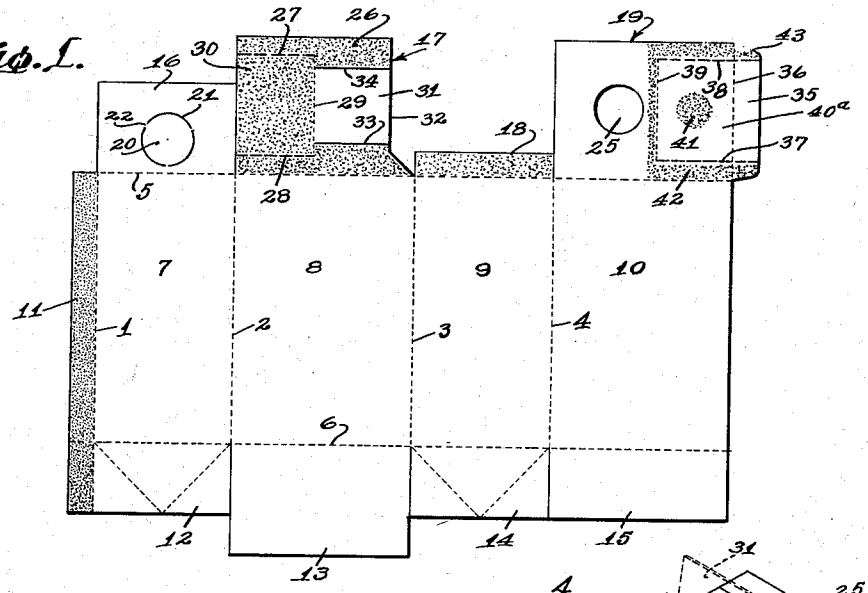
April 15, 1952 R. F. GLASER 2,593,019

PAPER CONTAINER WITH DISPENSING AND FILLING OPENINGS FOR LIQUIDS

Filed March 28, 1947

Fig. 1.



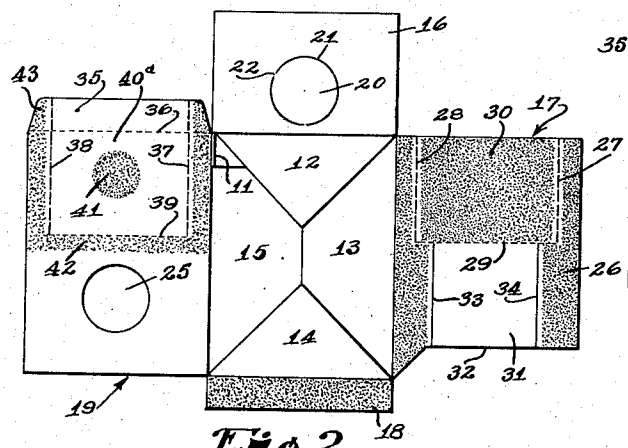


Fig. 2.

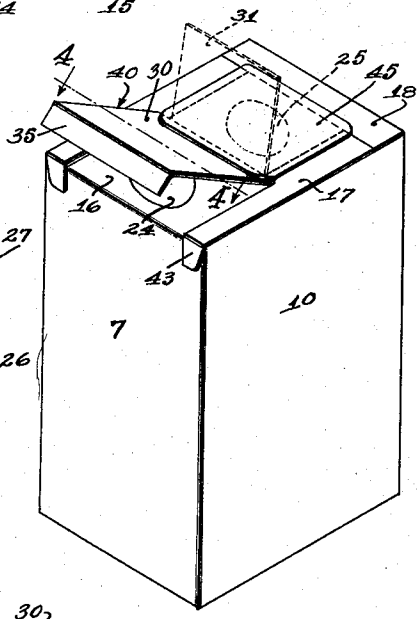


Fig. 3.

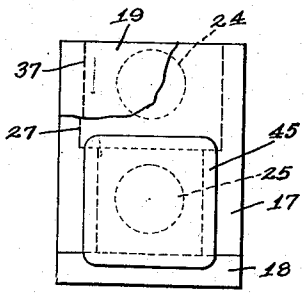


Fig. 5.

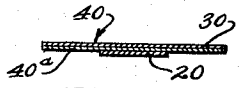


Fig. 4.

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PAPER CONTAINER WITH DISPENSING AND FILLING OPENINGS FOR LIQUIDS

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4 Claims. (Cl. 229—17)

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My invention relates to containers made of paper, cardboard or other fibrous sheet material adapted to be folded from blanks for forming the container. The container may be used as a receptacle for receiving and dispensing liquids or other products. As herein illustrated, the invention is particularly adapted for use as a milk bottle or container and is herein so described although not limited to such use.

An object of the invention is to provide a novel and practical container which may be formed by folding a single piece blank of sheet material designed to permit rapid folding and shaping of the container by machinery and to simplify the machine requirements for its manufacture.

A further object of the invention is to provide a container of the character indicated which may be produced at a comparatively low cost, owing to its adaptation to simplified and rapid machine operations in forming the container.

A further object of the invention is to provide a container with a sanitary pour opening and lip combined with improved means for effectively protecting the same against contamination.

Other objects of the invention will appear hereinafter.

Referring to the accompanying drawings:

Fig. 1 is an elevation view of a flat blank from which the container is formed;

Fig. 2 is a top plan view showing the blank folded to form the body and bottom end of the container, the upper end flaps being swung outwardly to horizontal position for purposes of illustration;

Fig. 3 is a perspective view of the completed container with the lid opened to expose the pour-out opening;

Fig. 4 is a section at the line 4—4 on Fig. 3; and

Fig. 5 is a top plan view, on a reduced scale, showing the sealed container, a portion of the lid being broken away.

Referring to Fig. 1, the blank consists of a single flat piece of paper, cardboard or other fibrous sheet material adapted to be folded for shaping the container. The blank is provided with parallel fold lines 1, 2, 3 and 4 extending from a top fold line 5 to a bottom fold line 6. These lines define panels 7, 8, 9 and 10 which, when the blank is folded, form the rectangular body of the container. The blank also includes the side seam strip 11, which, in the folded carton, is adhered to the panel 10, preferably to the inner surface of the panel. The portion of the blank below the fold line 6 comprises a series of flaps 12, 13, 14 and 15 which are folded inwardly to form the bottom of the container. The construction of the body and bottom end of the container as above described by means of reference numbers, is not new.

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The fold lines may be scored or otherwise weakened lines along which the blank is adapted to be folded. The upper end of the container is formed by side flaps 17 and 19, and end flaps 16 and 18, all foldable inwardly along the line 5. The end flap 16 includes a removable section 20 or plug which may be either circular as shown or of other suitable form, said plug being defined by arc-shaped slits 21 and intermediate web portions 22 by which the plug is temporarily maintained in position as an integral part of the flap 16. The plug 20 is removable as hereinafter described to provide a pour-out opening 24 through which the contents of the container may be dispensed. The flap 19 is formed with a fill opening 25. Adhesive material 26 indicated by stippling, is applied to the seam strip 11 and flaps 17, 18 and 19 in predetermined patterns.

The flap 17 is provided with scored or perforated lines 27 and 28 extending from one edge of the flap inwardly to a fold line 29, said lines defining a rectangular section 30 which is adapted to be severed along the lines 27, 28 and swing about the line 29 as a hinge. The inner surface of the flap 17, except a rectangular or square section 31, is covered with a layer of the adhesive material 26. The section 31 is defined by one edge 32 of the flap, the hinge line 29, and slits 33 and 34 extending inwardly from the edge 32 to the line 29. The edge 32 of the flap 26 is offset to the left (Fig. 1) with respect to the fold line 3, a distance corresponding to the width of the adjoining flap 18 so that when the top of the carton is folded, the edge 32 lies close to or abuts the edge of the flap 18.

The flap 19 is extended to the right a short distance beyond the right hand end of the blank body (Fig. 1) to provide a lifting tab 35 which, when the top is folded, is turned down over the outer face of the body panel 7 along a fold line 36. The flap 19 is formed with score lines 37 and 38 which extend inwardly from the outer end edge of the flap to a hinge line 39. The portion of the flap between the lines 37 and 38 provides a lower ply 40^a of a hinged cover 40 or lid which overlies the pour-out opening 24. A circular patch 41 of the adhesive 26 is applied on the inner surface of this lid portion in position to register with the plug 20 when the top of the carton is folded.

The method of folding the blank, filling and

sealing the container or carton and thereafter opening it for dispensing the contents will now be described:

The blank is first folded along the lines 1, 2, 3 and 4 to form the rectangular body of the carton, and the body seam flap 11 is sealed to the panel 10. The bottom flaps 12 to 15 are then folded and adhered together to seal the bottom of the container. The top flaps 16, 17, 18 and 19 are now folded inwardly from the Fig. 2 position in the following order:

The end flap 16 is first folded inwardly along the fold line 5 to a horizontal position. The side flap 19 is next folded inwardly to overlie the flap 16 and the other side flap 17 is then folded inwardly over the flap 19. In practice, the cartons are usually folded by machinery including a sheet metal tongue which extends over the top end of the open container providing a support for the flaps 16, 19 and 17 as they are folded inwardly and permitting a light top pressure to be applied to the flaps for adhering them together, said tongue then being withdrawn, permitting the flap 18 to be folded inwardly.

When the flap 19 is folded over the flap 16, the patch 41 of adhesive is adhered to the plug 20. The marginal portions of the flap 19, extending along the score lines 37 and 38, are provided with adhesive as shown, so that they adhere to the underlying marginal portions of the flap 16. The flap 19 is also provided with a strip 42 of adhesive extending thereacross adjacent to the line 39, between the latter and the fill opening 25, said strip 42 being in position to overlie the edge of the folded flap 16 and adhere thereto. After the flap 19 is folded inwardly over the flap 16, the tab 35 is folded down along the line 36 and the ends 43 of the tab adhered to the underlying panel 7.

When the side flap 17 is folded inwardly over the flap 19, substantially the entire under surface of the flap 17 is adhered to the flap 19 except the rectangular section 31 which hinges along the line 29 and overlies the fill opening 25. The adhesive may be omitted along narrow strips bordering the lines 27, 28, 33 and 34, as shown in Fig. 2.

When the container has been folded as above described, assuming it is to be used as a milk bottle or container, the inner surfaces of the container may be given a coat of paraffin which is introduced through the fill opening 25, the flap section 31 being swung upward about the hinge line 29 to the dotted line position, Fig. 3, to uncover the fill opening 25 for this purpose. After the paraffining and immediately before chilling, the filling tab 31 is lightly pressed into position, thus sealing the container and maintaining the inside thereof in a sanitary condition during the time lapse between such sealing and the shipping to the dairy for filling.

At the dairy filling station, the tab 31 is swung open just prior to the filling of the container and immediately after the filling, is reclosed and sealed. This sealing may be accomplished by heat, supplied as by means of a light pressure heating pad, which causes the paraffin coating to melt or soften and seal the lid 31 to the underlying surface of the flap 19. As the paraffin is not a strong bonding agent, I provide additional means to fortify the seal and insure the tab 31 remaining sealed during further handling operations. Such additional sealing means is preferably in the form of an adhesive sticker seal 45. As shown, this seal is of substantially rectangular form and of somewhat greater dimensions

than the closure flap 31 so that it extends beyond the four edges of said flap. The inner surface of the seal 45 consists of any suitable adhesive material which will adhere securely to the underlying surface.

The container remains sealed until it reaches the consumer who opens it by prying the tab 35 upwardly, thereby severing the tab and the body portion of the lid 40 along the score lines 37, 38 and, at the same time, severing the section 30 of the overlying adhered flap 17 along the score lines 27, 28, thus lifting the lid 40 to open position (Fig. 3).

By reference to Fig. 5, it will be noted that the score lines for the edges of the upper and lower layers or plies of the lid 40 are slightly offset laterally with respect to each other, which construction I have found permits unsealing and severance of the lid along such lines more easily and reliably than with the score lines in exact register. After the lid 40 has been opened for dispensing a portion of the contents of the container, it may be again swung down to closed position with the plug 20 filling the pour opening. The lid 40 extends beyond the edges of the pour-out opening and covers the surface which surrounds the opening and over which the milk or contents of the container flow, thus keeping such surface clean and preventing contamination of the liquid which is being dispensed.

Modifications may be resorted to within the spirit and scope of my invention.

I claim:

1. A blank of foldable sheet material shaped and provided with fold lines adapting it to be folded to form a container having a rectangular body, said blank having top forming flaps which, when the blank has been folded to form the body of the container, are foldable inwardly to form the top of the container, said flaps including a side flap at one side of said body, a second side flap at the opposite side of said body, an end flap intermediate said side flaps and foldable inwardly therebetween while the side flaps are open, said end flap having a section forming a plug removable to provide a pour opening, one said side flap having a lid section and formed with weakened lines along the sides of said section and spaced from the side edges of the flap to provide marginal strip portions of the flap, a layer of adhesive covering said marginal strip portions in position to adhere them to the said end flap when the flaps are folded, said lid section having a patch of adhesive in position to register with said removable plug when the flaps are folded and adapted to adhere to said plug, said lid section being of a size and in position to cover the pour opening and a portion of the said end flap entirely surrounding the said opening, the flap with said lid section having an opening therethrough spaced from said lid section, the other side flap being folded over the first side flap and having a lid section positioned to register with the first mentioned lid section and provided with adhesive for adhering said lid sections together to provide a two-ply lid, said second side flap having a second lid positioned to overlie said second mentioned opening when the flaps are folded and movable to and from position for closing said second opening independently of the first mentioned lid.

2. A container formed of foldable sheet material comprising a body and a top, the latter consisting of flaps folded inwardly from the body of the container, one said flap having a fill opening therethrough, another said flap having a pour

opening therethrough positioned laterally of and separate from the fill opening, two of said flaps being formed with lid sections adhered together and forming a two-ply lid positioned to overlie one said opening and hinged to swing to and from position to close said opening, one said flap being formed with a second lid positioned to overlie said second opening and swingable to and from position to close said second opening independently of the movements of said first mentioned lid, the axis of the swinging movement of each said lid being between said openings and extending transversely of a line joining the centers of said openings.

3. A container formed of foldable sheet material comprising a body and a top, the latter consisting of flaps folded inwardly from the body of the container, one said flap having a fill opening therethrough, another said flap having a pour opening therethrough positioned laterally of and separate from the fill opening, two of said flaps being formed with lid sections adhered together and forming a two-ply lid positioned to overlie one said opening and hinged to swing to and from position to close said opening, one said flap being formed with a second lid positioned to overlie said second opening and swingable to and from position to close said second opening independently of the movements of said first mentioned lid, the axis of the swinging movement of each said lid being between said openings and extending transversely of a line joining the centers of said openings, said second opening forming a fill opening through which the container may be filled, and a seal overlying the said second lid and sealing the lid in closed position.

4. A container formed of foldable sheet material comprising a body and a rectangular top, the top consisting of flaps folded inwardly from the body of the container, including an end flap folded inwardly from one end of said top and

having a pour opening therethrough, a side flap folded inwardly from one side of the top and overlying said end flap and substantially the full width of said top, said side flap comprising a lid positioned to overlie and close said pour opening, said lid being hinged to swing up and down over said pour opening, said side flap having marginal strip portions extending along the side of said lid and having a coating of adhesive by which the side flap is adhered to the underlying said end flap, said lid being of a size and in a position to cover said pour opening and a top surface portion of the said end flap completely surrounding said opening, said side flap having a fill opening therethrough positioned at one side of and spaced laterally from said pour opening, a second side flap overlying and adhered to said first mentioned side flap and including a lid section overlying and adhered to said first mentioned lid, said second side flap having a hinged lid separate from said lid section and overlying said fill opening, said lids each being movable up and down about its hinge independently of the other for opening and closing the pour opening and fill opening respectively.

RUDOLF F. GLASER.

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