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Egleston

[11] **3,892,347**

[45] **July 1, 1975**

[54] **FLAT END CLOSURE CONTAINER WITH RECLOSABLE POUR SPOUT**

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[21] Appl. No.: **316,798**

Related U.S. Application Data

[63] Continuation of Ser. No. 187,364, Oct. 7, 1971, abandoned.

[52] **U.S. Cl.** ..... **229/17 R**

[51] **Int. Cl.** **B65d 5/72**

[58] **Field of Search** ..... 229/17 R, 43, 38, 51 TC, 229/51 D

[56] **References Cited**

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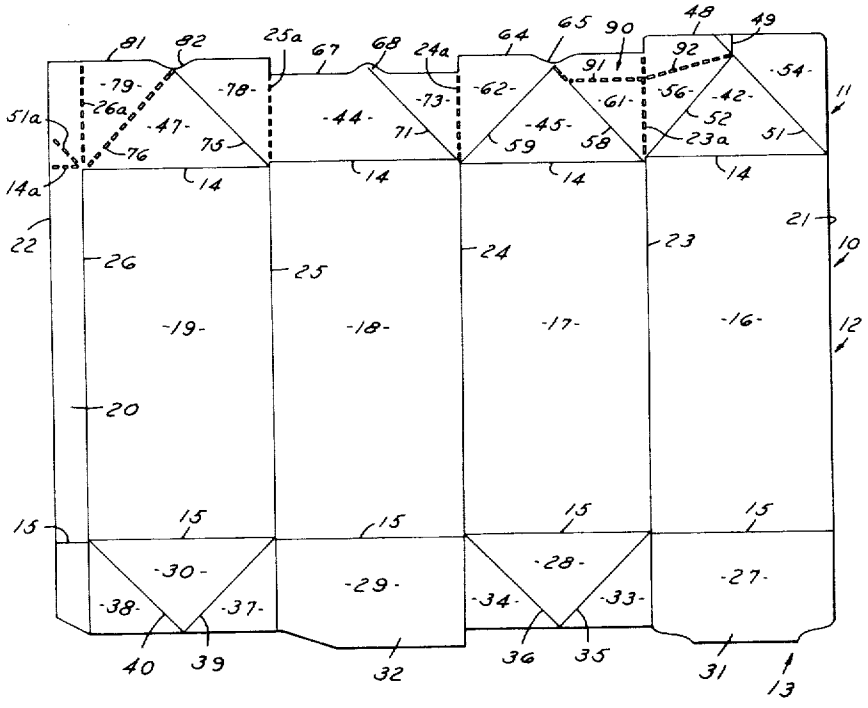
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Primary Examiner—William I. Price

[57] **ABSTRACT**

A coated paperboard container having a flat end closure which can be opened exposing an inherent pouring spout provided by a perforated score line arrangement acting with the end closure panels. The arrangement of the perforated score line and end closure panels in a fold-over sealing structure providing an inherent lift tab feature to assist in extending the pouring spout to its open position.

8 Claims, 10 Drawing Figures



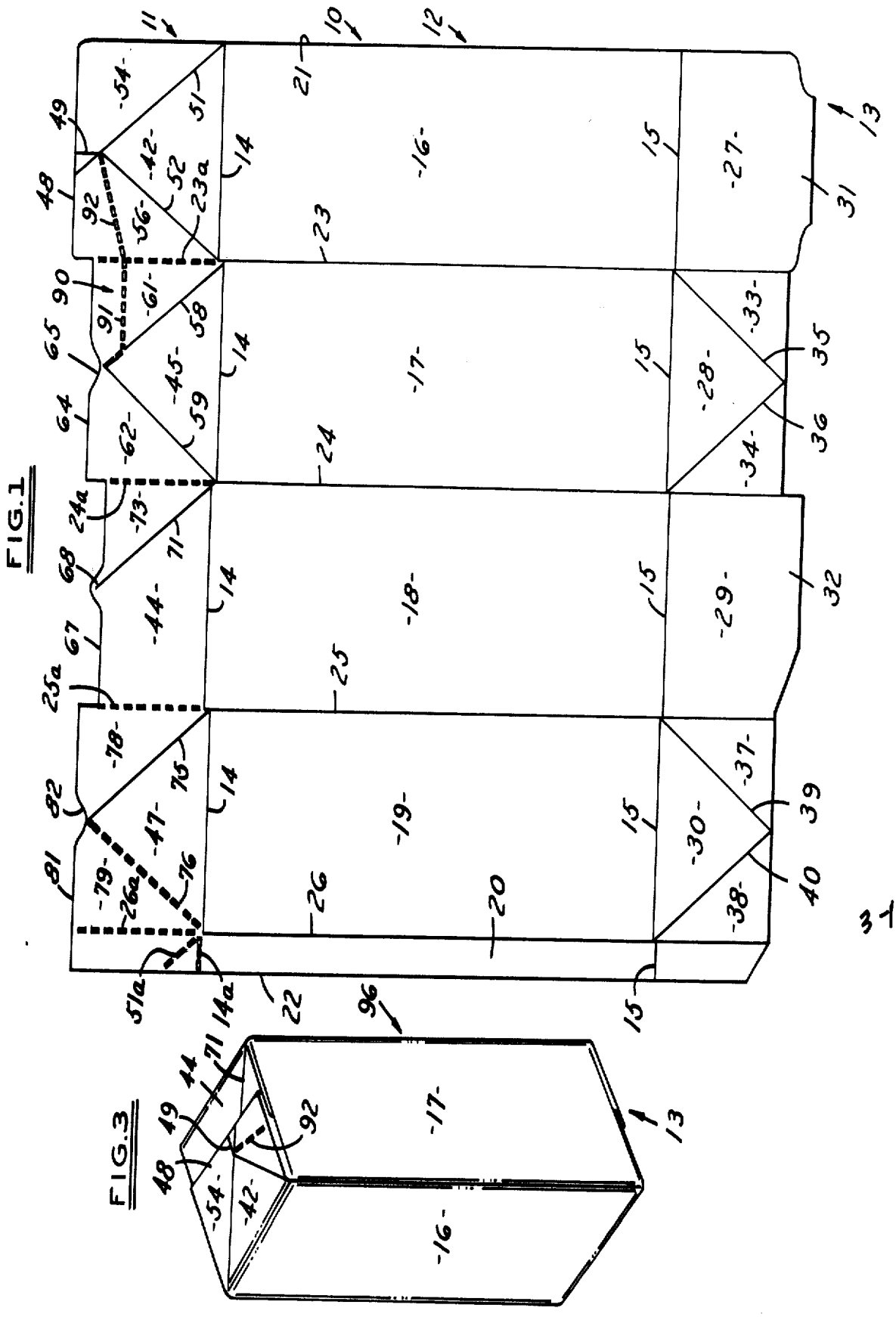

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FIG. 1

FIG. 3

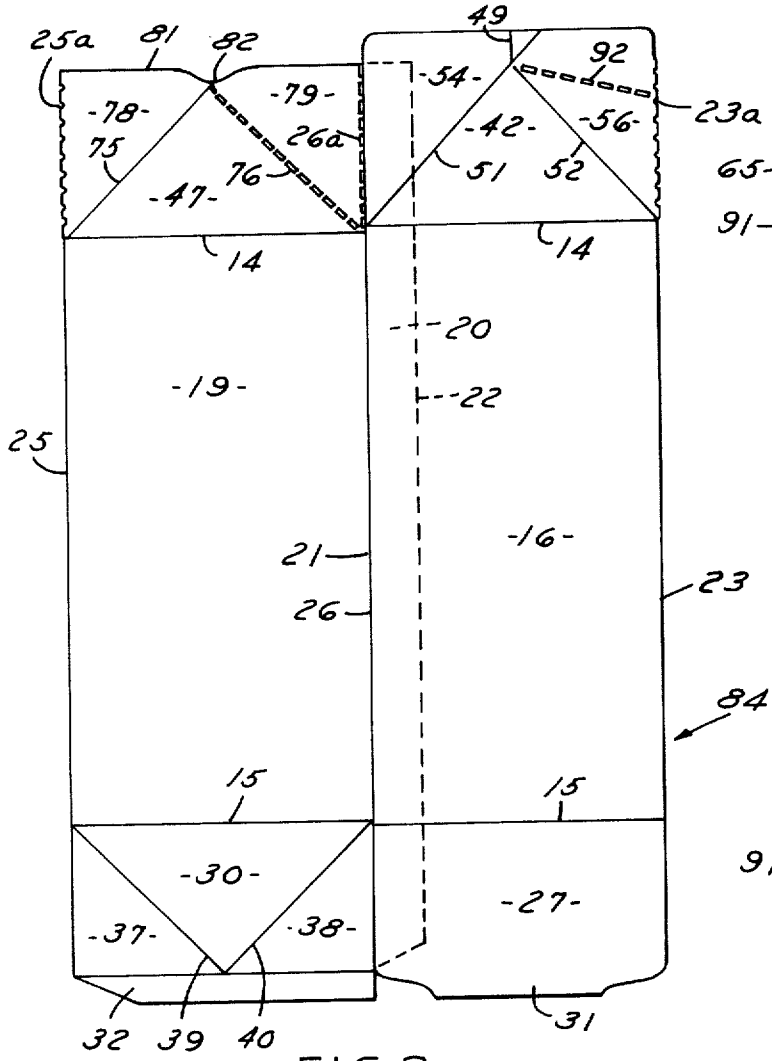


FIG. 2

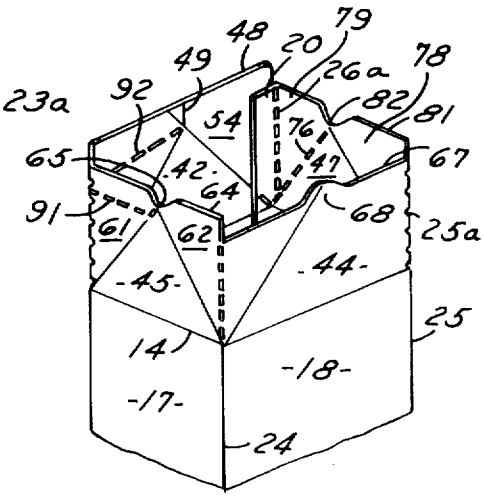


FIG. 4

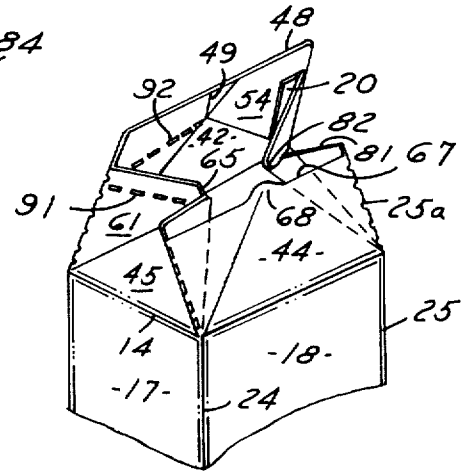


FIG. 5

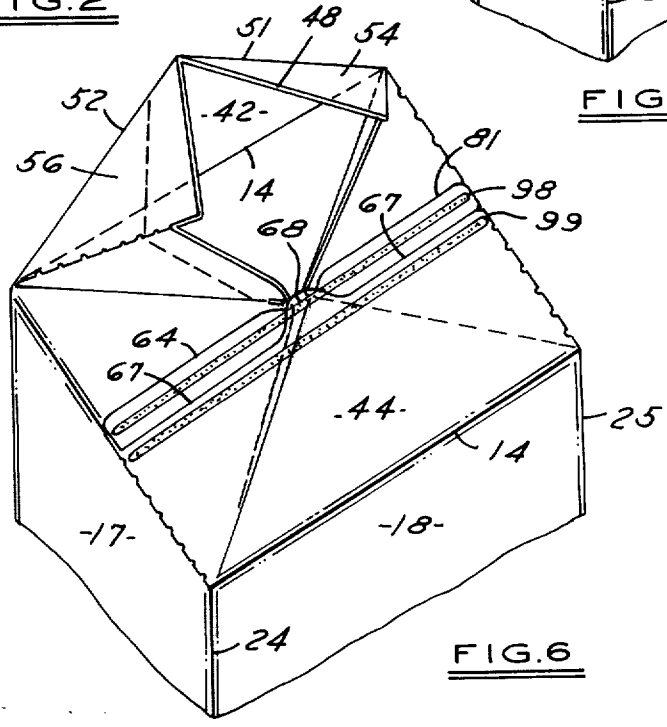


FIG. 6

FIG. 7

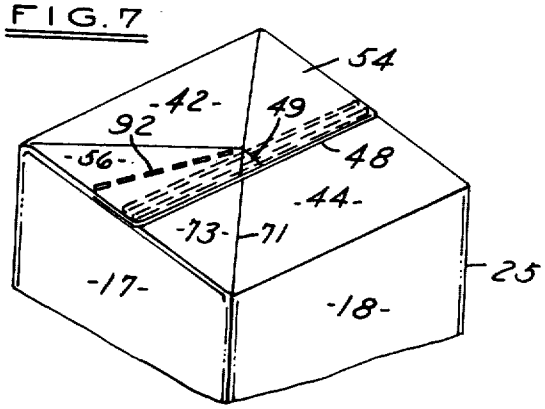


FIG. 8

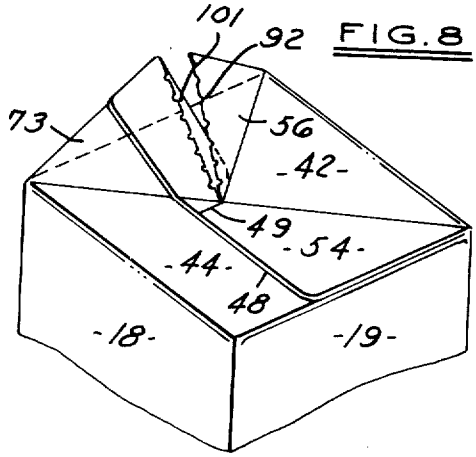


FIG. 9

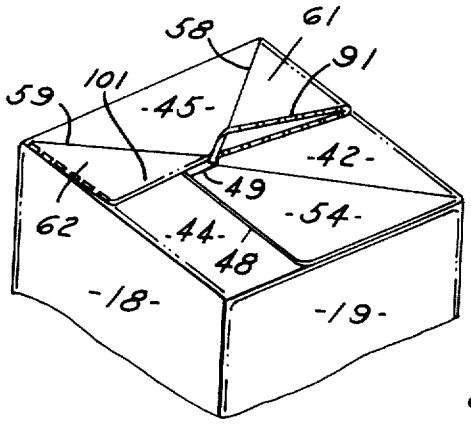
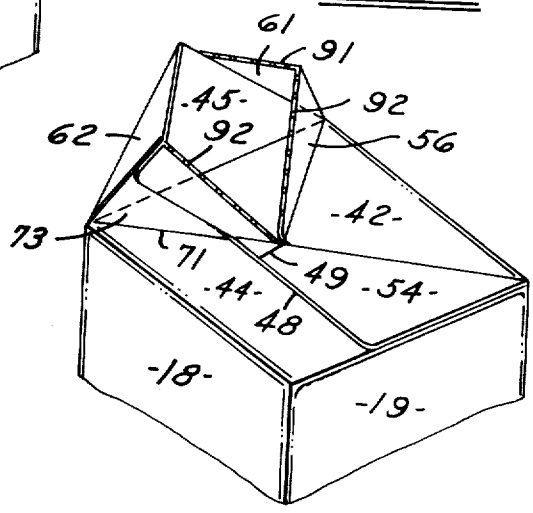


FIG. 10



FLAT END CLOSURE CONTAINER WITH RECLOSABLE POUR SPOUT

This is a continuation of application Ser. No. 187,364, filed Oct. 7, 1971, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to coated paperboard containers having a flat end closure with a hidden pouring spout which can be opened by an inherent lift tab assist feature and the pouring spout can be reclosed for protective storage.

2. Description of Prior Art

It is known in this art to use a flat end closure with a reclosable pouring spout using a tuck feature for the external side panels of the end closure. Perforated scoring has been illustrated to provide an assist in opening along with an additional pull tab member or panel in some embodiments, such as illustrated in U.S. Pat. No. 3,147,904.

SUMMARY OF THE INVENTION

According to the present invention, a coated paperboard container is provided with an end closure having outer and inner side panels extending over the container's end as external members and 2 triangular panel members, each having a pair of fold back panels connecting them to the side panels, which are positioned under the side panels in the closed position. Sealing can be by the addition of a sealing agent or selected heat sealing of the coating material. The container could be uncoated and be sealed with a sealing agent but in most applications, it has been found that a coated paperboard container is preferred.

Sealing takes place between the inner surface tip area of the outer side panel and the outer surface tip area of the inner side panel and the inner surface tip area of one fold back panel of each pair and the outer surface tip area of the other fold back panel of each pair.

Part of the perforated score line is provided on one fold back panel and extends on it adjacent the free edge of the other fold back panel of the pair. The remainder of the perforated score line is provided on the outer side panel starting at its side edge substantially adjacent the free edge of one of the fold back panels and extends towards the center of the container's end along a diagonal path. The perforated score line on the outer side panel terminates past the apex of the triangular panel member which forms part of the pouring spout.

When the end closure is constructed, it is formed in a flat form and opening takes place along the perforated score line. The perforated score line is substantially free of the sealing areas. As the pair of fold back panels are exposed during opening, forming part of the pouring spout, a lift tab is provided along the free edge of one fold back panel which can be used in moving the pouring spout to its extended or dispensing position.

A BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a layout view of the inside surface of a container blank from which a flat end closure container of the present invention is formed.

FIG. 2 is a layout view of the outside surface of a container after it is side seamed from the container blank illustrated in FIG. 1.

FIG. 3 is a perspective view of a flat end closure container fabricated from the container blank shown in FIG. 1 and illustrating the principles of the present invention.

FIG. 4 is a fragmentary perspective view showing the side seam blank in FIG. 2 in an open ended view prior to the closing of the flat end closure feature of the present invention.

FIG. 5 is a fragmentary perspective view showing the side seam blank, similar to FIG. 4, as the side panels are moved toward the center of the container's end.

FIG. 6 is a fragmentary perspective view showing the side seam blank, similar to FIGS. 4 and 5, as the inner side panel is positioned in its closed position and sealing patterns have been applied.

FIG. 7 is a fragmentary perspective view showing the side seam blank, similar to FIGS. 4, 5 and 6, in its closed position as illustrated in FIG. 3.

FIG. 8 is a fragmentary perspective view showing the flat end closure similar to FIGS. 3 and 7 in its initial stage of opening with the inherent lift tab appearing.

FIG. 9 is a fragmentary perspective view showing the flat end closure similar to FIG. 8 with the fold back panels and triangular panel which form the pouring spout fully exposed.

FIG. 10 is a fragmentary perspective view showing the flat end closure of the container similar to FIGS. 8 and 9 with the pouring spout shown in its extended or dispensing position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring generally to the figures, there is disclosed a container blank **10**. The blank is generally divided into three sections, end closure **11**, body portion **12**, and end closure **13**. Horizontal score line **14** extends across the container blank **10** and separates end closure **11** and body portion **12**. Horizontal score line **15** extends horizontally across container **10** and separates end closure **12** and body portion **12**. Body portion **12** has body panels **16, 17, 18,** and **19** and side seam flap **20**. The body portion **12** is defined on its ends by side edges **21** and **22**. The body panels are defined by vertical score lines **23, 24, 25,** and **26**.

End closure **13** has external closure panels **27** and **29** which extend from body panels **16** and **18**, respectively. Triangular closure panels **28**, and **30** are part of end closure **13** and extend from body panels **17** and **19**, respectively. Triangular closure panel **28** is defined by score line **15** and score lines **35** and **36**. Triangular closure panel **28** is connected to external closure panels **27** and **29** by fold back panels **33** and **34**. Triangular closure panel **30** is defined by score line **15** and score lines **39** and **40**. Fold back panels **37** and **38** connect triangular closure panel **30** to external close panel **29** and side seam flap **20**. As will be discussed in more detail hereafter, the side seam flap **20** will be connected to full closure panel **27** placing fold back panel **38** adjacent to external closure panel **27** in the constructed container.

External closure panel **27** has a tuck-in flap **31** and external closure panel **29** has a tuck-out flap **32**. The closure feature of the end closure **13** is discussed in detail in U.S. Pat. Nos. 3,489,524 issued on Mar. 3, 1970 and 3,120,335 issued on Feb. 4, 1964 and these are made reference here as part of present disclosure.

End closure **11** is provided with outer side panel **42** and inner side panel **44** which extend from body panels **16** and **18**, respectively. Triangular panel members **45**

and 47 are provided and extend from body panels 17 and 19, respectively. Outer side panel 42 has an edge portion 48 and a middle score line 49 positioned substantially in its center running substantially parallel with score side edge 21 and vertical score line 23.

In the preferred embodiment, the vertical score lines 23, 24, 25 and 26 become perforated score lines 23*a*, 24*a*, 25*a* and 26*a* above score line 14. A score line 51 extends from the intersection of score line 14 and side edge 21 and terminates at edge portion 48 intersecting the end of middle score line 49, as viewed in FIG. 1 for example. Score line 52 extends from the intersection of perforated score line 23*a* and score line 14 and terminates at the end of middle score line 49 and its intersection with score line 51. Score line 51, edge portion 48 and side edge 21 define part of outer side panel 42 as outer cover portion 54. Score line 52, perforated score line 23*a*, edge portion 48 and score line 51 define outer cover portion 56.

Triangular panel member 45 is defined by score lines 58 and 59 which extend from the inner section of vertical score lines 23 and 24 with score line 14, respectively, and extend above score line 14 toward the middle of body panel 17. Fold back panels 61 and 62 connect triangular panel member 45 with side panels 42 and 44, respectively, and an edge portion 64 is provided at the outer ends of fold back panels 61 and 62 and has a U-shaped recess 65. The fold back panel 61 is defined by score line 58, portion of U-shaped recess 65, edge portion 64 and perforated score line 23*a*. Fold back panel 62 is defined by score line 59, portion of U-shaped recess 65, edge portion 64 and perforated score line 24*a*.

Inner side panel 44 has edge portion 67 which includes a tip member 68. Inner side panel 44 is provided with a score line 71 which runs from the intersection of perforated score line 24*a* and score line 14, away from score line 14 and body panel 18 toward tip member 68 of edge portion 67, and terminates substantially half way between score lines 24*a*, and 25*a*. The score line 71 with perforated score line 24*a*, edge portion 67, and tip member 68 define outer cover portion 73. Triangular panel member 47 is defined by score line 14 and score lines 75 and 76. Score line 75 and 76 extend from the intersections of perforated score lines 25*a* and 26*a*, respectively, with score line 14 extending away from body panel 19 and towards its center, intersecting substantially half way between score lines 25a and 26a.

A fold back panel 78 connects triangular panel member 47 with inner side panel 44. A fold back panel 79 connects triangular member 47 to side seam flap 20. An edge portion 31 defines outer edges of fold back panels 78 and 79 and has a U-shaped relief cut 82 substantially mid-way between perforated score lines 25*a* and 26*a* near the intersection of score lines 75 and 76. Score line 14 becomes a perforated score line 14a between score line 26 and side edge 22. A perforated score line 51a extends diagonally from the intersection of 26*a* and 14*a* on side seam flap 20 and will align with score line 51 in the assembled condition, which will be explained in more detail below.

As illustrated in FIG. 1, the inside surface of the container blank 10 is illustrated. Before the container is assembled, it is placed in a flat side seam blank form 84 as viewed in FIG. 2. To place the container blank 10 in the flat side seam blank form 84, body panel 19 and side seam flap 20 along with triangular panel member 47 and triangular closure panel 30 are folded about vertical score line 25 placing their inside surfaces on the inside surfaces of body panel 18 and portions of the inside surface of body panel 17. The outside surface of side seam flap 20 is activated by application of heat and the body panel 16, the outer side panel 42, and external closure panel 27 are rotated around vertical score line 23 placing the inside surface of these members adjacent side edge 21 in contact with outside surface of side seam flap 20 causing sealing to take place so that the structure now appears substantially as a four sided tubular member when opened.

Perforated score line 14a is aligned with score line 14 where it extends from side edge 21. Perforated score line 51a is aligned with score line 51 where it extends from side edge 21 towards edge portion 48.

Referring back to FIG. 1, there is provided an opening perforated score line 90 which extends from the intersections of score line 58 and 59 to the intersections of score lines 51 and 52. The opening perforated score line 90 is divided into two portions, one portion is generally referred to as perforated score line 91 and is provided on fold back panel 61. A second perforated score line is generally referred to by reference number 92 and appears on outer cover portion 42 and runs from perforated score line 23*a* to the intersection of score lines 51 and 52. The path of travel of perforated score line 92 is substantially straight and runs diagonally with reference to edge portion 48 and score line 23*a*. The intersection of score line 91 with perforated score line 23*a* is the starting point for perforated score line 92 and it is a predetermined distance from the edge portion 64.

The perforated score line 91 runs across fold back panel 61 and starts at perforated score line 23*a* and continues to the intersection of score lines 58 and 59, and it runs a short distance along score line 58.

When a container is to be assembled, it will be formed from a side seam blank 84, as shown in FIG. 2. When the container has been assembled, it will appear as a formed container 96, as illustrated in FIG. 3. In the preferred embodiment of the invention, end closure 13 will be closed first because its end closure is a tuck-in style closure. Basically this calls for the tuck-in flap 31 of external closure panel 27 to be placed between tuck-out flap 32 of external closure panel 29 and fold back panels 37 and 34. This is normally a heat seal operation where the contacted surface of end closure will be heated to activate a polyethylene or plastic type surface and then pressed together to form a complete heat sealed end closure.

After end closure 13 has been closed, the product to be received by formed container 96 can be loaded into the container putting the container in condition to have end closure 11 closed. In the preferred embodiment, the edge score lines or vertical score lines are perforated after they cross score line 14 into end closure 11. This is desirable particularly when filled with dry products to weaken the resistance of the score lines when they are being folded.

To form the end closure 11, inner side panel 44 is folded about score line 14 toward the center of the container, prior to this triangular panel members 45 and 47 are moved over the end of the container toward each other so that outside surface of fold back panels 62 and 78 come into contact with the triangular panel members 45 and 47, respectively. When the inner side panel 44 is positioned in its closed position, its inside surface

will be in contact with the inside surfaces of fold back panels **63** and **78**. The tip member **68** will project covering substantially the center area of the container. The inside surfaces of fold back panels **62** and **78** adjacent edge portions **64** and **81**, respectively, will extend beyond edge portion **67** or full side panel **44**, as viewed in FIG. **6** for example. The full side panel **42** at this time will be bent slightly around score line **14** toward the end opening of container **96**, with substantial amount of the bending taking place at score lines **51** and **52**.

In the preferred embodiment, hot-melt can be used to seal the end closure **11**. A single bead could be used along the edge portion **67** or spaced from the edge portion **67** on the outside surface of inner side panel **44**. In the present embodiment, two beads of **98** and **99** of holt-melt are placed to seal end closure **11**, placing container in condition for sealing, see FIG. **6**. One bead can extend on the inside surfaces of fold back panels **62** and **78** in the middle of their exposed tip area between edge portion **67** and edge portion **64** and **81**, respectively. Part of this bead **98** may also be applied to the tip member **68**. The second hot-melt bead member **99** can be applied to outside surface of inner side panel **44** approximately the same distance from edge portion **67** as hot-melt **98** is from edge portion **67**.

At this time, the full side panel **42** can continue to move about score line **14** and its inside surfaces generally referred to as outer cover portions **54** and **56**, will come into contact with inside portions of fold back panel **79** and **61**, respectively. The portion of fold back panel **61** adjacent edge portion **64** and substantially between perforated score line **91** and edge portion **64** will contact and lay-over the inside surface of fold back panel **62** which extends beyond edge portion **67**. The perforated score line **91** will run generally along edge portion **64** and contact a portion of hot-melt bead portion **98**. The portion of full side panel **42** adjacent to edge portion **48** which extends beyond edge portion **64** and **81** will contact the outer surface of inner side panel **44** and come in contact with hot-melt bead member **99**. The outside surface of fold back panel **79** will come in contact with inside surface of fold back panel **78** adjacent edge portion **81** then extend above edge portion **67** and making bonding contact with hot-bead member **98**. It should be noted that perforated score line **91** extends substantially along edge portion **64** of fold back panel **62**. The outside surface of fold back panel **61** is in contact with hot-melt bead member **98**. The perforated score line **92** is positioned on outer corner portion **56** and extends from the perforated edge **23***a* to the intersection of score lines **51** and **52** which is substantially the center of the container. The portion of score line **51** which extends between edge portion **48** and the intersection of score line **52** is aligned with score line **71** on full side panel **44**. The only portion of perforated score line **92** which may contact either hot-melt beads **98** or **99** will be the small portion terminating at the center of the container and overlying tip member **68**.

In opening the formed container **96**, pressure will be applied along score line **23***a* and **24***a* near the point of intersection of perforated score lines **92** and **91** with perforated score line **23***a*. The outer cover portions **56** and **73** will be raised, as shown in FIG. **8**. This will cause perforated score line **92** to rupture at its starting point at perforated score line **23***a* to its termination point at the intersection of score lines **51** and **52**. Perforated score line **91** will rupture along its length starting at score line **23***a* to intersection of score lines **58** and **59**. The fold back panels **61** and **62** will be rotated about score lines **58** and **59**, respectively, and outer cover portions **56** and **73** will move with them rotating about score line **52** and **71**, respectively, until the outer surface of outer cover portion **73** contacts the outer surface of the remainder of inner side panel **44** and outer surface of outer cover portion **56** contacts outer surface of outer side panel **42**.

The portion of fold back panel **61** between perforated score line **91** and edge portion **64** will remain bonded to inside surface of panel **62** which lies between edge portion **67** and edge portion **64**. Portions of these panels will be exposed by the rupture of perforated score line **92** and will act as a lift tab and is referred to by numeral **101** in FIG. **8**. The user of the container can use the lift tab **101** to pull triangular panel member **45** out from its closed position around score line **14** exposing an inherent pouring spout with fold back panels **61** and **62**, as viewed in FIG. **10**. When reclosing the pouring or dispensing spout, the user can apply pressure on score lines **58** and **59** at their mid points causing the triangular panel member **45** to move back into closed position. This will also move outer cover portion **73** about score line **71** and move outer cover portion **56** about score line **52** so the opening provided by the pouring spout formed by triangular panel member **45** and fold back panel **61** and **62** will be covered preventing foreign objects from dropping into the container **96**.

In some embodiments the perforated score lines **90**, **23***a*, **24***a*, **25***a*, and **26***a* may pass all the way through the walls of the container blank **10**. In other applications these perforations may only go through part of surface mainly from outside surface approximately half way through the wall such as used if contents would be liquid. In other applications, **23***a*, **24***a*, **25***a*, and **26***a* may not be perforated. It should be noted that perforated score line **90** is free from contact with hot melt bead members **98** and **99**, other than the perforated score line **90** may have the end of perforated score line **92** contacting a small portion of the hot melt bead **98** on tip member **68**.

A preferred embodiment of the invention has been illustrated and described herein. However, it is to be understood that minor modifications may be made in the end closure construction within the spirit and scope of the invention, as herein defined and illustrated. It is further to be noted that while directional terms have been used, same is not to be construed as a limitation of the invention since such use has been availed of to better describe the invention as illustrated.

What is claimed is:

1. A container blank having body portion with an end closure, comprising, in combination:

a. said container blank defined by first and second side edges and first and second end edges;

b. a horizontal score line on said container blank separating said body portion and said end closure;

c. four vertical score lines extending substantially the length of said container blank;

d. a first, second, third and fourth body panels and a side seam flap defined by said vertical score lines and said side edges;

e. said end closure having an outer side panel connected to first said body panel, a first triangular panel member connected to said second body

panel, and inner side panel connected to said third body panel and a second triangular panel member connected to said fourth body panel;

f. said first triangular panel member having a pair of first and second second fold back panels connecting it to said outer side panel and said inner side panels, respectively;

g. said second triangular panel member having a pair of third and fourth fold back panels connecting it to said inner side panel and said side seam flap;

h. said outer side panel having a edge portion as part of said first end edge extending between one side edge and one of said vertical score lines, a distance substantially the width of said first body panel and being positioned from said horizontal score line greater than one half the width of said second and fourth body panels;

i. said inner side panel having a edge portion as part of said first end edge and extending between two of said vertical score lines defining said third body panel and being positioned a distance from the horizontal score line less than one half the distance across said second and fourth body panels;

j. said first and second fold back panels having a common edge portion extending between two of said vertical score lines across the width of said second body panel and being positioned a distance from said horizontal score line greater than one half the width of said second and fourth body panels;

k. said third and fourth fold back panels having common edge portion as part of said first end edge and extending between two vertical score lines across the width of said fourth body panel, said edge portion being positioned from said horizontal score line, a distance greater than one half the width of said second and fourth body panel;

l. the distance from said edge portion of said first fold back panel from said horizontal score line and the distance from said edge portion of said inner side panel from said horizontal score line substantially equals the distance across said second and fourth body panels;

m. the distance from said edge portion of said fourth fold back panel from said horizontal score line plus the distance of said edge portion of said inner side panel substantially equals the distance across said second and fourth body panels;

n. a perforated score line crossing the common vertical score line of said first and second body panels and having a first perforated portion extending onto said outer side panel and having a second perforated portion on said first fold back panel, said perforated score line intersecting said vertical score line at a distance from said horizontal score line which will substantially equal the distance across said second body panel less the distance said edge portion of said second fold back panel is positioned from said horizontal score line, and said second perforated portion terminates at the apex of said first triangular panel member; and

o. said first perforated portion extending diagonally across said outer side panel and terminating approximately half the distance across said outer side panel and terminating a distance from said horizontal score line greater than one half the distance across said second and fourth body panels.

2. A container blank as defined in claim **1** having in combination:

a. said vertical score lines being perforated between said horizontal score line and said first end edge.

3. A container blank as defined in claim **2** having in combination:

a. a perforated score line connecting said fourth fold back panel with said second triangular panel member.

4. A container blank as defined in claim **1** having in combination:

a. first and second score lines on said outer panel extending from the side edges of said first body panel member away from said horizontal score line and intersecting at the termination of said first perforated portion on said outer side panel;

b. said second fold back panel is connected to said first triangular panel member by a score line; and

c. said inner side panel has a score line extending from the intersection of said horizontal score line and said common vertical score line between said second and third body panels and extending away from said common score line and said horizontal score line terminating near the midpoint of said edge portion of said first end edge of inner side panel.

5. A container blank as defined in claim **1** having in combination:

a. a tip member as part of said first end edge of said inner side panel and being positioned near the middle of the edge portion of said panel;

b. first and second U-shaped recesses positioned on said first end edge;

c. said first U-shaped recess being positioned at the mid-point of the common edge portion of said first and second fold back panels; and

d. said second U-shaped recess being positioned at the middle of said common edge portion of said third and fourth fold back panels.

6. A paperboard container, the combination, comprising:

a. a tubular body having first and second closures thereon;

b. a said first closure being a flat end closure overlying said body, and including first and second triangular panel members folded flat over said body, and a pair of rectangular shaped panels defined as inner and outer side panels which are folded over said triangular panel members;

c. each of said triangular panel members being flanked by a pair of fold back panels which are joined to said inner and outer side panels;

d. the said fold back panels joined to said inner side panel being extended beyond the free end of said inner side panel when folded into closed position;

e. the free edge of said fold back panels joined to said outer side panel being aligned with the free edge of said inner side panel and overlying the free edge portion of said fold back panels joined to said inner side panels when it is folded into closed position;

f. a first perforated score line on said fold back panel joining said first triangular panel member and said outer side panel, said first perforated score line starting on the outer edge of said fold back panel adjacent said free edge of said fold back panel connecting said first triangular panel member and said inner side panel, and extending substantially along

the free edge of said fold back panel when in the closed position; and

g. a second perforated score line on said outer side panel, said second perforated score line starting on the outer edge of said outer side panel adjacent said first perforated score line and extending diagonally past the free edge of said fold back panel joining said outer side panel to said first triangular panel member when in the closed position.

7. A paperboard container as defined in claim **6**, having in combination:

a. vertical perforated score lines at the edges of said pair of rectangular shaped inner and outer side panels.

8. A paperboard container as defined in claim **7**, having in combination:

a. a diagonal perforated score line positioned between said second triangular panel member and said fold back panel connecting it to said outer side panel.

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