March 19, 1963 L. J. HAYHURST 3,081,927

DISPENSING CARTON

Filed May 29, 1961

Fig. 1

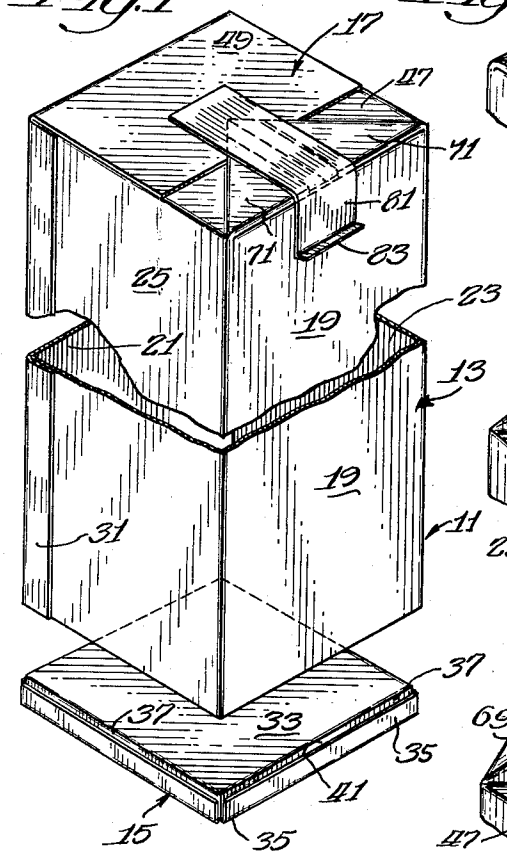


Fig. 2

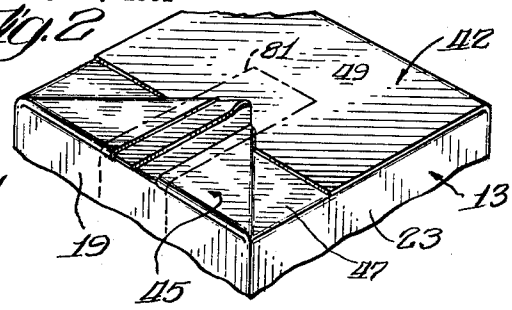


Fig. 3

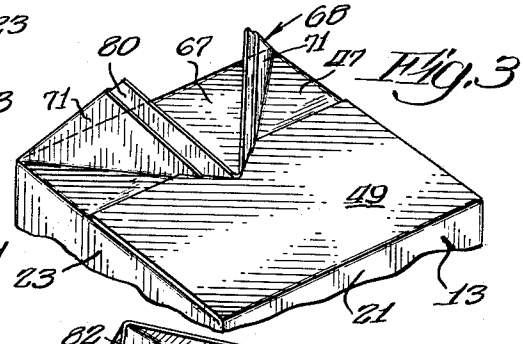


Fig. 4

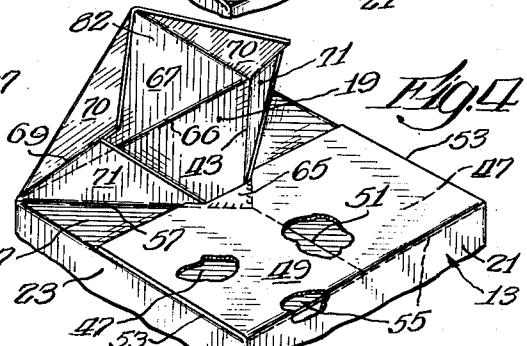
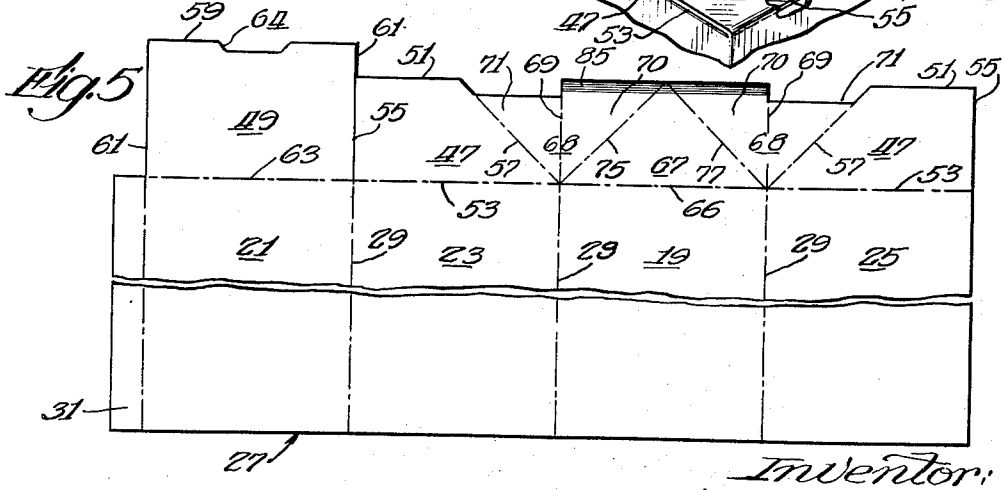


Fig. 5



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DISPENSING CARTON

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This invention relates generally to disposable containers for liquids and, in particular, it relates to containers of this type which are provided with a collapsible pouring spout.

In the packaging of liquids, and in particular, of liquid foods, it is common to use disposable containers which are adapted to hold a certain quantity of the liquid, and which can be discarded after they have been emptied of their contents. The use of such containers permits convenient and economical distribution of the liquid without the necessity of handling a large number of emptied bottles on a "return" basis.

Containers of this type are frequently provided with a means to facilitate the dispensing of the liquid. Some such containers have on their upper surface an opening fitted with a stopper which can be removed incident to the initial opening of the container and reinserted to close the opening if all of the contents of the container are not used. This closure, while generally satisfactory, does not provide a pouring spout and consequently dispensing of the liquid is sometimes difficult. Further, the stopper gradually becomes worn and eventually no longer provides a satisfactory closure for the container opening if removed and reinserted repeatedly.

Another form of container now widely used includes a collapsible pouring spout. The upper portions of one pair of opposing side walls of this container taper inwardly at the top to form a gable over the inwardly folded adjacent walls, and the container is opened by manually spreading the tapered side walls at one end and unfolding the intermediate wall to form the spout. The disadvantage of this form of container, however, is that its upper surface is not flat and, consequently, the containers can not be conveniently stacked.

Accordingly, the principal object of the present invention is to provide an improved disposable container having a collapsible pouring spout. A more specific object of the invention is to provide a container having a collapsible pouring spout and a flat upper surface which will permit the containers to be stacked one upon the other. A further object of the present invention is to provide a collapsible-spout container, which container is convenient and economical to manufacture.

Other objects and advantages of this invention will be apparent with reference to the following description and accompanying drawings of a preferred embodiment of a container in accordance with the invention.

In the drawings:

FIGURE 1 is a perspective view of the container, partially broken away and with the bottom portion of the container displaced to aid the illustration;

FIGURES 2, 3, and 4 are fragmentary perspective views of the upper end of the container of FIGURE 1, illustrating respectively the sequence of steps by which the container is opened and a pouring spout formed.

FIGURE 5 is a partially broken away plan view of a blank for forming the top and walls of the container of FIGURE 1.

A container **11** in accordance with the present invention is illustrated in its assembled form in FIGURE 1. It comprises a shell or body portion **13**, a bottom closure **15**, and a top closure **17**. The shell **13** includes four rectangular wall panels, designated for convenience of

reference as a front wall **19**, a rear wall **21**, and side walls **23** and **25**. The top closure and all of the walls panels are formed from a single blank **27** (FIGURE 5), adjacent wall panels being defined between fold lines **29**, and a joint being made between the rear wall **21** and side wall **25**.

As seen best from the blank form **27** in FIGURE 5, the joint is formed by folding a longitudinal edge flap **31**, integral with the rear wall **21**, over the adjacent side wall **25**. The flap **31** is bonded to the side wall **25** by a suitable adhesive. When the walls of the container are in an assembled condition, as shown in FIGURE 1, the shell **13** has a square or rectangular cross-section.

The bottom closure **15** of the container **11** includes a base panel **33**, which is substantially the same size and shape as the cross-section of the shell **13**, and a peripheral skirt **35** which is folded back on itself on all four sides to form peripheral grooves **37** which receive the lower edges of the wall members of the shell **13** to assemble the bottom closure **15** with the shell.

The container **11** is normally assembled by first folding and joining the wall panels and then by folding and sealing the top closure **17**, still to be described in detail. The container is then filled in an inverted position through its lower end, after which the bottom **15** is attached as the final step in the assembly and filling of the container.

The top closure **17** comprises in part a fixed wall **42** which defines a trapezoidally-shaped opening **43**, and a collapsible pouring spout **45** which is connected to the container by fold lines along edges of the opening **43**.

The wall **42** is formed of a pair of side flaps **47** and a rear flap **49** which overlies the side flaps when the container is in the assembled condition, as can be seen in FIGURE 4. Each of the side flaps **47** is trapezoidal in shape, having parallel upper and lower edges **51** and **53**, a rear edge **55** which is generally normal to the upper and lower edges, and a rearwardly inclined forward edge **57** which partially defines the opening **43**. The angle between each of the edges **57** and the edges **53** is approximately 45 degrees.

The lower edge **53** constitutes a fold line which connects each flap **47** to the upper edge of one of the side walls **23** or **25**. As can be seen by the dotted lines in FIGURE 4, the side flaps **47** are normally in a horizontal position and, when so disposed, the length of the rear edges **55** is such that the upper edges **51** of the panels are in an abutting relationship to one another when folded.

The remaining element of the fixed wall **42** is the rear flap **49** which is generally rectangular and positioned in partially overlying relation to the side flaps **47** so as to provide a double thickness of material over the area covered by the fixed wall **42**. The rear flap **49** includes a forward edge **59**, side edges **61**, and a rearward edge **63**. The rear edge **63** constitutes a fold line by which the flap is attached to the upper edge of the rear wall **21** of the container.

It will be noted in FIGURE 4 that the length of the side edges **51** of the rear flap **49** is somewhat greater than the length of the upper edges **51** of the inclined side flaps **47**, and that the rear flap overlaps a portion of the edges **57**. Hence, there is a small triangularly-shaped area, adjacent the forward edge **59** of the rear flap and designated by the numeral **65** in FIGURE 4, which does not overlie any portion of the side flaps **47**. The forward edge **59** is indented slightly at **64** adjacent the area **65**, and the area **65** is depressed slightly to accommodate a portion of the pouring spout **45**, as will be seen shortly.

The opening **43**, previously referred to as trapezoidal in shape, includes a pair of parallel edges and a pair of inclined edges. The parallel edges comprise a base edge **66** which is the longer of the two and which is defined

by the upper edge of the front panel 19, and a top edge defined by the indentation 64 of the rear flap 49. The side edges of the opening 43 are defined by the rearwardly inclined forward edges 57 of the side flaps 47. It is noted that since the rear flap 49 overlaps somewhat the edges 57 of the side flaps 47, the side edges of the opening 43 are not equal in length to the edges 57. The side edges are, however, equal in length to one another and form an angle of approximately 45 degrees with the base edge 66.

The pouring spout 45 is constructed so that it can be collapsed in such a manner as to provide a flat surface which will accommodate the stacking of the containers while still providing a satisfactory seal. The spout 45 comprises a triangular forward panel 67 and a pair of inverted triangular end panels 68, one of which is disposed along each side of the forward panel. Fold lines 69, constituting (when the carton is in blank form, FIGURE 5) extensions of the fold line 29 between the front panel 19 and side panels 25, divide each of the panels 68 into a triangular upper end panel 70 and a triangular lower end panel 71.

The triangular forward panel 67 is in the shape of an isosceles triangle and includes a base edge which is equal in length to the base edge 66 of the opening 43, and side edges 75 and 77 which are of equal length and slightly longer than the length of the inclined edges 57 of the side panels 51. Thus, the panel 67 overlies the opening 43 and the depressed area 65, completely covering the opening with the apex of the panel overlying the area 65. The apex of the panel 67 may be conveniently bonded to the area 65 to seal the opening.

All of the edges of the forward panel 67 constitute fold lines by which the panel is connected to the walls of the container and to the end panels 68, the base edge 66 constituting a fold line which connects the panel 67 with the upper edge of the front wall 19 of the container, and the side edges 75 and 77 constituting fold lines which interconnect the panel 67 with the end panels 68.

Both the upper and lower end panels 70 and 71 of the end panel 68 are in the shape of an isosceles right triangle. The lower panels 71 include a hypotenuse which is equal in length to the length of a side edge of the opening 43, and legs 79 which are equal in length to the distance between one end of the indentation 64 and the adjacent side wall of the container. The upper panels 70 include a hypotenuse equal in length to the length of one of the legs of the forward panel 67, and legs equal in length to one half the length of the base edge 66 of the opening 43.

As can be seen in FIGURE 5, the upper panels 71 complement the forward panel 67 such that the three panels constitute a rectangle. Also, since the legs of the upper panels 70 are longer than the legs of the lower panels 71 measured along the fold line 77, an edge 80 of the upper panel overlaps the lower panel and provides a finger grip when the panels are in side-by-side relation, as shown for example in FIGURE 3.

The upper end panels 70 are connected to the forward triangular panel 67 along what would constitute the hypotenuse of the former by the fold lines 75 and 77 as previously set forth. The lower end panels 71 are connected along their hypotenuse to the inclined edge 57 of the side flaps 47 of the flat wall 42. Hence, the pouring spout 45 is formed of a series of interconnected, triangularly-shaped panels which permit the spout to assume both the collapsed position shown in FIGURE 1 and open position shown in FIGURE 4.

Referring to the FIGURES 1 and 2, it will be noted that when the spout 45 is folded into the collapsed position, the upper surface of the top closure 17 is essentially flat, and would permit the container to be stacked, as for example in a carton or for display purposes. The flat surfaces of the containers also permits them to be packaged in such a manner that all of the space within the carton is utilized, a feature heretofore not possible with the container in which the side walls taper to a single edge at the top.

In the open position, the spout 45 defines a discharge opening 82 (FIGURE 4) having walls tapering to a single point so as to assure an accurate pouring of the contents of the package. Also, when the spout is fully open, the forward triangular panel 67 may be disposed in the same plane as the front wall 19 of the container, or at an obtuse angle to the front wall, thus eliminating any corner or cavities where a portion of the liquid might accumulate and become inaccessible.

The pouring spout 45 may be maintained in the collapsed condition by a suitable adhesive by some form of a fastener, such as a tape 81 as shown in FIGURES 1 and 2. The tape 81 is provided with an adhesive of some form on its inner surface which will cause it to adhere to the outer surface of the container. One edge of the tape 81 is not coated, as at 83, so that the tape may be easily grasped and removed when it is desired to open the container.

It will be noted from the drawing that the upper end panel 70 flexes relative to the triangular forward panel 67 through an angle of over 180 degrees when the pouring spout is moved from a collapsed to an open position. Further, it is noted that the apex of the triangular forward panel is temporarily bonded to the depressed area 65 of the flap 47 and that this apex will also flex through a considerable angle in the opening of the package. Accordingly, in order to strengthen this portion of the spout and also to provide a more sturdy surface to be bonded to the depressed area 65, the lip 85 of the pouring spout is coated with a lacquer or similar stiffening substances as shown by shading in FIGURE 5.

Assuming that the pouring spout is in the collapsed position as shown in FIGURE 1, the container 11 is opened by grasping the edge 83 of the tape and pulling it upwardly and toward the rear wall 21 until the tape is no longer in contact with the pouring spout 45. This will release the opposing pairs of end walls 68 on each side of the spout, rendering them liftable to the position shown in FIGURE 3. The edges 80 (FIGURE 3) of the upper end panel may then be grasped with the fingers of each hand and lifted upwardly until the spout snaps into the position shown in FIGURE 4.

To close the container, as for the purpose of storing an unused portion, the triangular panel 67 is pressed at a point slightly above its center which causes the spout to snap back into the position shown in FIGURE 3. In this position, the spout provides a substantially complete closure for the container which, while not suitable for transporting the liquid, will safely preserve its contents while they are being stored.

A container has thus been described which includes a collapsible pouring spout. The spout greatly facilitates the dispensing of liquids when in the open position, provides an effective seal for the container when in the semi-closed position, and provides a flat upper surface for the container when in the completely closed position.

Various of the features of the invention are set forth in the following claims.

What is claimed is:

1. A disposable container for liquids, which container comprises a hollow elongated shell, the walls of which define an opening, and a collapsible pouring spout at least partially surrounding said opening, said spout including a first panel connected along one edge of said opening defining wall by means of a fold line, and a pair of end panels, each of which is connected to a side edge of said first panel and to a edge of said opening defining wall by means of a fold line, said spout being collapsible to a substantially flat position in which said first panel overlies said opening and said end panels are folded upon themselves and overlie said first panel.

2. A disposable container for liquids, which container

comprises a hollow elongated shell, the walls of which define an opening, and a collapsible pouring spout at least partially surrounding said opening, said spout including a first panel connected along one edge of said opening defining wall by means of a fold line, and a pair of end panels, each of which is connected to a side edge of said first panel and to an edge of said opening defining wall by means of a fold line, each of said end panels being divided into two sections by a fold line extending from a point on the edge of said opening to an unconnected edge of said panel, said spout being collapsible to a substantially flat position in which said first panel overlies said opening and said end panels are folded upon themselves and overlie said first panel.

3. A disposable container for liquids, which container comprises a hollow elongated shell including a flat wall at one end, the walls of said shell defining an opening, and a collapsible pouring spout at least partially surrounding said opening, said spout including a first panel connected along one edge of the wall defining said opening by means of a fold line, and a pair of end panels each of which is connected to a side edge of said first panel and to an edge of said wall defining said opening by means of a fold line, each of said end panels being divided into two sections by a third fold line extending from a point on the edge of said opening to an unconnected edge of said panel, said spout being collapsible to a substantially flat position in which said first panel overlies said opening and said end panels are folded upon themselves and overlie said first panel.

4. A disposable container for liquids, which container comprises a hollow elongated shell including a flat wall at one end, the walls of said shell defining an opening, and a collapsible pouring spout at least partially surrounding said opening, said spout including a triangularly-shaped first panel connected along its base edge to one edge of said wall defining said opening by means of a fold line and adapted to be bonded to a portion of said flat wall, and a pair of end panels, each of which is connected to a side edge of said first panel and to an edge of said wall defining said opening by means of a fold line, each of said end panels being divided into two triangularly-shaped sections by a fold line extending from a point on the edge of said opening to an unconnected edge of said panel, said spout being thereby collapsible to a substantially flat position in which said first panel overlies said opening and said end panels are folded upon themselves and overlie said first panel.

5. A disposable container for liquids, which container comprises a hollow elongated shell including a flat wall at one end, the walls of said shell defining an opening, and a collapsible pouring spout at least partially surrounding said opening, said spout including a triangular first panel connected along its base edge to one edge of said wall defining said opening by means of a fold line and adapted to be bonded at its apex to a portion of said flat wall, said flat wall and said first panel being coated with a binding material over the areas to be bonded, and a pair of end panels, each of which is connected to a side edge of said first panel and to an edge of said wall defining said opening by means of fold lines, each of said end panels being divided into two triangularly-shaped sections by a fold line extending from a point on the edge of said wall defining said opening to an unconnected edge of said panel, said spout being thereby collapsible to a substantially flat position in which said first panel overlies said opening and said end panels are folded upon themselves and overlie said first panel, and means for holding said spout in said collapsed position.

6. A disposable container for liquids, which container comprises a hollow elongated shell including a flat wall at one end, the walls of said shell defining an opening, and a collapsible pouring spout at least partially surrounding said opening, said spout including a triangular first panel connected along its base edge to one edge of said wall defining said opening by means of fold lines and adapted to be bonded at its apex to a portion of said flat wall, the portion of said flat wall which is to be bonded and the lip of said pouring spout being coated with a binding material, and a pair of end panels, each of which is connected to a side edge of said first panel and to an edge of said wall defining said opening by means of fold lines, each of said end panels being divided into two triangularly-shaped sections by a fold line extending from a point on the edge of said opening to an unconnected edge of said panel, said spout being thereby collapsible to a substantially flat position in which said first panel overlies said opening and said end panels are folded upon themselves and overlie said first panel, and means for holding said spout in said collapsed position.

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