May 18, 1965 J. W. SANDERSON 3,184,117

BAG-IN-BOX ARRANGEMENT FOR PACKAGING AND DISPENSING OF LIQUIDS

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Fig. 3

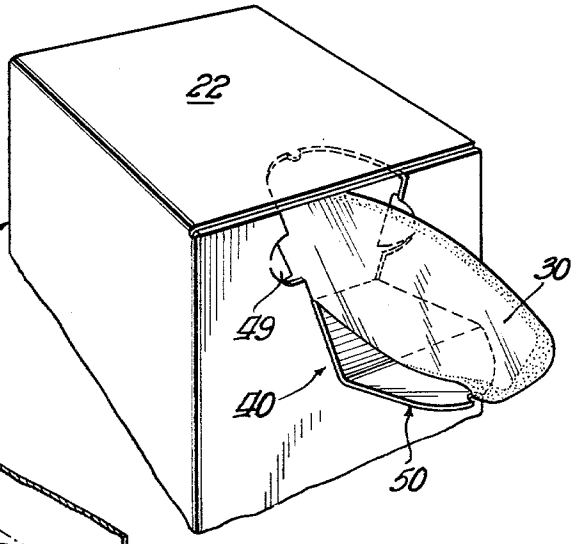


Fig. 1

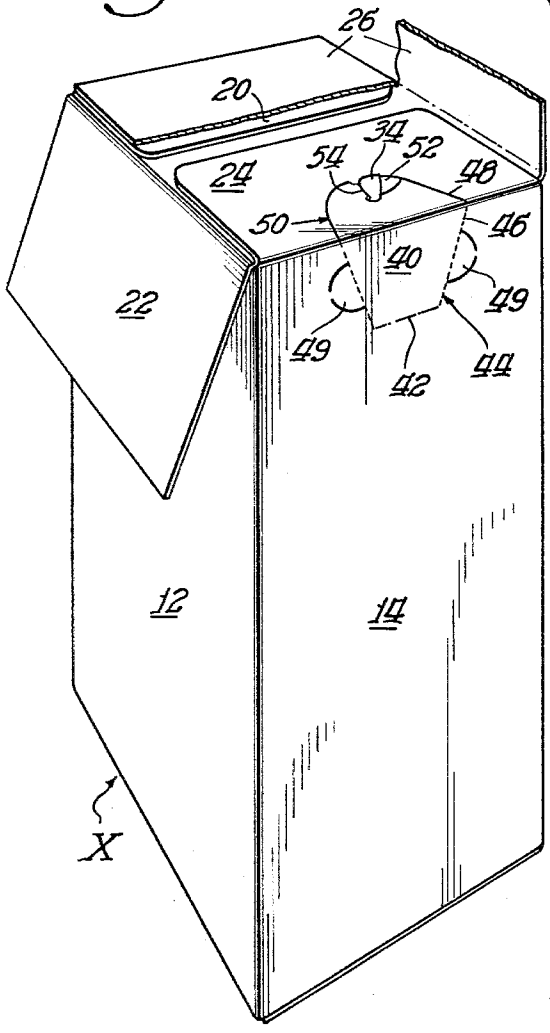
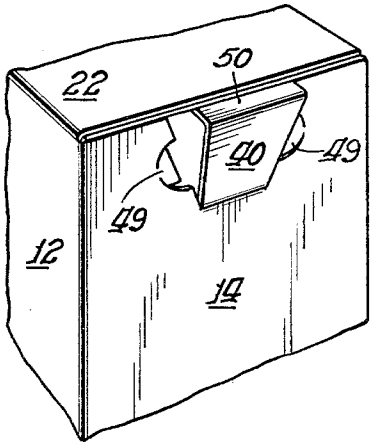


Fig. 2



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Fig. 6

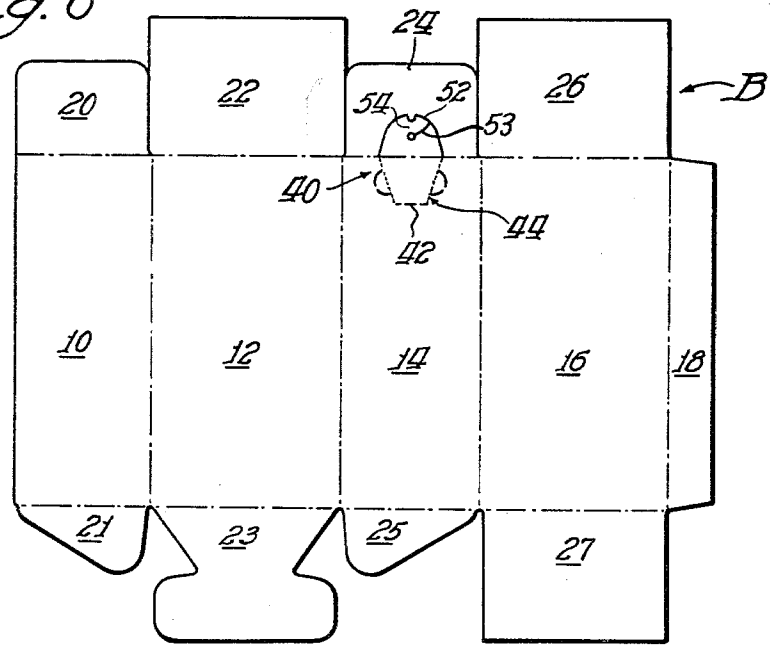


Fig. 4

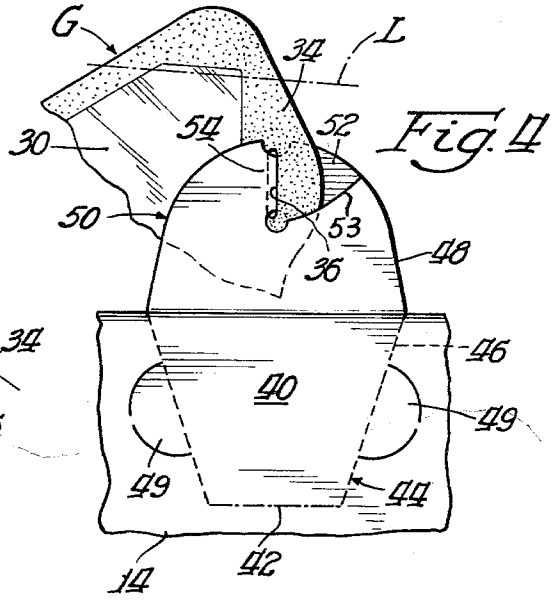
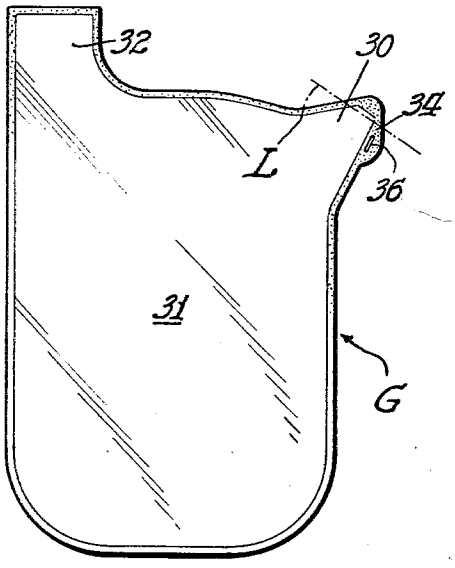


Fig. 5



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BAG-IN-BOX ARRANGEMENT FOR PACKAGING AND DISPENSING OF LIQUIDS

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6 Claims. (Cl. 222—183)

This invention relates to packages, and more particularly to an arrangement for the packaging and dispensing of liquids.

The invention comprehends an improvement in the art of packaging liquids in plastic bags disposed within paperboard boxes.

Although the basic concept of packaging a liquid in a plastic bag disposed within a paperboard box is not new to the packaging art, most of the so-called "bag-in-box" arrangements which are known to the art are so cumbersome and unwieldy to use for the dispensing of liquids that they are not very practical or satisfactory from a commercial standpoint.

It is, therefore, an object of this invention to provide a "bag-in-box" package for liquids having a convenient pouring or dispensing arrangement which permit the ultimate consumer to dispense limited quantities of liquid from the package easily and efficiently.

Another object of the invention is the provision, in a "bag-in-box" package for liquids, of a box or outer container having an opening in a wall thereof adapted to facilitate removal of the bag pouring spout from the box for use in dispensing liquids.

A more specific object of the invention is the provision, in a "bag-in-box" package for liquids, of an outer paperboard box having cut from and hinged to one wall thereof a pouring spout carrying tab connected to the pouring spout of an inner plastic bag disposed within the outer box.

These and other objects of the invention will be apparent from an examination of the following description and drawings, wherein:

FIGURE 1 is a perspective view of a "bag-in-box" package embodying features of the invention;

FIGURE 2 is a view similar to FIGURE 1 but illustrating only a portion of the structure of FIGURE 1, with the bag pouring spout carrying tab of the box shown in a partially opening position;

FIGURE 3 is a view similar to FIGURE 2, but with the bag pouring spout carrying tab shown in a fully open position;

FIGURE 4 is an enlarged fragmentary view of a portion of the structure of FIGURE 3 illustrating a connection between the bag pouring spout and the carrying tab of the box;

FIGURE 5 is a side view of the bag which contains the packaged liquid; and

FIGURE 6 is a plan view of the blank from which the box of the other views may be formed.

It will be understood that certain elements have been intentionally eliminated from certain views where they are believed to be illustrated to better advantage in other views.

Referring now to the drawings for a better understanding of the invention, and particularly to FIGURE 3, it will be seen that the invention includes a flexible, preferably plastic, bag G disposed within a preferably corrugated or solid fibre paperboard box X.

Now referring to FIGURE 6 of the drawings, it will be seen that the box X may be formed from a single blank B of sheet material such foldable paperboard. The blank B is divided into a plurality of serially connected panels which have been designated as 10, 12, 14, 16 and 18, reading from left to right. These panels comprise a first end wall panel, a second end wall panel, a second side wall panel, and a securing panel, respectively. In order to form a box the blank is arranged with the panels disposed at right angles to each other in tubular form in a conventional manner with the securing panel 18 either glued or stitched to the end wall panel 10 at the opposite end of the blank. The panels may be hingedly interconnected by a plurality of parallel hinge lines extending transversely across the blank.

Still referring to FIGURE 6, it will be seen that each of the end and side wall panels previously described has hinged to its opposite ends a pair of upper and lower closure flaps. The upper and lower closure flaps of panel 10 being designated 20 and 21, respectively; the upper and lower closure flaps of panel 12 being designated 22 and 23, respectively; the upper and lower closure flaps of panel 14 being designated 24 and 25, respectively; and the upper and lower closure flaps of panel 16 being designated 26 and 27, respectively.

It will be noted that the bottom closure flaps of the box are formed and arranged in such a manner as to provide for an interlocking bottom; whereas the upper closure flaps of the box are of conventional design to provide for a conventional glued top closure arrangement. However, the particular contour of the closure flaps, except for the bag pouring spout carrying tab feature discussed hereinafter, is not an essential part of the invention, and various arrangements may be satisfactorily employed.

It will be noted that the bag is preferably formed of a plastic material such as polyethylene by heat sealing to each other the peripheral portions of the pair of identical side panels 31, in manner well known in the art.

Still referring to FIGURE 5 it will be seen that the bag may be provided with a pair of pouring and filling spouts 30 and 32, respectively. The location of the spout 32 may be at either end of the bag, depending upon the equipment which is employed to fill the bag and locate it within the box. Also, if desired, the filling spout may be eliminated, and the pouring spout may be used as a filling spout.

The filling spout itself is preferably tapered in contour for convenience in dispensing and is bordered on three sides by a peripheral flange 34. Flange 34 is provided with an opening or slit 36, preferably located under or in front of the pouring spout itself, the purpose of which will be described later in the specification.

Returning to FIGURE 6 of the drawings, it will be seen that there is formed from end wall panel 14 and its top closure flap 24 a bag pouring spout carrying tab indicated generally at 40. Tab 40 is preferably hinged along its lower edge 42 to panel 14, with the remainder of the tab being defined by a line 44, the lower portion 46 of which is perforated in panel 14 and the upper portion 48 of which is cut through flap 24. In order to facilitate the withdrawal of tab 40, in order to dispense liquid from the package, there may be provided a pair of ears 49 die cut from panel 14 and disposed on opposite sides of the lower portion of the tab.

As best seen in FIGURE 4, the upper portion of the tab has an integral bag pouring spout retaining segment 50 cut therefrom and joined thereto for use in attaching the tab to the bag pouring spout. Segment 50 is preferably formed with an enlarged, arrowhead shaped head portion 52, cut along line 53 from the segment 50 and joined to the remainder of the segment by a narrower neck portion 54.

In order for the ultimate consumer to use the package

and dispense limited quantities of liquid from the bag, the thumb and forefinger may be used to push in the ears 49 and grasp the lower portion of carrying tab 40. As the tab is pulled outwardly, line of perforation 46 will part and permit the further outward movement of the tab from the box. As the upper portion of the tab is preferably not even connected to the closure flap 24 it will easily slide out from under the remaining closure flaps even if they are glued to each other in overlapping relationship. As the tab is pulled free from the box the pouring spout of the bag, by virtue of its connection to the tab segment 50, will be drawn out with the tab and supported thereon.

For the first use of the bag the pouring spout may be cut along a line indicated generally at L in FIGURE 5 in order to open the bag and thereby permit liquid therefrom. The actual location of the cut by the consumer will vary depending upon the quantity to be dispensed and the speed at which the liquid is to be dispensed. Because of the tapered contour of the pouring spout, the pouring opening in the bag can easily be controlled to a limited degree by cutting the bag closer to or further from the free end of the pouring spout, as desired.

After the bag has been cut the package may be held in one hand with the other hand controlling the pouring spout carrying tab 40 to facilitate the dispensing of liquid from the package. After a desired quantity of liquid has been dispensed, the tab 40 is merely pushed back into the carton carrying the pouring spout along with it.

Once the bag has been opened by cutting the pouring spout, the process of removing the pouring spout with the tab 40 and reclosing the package may be repeated as many times as desired.

I claim:

1. A container arrangement for packaging and dispensing of liquids comprising:
(*a*) an outer box formed from foldable paperboard;
(*b*) said box including a plurality of side walls hingedly interconnected to form a tubular structure, and end closure flaps hingedly connected to end edges of certain of the side walls to close the ends of the structure;
(*c*) a flexible, plastic inner bag removably disposed within said box;
(*d*) said bag having a pouring spout;
(*e*) said bag pouring spout including a flanged portion presenting a slit therein; and
(*f*) a pouring spout carrying tab formed from adjacent portions of one of the side walls and one of the end flaps of said box;
(*g*) said tab being hinged along its lower edge to said one side wall and having the remainder of its edges defined by a partly perforated line which with the hinge line of the tab defines a pouring spout opening in the box when the tab is pulled out;
(*h*) said tab including a segment cut from and joined to the remainder of the tab;
(*i*) said segment having at its free end an enlarged head portion disposed to extend through the slit in the flanged portion of the bag pouring spout to interconnect the tab and pouring spout, so that when the tab is pulled out from the box side wall the bag pouring spout will be pulled out through the pouring spout opening.

2. A container arrangement for packaging and dispensing of liquids comprising:
(*a*) an outer box formed from foldable paperboard;
(*b*) said box including a plurality of side walls hingedly interconnected to form a tubular structure and end closure flaps hingedly connected to end edges of certain of the side walls to close the ends of the tubular structure;
(*c*) a flexible, plastic inner bag removably disposed within said box;
(*d*) said bag having a pouring spout;

(*e*) said bag pouring spout including a flanged portion presenting a slit therein; and
(*f*) a pouring spout carrying tab formed from adjacent portions of one of said side walls and one of said end flaps;
(*g*) said tab being hinged along its lower edge to said one side wall and having the remainder of its edges defined by a partly perforated line which with the hinge line of the tab defines a pouring spout opening in the box when the tab is pulled out;
(*h*) said tab including a segment cut from and joined to the remainder of the tab;
(*i*) said segment having its free end disposed to extend through the slit in the flanged portion of the bag pouring spout to interconnect the tab and pouring spout so that when the tab is pulled out from the box side wall the bag pouring spout will be pulled out through the pouring spout opening.

3. A container arrangement for packaging and dispensing liquids comprising:
(*a*) an outer box formed from foldable paperboard;
(*b*) said box including a plurality of side walls hingedly interconnected to form a tubular structure and end closure flaps hingedly connected to end edges of certain of the side walls to close the ends of the tubular structure;
(*c*) a flexible, plastic inner bag removably disposed within said box;
(*d*) said bag having a pouring spout; and
(*e*) a pouring spout carrying tab formed from adjacent portions of one of said side walls and one of said end flaps;
(*f*) said tab being hinged along its lower edge to said one side wall and having the remainder of its edges defined by a partly perforated line which with the hinge line of the tab defines a pouring spout opening in the box when the tab is pulled out;
(*g*) said tab including a segment cut from and joined to the remainder of the tab;
(*h*) said segment having its free end disposed to extend through a slit in a portion of the bag pouring spout to interconnect the tab and pouring spout, so that when the tab is pulled out from the box side wall the bag pouring spout will be pulled out through the pouring spout opening.

4. A container arrangement for packaging and dispensing of liquids comprising:
(*a*) an outer box formed from foldable paperboard;
(*b*) said box including a plurality of top, bottom, and side walls hingedly interconnected to form a tubular structure;
(*c*) a flexible, plastic inner bag removably disposed within said box;
(*d*) said bag having a pouring spout;
(*e*) said bag pouring spout including a flanged portion presenting a slit therein; and
(*f*) a pouring spout carrying tab formed from adjacent portions of one of said side walls and said top wall;
(*g*) said tab being hinged along its lower edge to said one side wall and having the remainder of its edges defined by a partly perforated line which with the hinge line of the tab defines a pouring spout opening in the box when the tab is pulled out;
(*h*) said tab including a segment cut from and joined to the remainder of the tab;
(*i*) said segment having its free end disposed to extend through the slit in the flanged portion of the bag pouring spout to interconnect the tab and pouring spout, so that when the tab is pulled out from the box side wall the bag pouring spout will be pulled out through the pouring spout opening.

5. A container arrangement for packaging and dispensing of liquids comprising:
(*a*) an outer box formed from foldable paperboard;
(*b*) said box including a plurality of side walls hingedly interconnected to form a tubular structure;

(c) a flexible, plastic inner bag removably disposed within said box;
(d) said bag having a pouring spout;
(e) said bag pouring spout including a flanged portion presenting a slit therein; and
(f) a pouring spout carrying tab formed from a portion of one of said side walls;
(g) said tab being hinged along its lower edge to said one side wall and having the remainder of its edges defined by a partly perforated line which with the hinge line of the tab defines a pouring spout opening in the box when the tab is pulled out;
(h) said tab including a segment cut from and joined to the remainder of the tab;
(i) said segment having at its free end an enlarged head portion disposed to extend through the slit in the flanged portion of the bag pouring spout to interconnect the tab and pouring spout, so that when the tab is pulled out from the box side wall and the bag pouring spout will be pulled out through the pouring spout opening.

6. A container arrangement for packaging and dispensing of liquids comprising:
(a) a box formed from paperboard;
(b) a bag removably disposed within said box;
(c) said bag having a pouring spout;
(d) said bag pouring spout including a flanged portion presenting a slit therein;

(e) a pouring spout carrying tab cut from a wall of the box;
(f) said tab being hinged along one edge to said wall and having the remainder of its edges defined by a line which with the hinge line of the tab defines a pouring spout opening in the box when the tab is pulled out;
(g) said tab having an integral portion disposed to extend through the slit in the flanged portion of the bag pouring spout to interconect the tab and pouring spout, so that when the tab is pulled out from the box wall the bag pouring spout will be pulled out through the pouring spout opening.

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