

[54] **EASY OPENING CONTAINER CLOSURE**
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[51] Int. Cl. **B65d 17/20**
[58] Field of Search **220/54, 27, 47; 215/46 A; 222/541**

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[57] **ABSTRACT**

An easy-open end closure for attachment to a container body is provided which has a top panel, a peripheral depending skirt, a pair of score lines defining a partial opening closure section which includes a portion of the skirt and a portion of the top panel, a tab connected to the section for tearing the partial opening section along the score lines to provide a limited opening through the closure, another pair of score lines defining a full opening closure section which includes a portion of the skirt and a portion of the top panel, and another tab connected to the full opening closure section for tearing the same along the other pair of score lines to effect removal of the entire end closure from the container.

18 Claims, 7 Drawing Figures

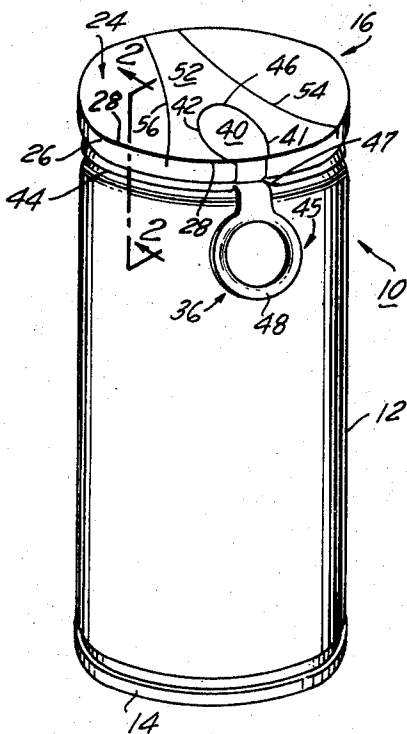


FIG. 1

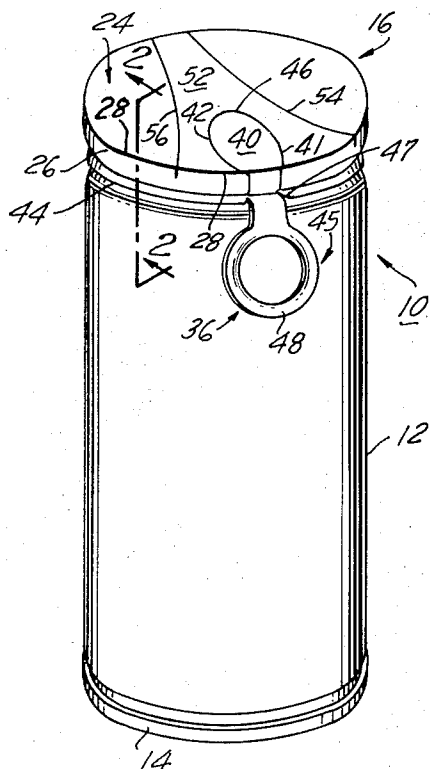


FIG. 3

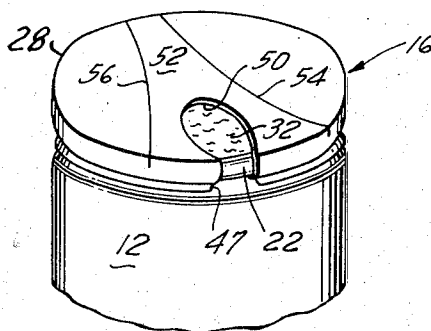


FIG. 2

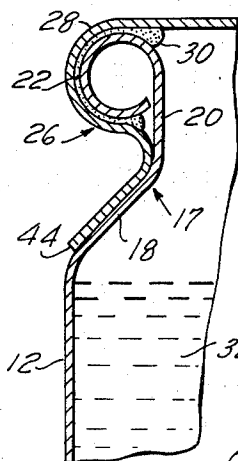


FIG. 6

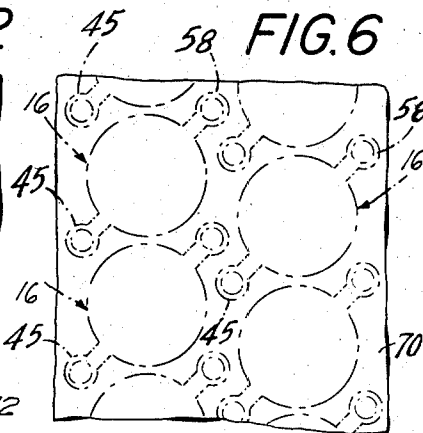


FIG. 4

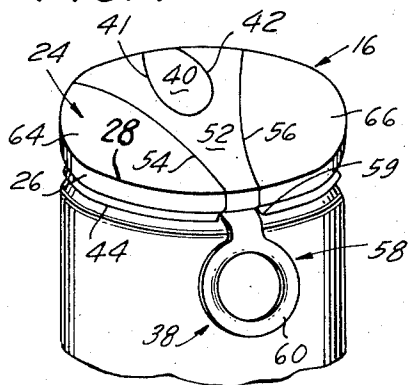


FIG. 5

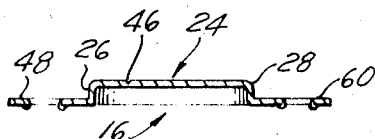
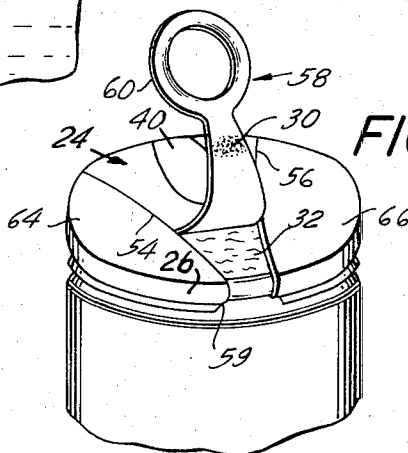


FIG. 7

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EASY OPENING CONTAINER CLOSURE

BACKGROUND OF THE INVENTION

This invention relates to easy opening container end closures and more particularly to easy opening end closures which are scored to provide tear sections for opening the container.

End closures or caps for containers, such as cans and bottles, have been used which had a top panel and a peripheral skirt that was rolled or crimped around a peripheral closure retaining bead at the mouth or open end of the container body. One easy-open feature in such closures has been a full-open, easy-open feature, that included a pair of score lines in the panel and skirt, and a tab associated with the score lines. The tab was adapted to be pulled upwardly to tear the closure section between the pair of score lines and permit the closure to be entirely removed from the container body. Such a full-open feature allowed the mouth of the container body to be fully revealed and accessible to the consumer. There has been a need, however, for an easy-open feature for a closure of this type which would allow the consumer to open, at his option, either a portion of the mouth of the container body or the entire mouth of the container body. Such a closure incorporating means for both full-opening and partial-opening thereof, would allow the consumer of a beverage, for example, to either drink, pour, or spoon from a fully-opened container or drink or pour from a partially-opened container.

SUMMARY OF THE INVENTION

Accordingly, it is a general object of the present invention to provide a plural-opening container end closure having an easy-open feature which permits the user to selectively, readily partially open or fully open a container.

Another object of the invention is to provide a novel end closure for a container wherein easy-open features are provided on the closure enabling a consumer to selectively readily provide a partial opening in the closure or readily remove the entire closure from the container body.

Still another object is to provide a container body and end closure therefor wherein the end closure has a pair of easy-opening features that may be selectively operated to provide either an opening of limited size or the removal of the end closure from the container body.

In accordance with one aspect of the present invention an end closure for a container is provided having an end wall, a peripheral side wall for connection with a container body, a first score line pattern defining a first tear section including a portion of the end wall and a portion of the side wall, a tab connected to the first tear section for tearing the same along the first score line pattern, the first tear section when torn providing a partial opening in the closure, a second score line pattern defining a second tear section including a portion of the end wall and another portion of the side wall, and another tab connected to the second tear section for tearing the same along the second score line pattern, the second tear section when torn providing a full opening for the container.

These and other objects and advantages of the present invention will become apparent from the fol-

lowing detailed description and accompanying drawing wherein a preferred embodiment is shown.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a container having a closure member embodying the present invention;

FIG. 2 is a cross-sectional view taken along the line 2-2 of FIG. 1;

FIG. 3 is a fragmentary perspective view of the container of FIG. 1 but with the container opened by one of the easy open devices;

FIG. 4 is a fragmentary perspective view of the container of FIG. 1 rotated 180° about the vertical axis thereof;

FIG. 5 is a fragmentary perspective view similar to FIG. 4 but with a second easy-open device shown partially activated;

FIG. 6 is a plan view, on a reduced scale, showing layout of end closures in phantom as formed from sheet material; and

FIG. 7 is a cross-sectional view, on a reduced scale of an end closure of FIG. 1 before it is attached to a container body.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to drawings, and particularly to FIGS. 1 and 2, a container 10 is shown for illustration including a container body 12, a bottom end closure 14, and a top end closure or cap 16.

The container body 12 is shown made of metal such as steel or aluminum, although it could be made from plastic or glass where desired. The bottom end 14 may be formed integrally with body 12 or may be a conventional metal end attached to the bottom of the body 12 such as by rolling or double seaming it thereto.

As seen more clearly in FIG. 2, the body 12 is provided with an upper necked-in portion 17 which has an inclined portion 18 extending radially inwardly and that connects with a vertically extending portion 20. Connected to the portion 20 is a closure retaining bead or curl 22 at the open mouth of the body 12.

The top end closure 16 is shown as a cap formed, for example, from sheet metal, such as aluminum. The cap 16 has a top panel 24 which is shown substantially flat, and a peripheral or annular depending side wall or skirt 26 connected to the panel 24 at the peripheral annular edge or corner bend 28 of the panel. The skirt 26 of the illustrated cap 16, is a cylindrical depending skirt portion (FIG. 7) before it is attached to the upper open end or mouth of the container body 12. As seen more clearly in FIG. 2, the skirt 26 is shown crimped or rolled around bead 22. The inner side of the skirt has attached thereto a suitable sealing material or gasket 30 for hermetically sealing the container 10.

The closure 16 permits the consumer to select more than one type or form of opening for removing the contents indicated at 32 in the drawing. Cap 16 is provided with a pair of easy-open devices indicated generally at 36 (FIG. 1) and 38 (FIG. 4).

As best seen in FIG. 1, easy-open device 36 includes a tear section 40 defined by a pair of score lines or grooves 41 and 42 extending from the lower edge 44 of the cap 16 at one side of the cap, across the skirt 26, and partially over the top panel 24 toward the opposite

side of the cap. The tear section 40 is shown also including a score line 46 interconnecting score lines 41 and 42. The easy-open device 36 also includes a downwardly extending pull tab 45 connected to the tear section 40 at the lower edge 44 of the cap. A pair of tear promoting notches 47 are provided in the skirt 26 immediately adjacent each side of the tab 45. The tab 45 has a pull ring 48 integrally connected therewith. Thus, tear section 40 includes a portion of the top panel 24 and a minor portion of the skirt 26 between score lines 41 and 42.

The score lines 41, 42 and 46 provide a score pattern such that when it is desired to open the container 10 by utilizing easy-open device 36, the pull ring 48 is grasped and pulled outwardly and upwardly so that the tear section 40 is torn along these score lines, which, in the embodiment shown, produce a relatively small opening 50 in the panel 24, as seen in FIG. 3. In this case, the entire easy-open device 36 including tear section 40 is removed from the cap 16 while the remainder of the cap stays on the container body 12.

The easy-open device 38, which is seen more fully in FIG. 4, includes a tear section 52 defined by a pair of score lines 54 and 56 extending from the lower edge 44 of cap 16 across the skirt 26, and preferably completely across the panel 24. Easy-open device 38 also includes a downwardly extending pull tab 58 connected to tear section 52 at the lower edge 44 of the cap. A pair of tear promoting notches 59 are formed in the skirt 26 immediately adjacent each side of the tab 58. Tab 58 also has a pull ring 60 which is shown integrally connected thereto.

The score lines 54 and 56 of tear section 52 are shown extending entirely across the panel 24, around the cap edge 28, and downwardly partially across the skirt 26 at the opposite side of the cap. In FIGS. 1 and 3 the score lines 54 and 56 are shown extending down the skirt 26 but stopping short of the lower cap edge 44.

With the score pattern shown defined by the score lines 54 and 56 in the drawing, pulling outwardly and then upwardly on pull ring 60 will effect tearing of tear section 52 out of the skirt 26 between the score lines, and by pulling the tab 58 across the panel 24, the tear section will be torn out of the plane of the panel, such as indicated in FIG. 5. By continuing to pull tab 58 across the panel 24, tear section 52 will be torn completely across the panel 24, around the edge or corner 28 and partially down the skirt 26 at the opposite side of the cap where these score lines terminate. As the tab 58 is further pulled in a direction away from the container, the tear section 52 causes the remaining side sections of the cap indicated at 64 and 66 which are integrally connected thereto by a portion of the skirt 26 to be moved laterally away from each other and off of the container bead. The side sections 64 and 66 are integrally connected to the tear section 52 by a portion of the skirt 26 adjacent the terminal ends of score lines 54 and 56. These side sections 64 and 66 bend outwardly and remain with the tear section 52 so that the entire cap 16 with its seal 30 is removed from the container 10.

FIG. 6 illustrates a manner of punching and forming a plurality of container caps 16 from sheet material 70. The caps are shown in phantom layout with the tabs 45 and 58 of each cap diametrically at opposite sides of the panel 24 to minimize waste material.

In FIG. 7 a cap 16 is shown in its completed form but before being attached to a container body 12. During seaming or rolling of the cap onto the mouth of the body 12, the tabs 45 and 58 are of course flattened against the periphery of the body as indicated in FIGS. 1 and 4 where they are shown substantially vertical and parallel with the body 12.

In the illustrated embodiment, the score lines 54 and 56 of the full-open device 38 extend from the tab portion 58 (FIG. 4) and diverge from one side of the cap to the other. The section 40 of the partial-open device 36 is diametrically opposite easy-open device 38, and extends into the tear section 52 of device 38. With this arrangement when the partial-open ring 48 of tab 45 is utilized to partially open the can or provide a limited opening, a portion of tear section 52 is removed, as seen in FIG. 3. The limited opening 50 in FIG. 3, is preferably less than half of the area of the top panel. The opening 50 permits use of a straw in the case where the product is liquid, such as a beverage or semi-liquid, such as a frozen or semi-frozen consumable product. The opening 50 may also be used where desired for pouring or drinking.

When the entire cap 16 is removed by utilizing the easy-open device 38 the entire end of the container body is open and the container bead 22 exposed. This full-open feature permits pouring, drinking, or spooning of the product 32 from the container 10.

The cap 16 thus allows the consumer to select the form or type of opening through which the contents can be removed.

Various score patterns are of course possible. Preferably, the score lines 54 and 56, as in the illustrated embodiment, do not extend entirely across the skirt at that side of the cap 16 opposite tab 58 (FIG. 1) so that when the cap is fully removed, the sections 64 and 66 remain connected to the tear section 52, as previously mentioned herein. The tear section 40 of the limited access or partial-open device 36, of course, also remains with the other portions of the cap so that all portions of the cap 16 can be removed together when it is desired to use device 38.

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.

What is claimed is:

1. An end closure for a container comprising a top panel, a peripheral side wall connected to said panel and extending therefrom to receive an open end of a container body, a first score pattern defining a first tear section including a portion of said side wall and a portion of said panel, first tab means connected to said side wall portion and adapted to be grasped for tearing said first tear section along said first score pattern, said panel portion being great enough to permit removal of the entire closure from a container body when said first tear section is torn along said first tear pattern, a second score pattern defining a second tear section including another portion of said side wall and a part of said panels and second tab means connected to said other side wall portion to be grasped for tearing said

second tear section along said second score pattern, said second tear section when torn along said second score pattern providing a limited opening through the closure.

2. The closure according to claim 1 wherein said part of said panel extends into said first tear section.

3. The closure according to claim 2 wherein said first and second tab means are on diametrically opposite sides of said panel.

4. The closure according to claim 1 wherein said side wall is cylindrical, and said first and second tab means are disposed substantially 180° apart.

5. The closure according to claim 4 wherein the closure is formed of a metal.

6. The closure according to claim 5 wherein said second tear section is detachable from the end closure.

7. The closure according to claim 5 wherein said first score pattern includes a first pair of score lines extending from the lower peripheral edge of said side wall, upwardly through said side wall, and at least partially across said top panel.

8. The closure according to claim 7 wherein said first pair of score lines extend across said top panel, around the peripheral edge of said panel, and downwardly toward said lower peripheral edge to a terminal point spaced from said last named edge.

9. The closure according to claim 8 wherein said score lines of said first pair diverge from each other across said top panel.

10. The closure according to claim 9 wherein said second score line pattern includes a second pair of score lines extending from the lower peripheral edge of said side wall, across said side wall, and partially across said top panel between said score lines of said first pair.

11. The end closure according to 10 wherein said second score pattern includes a third score line connecting with said score lines of said second pair whereby said second tear section is detachable from said panel.

12. In combination, a container body having peripheral bead means at one end thereof, and an end

closure attached to said body, said end closure comprising a top panel, an annular, peripheral depending skirt integral with said end closure, said skirt being formed around said bead and having a bottom peripheral edge, sealing means between said skirt and said bead to effect a seal therebetween, a first score pattern defining a first tear section including a first portion of said skirt and a first portion of said top panel, first tab means connected to said first skirt portion at said bottom peripheral edge thereof and adapted to be grasped for tearing said first tear section along said first score pattern, said first tear section being proportioned to permit removal of the entire end closure from said container, when torn along said first score pattern, a second score pattern defining a second tear section including a second portion of said skirt and a part of said panel, and second tab means connected to said other portion of said skirt and adapted to be grasped for tearing said second tear section along said second score pattern to provide a limited access opening in said end closure.

13. The combination according to claim 12 wherein said first tear section includes another portion of said skirt at the terminal end of said tear section.

14. The combination according to claim 12 wherein said second tear section includes a portion of said first tear section.

15. The combination according to claim 14 wherein said first score pattern includes a pair of score lines which diverge from one end to the opposite of said first tear section and terminate in said skirt on opposite sides of said second skirt portion.

16. The combination according to claim 15 wherein said end closure is a single piece metal member.

17. The combination according to claim 16 wherein said first and second tab means are integral with said skirt and are disposed approximately 180° apart.

18. The combination according to claim 17 wherein said first and second tab means extend downwardly substantially parallel with said container body.

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