FLAT END CLOSURE CONTAINER WITH RECLOSABLE POUR SPOUT

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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
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 outer 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 toward 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, 16, 29, 18, 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 22 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 23a, 24a, 25a and 26a 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 23a 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 23a, 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 23a. Fold back panel 62 is defined by score line 59, portion of U-shaped recess 65, edge portion 64 and perforated score line 24a.

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 24a 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 24a and 25a. The score line 71 with perforated score line 24a, 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 intersection of perforated score line 24a and 25a, 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 25a and 26a 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 26a and score line 22 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 onto 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 23a 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 23a. The intersection of score line 91 with perforated score line 23a is the starting point of 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 23a 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-in 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 hot-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-head 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 23a 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 23a and 24a near the point of intersection of perforated score lines 92 and 91 with perforated score line 23a. 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 23a 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 23a 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, 23a, 24a, 25a, and 26a may pass the path of 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, 23a, 24a, 25a, and 26a 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
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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.
   b. said second triangular panel member by a score line; and
   c. said inner side panel having a score line extending from said common score line and said horizontal score line terminating near the mid-point 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; and
   c. said first and said second 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.

8. 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;
   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 mid-point of said edge portion of said first end edge of inner side panel.

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.
   b. said second triangular panel member by a score line; and
   c. said inner side panel having a score line extending from said common score line and said horizontal score line terminating near the mid-point 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; and
   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
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9. 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 to 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:

10. 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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