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Hougen et al.

[11] **3,795,340**

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[54] **TAB MOUNTING ARRANGEMENT FOR EASY OPENING CAN END**

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[52] **U.S. Cl.** **220/54**, 220/48

[51] **Int. Cl.** **B65d 17/24**

[58] **Field of Search** 220/48, 54, 47

[56] **References Cited**

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Primary Examiner—George T. Hall

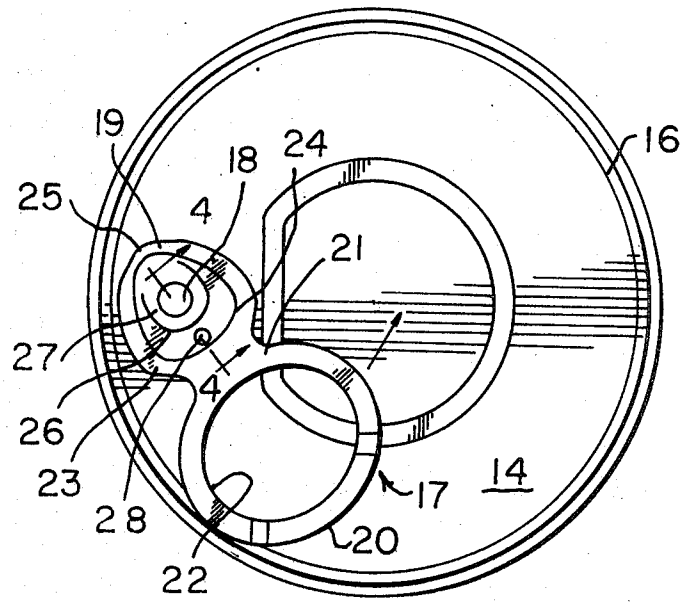
Attorney, Agent, or Firm—John J. Kowalik; Joseph E. Kerwin; William A. Dittmann

[57] **ABSTRACT**

A pull tab mounting arrangement for an easy opening container of the type having a tear or removable panel portion defined by a continuous score line. The pull tab includes a finger grip portion having a finger opening at one end and a nose portion at the other end. The tab is mounted on the removable panel portion for tilting and turning movement about the rivet. The rivet is fastened to an attachment ear defined by a lance formed in the pull tab. A dimple is formed in the removable panel portion and is adapted to seat within a cavity provided in the pull tab. The dimple is located so that when seated in the cavity, the pull tab is positioned with the nose out of alignment with the score line to prevent tilting of the tab and thereby severance of the score line. The tab is turnable to a position out of seating engagement with the cavity to a position in alignment with the score line to permit opening of the container.

In a second embodiment of the invention, a projection formed in the panel is accommodated within the finger opening of the tab to maintain the latter in a non-score line severing position.

6 Claims, 8 Drawing Figures



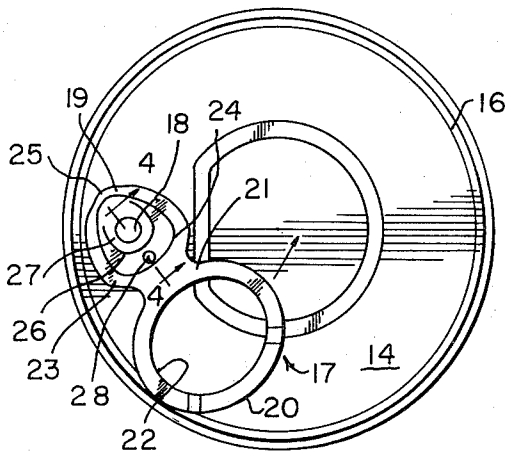


FIG-1

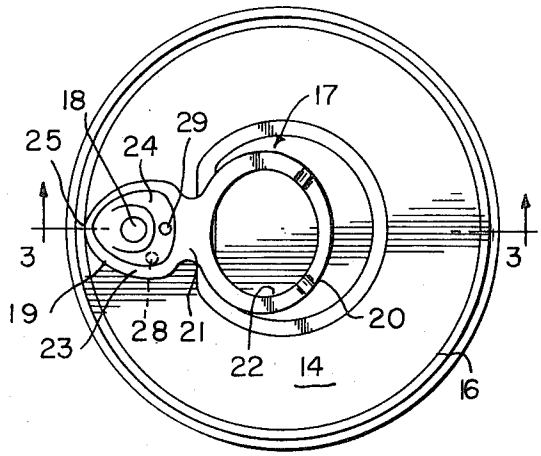


FIG-2

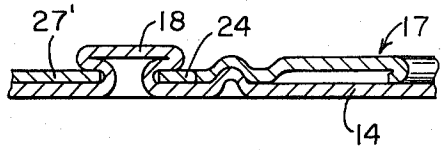


FIG-4

FIG-3

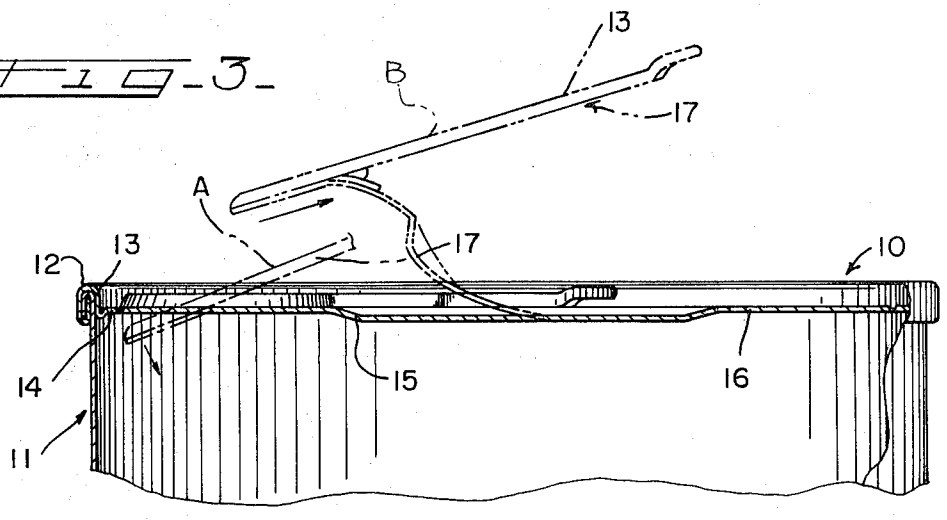


FIG-5

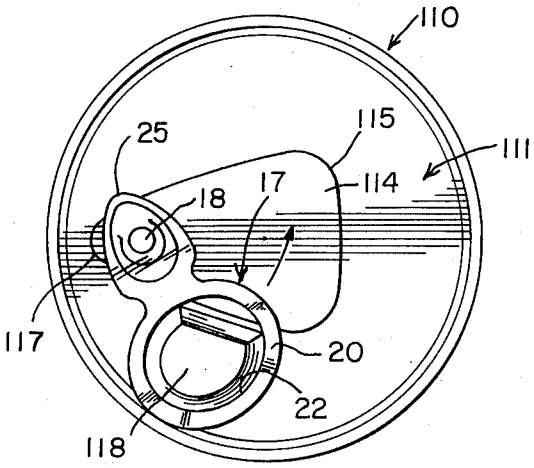


FIG-6

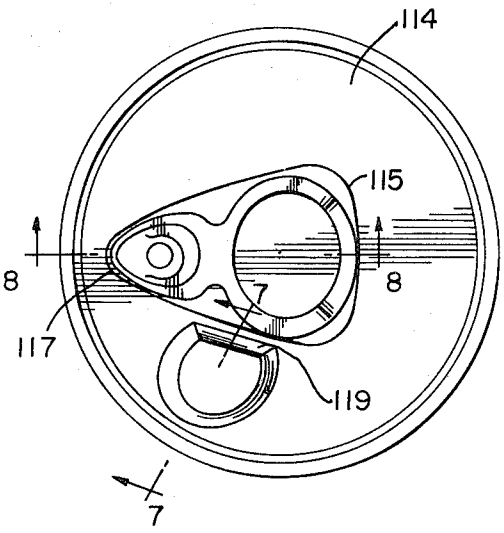


FIG-7

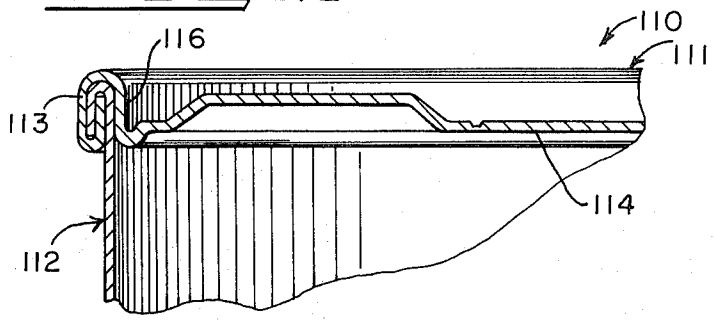
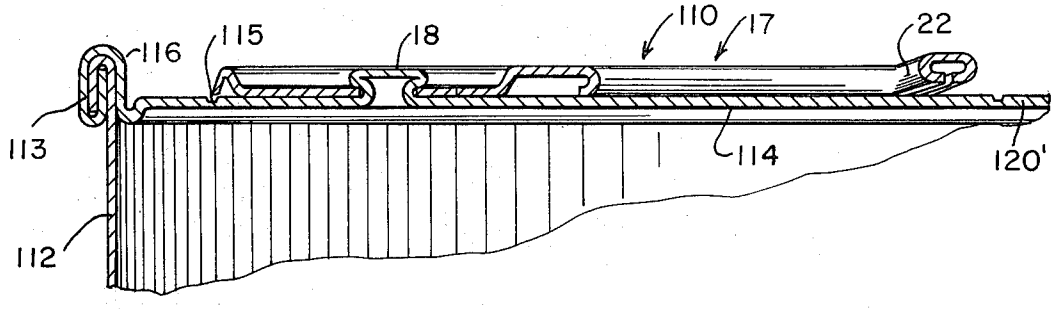


FIG-8



TAB MOUNTING ARRANGEMENT FOR EASY OPENING CAN END

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates to a new and useful improvement in easy opening containers and more particularly to a pull tab mounting arrangement for assuring that the container is not inadvertantly opened.

Easy opening containers of the type to which the present invention relates include an end closure formed with a score line to define a removable panel portion. A pull tab is attached to the removable panel portion for tilting movement so that a nose on one end thereof is operative to initially sever the score line. Thereafter, a pulling force applied on the tab separates the removable panel portion along the score line from the end panel and thereby provides an opening through which the contents of the container are emptied.

It is an object of the present invention to provide an improved mounting arrangement for the pull tab which is constructed and arranged so that the pull tab in its normal stored position is located so that the nose is out of alignment with the score line to prevent inadvertant opening of the container when the pull tab is tilted upwardly.

This is accomplished by providing a mounting arrangement in which the panel is provided with a detent which co-acts with a cavity in the pull tab so that the pull tab is normally held in a position wherein the nose is spaced away from the score line. The pull tab is pivotal to a position wherein the detent is disengaged from the cavity and the nose is aligned with the score line to permit opening in the conventional manner.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a container having an end closure embodying the easy opening structure of the present invention and showing the pull tab in the non-opening position.

FIG. 2 is a top plan view similar to FIG. 1 but showing the pull tab in the operative opening position.

FIG. 3 is a cross-sectional view of the container taken generally along the lines 3—3 of FIG. 2 and showing in phantom lines the different positions of the pull tab and the tear portions during opening of the container.

FIG. 4 is a cross-sectional view taken generally along the lines 4—4 of FIG. 1 and showing in particular the manner in which the detent means retains the pull tab in the non-opening position.

FIG. 5 is a top plan view of another embodiment of an easy opening arrangement with the pull tab shown in the non-opening position.

FIG. 6 is a top plan view similar to FIG. 5 but showing the pull tab in its operative position for opening the container.

FIG. 7 is a cross-sectional view taken generally along the line 7—7 of FIG. 6.

FIG. 8 is a cross-sectional view taken generally along the lines 8—8 of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings in particular FIGS. 1 to 4, there is illustrated an easy opening container 10 including a body 11 to which an end closure 13 is secured by means of a double seam 12. The end closure 13 includes an end panel 14 having a removable panel portion 15 defined by a peripheral score line 16.

A pull tab 17 is provided to facilitate the rupture of the end panel 14 along the score line 16 and to separate the removable panel portion 15 from the panel 14. The pull tab 17 is made from a single piece of sheet metal and is secured to the removable panel portion 15 by means of a rivet 18 formed integral with the removable panel portion 15. The pull tab 17 is of substantially standard structure. For a more detail description of the pull tab, reference is made to Khoury U.S. Pat. No. 3,593,877.

Generally, the pull tab 17 includes a forward or nose portion 19 and a rear finger grip portion 20. The nose portion 19 and finger grip portion 20 are rigidly connected together by a transverse cross bar 21. The finger grip portion 20 is in the form of a finger ring and has a finger receiving opening 22. The forward portion or nose 19 is reenforced by an upstanding rib 23 which together with the cross bar 22 forms an encircling reenforcement. The rib 23 surrounds a well portion 24 which includes a U-shaped lance 26 opening towards the nose 25 and defines an attachment ear 27 which receives the rivet 18. Upon lifting of the pull tab upwardly, the pull tab hinges about a line passing through the terminal ends of the U-shaped lance so that the nose 25 may be brought into bearing relations with the end panel 14.

To hold the nose 25 out of engagement with the score line 16 so that inadvertant lifting of the pull tab 17 is not operative to initially penetrate the score line 16, the tab is located on the panel with the nose 25 spaced from the score line 16. The dimple 28 is seatable within a cavity in the form of a depression 29 provided in the pull tab well portion 24 rearwardly of the U-shaped lance 26. When the dimple 28 is thus seated in the depression 29, the pull tab 17 is disposed so that the nose 25 is displaced out of engagement with the score line 16.

To align the nose 25 with the score line 16, the pull tab 17 is lifted upwardly slightly so that the pull tab 17 is clear of the detent 28 and turned about the rivet 18 to the position shown in FIG. 2. Upward tilting of the pull tab as shown in phantom line A of FIG. 3 causes the nose 25 to sever the score line 16. Thereafter, upon further pulling as shown in phantom line position B, the removable panel portion is completely separated from the end panel.

Referring now to the embodiments of FIGS. 5 through 8, there is shown another embodiment of an easy opening container 110 having an end closure 111 attached to a can body 112 by means of a double seam 113. A removable panel portion 114 of general triangular shape with the vertex 117 located adjacent to the chuck wall 116 is defined by a score line 115 in the end panel 120.

The pull tab 17 is generally similar to the structure of the embodiment of FIGS. 1 to 4 differing therefrom in the omission of the depression 29. As described heretofore, the finger grip portion 20 is provided with a finger opening 22. The finger opening 22 serves as a cavity and is adapted to fit over a detent in the form of a projection 118. The projection 118 is in the form of a frustrum of a cone which may be provided with a flat face 119 so that it may be accommodated in the space between the score line 115 and the chuck wall 116.

The projection **118** is located so that the nose **25** of the pull tab **17** is turned about the rivet **18** out of alignment with the apex **117** of the removable panel portion **114.** To open the container, the pull tab **17** is lifted so that the projection **118** is clear of the finger opening and is rotated about the rivet **18** to the position as shown in FIG. **6.** The nose **25** is thus aligned with the apex **117** of the score line **116** so that upon lifting, the nose **25** penetrates the score line **116.** Thereafter, upon further upward pulling, the tear portion **114** is removed from the remainder of the panel **120** which remains attached to the container body.

What is claimed is:

1. An easy opening container comprising a body and an end closure having a chuck wall and an end panel, a removable panel portion defined by a score line in said end panel, a pull tab having a finger grip portion and a nose portion, fastening means for fastening said pull tab to said end panel for turning movement in a substantially horizontal plane and upward tilting movement, a cavity in said pull tab, and a detent located on said panel so as to be seatable within said cavity for retaining said pull tab in an inoperative position with said nose out of alignment with said score and unseatable from said cavity wherein said pull tab may be turned about said fastening means to a position wherein said nose is in alignment with said score line for removing said removable panel portion from said panel.

2. The invention as defined in claim **1** wherein said cavity is in the form of a depression formed in said pull tab.

3. The invention as defined claim **2** wherein said finger grip portion is provided with a finger opening and said cavity is in the form of an opening defining said cavity.

4. The invention as defined in claim **1** wherein said detent is formed in said removable panel portion.

5. The invention as defined in claim **2** wherein said detent is formed in said panel between said chuck wall and said score line defining said removable panel portion.

6. The invention as defined in claim **5** wherein said detent is in the form of a frustrum of a cone having a flat side along one side thereof.

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