Jan. 1, 1963 J. A. ZINN 3,071,305

CARTON HAVING A COLLAPSIBLE POURING SPOUT

Filed April 20, 1960 2 Sheets-Sheet 1

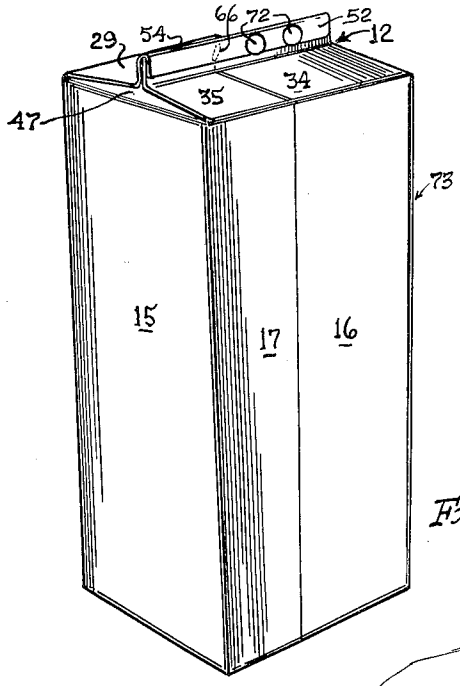


Fig. 1.

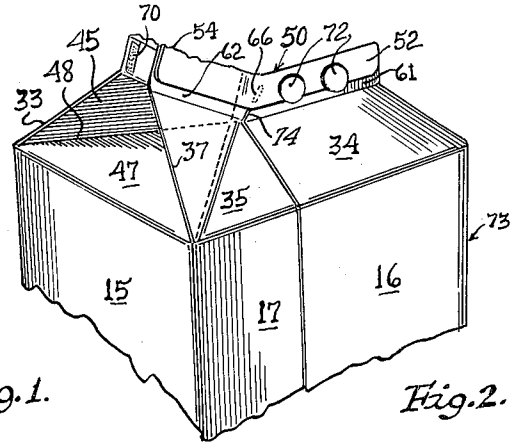


Fig. 2.

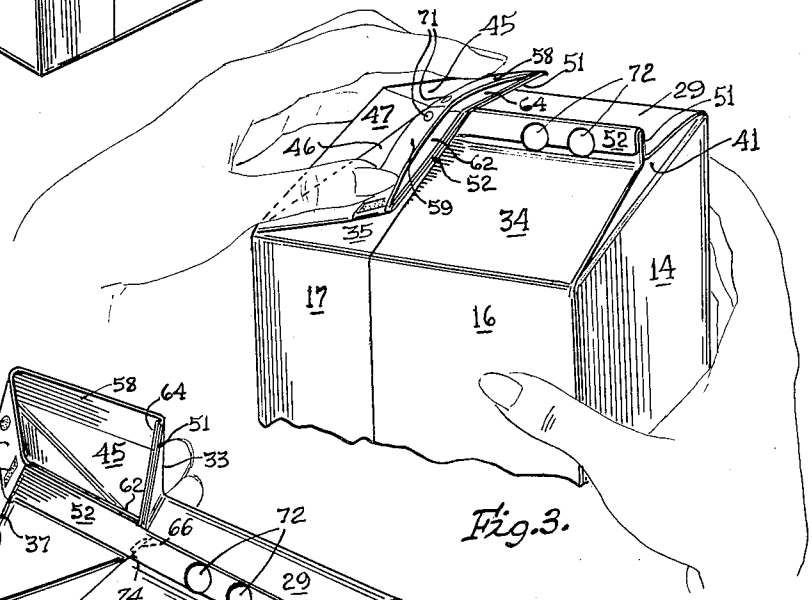


Fig. 3.

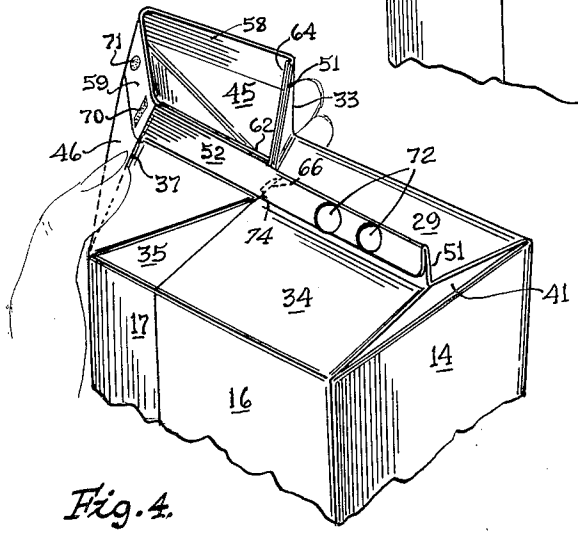


Fig. 4.

INVENTOR.
JULIUS A. ZINN
BY Wheeler & Wheeler
HIS ATTORNEYS.

Jan. 1, 1963 J. A. ZINN 3,071,305

CARTON HAVING A COLLAPSIBLE POURING SPOUT

Filed April 20, 1960 2 Sheets-Sheet 2

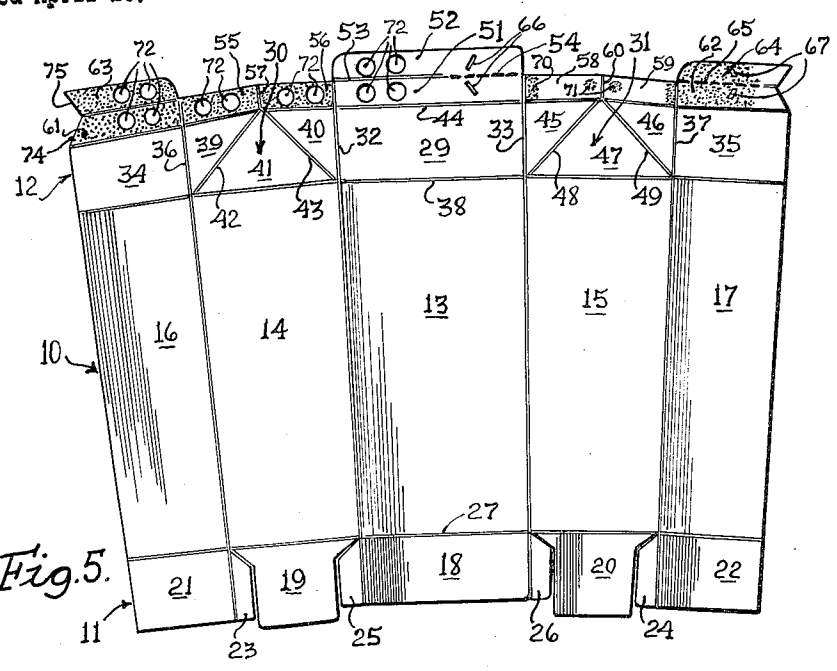


Fig. 5.

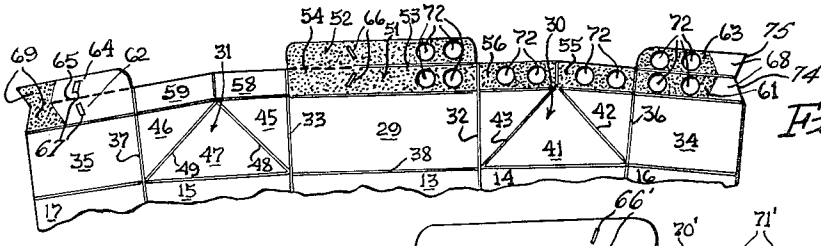


Fig. 6.

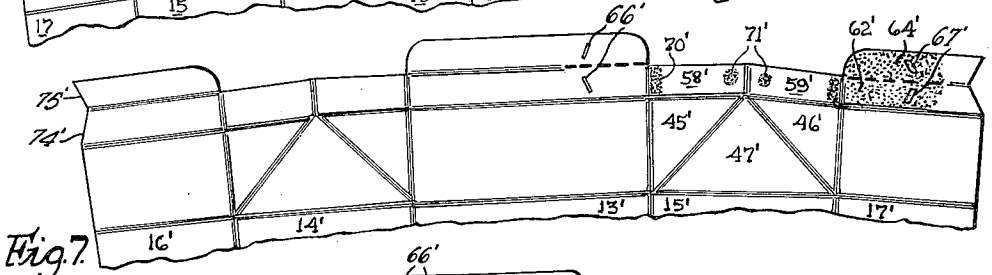


Fig. 7.

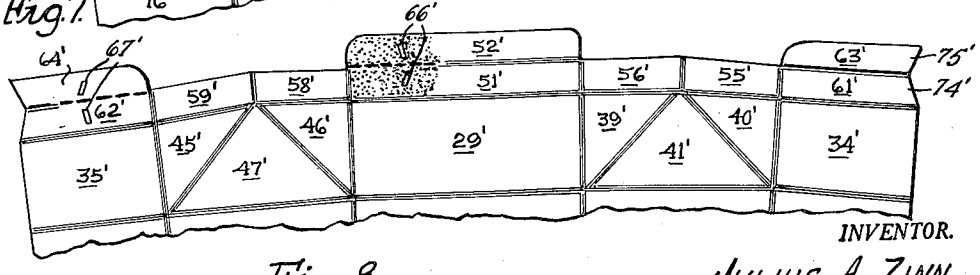


Fig. 8.

INVENTOR.

BY JULIUS A. ZINN

Ihreedy & Ihreedy

HIS ATTORNEYS.

United States Patent Office

3,071,305
Patented Jan. 1, 1963

3,071,305

CARTON HAVING A COLLAPSIBLE POURING SPOUT

Julius A. Zinn, 3900 North Ave., Stone Park, Ill.

Filed Apr. 20, 1960, Ser. No. 23,446
1 Claim. (Cl. 229—17)

My invention relates to a useful improvement in a carton having a collapsible pouring spout and more particularly to a carton adapted for use as a dispensing container for liquid and/or granulated materials, the construction of which is such that it provides an unobstructed collapsible pouring spout. The carton of this invention is so constructed that it may be readily and economically produced by automatic machinery.

An object of my invention is to provide a carton employing bellows-type top closures which are readily converted into a side pouring spout.

A further object of my invention is to provide in a carton of this character a top closure for strategically located heat sealable glue so that the same may be formed from a blank without the necessity of a staple or other fastening means.

A further object of my invention is to provide in a carton of this character a finger grip means whereby the sealed carton may be easily lifted or carried.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

FIG. 1 is a side elevational perspective view of the carton as formed from the teachings of my invention;

FIG. 2 is a fragmentary perspective view showing the related position of various portions of the top closure in one of the sequential positions in the opening of the top;

FIG. 3 is a fragmentary perspective view showing the related position of various portions of the top closure in one of the sequential positions in the opening of the top;

FIG. 4 is a fragmentary perspective view showing the related position of various portions of the top closure in one of the sequential positions in the opening of the top;

FIG. 5 is a plan view of the blank from which the carton is formed;

FIG. 6 is a fragmentary plan view showing in detail the heat sealable glue pattern on the side opposite the top structure as shown in FIG. 5;

FIG. 7 is a plan view of the blank from which my improved carton may be made and showing on one side of the top structure a modified heat sealable glue pattern used in conjunction with a staple or the like for sealing the top closure; and

FIG. 8 is a fragmentary plan view of the opposite side of the top structure of the blank of FIG. 7.

Referring to FIGS. 5 and 6 of the drawings my invention is shown as embodied in a container of the type described and claimed in my Patent No. 2,555,526. The carton of this application is adapted to be formed from a single integral blank comprising a body portion 10. The body portion 10 of the blank includes a bottom closure portion 11 and a top closure portion 12. The body portion 10 of the blank includes a side wall panel 13 having disposed along opposite longitudinal edges thereof corresponding end wall panels 14 and 15. Extending laterally along the other opposite longitudinal edges of the end wall panels 14 and 15 are side panel members 16 and 17 which overlap when the blank is folded to form a two-piece side panel opposite panel 13.

The bottom closure portion 11 includes a bottom flap

member 18 and bottom end flaps 19 and 20. The bottom closure is completed by the presence of bottom side flaps 21 and 22 which include as an integral part thereof bottom wing portions 23 and 24. These bottom wing portions 23 and 24 are adapted to cooperate with wing portions 25 and 26 formed as an integral part of the bottom flap member 18 as shown. The bottom closure portion 11 is foldably separated from the body portion 10 along the score line 27.

The top closure portion 12 consists of a one-piece top closure panel 29. Top end closure flaps 30 and 31 are separated from the top closure panel 29 by score lines 32 and 33 respectively. Top side closure members or flaps 34 and 35 are separated from the top end closure flaps 30 and 31 by score lines 36 and 37 respectively. When the blank is folded, side closure members 34 and 35 overlap to form a two-piece top closure panel opposite the closure member or panel 29. The top closure portion 12 is foldably separated from the body portion 10 by a score line 38.

The top end closure flaps 30 and 31 are each divided into oppositely related corresponding triangular sections. The top end closure flap 30 is divided into triangular portions 39, 40 and 41 by score lines 42 and 43. The score line 42 commences at the intersection of score line 36 and score line 38 and extends outwardly with respect thereto until it intersects score line 43 which commences at the juncture of score line 32 and score line 38 and extends outwardly with respect thereto to its point of intersection with respect to score line 42 which point of intersection lies upon score line 44.

The top end closure flap 31 is correspondingly divided into triangular sections 45, 46 and 47 by score lines 48 and 49 which are formed in the same manner as score lines 42 and 43 and which likewise intersect at a common point on score line 44.

The score line 44 foldably divides the top closure portion 12 from a plurality of flaps which cooperate together to form the top center gable rib 50, as seen in FIG. 2.

The gable rib forming flaps consist of two types of flaps one of which will be hereinafter called the rib forming flap and the other of which will be hereinafter called the wick flap.

Referring to FIG. 5 it will be noted that the top closure panel 29 is provided with rib panels 51 and 52. The rib panel 51 is particularly divided from the rib panel 52 along a score line 53. This score line terminates into a perforation line 54. The top end closure flap 30 is provided with rib flaps 55 and 56 separated by a score line 57 which is an extension of the converging score lines 42 and 43. The top end closure 31 is likewise provided with rib flaps 58 and 59 divided by a score line 60. The top side closure flaps 34 and 35 are each provided with a rib flap 61 and 62. These rib flaps 61 and 62 carry a lateral extension which comprises the wick flaps 63 and 64. It should be noted that the wick flap 64 is separated from the rib flap 62 by a perforation line 65.

In viewing the rib flaps 61 and 62 and the wick flaps 63 and 64 it should be noted that the corresponding oppositely related free edges thereof are angularly formed or inwardly notched for a purpose hereinafter further described.

It should also be noted that the rib flaps 51 and 52 are each provided with an angularly disposed score spot 66 and the rib flap 62 as well as the wick flap 64 are likewise provided with angularly disposed score spots 67. However, it should be noted that the angular disposition of the score spots 66 correspond to the cut or notched ends of the rib flap 62 and wick flap 64 while the score spot 67 is angularly disposed to correspond to the cut ends of the rib flap 61 and wick flap 63.

My proposed carton which is held together in its dis-

tended position without employment of a staple or the like requires that certain of the heretofore described rib and wick flaps have one or both faces thereof provided with a heat sealable glue pattern. In this respect it is noted that the rib flaps 55 and 56 have both of their faces entirely covered with a heat sealable glue. The rib flap 61 and wick flap 63 have one face thereof entirely covered with glue while their opposite faces are merely partially covered with glue and each has a trapezoidal-shaped clear area 68. The rib panel 62 and wick flaps 64 are provided on one face thereof with a glue pattern which extends up to the score line 67. The opposite faces of the rib panel 62 and the wick flap 64 are provided with a trapezoidal-shaped pattern 69. The rib panel 58 has an end portion thereof adjacent the score line 33 provided with a glue strip pattern 70 while its opposite edge adjacent the score line 60 is provided with a dot of glue 71. The rib panel 59 has a likewise pattern of glue. The opposite faces of these rib panels 58 and 59 are devoid of any glue pattern. The rib flaps 51 and 52 as seen in FIG. 5 have their faces devoid of a glue pattern but have their opposite faces glued as seen in FIG. 6.

The rib panels 51, 52, 55, 56 and 61 as well as the wick flap 63 have formed therein within the confines of each circular holes 72.

The bottom closure portion 11 is glued in any approved pattern such as is set forth in my heretofore mentioned patent and when the blank is transformed into the carton 73 the individual bottom members and flaps will be positioned one to the other to form a rectangularly shaped container having a suitably sealed bottom. In such condition the side panel 16 will overlie a portion of the side panel member 17 as viewed in FIG. 1.

With the side panel member 16 overlying the side panel member 17 it should be noted that the opposite unglued trapezoidal-shaped portions 68 of the rib flap 61 and wick flap 63 lie in facial abutment with the similarly shaped unglued portion of the opposite face of the rib panel 62 and wick panel 65. The top end closure flaps 30 and 31 are caused to collapse inwardly to a position where the triangular portions 39 and 40 of the top end closure flap 30 as well as the triangular portions 45 and 46 of the top end closure flap 31 lie flatly on top of the triangular center portions 41 and 47 respectively and also are disposed beneath and in facial abutment with adjacent undersurface portions of the top closure panel 29 and the adjacent undersurface portions of the top side closure flaps 34 and 35. In this position it should be noted that the wick flaps 63 and 64 lie in a common plane. The same will then be inserted in such a manner that the wick 63 is positioned between the rib flaps 51 and 56 and the wick flap 64 is positioned between the rib flap 51 and the rib flap 58. In this position the rib flap 52 is then folded so that its glued pattern surface will overlie the glued face of the rib panel 61 and the exposed glued surface of rib panel 62. The glued face of the rib panel 55 will be in facial abutment with the glued surface of the rib panel 56. The glued pattern 70 and the glued dot 71 of the rib panel 58 will be in facial abutment with the corresponding glued pattern and dot of rib panel 59. At this juncture heat is applied and all surfaces which are then glue to glue will be sealed together. It will be noted that the inner surface of the rib panels 58 and 59 which are then in facial abutment with the unglued portion of the rib panel 62 and the unglued face portion of the wick flap 64 are the only surfaces which are not heat sealed together. The top closure portion 12 is in the condition as shown in FIG. 1, and in such assembled condition the holes 72 formed in the different heretofore described flaps are in registration to form finger grips in the top center gable rib 50.

As shown in FIGS. 2, 3 and 4 my improved carton is provided with a side pouring spout. The pouring spout is made out of the triangular sections 45, 46 and 47 formed in the top end closure flap 31.

After the carton has been assembled from the blank and is in the condition shown in FIG. 1 the pouring spout is in its collapsed or protected condition. To extract the pouring spout from its protected position to its operative position the following steps are followed. By suitable thumb pressure the portion of the top gable rib 50 that is defined by the perforation line 54 is disintegrated from an integral condition into the condition as shown in FIG. 2. By sufficient finger pressure on the triangular sections 45 and 46 of the top end closure flap 31 the top closure panel 29 as well as the top side closure flap 35 are caused to be bent out of their normal planes. The top closure panel 29 is caused to be bent along a line commencing at the junction between score lines 33 and 38 and which terminates at a point beneath the score spot 66 formed in the rib panel 51. The top side closure flap 35 is caused to be bent along a line that commences at the junction of the score lines 37 and 38 and which terminates in the score spot 67 formed in the rib panel 62.

At this point it should be noted that the score line 67 of the rib panels 62, 64 as well as the score line 66 of the rib flaps 51, 52 lie in a common plane which plane is defined by the beveled end edge formed by the folded angular edges 74 and 75 of the rib flaps 61, 62. This construction results in a laminated reinforced fulcrum about which the top closure panel 29 and the top side closure flap 35 as well as the separated portions of the center rib 50 are bent. The top closure panel 29 and the top side closure flap 35 are so bent until they lie in a common longitudinal plane transversely extending with respect to the normal plane of the remaining portions of such panel and flap. When such panel and flap are bent beyond their common longitudinal plane the triangular sections 45 and 46 of the top end closure flap 31 are subject to a normal stress tension, which is inherently due to the natural tendency of the material, until such triangular sections snap outwardly so as to extend in an opposite position than they normally occupy. The finger pressure is then applied along the score lines 33 and 37 until the spout is in its full extended position as shown in FIG. 4. The positive snap action of the triangular sections which comprise the pouring spout is a direct result of the positive positioning of and the resisting strength of the fulcrum which is formed by the specific arrangement and configuration of parts of the top closure section 12 as heretofore described. Cooperating with this positive fulcrum are the separate sections of the center rib 50 which resulted from the disintegration of a portion thereof during the displacement of the pouring spout from its collapsed position. These disintegrated sections of the center rib 50 are of a laminated bend resisting construction. The lamination resulted from the sealing together of the rib flap 62 to a portion of the center rib flap 52 and the sealing of the wick flap 64 to a portion of the rib flap 51. The perforated line 65 between the flaps 64 and 63 has been placed in juxtaposition with respect to the perforated line 54 between the rib panels 51 and 52. As the top closure panel 29 and the top side closure flap 35 are being bent as heretofore described the separate sections of the center gable rib 50 will maintain their longitudinal formation and cause the stress tension to be imparted to the triangular sections 45, 46 and 47 of the end closure flap 31 to move with a snap action into spout forming position.

Referring to FIGS. 7 and 8 I show a modified form of carton blank 76 which includes identical structural parts as the blanks shown in FIGS. 5 and 6 and hereinbefore described. For the sake of brevity such identical parts will carry corresponding primed numbers.

The modified form of carton blank as shown in FIGS. 7 and 8 differs only from that shown in FIGS. 5 and 6 by reason of a changed glue pattern. The carton formed from the blank as shown in FIGS. 7 and 8 require the presence of a staple or the like through the top gable rib for maintaining the blank in its distended condition.

With respect to the glue pattern it should be noted that the rib panel 62' and wick flap 64' like their counterpart in FIG. 5 are partially covered with a sealable substance. As viewed in FIG. 8 the reverse side of the carton has a portion of the rib flaps 51' and 52' covered with a portion of a sealable substance in a pattern corresponding to that found on rib panel 62' and wick flap 64'.

When the carton is assembled from the modified form of blank as shown in FIGS. 7 and 8 the glue pattern thereof will result in the sealing together of the rib flap 62' to a portion of the center rib flap 52 and the sealing of the wick flap 64' to a portion of the rib flap 51'. Such arrangement results in the formation of the laminated bend resisting construction of a portion of the center rib as heretofore described. The remaining portion of the center rib of the carton of the modified form is secured together by the employment of a staple or the like. The pouring spout of the modified form is held in its collapsed or protected position through the employment of the glue strips 70' and glue dots 71' on the rib flaps 58' and 59'.

With respect to the constructed carton of the preferred form as shown in FIGS. 1 through 6 it is required that the rib flaps 58 and 59 associated with the triangular sections 45, 46 and 47 which comprise the pouring spout be sealed or tacked together by the employment of the glue strip 70 and glue dots 71 so that when the carton is lifted through the employment of the finger grips 72 a break or crack is not developed in the pouring spout parts of the carton. Without the employment of the glue strip 70 and glue dot 71 when the carton 73 is lifted the weight of the contents therein would cause a distortion in that part of the carton comprising the pouring spout and would result in a leakage in the carton. The same is true with respect to the carton formed from FIGS. 7 and 8.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

A gable top container comprising in combination, a rectangularly shaped body portion having multi-ply bottom closure, a one piece top closure member, and two side top closure members, said side top closure members being overlapped to provide a two piece top closure member opposite said one piece top closure member, said top closure members forming a gable top for said body, a pair of oppositely disposed bellows-type foldable end panels integral with and separating said top closure members, each of said end panels having inner face portions thereof normally disposed in facial abutment with adjacent under surface portions of said top closure members, top rib forming flaps integral with said top closure members and said end panels upwardly thereof and arranged to provide a laminated top rib longitudinally dividing said gable top into equal side portions, said side top closure members having the rib flaps thereof provided with overlapping beveled end edges located centrally of said top rib, said rib forming flaps of said one piece top closure member and one of said side top closure members being formed with diagonal fold lines which are aligned with each other and with said beveled end edge of the rib forming flap of the other of said side top closure members, said overlapping and aligned fold lines and beveled end edge providing a laminated fulcrum about which portions of said top closure members and top rib which are longitudinally outwardly thereof are foldable and over which an adjacent bellows-type end panel is longitudinally stressed for movement with a snap action of said abutting inner and under surface portions of such end panel and adjacent side top closure members out of facial abutment and into a side spout forming position with respect to said gable top.

References Cited in the file of this patent

UNITED STATES PATENTS

2,362,862	Sidebotham	Nov. 14, 1944
2,390,909	Zinn	Dec. 11, 1945
2,501,852	Ringler	Mar. 28, 1950
2,680,556	Currie	June 8, 1954
2,750,095	Alden	June 12, 1956
2,993,630	Cox et al.	July 25, 1961