June 26, 1962 M. W. KUCHENBECKER 3,040,951

CONTAINER

Filed Sept. 23, 1960 5 Sheets-Sheet 1

Fig. 1

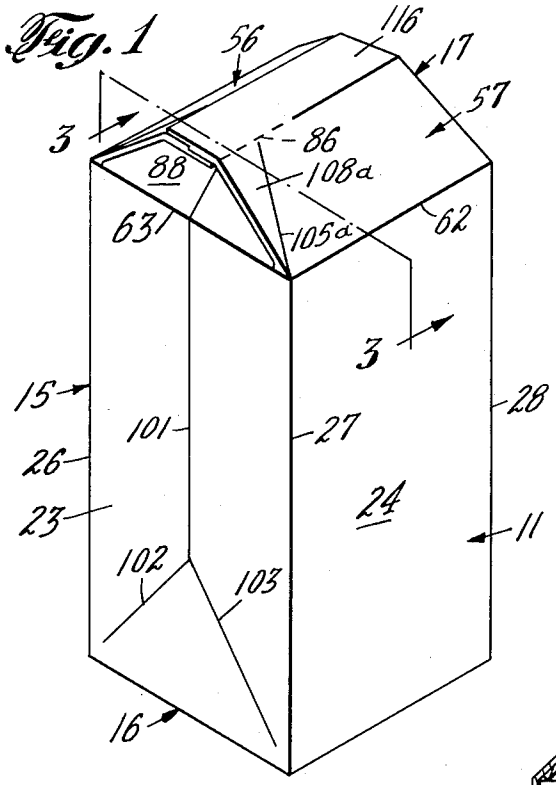


Fig. 3

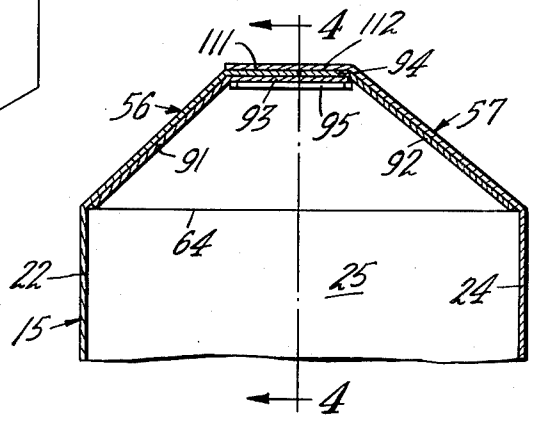
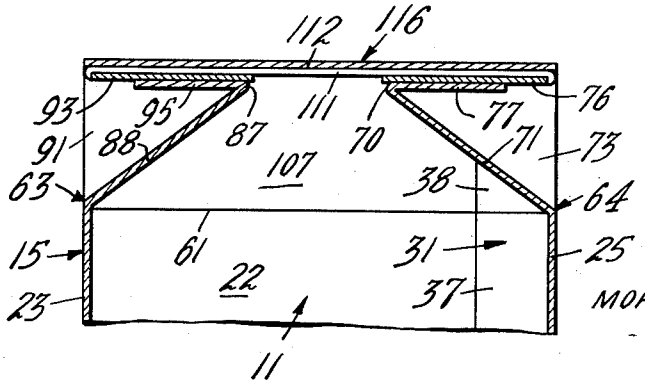


Fig. 4



INVENTOR.
MORRIS W. KUCHENBECKER
BY
Clyde H. Haynes
George W. Reiber
ATTORNEYS

June 26, 1962 M. W. KUCHENBECKER 3,040,951

CONTAINER

Filed Sept. 23, 1960 5 Sheets-Sheet 2

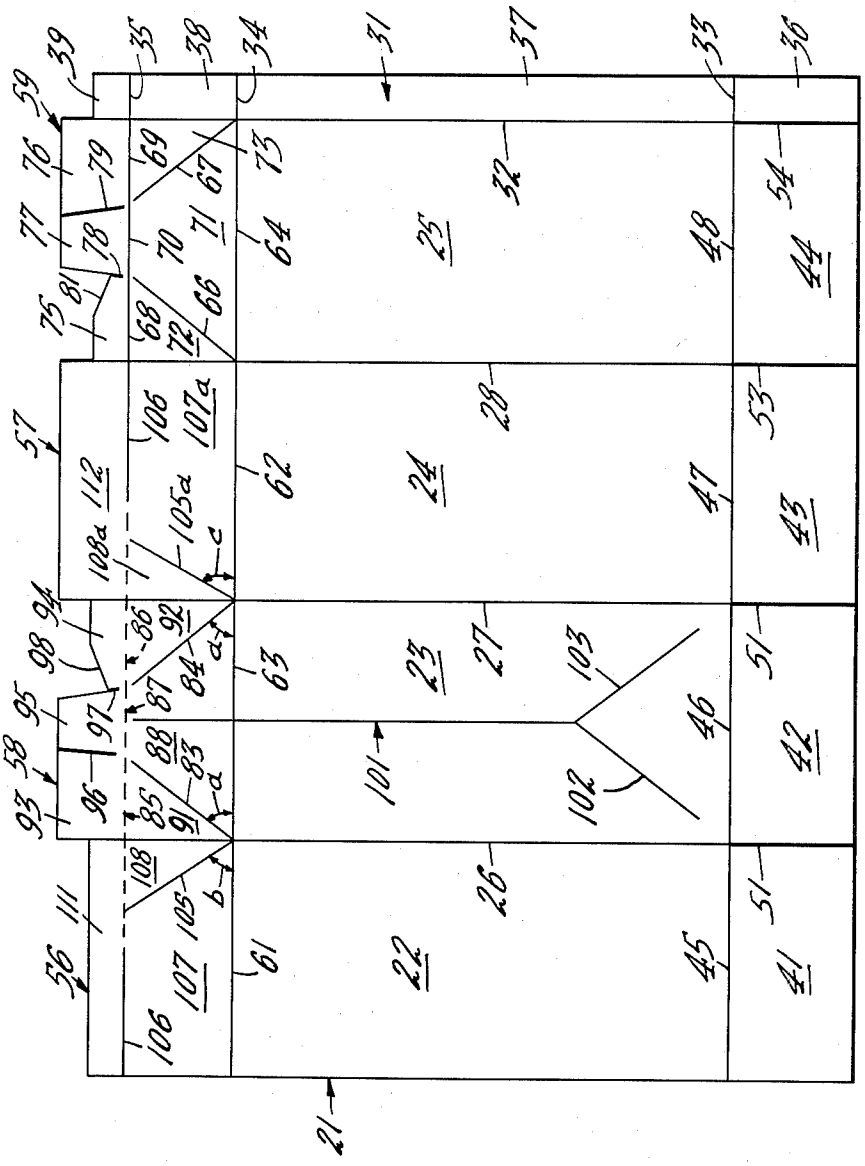


Fig. 2

INVENTOR.
MORRIS W. KUCHENBECKER
BY Clyde H. Haynes
George W. Reiber
ATTORNEYS

June 26, 1962 M. W. KUCHENBECKER 3,040,951

CONTAINER

Filed Sept. 23, 1960 5 Sheets-Sheet 3

Fig. 5

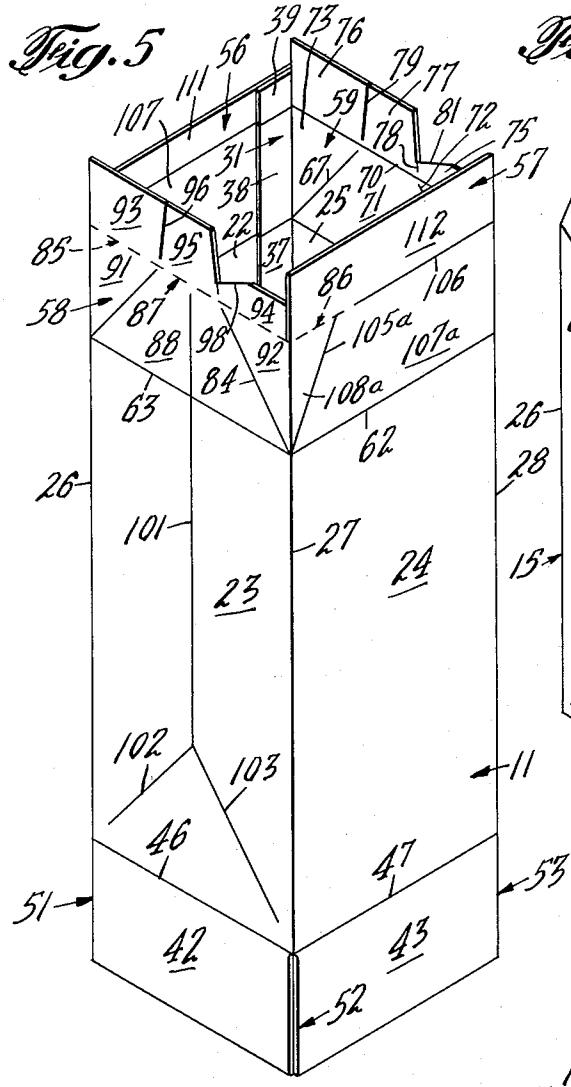


Fig. 8

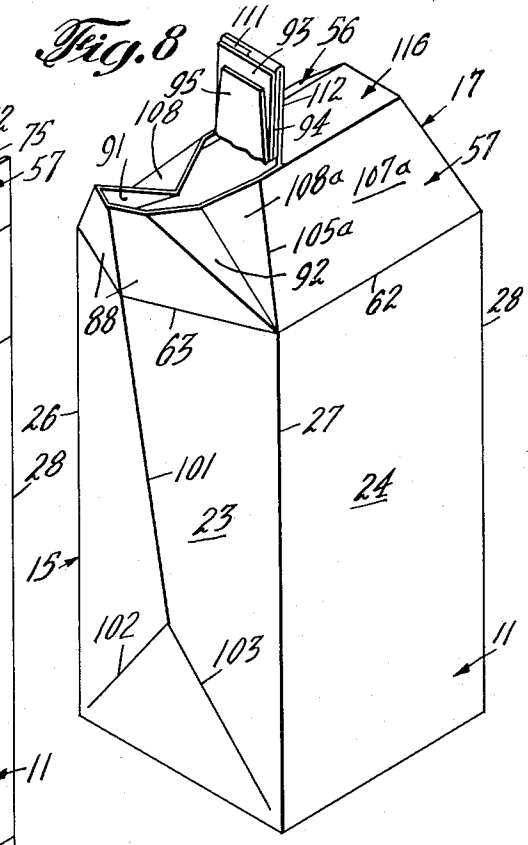


Fig. 6

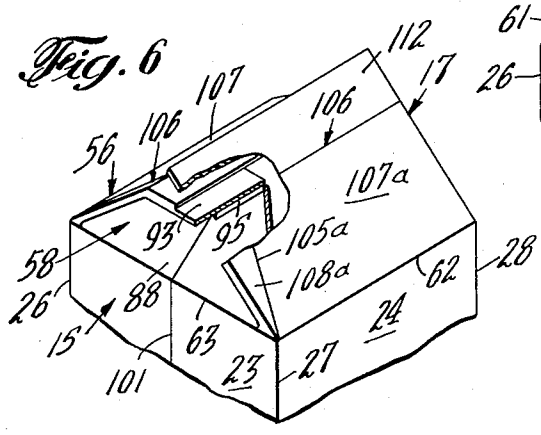
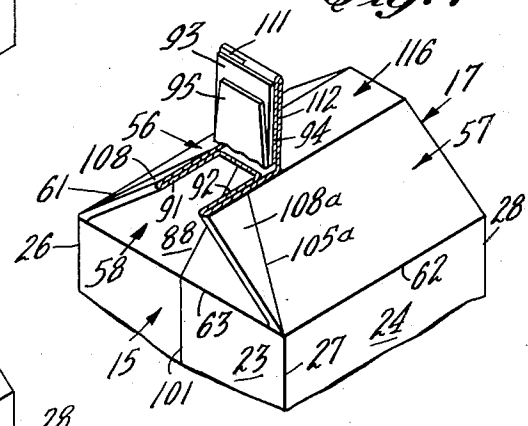


Fig. 7



INVENTOR.
MORRIS W. KUCHENBECKER
BY Clyde H. Haynes
George W. Reiber
ATTORNEYS

June 26, 1962 M. W. KUCHENBECKER 3,040,951

CONTAINER

Filed Sept. 23, 1960 5 Sheets-Sheet 4

Fig. 9

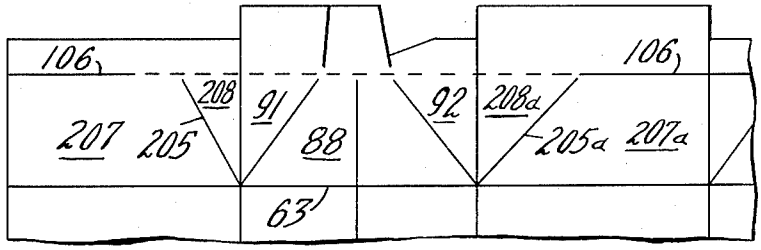


Fig. 10

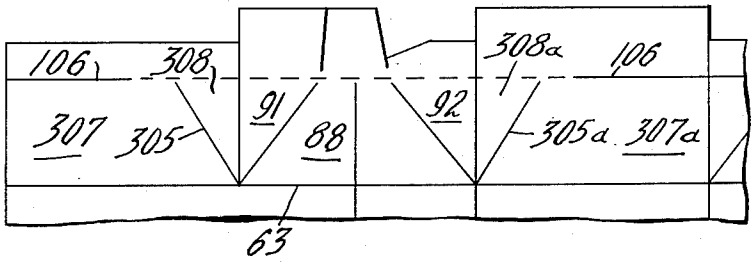


Fig. 11

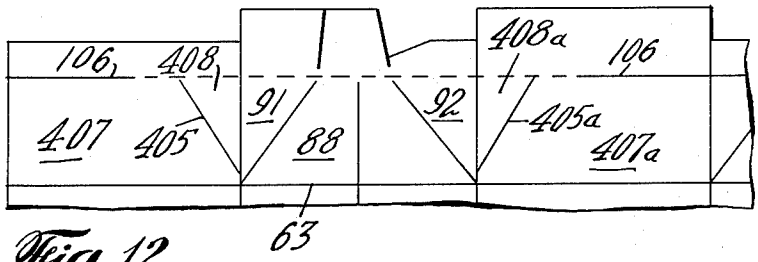
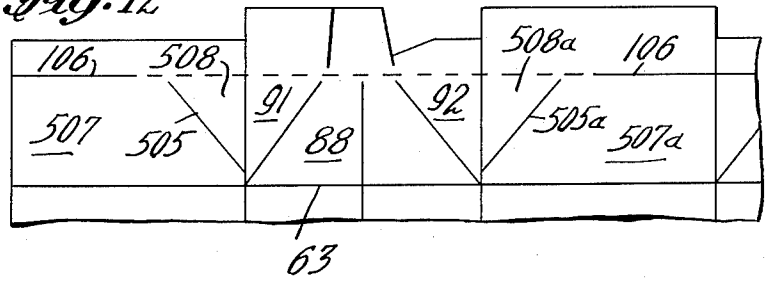


Fig. 12



INVENTOR.
MORRIS W. KUCHENBECKER
BY Clyde H. Haynes
George W. Reiber
ATTORNEYS

June 26, 1962 M. W. KUCHENBECKER 3,040,951

CONTAINER

Filed Sept. 23, 1960 5 Sheets-Sheet 5

Fig. 13

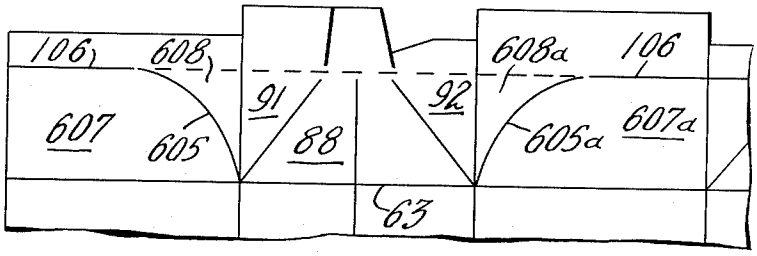


Fig. 14

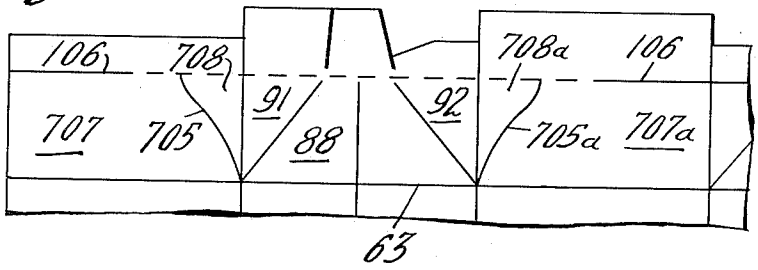


Fig. 15

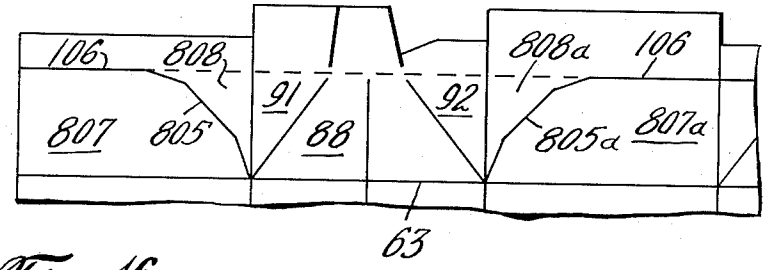
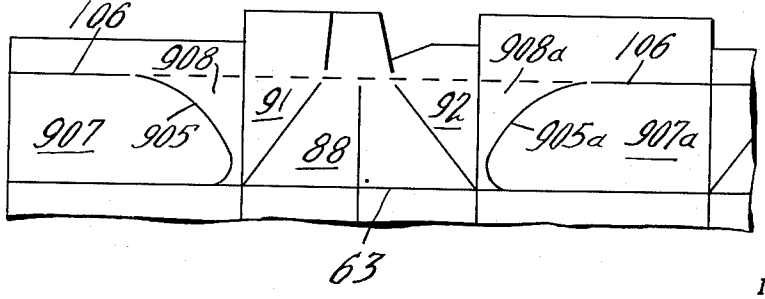


Fig. 16



INVENTOR.
MORRIS W. KUCHENBECKER
BY Clyde H. Haynes
George W. Reiber
ATTORNEYS

United States Patent Office 3,040,951 Patented June 26, 1962

3,040,951

CONTAINER

Morris W. Kuchenbecker, Neenah, Wis., assignor to American Can Company, New York, N.Y., a corporation of New Jersey

Filed Sept. 23, 1960, Ser. No. 57,926
19 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 or spout.

The present invention is particularly useful in connection with cartons having the characteristics of those described in co-pending application Serial No. 853,365 entitled "Container."

The carton is readily formed from paperboard which can be treated to provide liquid leakproofness, 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.

Prior container spouts constructed with side portions of different surface areas were movable through a non-sized and non-regulated open position disposed between two closed positions. Movement of the spout portions between one of the closed and the open position caused mutilation-like forces to be impressed on the corresponding portions on the opposite sides of the spout. Additionally, the side portions were inoperative to provide any locking action which would lock the spout in a sized and regulated open position and also prevent unwanted moving of the spout to any closed position.

Prior container spouts having only one closed position and one regulated open position were constructed with side portions capable of locking the spout in open position but failed to have the advantage of the side portions being of different areas for assisting in the movement of the spout from the one closed to the one open position.

One of the main objects of the present invention is to overcome the aforementioned deficiencies and to eliminate the problems encountered in the prior containers and spouts.

Another object of the present invention is to provide a container with a spout which is movable from an open to a closed position by manipulating spout side portions of different areas.

A further object is to provide a dispensing means or spout for a container with spout portions unlike or different areas operative to lock the dispensing means in an open position.

A further object of the invention is to provide a dispensing spout with dissimiliar sets of side portions which when moved simultaneously at the same speed and pressure move one of the opposite ends of an interconnecting center portion forward ahead of the other of the opposite ends.

A further object of the invention is to provide a spout which may be moved from a closed to a regulated open position which has a mouth of a regulated size

free of irregularities resulting from unwanted and unregulated deforming or crushing spout side portions at locations other than at prescored lines.

Another object of the invention is to provide a top end closure for a carton which may be readily opened into a spout in which corresponding spout portions on opposite sides of the spout are defined at least in part by unlike score lines.

A further object of the invention is to provide a blank with prescored lines operative to assist the folding of the blank into a container and assist the spout portions in carrying out the advantages and features described herein.

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:

FIGURE 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;

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

FIG. 4 is a sectional view taken substantially along the line 4—4 of 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 the container partially opened;

FIG. 8 is a view similar to FIG. 7 showing the spout in open position for dispensing the container contents, and each of

FIGURES 9 thru 16 is a partial plan view of a blank which may be formed into a container similar to that of FIG. 1 but with a spout of modified design.

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 although 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**, **23**, **24**, **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 pealing 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 pealing 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 or hinge lines **105** and **105***a* respectively and substantially horizontal crease lines **106** into rhombo-rectangular, herein called rhomboidal sections **107** and **107***a* respectively hinged to the respective side walls **22**, **24** along the crease lines **61**, **62**, triangular wing portions **108** and **108***a* respectively diagonally hinged to the rhomboidal sections **107** and **107***a* 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 **107***a* and triangular wing portions **108** and **108***a* along the crease lines **106** and the tear lines **85**, **86**. The crease lines **106** are coextensive with the tear lines **85** and **86** while the creased portions of hinge lines **105** and **105***a* terminate just short of the tear lines **85**, **86**. Lines **83** and **84** are at an angle *a* to line **63**. Line **105** is at an angle *b* to line **61**. Line **105***a* is at an angle *c* to line **62**. Angle *a* is at least as large as angle *b* and at least as large as angle *c*. Also angle *b* is at least as large as angle *c*. In the preferred embodiment illustrated, it is noted that angle *b* is at least as large as and also larger than angle *c* and angle *a* is at least as large as and also larger than angle *b* whereby hinge lines **105** and **105***a* are free from extending in a common plane while the container is assembled. Thus, the diagonal hinge lines **105** and **105***a*, which meet at the junction of lines **61**, **83**, **63**, **26**, and **63**, **84**, **62**, **27** respectively, are disposed at different angles to the line **106** thereby defining tear line portions of different lengths for the spout portions **108** and **108***a* with the tear line portion on spout portion **108** being the longer. Likewise the spout portions **108** and **108***a* have different surface areas at least one of which, and if desired both of which, is different from the surface area of one of the spout or wing portions **91** and **92**. In this embodiment, the surface area of portion **108***a* is less than that of **108** and also less than that of **91** or **92** and surface area of spout portion **108** is less than the surface area of spout portion **91** or **92**.

The tab portion **111** extends the full width of the panel **56** and is hingedly connected at one end to the tab portion **93**. The length of this short tab **111** is substantially equal to the length of the short tab portions **75** and **94**.

The tab portion **112** extends the full width of the panel **57** and is hingedly connected at its ends to the tab portions **75** and **94**. The length of this long tab portion **112** is substantially equal to the long tab portions **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** into a horizontal relation as shown in FIGS. 4 and 6 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 spout thus comprises an interconnecting spout panel extending between a pair of separated and spaced opposing spout panels. The interconnecting panel includes the spout center portion or trapezoidal section 88 and a pair of spaced spout portions or triangular wing portions 91, 92, which are movable relative to each other and to the center portion. One wing portion is on each of the opposite ends of the center portion. The wing portions are maintained in spaced relationship separated from each other by the center portion and each wing portion has a predetermined and preset surface area. Each of the pair of opposing spout panels includes its respective of the spout portions 108 and 108*a* which are next adjacent to and hinged with the nearest of the wing portions 91, 92, for relative movement therebetween. As previously stated at least one of the spout portions 108 and 108*a* have a surface area less than the preset surface area of the spout or triangular wing portions 91, 92.

The individual tab portions are connected to their respective spout portions by the tear line means including an elongated portion 87 of the tear line fracturably connecting the tab portion 95 to the spout center portion 88 along at least a major part of the distance between the pair of separated spout or wing portions 91, 92.

The previously mentioned bonding together of the tab portions sealingly and reinforcingly interconnects them and causes them to restrain or hold the spout portions against relative movement as well as to jointly hold the next adjacent wing portions 90—108 and 92—108*a* at each end of the center portion 88 in overlapping folded relationship and separated and spaced from the wing portions at the opposite end of the center portion as illustrated in FIG. 1. At this time each tab portion lies in a plane at angle to the plane of the spout portion to which it is attached by the tear line. This holding of the wing portions to prevent relative movement is maintained so long as the tear line means is intact and so long as the tab portions are connected to the wing portions and center portion by the tear line thereby maintaining the container in sealed condition and maintaining the spout in closed position.

When it is desired to open the container and move the readily available spout to its open position the tear line including tear line portions 85, 86, and 87 is torn to separate and thereby sever the tab portions 111, 93, 94, 95, and 112 from the respective spout wing portions 108, 91, 92, and 108*a* and spout center portion 88. After the tear line has been torn, the remainder of the container including the side walls, panel portions 107, 107*a*, and the flat seam 116 hold the next adjacent spout wing portions 91 and 108 at each end of the center portion 88 separated and spaced from the next adjacent spout wing portions 92 and 108*a* at the opposite end of the center portion 88. In addition, the container is operative to allow the spout portions 108, 91, 88, 92, and 108*a* to move relative to each other as they are moved from the spout close to the spout open positions and as the wing portions are moved from overlapping folded relationship (FIG. 7) to an extended non-overlapping non-folded relationship (FIG. 8).

It is noted that while the spout is in the closed or open position the score lines 105 and 105*a*, which are straight lines of different lengths are not aligned in a common plane. In addition, the score lines 105 and 105*a* are aligned in planes different from the plane of one or both of the score lines 83 and 84. Also the score lines 83, 84, 105 and 105*a* always are disposed relative to each other such that at least one of the score lines is in a plane different from that plane in which at least one other of the score lines is in when the spout is anywhere between the open and closed positions.

FIG. 8 further illustrates the wing portions 91—108 and 92—108*a* positioned in their locked position wherein they lock the spout in the open position and thus assist in regulating the size of the mouth of the spout and prevent the spout from accidentally reclosing. In this locked position the opposing wing portions on the opposite ends of the center portion 88 are moved inwardly towards each other, so that the inner wings 91 and 92 cannot fold under the outer wing portions 108 and 108*a* respectively by movement of the center portion 88 inwardly. It is thus seen that this structure has provided a readily accessible spout which has spout portions of different areas at least partly bounded by unlike score lines and operative to assist in moving the spout to the open position without exerting any unwanted or non-regulated deforming or crushing forces on the spout side portions at locations other than at preset score lines, and thereafter operative to lock the spout in the regulated open position so that it will not close while the contents are being poured from the container.

In the modifications FIGURES 9 thru 16 those parts identical to the equivalent part in FIG. 2 are indicated by the same reference character as used in FIG. 2 and those parts similar to but different from the corresponding part in FIG. 2 are indicated by reference characters which are a multiple in even hundreds of that used in FIG. 2. Also only that part of a complete blank which has features different from those of FIG. 2 is illustrated, it being understood that the remainder of the blank may be provided in accordance with FIG. 2.

In the modification illustrated in the partial plan view of the blank in FIG. 9, outer panels are provided with score lines 205 and 205*a* defining sections 207 and 207*a* and forming at least a part of the periphery of the spout portions or wing portions 208 and 208*a* respectively. In this modification the area of the spout portion 208 is less than the area of any one of the spout portions 91, 92, and 208*a* and the spout portion 208*a* is larger in surface area than either of the spout portions 91 or 92. The score lines 205 and 205*a* are straight lines of different lengths. The respective tear lines for these spout portions are also of different lengths. The tear line portion for the spout portion 208 is shorter than the tear line portion for the spout portion 91. The tear line length for spout portions 91 and 92 are equal and the tear line length for the spout portion 208*a* is greater than the tear line length for the spout portion 92 and thus also greater than the length of the tear line portion for spout portion 208.

A container assembled from the blank of FIG. 9 arranges the score lines 205 and 205*a* in different planes at

least one of which is different from the common plane of the score lines 83—84 while the spout is in its open intermediate and closed positions. Each of the different planes of the score lines 205 and 205*a* coincides with the plane of the score lines 83—84 at one location in the path of movement of the spout portions between the spout closed and spout open positions.

In FIG. 10 the score lines 305 and 305*a* form at least a part of the periphery of and thereby set off spout portions 308 and 308*a* of substantially the same size, shape and area and portions 307 and 307*a* of substantially the same size, shape, and area. In this modification each of the spout portions 308 and 308*a* is smaller in area than its next adjacent spout portion 91 and 92 respectively. The blank folds into a container operable substantially the same as that described and illustrated in connection with FIGURES 1 thru 8 of the drawings.

The tear line length for spout portions 91 and 92 are equal and the tear line length for the spout portions 308 and 308*a* are substantially equal. In addition, the tear line length for the spout portions 91 and 92 are each greater than the tear line length for their next adjacent of the spout portions 308 and 308*a*.

A container assembled from the blank of FIG. 10 arranges the score lines 305 and 305*a* in a common plane which is different from the common plane of the score lines 83—84 while the spout is in its open and closed positions. The plane of the score lines 205—205*a* coincides with the plane of the score lines 83—84 at one location in the path of movement of the spout portions between the spout closed and spout open positions.

In the modification of FIG. 11 score lines 405 and 405*a* define similar panel sections 407 and 407*a* and similar spout portions 408 and 408*a* by forming at least a part of the periphery of the spout portions which are of substantially the same surface area, size and shape and are each smaller than their next adjacent of the inner wing portions 91, 92.

The score lines 405 and 405*a* intersect the vertical lines 26 and 27 respectively at points above the intersection of line 63 with the lines 26 and 27. The spout portions 408 and 408*a* have surface area less than the surface area of their next adjacent spout portions 91, 92.

The tear line length for the spout portions 91 and 92 are equal and the tear line length for the spout portions 408 and 408*a* are equal. The tear line length of spout portion 408 is less than the tear line length of spout portion 91.

A container assembled from the blank of FIG. 11 arranges the score lines 405 and 405*a* in a common plane which is different from the common plane of the score lines 83—84 while the spout is in its open intermediate and closed positions.

In the modification of FIG. 12 score lines 505 and 505*a* define similar panel sections 507 and 507*a* and similar spout portions 508 and 508*a* by forming at least a part of the periphery of the spout portions 508 and 508*a* which are of substantially the same surface area, size and shape and are each smaller than their next adjacent of the inner wing portions 91, 92.

The score lines 505 and 505*a* intersect the vertical lines 26 and 27 respectively at points above the inner section of line 63 with the lines 26 and 27. The spout portions 508 and 508*a* each have a surface area less than the surface area of their next adjacent spout portions 91, 92. The length of the tear line along spout portion 508 is the same as that along spout portion 91 and the length of the tear line along spout portion 508*a* is the same as that along the spout portion 92.

A container assembled from the blank of FIG. 12 arranges the score lines 505 and 505*a* in a common plane which is different from the common plane of the score lines 83—84 while the spout is in its open intermediate and closed positions.

In FIG. 13 curved score lines 605 and 605*a* form at least a part of the periphery of and thereby set off spout portions 608 and 608*a* of substantially the same size, shape and area and portions 607 and 607*a* of substantially the same size, shape and area. In this modification each of the spout portions 608 and 608*a* is smaller in area than its next adjacent spout portion 91—92 respectively.

The tear line length for spout portions 91 and 92 are equal and the tear line length for the spout portions 608 and 608*a* are equal. The tear line length of spout portion 608 is greater than the tear line length of the spout portion 91. In those instances wherein at least one of the curved score line is an arc of a circle the arcuate curved score line and its center of revolution is on opposite sides of a straight line drawn between the point of intersection of the curved score line and the line 106 and the point of intersection of the curved score line and the line 63.

A container assembled from the blank of FIG. 13 arranges the score lines 605 and 605*a* so as not to be in the common plane of the score lines 83—84 while the spout is in its open and closed positions.

In FIG. 14 the double-curved score lines 705 and 705*a* form at least a part of the periphery of and thereby set off spout portions 708 and 708*a* of substantially the same size, shape and area and portions 707 and 707*a* of substantially the same size, shape, and area. In this modification each of the spout portions 708 and 708*a* is smaller in area than its next adjacent spout portion 91—92 respectively.

The tear line length for spout portions 91 and 92 are equal and the tear line length for the spout portions 708 and 708*a* are equal. The tear line length of spout portion 708 is less than the tear line length of the spout portion 91. One portion of at least one of the score lines 705 and 705*a* and one another portion of the same score line are on the opposite sides of a straight line drawn between the point of intersection of that curved score line and the line 106 and the point of intersection of that curved score line and the line 63.

A container assembled from the blank of FIG. 14 arranges the curved score lines 705 and 705*a* so as not to be in the common plane of the score lines 83—84 while the spout is in its open and closed positions.

In FIG. 15 the score lines 805 and 805*a* form at least a part of the periphery of and thereby set off spout portions 808 and 808*a* of substantially the same size, shape and area and portions 807 and 807*a* of substantially the same size, shape, and area. Each of the score lines is made of a series of short straight lines arranged end to end. In this modification each of the spout portions 808 and 808*a* is smaller in area than its next adjacent spout portion 91—92 respectively.

The tear line length for spout portions 91 and 92 are equal and the tear line length for the spout portions 808 and 808*a* are equal. The tear line length of spout portion 808 is greater than the tear line length of the spout portion 91. One straight line portion of at least one score line and another straight line portion of the same score line are on the opposite sides of a straight line drawn between the point of intersection of the curved score line and the line 106 and the point of intersection of the curved score line and the line 63.

A container assembled from the blank of FIG. 5 arranges the score lines 805 and 805*a* so as not to be entirely in the common plane of the score lines 83—84 while the spout is in its open and closed positions.

In FIG. 16 inverted modified U-shaped score lines 905 and 905*a* form at least a part of the periphery of and thereby set off spout portions 908 and 908*a* of substantially the same size, shape and area and portions 907 and 907*a* of substantially the same size, shape and area. In this modification each of the spout portions 908 and 908*a* is smaller in area than its next adjacent spout portion 91—92 respectively.

The tear line length for spout portions **91** and **92** are equal and the tear line length for the spout portions **908** and **908***a* are equal. The tear line length of spout portion is greater than the tear line length of the spout portion **91**. One portion of at least one of the score lines and another portion of that same score line are on the opposite sides of a straight line drawn between the point of intersection of the curved score line and the line **106** and the point of intersection of the curved score line and the line **63**.

A container assembled from the blank of FIG. 16 arranges the score lines **905** and **905***a* so as not to be in the common plane of the score lines **83—84** while the spout is in its open and closed positions.

Each of the above described unitary blanks for respective containers thus provides a container which includes a conveniently available spout which may be opened and closed. In each container the spout has unlike spout portions on opposite sides thereof which are moved relative to each other or manipulated to move the spout between its closed and open positions. When the spout is in the open position the side portions are further operable in a locking position wherein they lock the spout in the open position and thereby assist in regulating the size of the mouth of the spout and prevent it from accidentally reclosing. Each blank was provided with prescored lines operative to assist the folding of the blank into a container and assist the spout portions in carrying out the advantages and features which formed the objects of the invention and set forth the novel differences over the prior containers. It is understood that the prescored lines forming a part of the periphery of the spout portions on the opposite sides of the spout may be identical to or different from each other and may be any combination of those score lines **105—105***a*, **205—205***a*, **305—305***a*, **405—405***a*, **505—505***a*, **605—605***a*, **705—705***a*, **805—805***a* and **905—905***a* which have been specifically illustrated for purposes of description in the drawings. Further combinations were not illustrated, for example, combination using one curved and straight line in the same blank to eliminate unduly multiplicity in the descriptions and application.

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 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 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 and connected to each of said spaced opposing spout panels, 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 said first portion having a preset surface area, 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, at least one of said second portions having a surface area different from said preset surface area of said first portion, 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 each individual tab portion to its respective of 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 reinforcingly 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.

2. The structure as defined in claim 1 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.

3. The structure as defined in claim 1 additionally including the limitation of the second portions of the opposing panels being of dissimilar areas.

4. The structure as defined in claim 1 additionally including the limitation of the second portions of the opposing panels being the same areas.

5. The structure as defined in claim 1 additionally including the limitation of the surface area of the said at least of one of the second portions being less than the said preset surface area.

6. The structure as defined in claim 1 additionally including the limitation of the surface area of the said at least of one of the second portions being greater than the said preset surface area.

7. The structure as defined in claim 1 additionally including score lines in said panels defining at least a part of the periphery of each of said spout portions.

8. The structure as defined in claim 7 additionally including the limitation of at least one of the score lines located in said opposing panels being a straight line.

9. The structure as defined in claim 8 additionally including the limitation of the corresponding score lines located in said opposing panels being lines of different lengths.

10. The structure as defined in claim 7 additionally including the limitation of the score lines located in said opposing panels being straight lines.

11. The structure as defined in claim 7 additionally including the limitation of the corresponding score lines located in said opposing panels being lines of different lengths.

12. The structure as defined in claim 7 additionally including the limitation of the score lines located in said opposing panels being free from alignment in a common plane.

13. The structure as defined in claim 7 additionally including the limitation of each of the score lines located in said opposing panels being free from alignment in a plane common with a plane containing any other score line in any other panel while said first and second portions are in overlapping relationship.

14. The structure as defined in claim 13 additionally including the limitation of the corresponding score lines located in said opposing panels being lines of different lengths.

15. The structure as defined in claim 7 additionally including the limitation of at least one of the score lines located in said opposing panels being a curved line.

16. The structure as defined in claim 15 additionally including the limitation of the score lines located in said opposing panels being free from alignment in a common plane.

17. 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 condition.

18. The structure as defined in claim 15 additionally including the limitation of the curved line defining the arc of a circle.

19. The structure as defined in claim 7 additionally including the limitation of the score lines located in said opposing panels being curved lines.

References Cited in the file of this patent

UNITED STATES PATENTS

1,157,462	Van Wormer	Oct. 19, 1915
2,300,703	Ray	Nov. 3, 1942
2,321,139	Gruger	June 8, 1943
2,750,095	Alden	June 12, 1956