United States Patent [19]

De Phillips et al.

[11] **3,796,344**

[45] **Mar. 12, 1974**

[54] **NON-DETACHABLE TEAR STRIP AND PULL TAB STRUCTURE FOR EASY OPENING CONTAINER**

[75] Inventors: **James V. De Phillips**, Oak Lawn; **Ronald O. Karka**, Tinley Park, both of Ill.

[73] Assignee: **Continental Can Company, Inc.**, New York, N.Y.

[22] Filed: **May 18, 1972**

[21] Appl. No.: **254,585**

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

[51] **Int. Cl.** **B65d 17/20**

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

[56] **References Cited**

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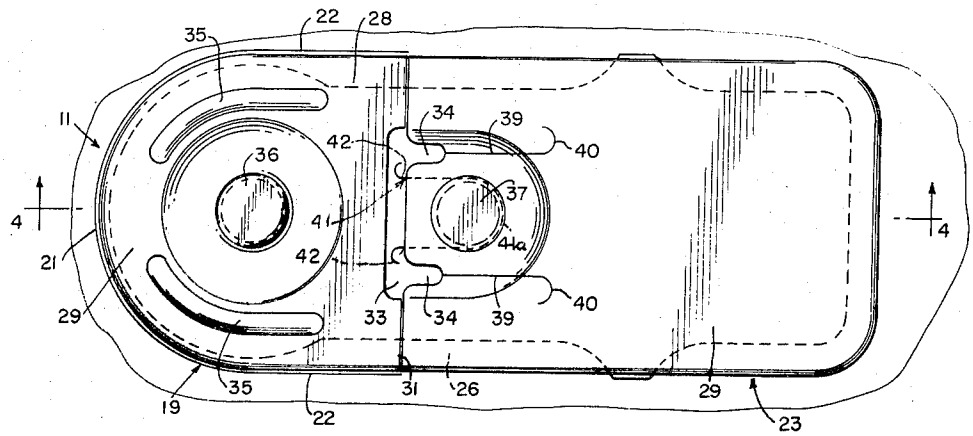
Primary Examiner—George T. Hall

Attorney, Agent, or Firm—Americus Mitchell; Joseph E. Kerwin; William A. Dittman

[57] **ABSTRACT**

An easy opening container having a panel including a tear strip defined by a weakening line which terminates in spaced ends. A pull tab is attached to the panel for severing the weakening line along the length thereof and bending the tear strip into the container about a line extending between the ends of the weakening line to thereby provide a pour opening. The pull tab is constructed so as to be bendable in overlying relation with the panel after severance of the weakening line without reclosing the pour opening.

7 Claims, 9 Drawing Figures



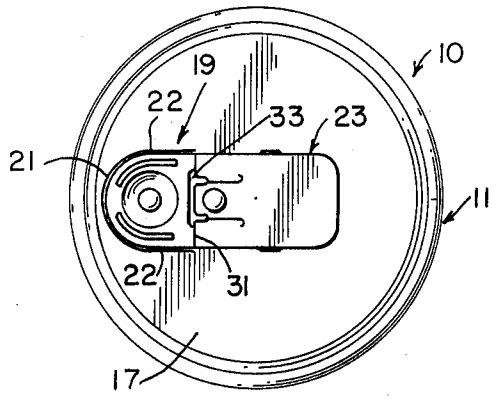


FIG. 1

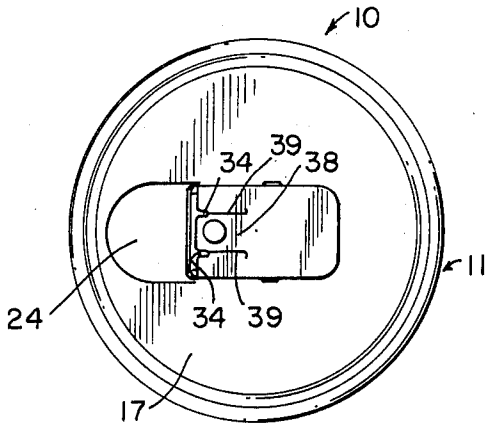


FIG. 2

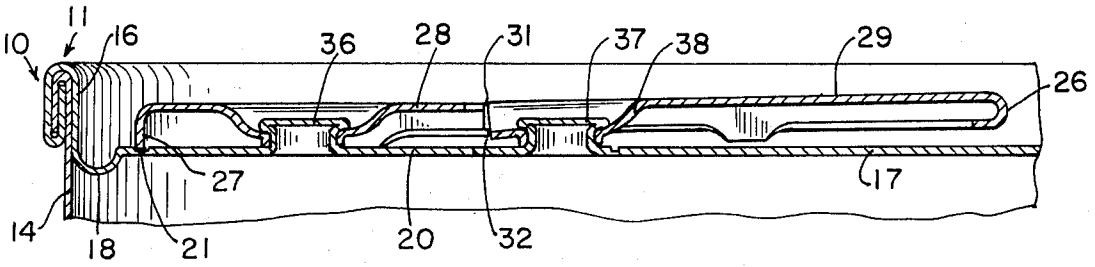


FIG. 5

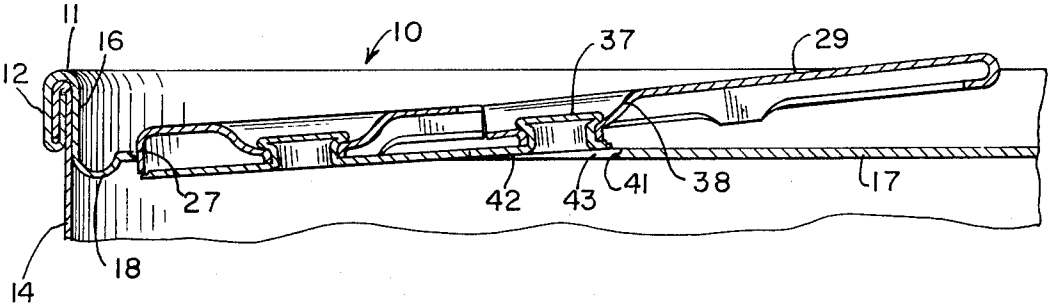


FIG. 6

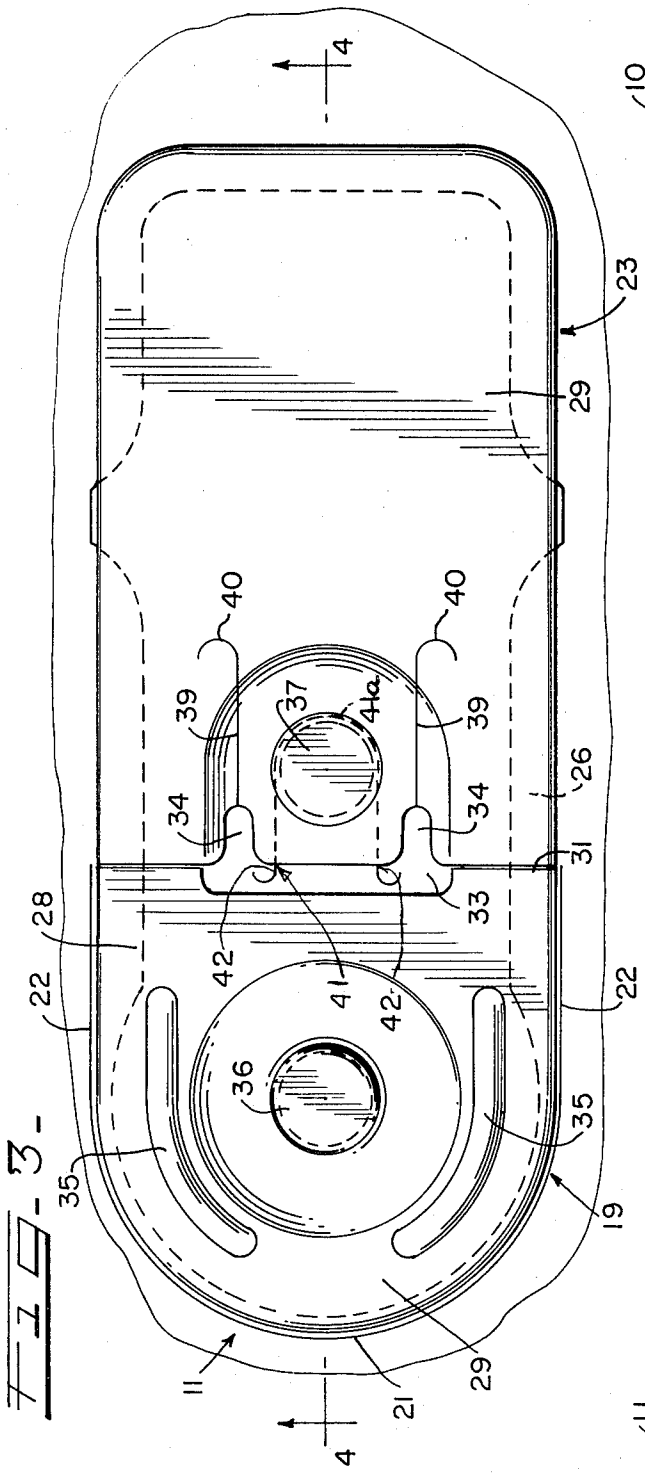

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FIG. 3

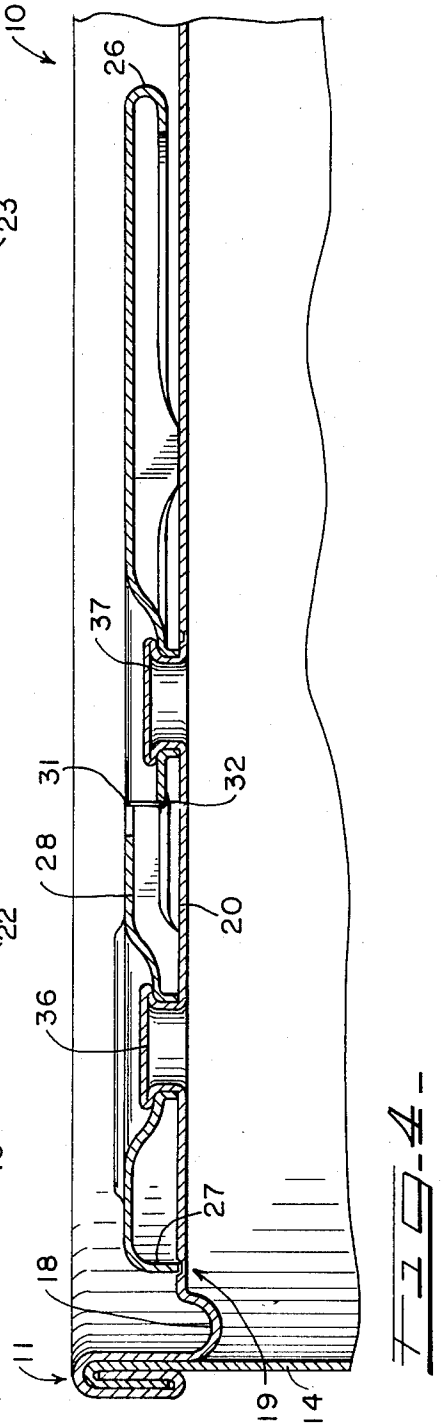

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FIG. 4

FIG. 7.

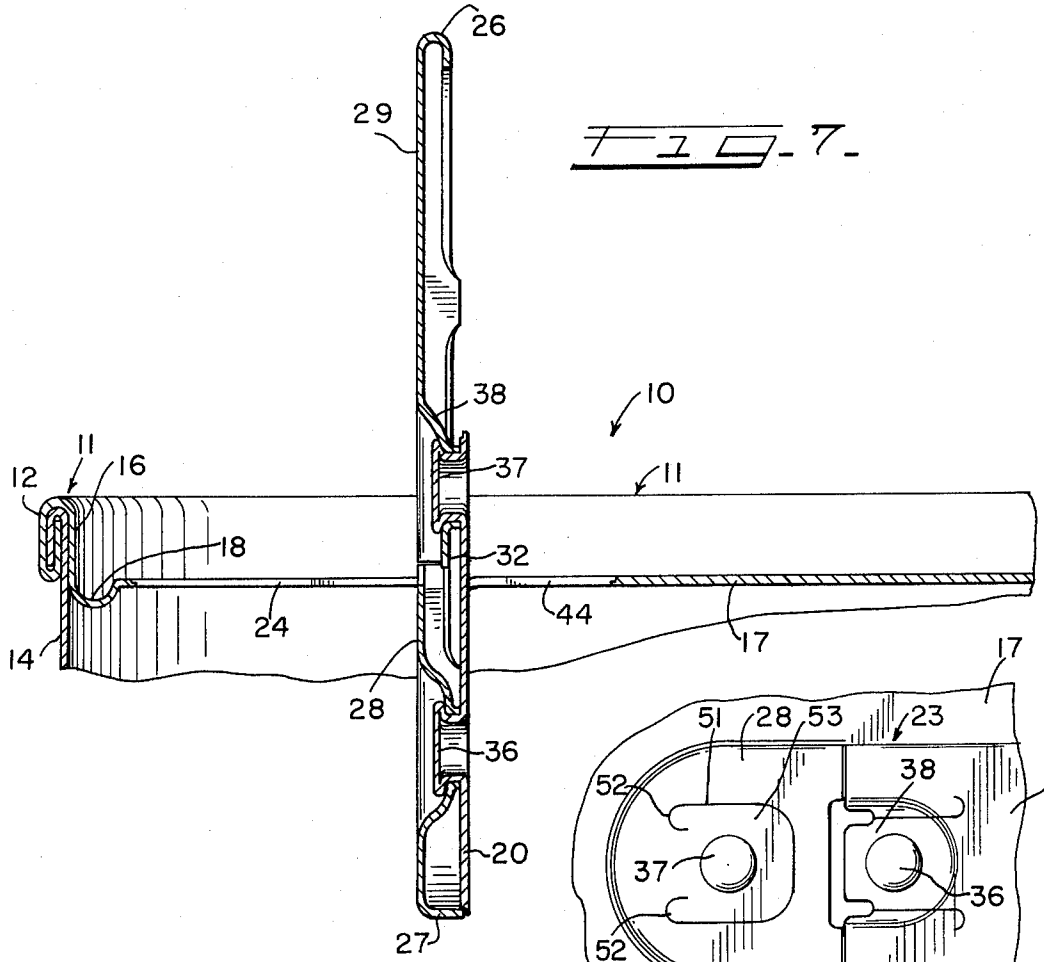


FIG. 8.

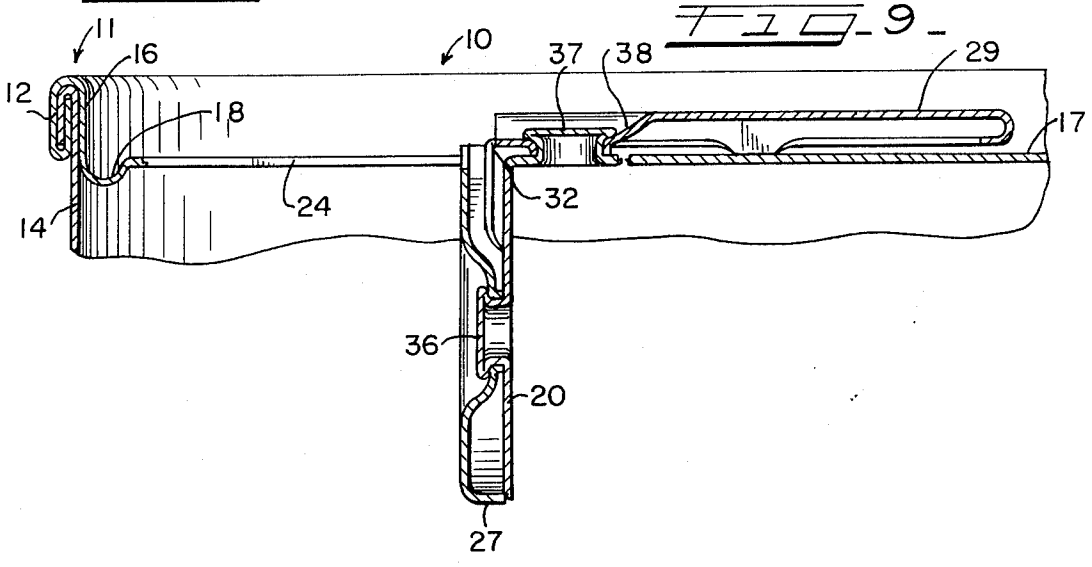


FIG. 9.

NON-DETACHABLE TEAR STRIP AND PULL TAB STRUCTURE FOR EASY OPENING CONTAINER

BACKGROUND AND SUMMARY OF THE INVENTION

The invention relates to an easy opening container in which the sheet metal end closure is formed with a weakening line to define a tear strip and a tab is attached to the tear strip for severing the weakening line to form a pour opening.

Heretofore, it has been common practice to provide a weakening line which defines a tear portion that is completely removable and separable from the container. This has the disadvantage that the separated tear portion may be carelessly discarded and create litter.

The present invention provides an easy opening container having an improved non-detachable tear strip and an improved pull tab for facilitating the separation of the tear strip from the panel to form a pour opening and to position the non-detached tear strip and pull tab in a non-obstructing position after formation of the pour opening.

The foregoing is accomplished generally by providing the panel of an end closure with a tear strip defined by a weakening line terminating in spaced ends. The tear portion or strip is bendable about a line extending between the ends of the weakening line. A pull tab having a nose portion and a finger grip portion is fastened to the panel at the nose portion and the finger grip portion. A U-shaped slit is formed in the finger grip portion to define an attachment panel which receiver a fastener for attaching the tab to the panel.

The pull tab is constructed to act as a lever upon lifting or tilting at the finger grip portion to initiate rupture of the weakening line. A hinge connection is provided between the nose portion and the finger grip portion to permit bending of the tab after the weakening line is severed and the tear portion is bent into the container. The hinge connection is arranged so that the finger grip portion projecting above the plane of the panel may be bent along the line extending between the ends of the weakening line to a position overlying the panel. In this manner, the tear portion remains in the container along with the nose portion while the finger grip portion lies in a non-obstructing position overlying the panel.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of an easy opening container prior to being opened and embodying the structure of the present invention;

FIG. 2 is a top plan view of the container showing the container when opened;

FIG. 3 is an enlarged fragmentary view of the container end panel and the pull tab prior to being opened;

FIG. 4 is a cross-sectional view taken generally along the lines 4—4 of FIG. 3;

FIG. 5 is a cross-sectional view similar to FIG. 4 but showing the condition of the panel and pull tab upon initial upward tilting of the latter;

FIG. 6 is a cross-sectional view of FIGS. 4 and 5 but showing the condition upon further upward tilting;

FIG. 7 is a cross-sectional view similar to FIGS. 4, 5 and 6 but showing the condition of the panel and pull tab when the tear strip is severed along the full length of the score line to provide a fully opened pour opening;

FIG. 8 is a cross-sectional view similar to FIG. 7 but showing the condition of the tab when the finger grip portion thereof is bent into overlying relation with the panel;

FIG. 9 is a fragmentary top plan view of another embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, there is shown a container **10** having an end closure **11** embodying the easy opening structure of the present invention. The end closure **11** comprises generally a flange **12** which is double seamed to an end of a container body **14.** The other end of the container or can body **14** may either be formed with an integral end or a separate end closure attached thereto (both types of end structures not shown).

The end closure **11** includes an upstanding chuck wall **16** and a panel **17.** The panel **17** may be provided with a peripheral bead **18** which serves as a shock absorbing bead.

A substantially U-shaped weakening line **19** defined by a score line is formed in the panel **17.** The weakening or score line **19** includes a bight portion **21** and a pair of transversely spaced legs **22** extending therefrom.

A pull tab **23** made from sheet stock is secured to the panel **17** for breaking the weakening line **19** and depressing a separable portion or tear strip **20** defined by the weakening line **19** downwardly and of the plane of the panel **17** and into the container body **14** to provide a pour opening **24.** A hem **26** extends about the pull tab to impart rigidity thereto. The hem **26** is formed as a downwardly depending flange **27** overlying the bight portion **21** of the weakening line **18.**

The pull tab **23** includes a forward or nose portion **28** which is separated from a rear or finger grip portion **29** by a transversely disposed slit **31.** The slit **31** extends only partially through the hem **26** to provide an unslit portion **32** so that the finger grip portion **29** and the nose portion **28** remain attached but being bendable about the unslit portion **32.** A cutout **33** if formed intermediate the length of the slit **31** in the nose portion **28** and a pair of projecting notches **34** are formed in the finger grip portion **29.** To rigidity the nose portion **28,** reinforcing beads **35** may be provided.

As shown the nose portion **28** of the pull tab **23** is contoured complementary to the score line **19** and is located so that the slit **31** lies generally along a line extending between the terminal ends of the legs **22.**

The pull tab **23** is fastened to the panel **17** by means of a first rivet **36** formed integral with the panel and located on the tear strip **20.** A second rivet **37** formed integral with the panel **17** extends through the finger portion **29** and is fastened to an attachment flap **38** defined by a pair of spaced longitudinal slits **39—39** extending inwardly from the notches **34—34.** The slits **39** may each terminate in curled ends **40.**

A score line **41** having a bight **41***a* and a pair of legs **42** is formed in the panel about the rivet **37** so that the terminal ends **42,** which may be formed with curls, face the nose portion **28.**

To open the container, the finger grip portion **29** of the pull tab **23** is grasped and tilted upwardly away

from the underlying panel. Upon initial upward tilting, the finger grip portion 29 is easily lifted until the attachment flap 38 is tautened and applies a stress on the rivet 37 as shown in FIG. 5. Further upwardly tilting causes additional stress to be imposed on the weakening line 41 via the rivet 37 whereupon the length of the weakening line 41 is severed to provide a hinge flap 43 which is removed out of the plane of the panel 17 to provide a vent opening 44.

At the same time, the flange 27 engages the bight portion 21 of the score line 19 to initiate severance thereof. As the pull tab 23 is tilted to an upright position, the weakening line is severed along the length thereof so that the tear strip 20 is depressed downwardly out the plane of the panel 17 to the position shown in FIG. 7. In this manner, the pour opening 24 is provided through which the contents of the container is emptied.

If it is desired to consume the contents directly from the container by placing the mouth over the pour opening 24, the upstanding finger grip portion 29 is easily bent about the unslit hem connection 32. The finger grip portion 29 is bent until it lies substantially flush with the remainder of the panel 17 as shown in FIG. 8. The finger grip portion 29 is thus located in a non-obstructing position so that the mouth of a user may be placed directly over the pour opening. At the same time, the tear portion 20 and the pull tab nose 28 remain within the can body 14.

To further facilitate the lifting of the pull tab 23 to initiate the severance of the weakening line 19, a U-shape slit 51 may be provided in the nose portion 28 as shown in FIG. 9. The U-shaped slit 51 opens toward the outer end of the nose portion 28 and the ends thereof may terminate in curls 52. The U-shaped slit 52 defines a second attachment flap 53 which facilitate the initial upward tilting of the pull tap 23. For example, upon upwardly tilting or lifting of the pull tab 23, the nose portion 28 and the finger grip portion 29 are both inclined away from the panel 17 until the flaps 38 and 53 are stressed by the rivets 36 and 37, respectively. Thereafter upon further tilting, the score line 41 breaks to vent the can and also allowing further upward tilting so that the score line 19 is severed by the flange 27 on the nose 28. The full length of the score line 19 is severed until the tear portion 20 is at substantially right angular relationship with the panel 17.

The finger grip portion 29 is bent rearwardly about the hinge connection 32 until it assumes the position as shown in FIG. 8.

What is claimed is:

1. An easy opening container comprising an end closure having a panel, a weakening line provided in said panel and terminating in spaced ends defining a tear strip, a pull tab, fastening means fastening said pull tab to said panel, said pull tab having a finger grip portion and a nose portion contoured to lie along said weakening line, slit means in said pull tab defining an attachment flap to which said fastening means is connected, means connecting said nose portion and said finger grip portion to provide a lever when said pull tab is tilted upwardly at said finger grip portion so that said nose portion severs said panel along said weakening line and bends said removable panel portion inwardly substantially along a line extending between said spaced ends of said weakening line to form a pour opening in said panel, said means connecting said nose portion and said finger grip portion permitting said finger grip portion to be bent relative to said nose portion to a position overlying said panel adjacent said pour opening.

2. The invention as defined in claim 1 wherein said fastening means comprises a rivet extending through said finger grip portion and another rivet extending through said nose portion.

3. The invention as defined in claim 2 wherein said slit means defining said attachment flap is formed in said finger grip portion, and said slit is disposed about said rivet.

4. The invention as defined in claim 3 wherein a U-shaped slit is formed in said nose portion with the bight thereof facing said finger grip portion.

5. The invention as defined in claim 3 wherein a U-shaped score line is formed in said panel and disposed about said rivet with the open end facing toward said nose portion.

6. The invention as defined in claim 4 wherein a U-shaped score line is formed in said panel and disposed about said rivet with the open end facing toward said nose portion.

7. An easy opening container comprising an end closure having a panel, a weakening line in said panel and terminating in spaced ends defining a tear strip, a pull tab having a finger grip portion and a nose portion contoured to lie along said weakening line, a first rivet means fastening said nose portion to said panel, a second rivet means fastening said finger grip portion to said panel, slit means in said pull tab defining an attachment flap to which said second rivet means is fastened, a hem extending between said nose and said finger grip portion, a transverse slit disposed across said tab between said nose portion and said finger grip portion and extending partially into said hem to form an unslit portion whereby said nose portion and said finger grip portion provide a lever when said pull tab is tilted upwardly at said finger grip portion so that said nose portion severs said panel along said weakening line and bends said removable panel portion inwardly substantially along a line extending between said spaced ends of said weakening line to form a pour opening in said panel, said nose portion and said finger grip portion being bendable relative to each other about said unslit portion of said hem to locate said finger grip portion in an overlying position on said panel adjacent said pour opening after said weakening line is severed.

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