July 10, 1956 E. B. KODAT 2,754,045

PAPER CONTAINERS

Filed Feb. 8, 1952

Fig. 1.

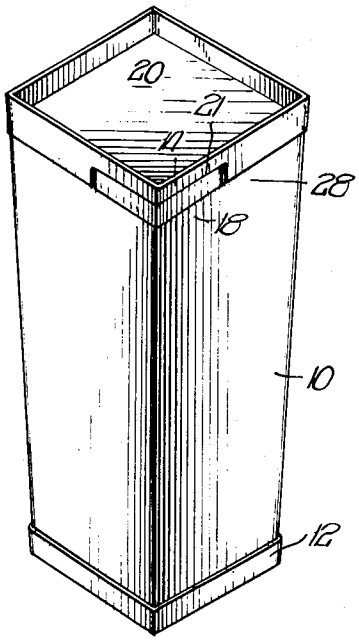


Fig. 3.

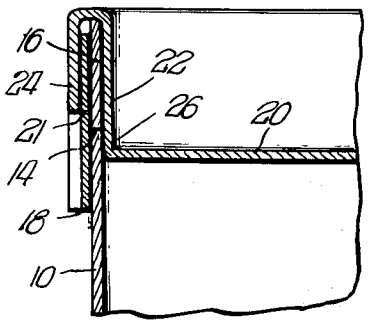


Fig. 5.

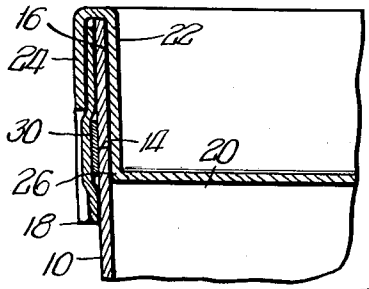


Fig. 2

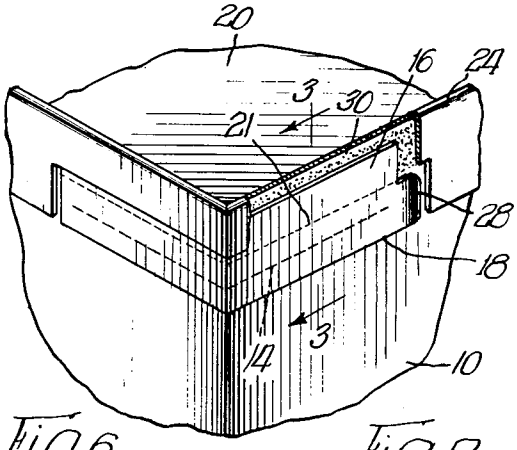


Fig. 4

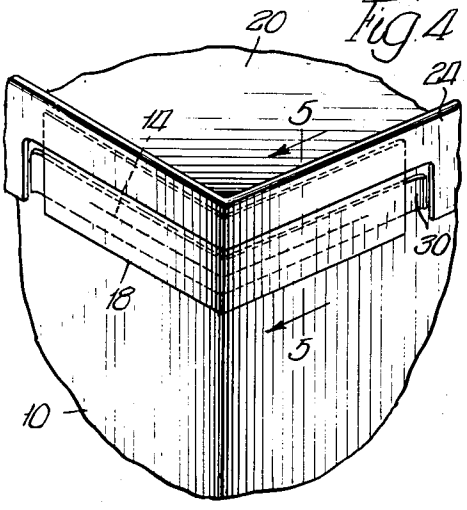


Fig. 6.

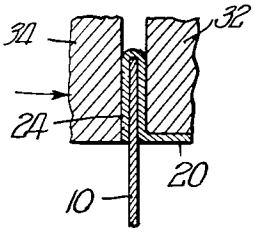
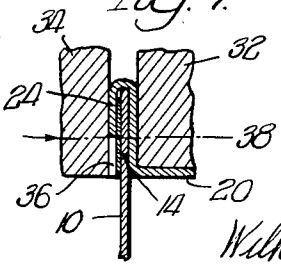


Fig. 7.



INVENTOR
Ervin B. Kodat,
BY
Wilkinson, Huxley, Byron & Hume.
Attys.

United States Patent Office 2,754,045 Patented July 10, 1956

2,754,045

PAPER CONTAINERS

Ervin B. Kodat, Chicago, Ill., assignor to United Wallpaper, Inc., Chicago, Ill., a corporation of Delaware

Application February 8, 1952, Serial No. 270,603

4 Claims. (Cl. 229—7)

This invention relates to paper cartons and the like for distributing and dispensing liquid, of which milk is an example.

It is related to the inventions disclosed in two applications of Le Roy Staunton, Serial No. 270,575 and No. 270,576, filed of even date herewith, which disclose improvements in corner pouring cartons having openings in the side wall or walls thereof which cooperate with sealing elements associated with the top of the carton, initially to seal, and to reclose the same after opening.

In the accompanying drawings—

Figure 1 is an isometric view of a carton embodying the present invention;

Figure 2 is an enlarged fragmentary view of the carton seal shown in Figure 1, with parts broken away;

Figure 3 is a sectional view taken along line 3—3 of Figure 2;

Figure 4 is a modification of the invention shown in Figure 2;

Figure 5 is a sectional view along line 5—5 of Figure 4; and

Figures 6 and 7 are fragmentary sectional views corresponding to Figures 3 and 5, which show the application of heated sealing dies to the several carton parts during a typical assembly operation of a carton made in accordance with the present invention.

In the present instance a quadrilateral carton body is folded into a tapered form, having side walls **10**, to which a bottom **12** is attached, preferably by well-known heat sealing methods. The side walls adjacent the top edges of the carton are perforated intermittently through the wall thickness of the stock from which the carton is made to form a frangible perforation line **14** parallel to the upper edges of the side walls and separated therefrom by a portion **16** of the side walls, which lies over the frangible perforations **14**.

A non-toxic pressure sensitive acetate adhesive tape **18** is disposed to cover the frangible perforations **14**, the tape itself being perforated along a line **21** slightly above the frangible perforations **14** in the carton walls.

A top member **20** having upstanding side flanges **22**, for disposition internally of the carton walls, and downwardly depending flanges **24**, for disposition externally of the carton walls, is provided to overlie the upper edges of said walls in such a way that the plane of the web of the top **20** lies below the frangible pouring perforations **14** by a margin of offset, as indicated at **26**. The bottom edges of the outer flange **24** of the top member terminate proximate to the web of the top **20** all the way around the carton, except at that portion immediately surrounding the pouring perforations **14**. As distinguished from the copending application mentioned above, the outer flange **24** is terminated slightly above the frangible perforations **14** in the carton side walls and above, or even with, the perforations **21** in the acetate tape, in the zone of the pouring perforations **14**. The acetate tape adheres to the carton walls completely to

overlie the frangible perforations **14** in surrounding relation within this cut-away zone of the top flange.

A pull-tab **28** is provided as an extension of that portion of the acetate tape which is subtended between the perforations **21** therein and its bottom edge. The tape is of sufficient depth to extend underneath the flange **24** of the carton top and the latter is completely sealed to the upper edges **16** of the carton by an adhesive **30** which fills the space internally and externally of the side walls within the confines of the flanges **22** and **24**.

The carton top is sealed to the top edges of its body by heat sealing dies, which are schematically represented in Figures 6 and 7 now to be discussed. As seen in these figures, a central mandrel die **32** acts as an anvil to support the upstanding top edges of the carton walls **10** as enclosed within the inverted U-shaped flanges **24** of the top member **20**, against which external movable die elements **34** are adapted simultaneously to close around the four sides of the carton as indicated by the arrow. It will be understood that the contiguous faces of the carton top and side walls will have thermoplastic resin already coated thereon when subjected to the action of the dies. The dies being heated apply a sufficient amount of heat and pressure to the plies of material between the outer movable dies **34** and the central anvil die **32** to cause the parts to become joined together, except at those areas where the flanges **24** have been cut away, as at **36** in Figure 7, to provide clearance for the pouring perforations **14**. At this point sealing action is intermitted below the plane of the lower edge of the shortened flange **24**, as is indicated by dotted line **38** in Figure 7, so that no sealing either within or without the side walls of the carton occurs below this line. This is due to absence of pressure occasioned by the space **36**, so that heat sealing does not occur between these parts. A seal is effected, however, between all parts above the line **38**, which in turn lie substantially above the pouring perforations **14**, and to this extent the flanges of the top member are sealed completely around the top edges of the carton walls **10**.

The opening of the carton is accomplished by tearing the acetate tape **18** from the carton by pulling the tab **28** so as to tear the tape along the perforations **21**, leaving the region of the wall perforations **14** exposed. The corner of the carton top is then lifted with sufficient force to break the frangible perforations **14** and establish a corner pouring opening therein.

If it is desired to reseal the carton, it is only necessary to force the corner of the top into closed position so as to bring the upper portion of the wall **16** into registration with the main wall section **10** and to cause the web of the top **20** to re-enter the carton to a depth corresponding to the offset **26** shown in Figure 3, which fits snugly therein and seals the same just as a cork plugs a bottle.

The modifications of Figures 4 and 5 are substantially the same as the foregoing except that a ribbon **30** of cellophane, or other suitable non-adhesive material, is disposed between the acetate tape **18** and the side walls of the carton in proximity to the perforations **14**. To open the carton the ribbon **30** is pulled to tear the tape into two parts, thereby to expose the perforated area of the carton walls to permit the latter to be ruptured in the establishment of the pouring opening.

The top of the carton may be scored in the manner shown in the copending application of Le Roy Staunton filed of even date herewith, Serial No. 270,575, which is one of the two applications referred to above, to facilitate the hinging action of the carton top at the corner pursuant to the opening of the carton.

I claim:

1. A liquid dispensing carton comprising, in combina-

tion, a quadrilateral tubular body having top and bottom closures permanently sealed thereto, said top closure having downwardly depending flanges outside of said tubular body, the bottom edges of said flanges overlapping the top edges of said tubular body by a substantial margin, a pouring perforation extending parallel to the top edge of said tubular body within said margin and having a frangible sealing tape covering the same, said top closure being sealed to said carton completely around said carton throughout said margin except at the area covered by said tape, said tape being partly covered by said closure and partly extending below the same, and means for causing said tape to tear adjacent the bottom edge of said flanges of said top closure at the lower extremity of said margin.

2. The invention of claim 1 in which the last named means comprises perforations in said tape extending along a line corresponding to said bottom edge of said flanges of the top closure, at least one extremity of said tape between said perforations and its own bottom edge terminating in a pull-tab that is made so as not to adhere to the walls of said carton.

3. The invention of claim 1 in which said means comprises a tearing ribbon positioned beneath said tape and projecting beyond the ends thereof for tearing said tape in two.

4. A liquid dispensing carton, a quadrilateral tubular body having top and bottom closures sealed thereto, said top closure comprising downwardly depending flanges within and without said tubular body, with bottom edges outside of said tubular body and a web between said flanges, said flanges overlapping the top edges of said tubular body by a substantial margin, said bottom edges being cut-away at an area adjacent a corner of the carton body to define the pouring clearance, a pouring perforation spanning one corner of said body and extending parallel to the top edges of said tubular body in the walls of said body within said cut-away area, said web of the top closure lying in a plane below said perforation, said top closure flanges being sealed to said carton throughout said margin except at the cut-away area within said tubular body, and removable sealing means overlying said pouring perforation.

References Cited in the file of this patent

UNITED STATES PATENTS

1,262,992	Stephano	Apr. 16, 1918
1,719,923	Cochran	July 9, 1929
1,967,930	Fox	July 24, 1934
1,987,545	Alexander	Jan. 8, 1935
2,110,612	Skinner et al.	Mar. 8, 1938
2,152,400	Da Rold	Mar. 28, 1939
2,217,619	Gazette	Oct. 8, 1940
2,226,049	Carley	Dec. 24, 1940
2,302,083	Wilcox	Nov. 17, 1942
2,373,092	Avery	Apr. 10, 1945
2,470,984	Horning et al.	May 24, 1949
2,471,017	Wilcox	May 24, 1949
2,507,659	Zalkind	May 16, 1950
2,568,458	Nichols	Sept. 18, 1951
2,622,053	Clowe et al.	Dec. 16, 1952
2,658,663	Reese	Nov. 10, 1953