withdrawal of the tube and the bag attachment portion is all that is required for preparing the carton for dispensing. When the carton is inverted, and the hose placed in a pinch valve, which may be a part of the refrigerating and dispensing equipment, the plugged end of the hose is unplugged or severed by a sanitary knife, razor blade or the like, and the bag hose attachment portion projecting downwardly through the aperture 43 in a funnel like manner affords free flow from the remainder of the bag, as supported upon the inside surfaces of the inside flaps 24 and 26.

In practice, the line 60 may be imprinted on the flap with instructions such as "Lay tube along line before sealing," so that an operator can hardly fail to follow the correct procedure, and no problem of threading a hose through a flap aperture is presented.

When the package is prepared for dispensing by withdrawal of the hose through the outer flap aperture, the package is inverted and placed in a dispensing cabinet, such as 90 which may be refrigerated. The hose end is extended through a pinch valve 92, and the plugged end of the hose may thereafter be removed below the valve. When so positioned within the cabinet, the aperture 43 formed by the removal corners of the inner flaps 24 and 26, and the narrow end portion of the keystone shaped access aperture 47 of the front flap 32 cooperate to conjointly provide a somewhat hexagonal opening with one side rounded, by reason of the rounded V aperture 43 formed by the removed corners of the inner flaps. The portion of the bag adjacent its attachment to the dispensing

tube distends into the opening as at 94 forming a somewhat hemispherical shaped funnel, which locates the attachment end of the hose completely below the surfaces of the inside flaps, which flatten out upon inversion. The inside flaps afford a level support surface for the bag end, such that substantially the entire contents of the bag may be readily withdrawn through the pinch valve controlled hose. It will be understood that the bag collapses as liquid is withdrawn, and no air enters the bag.

While from the foregoing it has been suggested that the package be prepared for dispensing by withdrawal of the tube prior to inversion, it should be evident that the operation can be performed with the package inverted, as it might be within a refrigeration cabinet, since the removable section, if overhanging the support shelf, is as readily accessible for removal when so inverted, and the tube can be withdrawn when so inverted, the inside flaps seating thereafter.

While no particular reference to the bag details have been made, since such bag is described in Patent No. 3,007,608, it may suffice to say that the bag may be formed of thin polyethylene in sheet form. The bag may be formed of tubular sheet material, or a folded sheet of material heat sealed along the edges remote from the fold to form a tube or a two ply combination thereof. The tube, or tubes thus formed, may be heat sealed clear across the lower end, and across the upper end to a point short of a folded side edge to leave an opening for the insertion of a small sanitary tube end of rubber, plastic or the like. The bag material adjacent the opening may be gathered about the inserted tube end and be tightly bound therearound by two convolutions of wire, the ends of which are twisted together in the process, or a plastic tube may be heat sealed to the gathered bag. The tube end may be stiffened against collapse due to the wire banding, by an internal rigid sleeve, or by providing the end section of relatively high durometer relatively rigid material. The mere binding of the polyethylene material gathered about the hose end, in the manner described provides a liquid tight seal.

From the foregoing, it will be seen that the carton deviates from an ordinary carton, only in the removed corners, of the inner flaps, and perforated access means in one of the outer flaps, and imprinting thereon. Further it will appear that in usage, the filling and closing of the carton follows usual procedure, except for the slight depression of the inner flaps to provide space for the hose. The final sealing of the carton, with a single tape, placed in the usual manner does not deviate from ordinary packing procedure. Last, but not least, access to the carton for dispensing requires no removal of any tape, and the sealing strips of gummed paper may preferably be applied in a permanent fashion. Access to the contents is had, by the mere removal of the perforated pull section and withdrawal of the hose end through the aperture thus provided.

While a single modification of the invention has been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. A liquid shipping and dispensing container comprising a carton of corrugated fiber board having substantially like rectangular side, front and back panels, and integral top flaps of generally rectangular shape and of a width to substantially meet on transverse center lines across the top of the carton, the top inside side flaps of the side panels having like angular and curved corner sections removed from the corners thereof adjacent the front of the carton to provide an inverted small rounded bottom V opening, and the front top flap having a semi-circular

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finger cutout portion extending from the approximate center of the flap partway towards the free edge thereof, and a generally keystone shaped section of greater area than said opening defined by perforations and integral with said cutout portion, said section having its broad base defined by perforations extending along the approximate center line of the flap from either side of said cutout portion and its narrow base of less width than said V opening defined by perforations substantially coincident with the flap fold, and being otherwise centrally disposed along the flap fold, and one of said side flaps having a hose marker line imprinted thereon extending from the cutout corner thereof in a direction at a slight angle to the free edge of the flap, said section when removed providing access for withdrawal of a hose disposed between the flaps, and coacting with said V opening to provide an aperture through which the hose attachment portion of a plastic liner may distend.

2. A liquid shipping and dispensing container comprising a carton of corrugated fiber board having substantially like rectangular side, front and back panels, and integral top flaps of generally rectangular shape and of a width to substantially meet on transverse center lines across the top of the carton, the top inside side flaps of the side panels having like angular and curved corner sections removed from the corners thereof adjacent the front of the carton to provide an inverted small rounded bottom V opening, and the front top flap having a semi-circular finger cutout portion extending from the approximate center of the flap partway towards the free edge thereof, and a generally keystone shaped section of greater area than said opening defined by perforations and integral with said cutout portion, said section having its broad base defined by perforations extending along the approximate center line of the flap from either side of said cutout portion and its narrow base of less width than said V opening defined by perforations substantially coincident with the flap fold, and being otherwise centrally disposed along the flap fold, said section when removed providing access for withdrawal of a hose disposed between the flaps, and coacting with said V opening to partially close the same and provide an aperture through which the hose attachment portion of a plastic liner may distend.

3. A liquid shipping and dispensing container comprising a carton of corrugated fiber board having substantially like rectangular side, front and back panels, and integral top side flaps and front and back flaps of generally rectangular shape and of a width to substantially meet on transverse center lines across the top of the carton, the top inside side flaps of the side panels having like angular and curved corner sections removed from the corners thereof adjacent the front of the carton to provide an inverted small rounded bottom V opening, and the front top flap having a semi-circular finger cutout portion extending from the approximate center of the flap partway towards the free edge thereof, and a generally keystone shaped section of greater area than said opening integral with said cutout portion and defined by perforations, said section having its broad base defined by perforations extending along the approximate center line of the flap from either side of said cutout portion and its narrow base of

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less width than said V opening and defined by perforations substantially coincident with the flap fold, and being otherwise centrally disposed along the flap fold, one of said side flaps having a hose marker line imprinted thereon extending from the cutout corner thereof in a direction at a slight angle to the free edge of the flap, a plastic bag liner within said carton of greater girth and height than said carton, said liner having a dispensing hose secured at one end, said hose and a portion of said liner projecting through said V opening, and said hose extending along said marker line, said inside flaps being depressed angularly to accommodate said hose, and said outside flaps being closed and sealed by an adhesive strip extending over the top and partway down the sides of the carton.

4. A liquid shipping and dispensing container comprising a carton of corrugated fiberboard having substantially like rectangular side, front and back panels, and integral top flaps of generally rectangular shape and of a width to substantially meet on transverse center lines across the top of the carton, the top inside side flaps of the side panels having like angular and curved corner sections removed from the corners thereof adjacent the front of the carton to provide an inverted small rounded bottom V opening, and the front top flap having a semi-circular finger cut out portion extending from the approximate center of the flap partway towards the free edge thereof, and a generally keystone shaped section of greater area than said opening defined by perforations and integral with said cutout portion, said section having its broad base defined by perforations extending along the approximate center line of the flap from either side of said cutout portion and its narrow base of less width than said V opening defined by perforations substantially coincident with the flap fold, and being otherwise centrally disposed along the flap fold, a plastic bag liner disposed within said carton of greater girth and height than said carton, said liner having a dispensing hose secured thereto at one end, said hose and a portion of said liner projecting through said V opening, and said hose extending along one of said inside flaps between the inside flaps and outside flaps, said inside flaps being angularly depressed slightly to accommodate said hose, said section when removed providing access for withdrawal of the hose disposed between the flaps, and the opening formed by removal of the section coacting upon withdrawal of the hose from between the flaps with said V opening to partially close the same and provide an aperture through which the hose attachment portion of the plastic liner may distend.

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