

Feb. 27, 1962

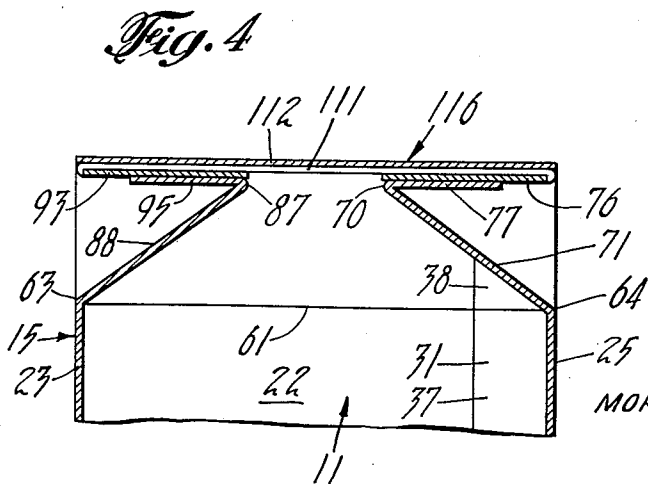
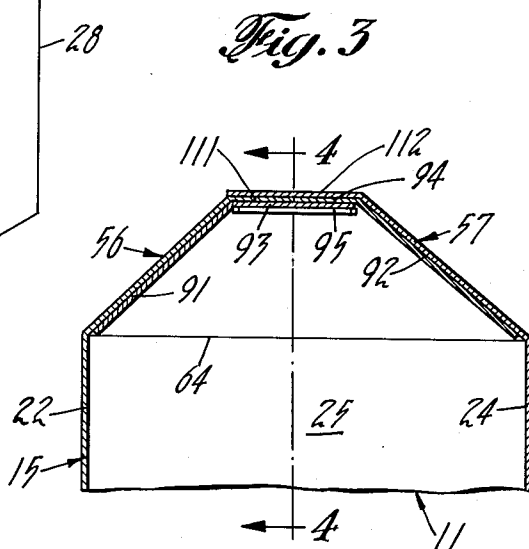
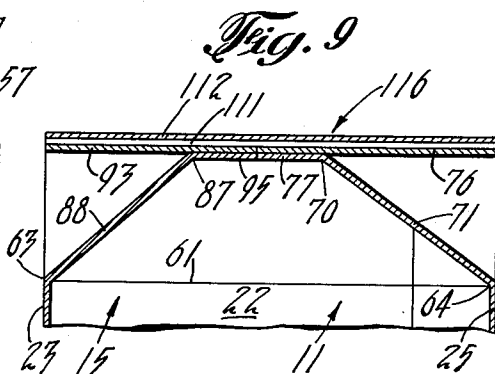
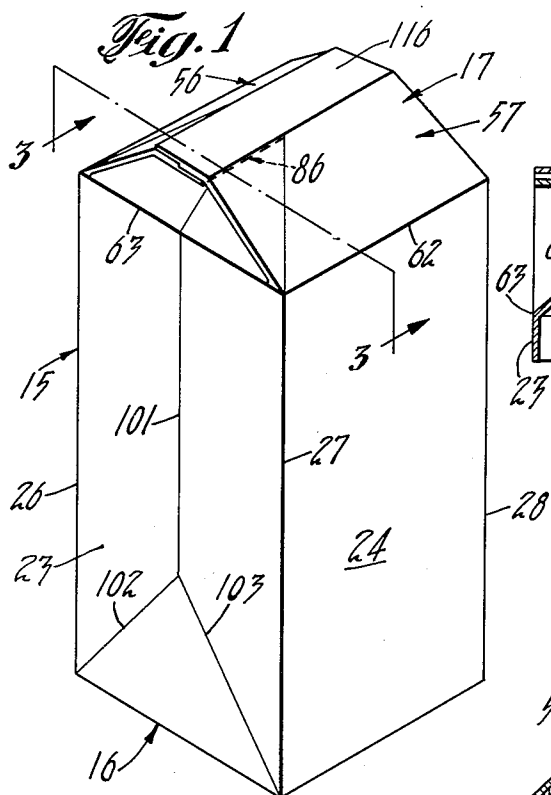
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3,022,930

CONTAINER

Filed Nov. 16, 1959

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

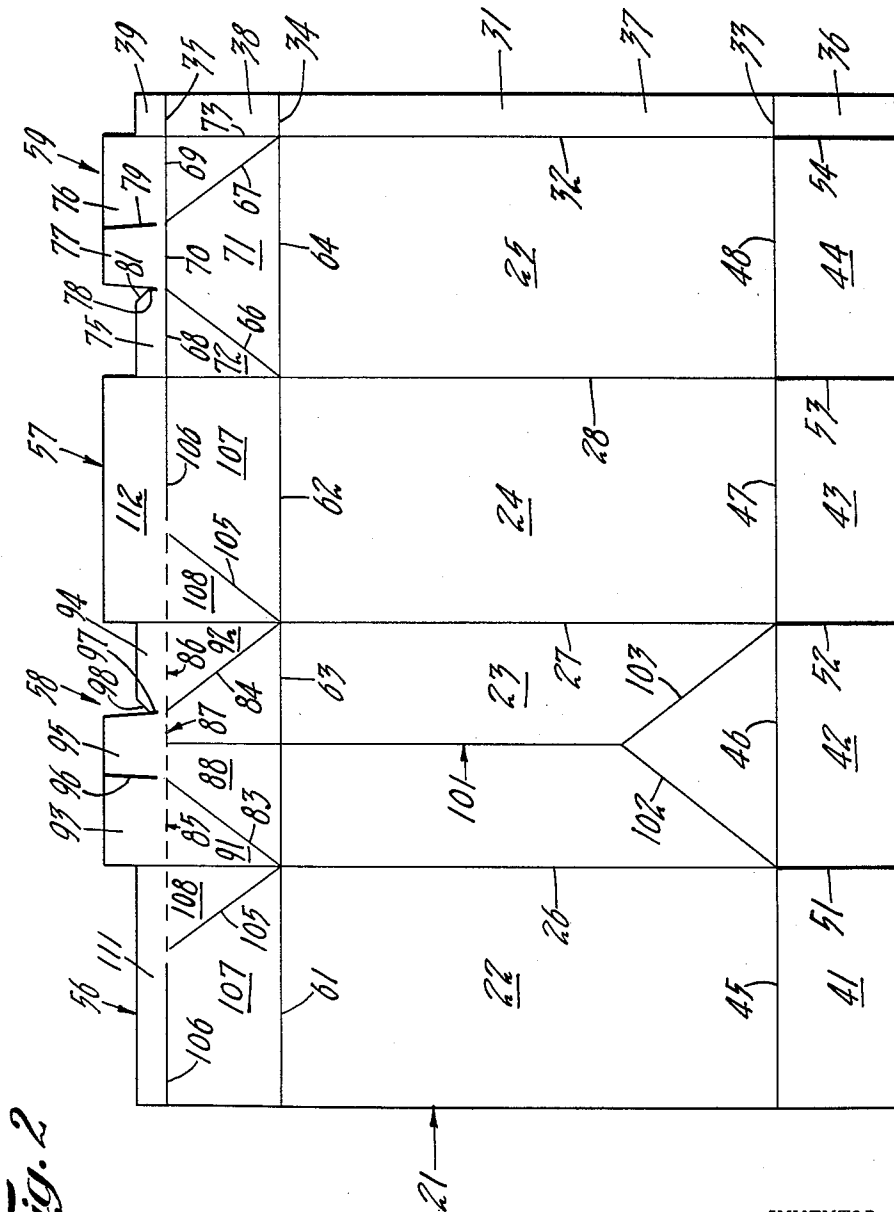


Fig. 2

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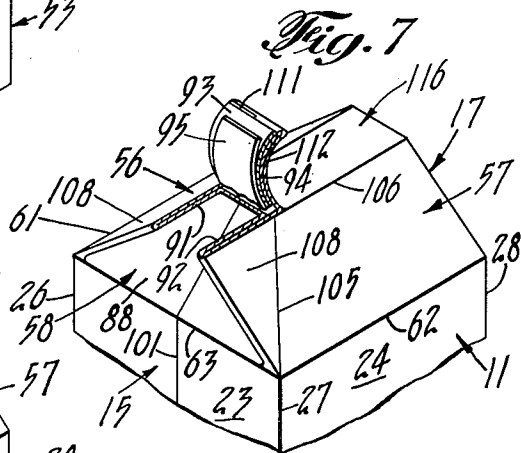
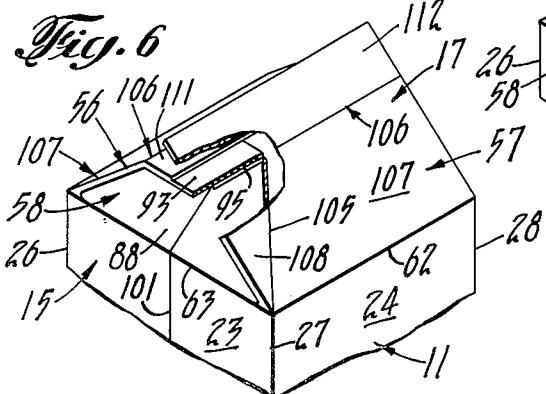
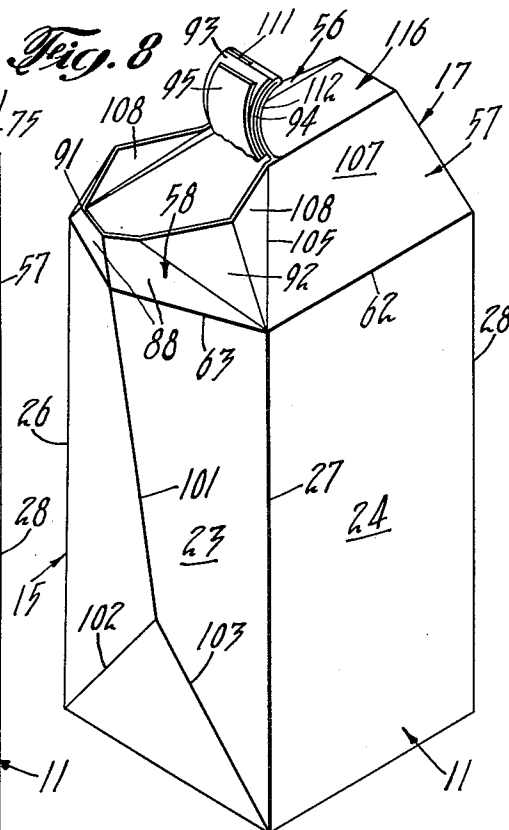
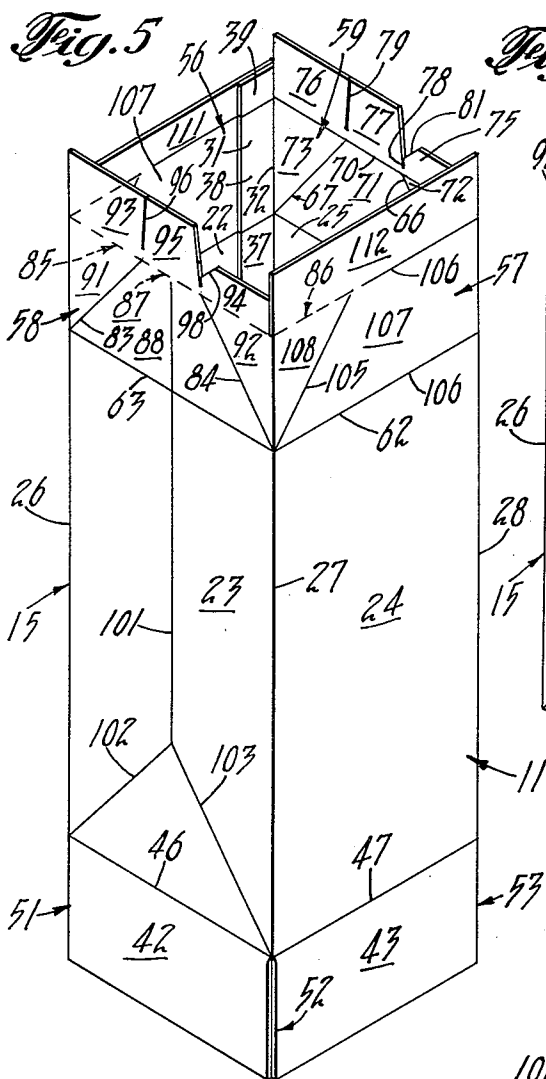
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3 Sheets-Sheet 3



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3,022,930

CONTAINER

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Filed Nov. 16, 1959, Ser. No. 853,365
18 Claims. (Cl. 229-17)

The present invention relates to a self-sustaining carton or container and a unitary blank therefor, for the packaging and dispensing therefrom of flowable products such as liquids, granulated substances and the like and has particular reference to a top end closure which includes a conveniently available dispensing means.

The carton is readily formed from paperboard which can be treated to provide liquid leak-proofness, and may be made from a unitary blank of such material, thus permitting the economy of manufacture required in the competitive market developed through widespread use of this type of container for milk.

An object of the invention is to provide a top end closure for such a carton or container, which is leak-proof and yet may be readily opened by a mere tearing away of a portion of the closure to release the dispensing means for use.

Another object is to provide such a closure which permits of stacking the containers one on top of the other to save space during shipment and storage.

Another object is to provide in such a closure a flat, multi-layer closure seam which may be readily torn endwise to release the dispensing means.

Another object is to provide a unitary blank of material of a particular configuration which will readily produce a finished container having a top end closure of the above mentioned characteristics.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

FIG. 1 is a perspective view of a sealed container embodying the instant invention;

FIG. 2 is a plan view of a unitary blank from which the container in FIG. 1 is made, the view showing the outer face of the blank, the blank being shown at a reduced scale;

FIG. 3 is an enlarged sectional view of the container as taken substantially along a plane indicated by the lines 3-3 in FIG. 1, with parts broken away;

FIG. 4 is a sectional view taken substantially along the line 4-4 in FIG. 3;

FIG. 5 is a perspective view of a partially formed container;

FIG. 6 is a view similar to FIG. 5, the view showing the top end closure in partially formed condition;

FIG. 7 is a view similar to FIG. 1, showing how the container is opened;

FIG. 8 is a view similar to FIG. 7 showing the dispensing device in position for dispensing the container contents, and

FIG. 9 is a view similar to FIG. 3, and showing a modified form of the invention.

As a preferred and exemplary embodiment of the instant invention, the drawings illustrate a substantially rectangular container comprising a body 15, a bottom 16 and a top end closure 17 (FIG. 1) made from a single paper board blank 21 (FIG. 2) of generally rectangular configuration. The container shown preferably is provided with a peak or gable shaped top end closure al-

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though the invention is equally well adapted to a flat top end closure if desired.

The blank 21 (FIG. 2) is suitably cut and scored or creased to divide it into a number of walls, panels and tab portions. Four main side walls 22, 23, 24, 25 are respectively separated from each other and hingedly connected together along crease lines 26, 27, 28. A glue flap 31 is hingedly connected along one side edge of wall 25 by a crease line 32. The flap 31 is divided by crease lines 33, 34, 35 into glue flap portions 36, 37, 38, 39.

The bottom 16 for the container may be formed in any suitable manner. By way of example, the drawing of the blank shows four bottom closure flaps 41, 42, 43, 44 respectively connected to the container side walls 22, 23, 24, 25 along crease lines 45, 46, 47, 48. The bottom closure flaps are separated by cut lines 51, 52, 53, 54.

The top end closure 17 for the container comprises a pair of outer closure panels 56, 57 and a pair of inner closure panels 58, 59. These panels are hingedly connected to the respective side walls 22, 24, 23, 25 along hinge crease lines 61, 62, 63, 64 respectively. The inner closure panel 59 is divided by crease lines 66, 67, 68, 69, 70 into a trapezoidal shaped section 71 hinged to the side wall 25 along crease line 64, a pair of triangular wing portions 72, 73 diagonally hinged to the trapezoidal section 71 and hinged to the outer closure panel 57 and the glue flap 38 respectively, and short and long tab portions 75, 76 and a central tab portion 77 respectively hinged to the wing portions 72, 73 and the trapezoidal section 71 along the respective crease lines 68, 69, 70. The tab portions are separated by cut lines 78, 79 which terminate short of the crease lines 68, 69 to provide for a peeling of the material at these points to act as a stuffing against leakage. The short tab 75 adjacent the central tab 77 is provided with a bevel corner 81 and along its opposite edge is hinged to the outer closure panel 57. The long tab 76 is hingedly connected to the glue flap portion 39.

In a similar manner the inner closure panel 58 is divided by a pair of diagonal crease lines 83, 84 and a plurality of coextensive weakened or tear lines, preferably perforated lines 85, 86, 87 which extend fully across the inner closure panel 58 and continue into the two adjacent outer closure panels 56, 57 as shown in FIG. 2. The line 87 preferably is a slit and the entire tear lines preferably are sealed against leakage by a moisture proof paper liner. These crease lines and tear lines divide the inner closure panel 58 into a trapezoidal section 88 hinged to the side wall 23 along crease line 63, a pair of triangular wing portions 91, 92 diagonally hinged to the trapezoidal section 88 and hinged to the adjacent outer closure panels 56, 57 respectively, and long and short tab portions 93, 94 and a central tab portion 95 respectively hinged to the wing portions 91, 92 and the trapezoidal section 88 along the respective coextensive tear lines 85, 86, 87. The tab portions are separated by cut lines 96, 97 which terminates short of the tear lines 85, 86 to provide for a peeling of the material at these points to act as a stuffing against leakage. The short tab 94 adjacent the central tab 95 is provided with a beveled corner 98 and along its opposite edge is hinged to the outer closure panel 57. The long tab 93 is hingedly connected to the outer closure panel 56.

The side wall 23 and the trapezoidal section 88 hingedly connected thereto are provided with crease lines 101, 102, 103 to permit flexing of this side wall and trapezoidal section as will be hereinafter explained.

The outer closure panels 56, 57 are divided by diagonal crease lines 105 and substantially horizontal crease lines 106 into rhombo-rectangular, herein called rhomboidal sections 107 hinged to the respective side walls 22, 24 along the crease lines 61, 62, triangular wing portions

108 diagonally hinged to the rhomboidal sections 107 and to the triangular wing sections 91, 92 of the adjacent inner closure panel 58, and tab portions 111, 112 of the respective outer closure panels 56, 57 hingedly connected to the rhomboidal sections 107 and triangular wing portions 108 along the crease lines 106 and the tear lines 85, 86. The crease lines 106 are coextensive with the tear lines 85, 86 while the diagonal crease lines 105 terminate just short of the tear lines 85, 86.

The tab portion 111 of the outer closure panel 56 is a short tab which extends the full width of the panel 56 and is hingedly connected at one end to the long tab 93 of the adjacent inner closure panel 58. The length of this short tab 111 is substantially equal to the length of the short tabs 75, 94 on the inner closure panels 59, 58 respectively.

The tab portion 112 of the outer closure panel 57 is a long tab which extends the full width of the panel 57 and is hingedly connected at its ends to the short tabs 75, 94 of the inner closure panels 59, 58 respectively. The length of this long tab 112 is substantially equal to the long tabs 76, 93 of the inner closure panels 59, 58 respectively.

In order to produce the container shown in FIG. 1, the blank 21 is first folded along the side wall crease lines 26, 27, 28, 32 to form the rectangular body 11 as best shown in FIG. 5, the four side walls 22, 23, 24, 25 being tied together by the glue flap 31 which is bonded by a suitable adhesive to the inner face of the side wall 22 along its free edge. The four bottom flaps 41, 42, 43, 44 and the glue flap portion 36 are then folded in the usual manner into overlapping position perpendicular to the side walls, along their respective crease lines 45, 46, 47, 48, 33 and are adhesively secured together to form the bottom 16 of the container. This is a conventional bottom construction.

In this open top end condition, with the body 11 and the bottom 16 fully formed, the resulting container is ready for filling if a non-liquid product is to be packed therein. For liquid products the open end container is usually provided with a sheet liner or is immersed in or otherwise coated with molten wax or other liquid proofing substance to render the container leakproof.

The filled container is closed and sealed by positioning the outer closure panels 56, 57 over the inner closure panels 58, 59 and overlapping the various tabs in oppositely directed relation and adhesively bonding them together with a suitable adhesive to produce a flat multilayer, butt and lap end seam 116 (FIGS. 1, 3 and 4) which surmounts the outer closure panels 56, 57 and which permanently secures all of the top end closure panels together in a leakproof closure.

The forming of the top end closure 17 is started by hinging the central tabs 77, 95 outwardly into a horizontal relation as shown in FIGS. 4 and 6 or inwardly if desired as shown in FIG. 9 and then pressing inwardly against the trapezoidal sections 71, 88 of the respective inner closure panels 59, 58 as shown in FIG. 6. This pressing action hinges the trapezoidal sections 71, 88 along their respective crease lines 64, 63 and simultaneously hinges the adjacent triangular portions 72, 73, 91, 92 along their diagonal crease lines 66, 67, 83, 84. As a result of this pressing action, the triangular portions 72, 73, 91, 92 are drawn inwardly and they in turn draw the outer closure panels 56, 57 downwardly over the inner closure panels until the triangular portions are face-to-face with and engaged against the inner faces of the outer closure panels as shown in FIGS. 3 and 6. In this position the outer closure panels are disposed in a peaked or gable shaped relation. If desired these outer closure panels may be made to lay flat to produce a flat top container, by a mere proper proportioning of the angles of the crease lines and the dimensions of the closure parts.

This same pressing action against the inner closure

panels 58, 59 also swings the long tabs 76, 93 of the inner closure panels into position under and against the short tab 111 of the outer closure panel 56 and similarly swings the short tabs 75, 94 of the inner closure panels into position under and against the long tab 112 of the outer closure panel 57 as best shown in FIG. 6.

With the outer closure panels 56, 57 in the above mentioned angularly disposed relation, the short tab 111 is hinged downwardly, along its crease line 106, as shown in FIG. 6. This positions the long tabs 76, 93 in a horizontal relation and in contact with the central tabs 77, 95 respectively as shown in FIG. 6. The tabs 77, 76, 111 and the tabs 95, 93, 111 are permanently secured together by a suitable adhesive.

In a similar manner the long tab 112 is hinged downwardly along its crease line 106 into a position overlapping the short tab 111. This action positions the short tabs 75, 94 of the respective inner closure panels 59, 58 into overlapping engagement with the long tabs 76, 93 of the inner closure panels and in abutting relation to the short tab 111 of the outer closure panel 56 as shown in FIG. 3. This also positions the long tab 112 of the outer closure panel 57 on top of the short tab 111 as shown in FIG. 3. The short tabs 75, 94 are permanently bonded to the long tabs 76, 93 and the long tab 112 by a suitable adhesive, and the long tab 112 is also permanently bonded to the short tab 111. It is this overlapping, abutting and bonding together of the various tabs that produces the permanent lap and butt end seam 116 which closes and seals the filled container.

The conveniently available dispensing means hereinbefore mentioned is incorporated in the inner closure panel 58 and comprises the trapezoidal section 88, its two adjacent triangular wing portions 91, 92, the two adjacent triangular wing portions 108 in the outer closure panels 56, 57 and the coextensive tear lines 85, 86, 87 which are disposed at the base of the tabs 93, 94, 95, 111, 112 connected with these panel sections. In the sealed container the tear lines 85, 86 extend along and are parallel with opposite sides of the end seam 116 while the tear line 87 extends across the central tab 95.

In order to open the container and make the dispensing device available for use, it is merely necessary to apply an upward pull to the end seam 116 at its end adjacent the inner panel 58. This action tears the end seam 116 endwise, i.e. longitudinally along the tear lines 85, 86 at the longitudinal edges of the seam and thus tears off the tabs 93, 94, 111, 112 from the triangular wing portions 91, 92 of the inner closure panel 58 and the adjacent triangular wing portions 108 of the outer panels 56, 57. As the tearing action progresses it tears the central tab 95 from the trapezoidal section 88 and thus releases the trapezoidal section 88 and its triangular wing portions 91, 92, 108 from the seam 116 as shown in FIG. 7. In this condition, the trapezoidal section and the wing portions are free of all tab portions. By spreading the wing portions 108 apart and squeezing the upper adjacent corners of the body side walls 22, 24, the trapezoidal section may be readily forced out as shown in FIG. 8 to provide a conveniently shaped and proportioned pouring spout to dispense the contents of the container. The crease lines 101, 102, 103 in the trapezoidal section 88 and the side wall 23 of the container provide for the extension of this pouring spout into the side wall and thereby elongate the spout for more advantageous pouring, thus eliminating a dam effect along the crease line 63.

After a dispensing operation the spout may be pushed back into its original position as shown in FIG. 7 and the partially torn off end seam 116 pressed down over the opening to temporarily reclose the container.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit

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and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A top end closure for a self-sustaining tubular container having a body portion defined by four substantially rectangular side walls, said top end closure comprising a pair of outer closure panels extending from a pair of oppositely disposed side walls, a pair of inner closure panels extending from the remaining pair of oppositely disposed side walls, said inner closure panels being integral with said outer closure panels and being folded under said outer closure panels, tab portions extending from said outer and said inner closure panels, said tab portions being disposed in oppositely directed overlapping relation and secured together to produce a flat, multi-layer lap seam disposed generally normal to all four side walls and entirely between outer closure panels, and tear means in a path extending between termination points remote from both ends of the seam and extending across at least one of said inner closure panels and into both of said outer closure panels along the longitudinal edges of said seam for at least a portion of its length and extending through a location at least adjacent one end of said seam to provide for endwise tearing away and thereby separation of said one of said inner closure panels and of at least one end portion of said seam to release at least said one of said inner closure panels from said seam for displacement to a position outwardly from under said outer closure panels to produce a combined dispensing opening and pouring spout for said container.

2. A top end closure of the character defined in claim 1 wherein said tab portions on said outer closure panels are integral with said corresponding tab portions on said inner closure panels and wherein each of said inner closure panels are provided with a free tab portion.

3. The structure as defined in claim 1 additionally including the limitation of said tear means consisting of incised means in said body portion to render it more easily tearable and including liner means on at least one surface of said container covering and thereby sealing said incised means.

4. A top end closure of the character defined in claim 1 wherein said tear line is disposed at the base of said tab portions on said closure panels to provide for the tearing away of said tab portions.

5. A top end closure of the character defined in claim 4 wherein said tear line extends in a continuous line at the base of said tab portions of one of said inner closure panels and extends at least partially along the base of said tab portions on the two adjacent outer closure panels.

6. A top end closure for self-sustaining tubular container having a body portion defined by four substantially rectangular side walls, said top end closure comprising a pair of outer closure panels extending from a pair of oppositely disposed side walls, a pair of inner closure panels extending from the remaining pair of oppositely disposed side walls, said inner closure panels being integral with said outer closure panels and being folded under said outer closure panels, tab portions extending from said outer and said inner closure panels, said tab portions being disposed in oppositely directed overlapping relation and secured together to produce a flat multi-layer closure panel permanently uniting lap seam surmounting said outer closure panels, and tear lines in at least one of said inner closure panels and extending into said outer closure panels along the longitudinal edges of said seam for at least a portion of its length to provide for endwise tearing away of at least a portion of said seam to release at least one of said closure panels for displacement to produce a combined dispensing opening and pouring spout for said container, said two inner closure panels being provided with a long tab portion and a short tab portion, one of said outer closure panels being provided with a long tab portion and the other of said outer closure panels

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being provided with a short tab portion, said tab portions in said seam being arranged with the long tab portion on said one outer closure panel and the long tab portion on said two inner closure panels in overlapping relation and said short tab portion on said other outer closure panel and said short tab portions on said two inner closure panels being disposed in abutting relation and interposed between the overlapped long tab portions of said outer and inner closure panels to produce an interlocked butt and lap seam.

7. A top end closure of the character defined in claim 6 wherein the short tab portions on said two inner closure panels are disposed adjacent and are connected to the long tab portion on said one outer closure panel and wherein said long tab portion on said two inner closure panels are disposed adjacent and are connected to the short tab portion on said other outer closure panel.

8. A top end closure of the character defined in claim 6 wherein there is provided on each of said inner closure panels a free tab portion disposed intermediate said short and long tab portions thereon, and wherein said free tab portions extend under and are secured to said butt and lap seam and form a part thereof and are severable with said seam when said seam is torn away.

9. A unitary fibre blank for a tubular self-sustaining container having an integral top end closure, said blank having a body portion transversely creased to define four substantially rectangular side walls and a lap side seam portion adjacent one of said side walls, said blank adjacent its top end closure edge having a crease line extending longitudinally of said blank for its full length including said lap side seam portion, said crease line defining in alternating order pairs of oppositely disposable outer and inner closure panels forming integral extensions of said side walls, said inner closure panels having diagonally disposed crease lines converging from the intersection of said wall transverse creases and said longitudinal crease line to facilitate bending of said inner closure panels into place when said blank is used to produce a tubular container, said blank including tab portions extending from said closure panels to provide for uniting said closure panels in a flat butt and lay seam to seal the closure for the container made from the blank, said inner closure panels each having a long tab portion and one of said outer closure panels having a long tab portion for overlapping relation in said seam, said inner closure panels each also having a short tab portion and said other outer closure panel having a short tab portion disposable in said seam in abutting relation and interposed between said overlapping long tab portions.

10. A unitary fibre blank of the character defined in claim 9 wherein there is provided a tear line at the base of the tab portions on at least one of said closure panels, said tear line extending at least partially along the base of the tab portions on said closure panels adjacent to said one closure panel.

11. A unitary fibre blank of the character defined in claim 9 wherein the short tab portions of said inner closure panels are connected to the long tab portion of said one outer closure panel and wherein the long tab portions of said inner closure panels are connected to the short tab portion of said other outer closure panel and to said lap side seam portion of said blank.

12. A unitary fibre blank of the character defined in claim 9 wherein there is provided on each of said inner closure panels a free tab portion disposed between said long and said short tab portions on said inner closure panels for incorporation in said flat butt and lap seam in engagement with the inner lap of said seam.

13. A unitary fibre blank of the character defined in claim 9 wherein said diagonally disposed crease lines in said at least one of said inner closure panels set off in said panel a trapezoidal section and triangular wing portions attached thereto, and wherein said trapezoidal section and said wing portions are provided with tab por-

tions for incorporation in said end seam, and a tear line at the base of said tabs for ready severance of said tabs from said trapezoidal section and said wing portions.

14. A unitary fibre blank of the character defined in claim 9 wherein one of said inner closure panels and its integrally extended side wall are provided with coextensive crease lines to facilitate shaping of said panel and said wall into an elongated pouring spout.

15. A container dispensing spout adapted to be moved between closed and dispensing positions and comprising a pair of separated and spaced opposing spout panels and an interconnecting spout panel extending therebetween, said interconnecting panel including a planar spout center portion and a pair of spaced spout first portions movable relative to each other and to the center portion with one on each of the opposite ends of and maintained in spaced relationship separated from each other by said center portion, each of said pair of opposing spout panels including a spout second portion next adjacent to and hinged with the nearest of said spout first portions for relative movement therebetween, a plurality of individual tab portions including a planar tab portion, each of said tab portions being disposed in planes intersecting the planes of all of said spout panels and disposed entirely between said opposing spout panels, tear line means connecting the individual tab portions to their respective said spout portions and including an elongated generally straight tear line portion of said tear line means longitudinally spanning said spout center portion and fracturably connecting said planar tab portion to said spout center portion, means sealingly and reinforceingly interconnecting said tab portions and causing said tab portions to restrain all of said portions against relative movement and to jointly hold the next adjacent first and second portions at each end of said center portion in overlapping folded relationship and separated and spaced from the first and second portions at the opposite end of said center portion while said

tear line means is intact, and additional means interconnecting said tab portions and said spout panels and operative when said tear line means has been torn and said tab portions are thereby severed from the spout portions to hold the next adjacent first and second spout portions at each end of said center portion separated and spaced from the next adjacent first and second spout portions at the opposite end of said center portion and operative to allow the spout portions to move relative to each other as they are moved between said overlapping folded relationship in which the spout is in said closed position and an extended non-overlapping unfolded relationship in which the spout is in said dispensing position.

16. The structure as defined in claim 15 additionally including the limitation of said plurality of tab portions including an individual tab portion for each one of the spout portions and said tear line means connecting each individual tab portion to its respective spout portion.

17. The structure as defined in claim 15 additionally including score lines in said panels defining at least a part of the periphery of each of said spout portions.

18. The structure as defined in claim 15 additionally including the limitation of said first and second portions being movable to a locking position while they are extended in the non-overlapping unfolded relationship to lock the spout in the dispensing position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,157,462	Van Wormer	Oct. 19, 1915
2,321,139	Gruger	June 8, 1943
2,702,152	Britton	Feb. 15, 1955
2,730,288	Dixon	Jan. 10, 1956
2,730,289	Dixon	Jan. 10, 1956
2,750,095	Alden	June 12, 1956
2,819,832	Stoller et al.	Jan. 14, 1958