United States Patent [19]

Ostrem

[11] **3,795,341**

[45] **Mar. 5, 1974**

[54] **EASY OPENING CONTAINER**

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

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[21] Appl. No.: **271,473**

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

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

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

[56] **References Cited**

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Assistant Examiner—Allan N. Shoap
Attorney, Agent, or Firm—John J. Kowalik; Joseph E. Kerwin; William A. Dittmann

[57] **ABSTRACT**

An easy opening container including an end closure having a primary score line terminating in spaced ends so as to define a non-detachable tear portion. A secondary score line defining a lever section is formed in the removable panel section and a rigidifying bead is located on the lever section. Upon lifting of the lever section initial severance of the primary score line occurs. A pull tab is attached to the lever section.

4 Claims, 10 Drawing Figures

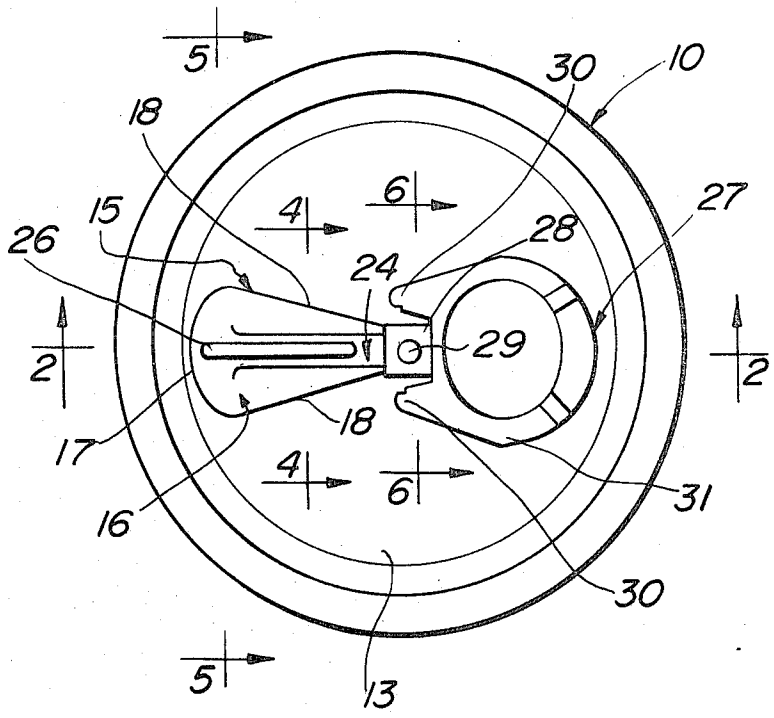


FIG - 1

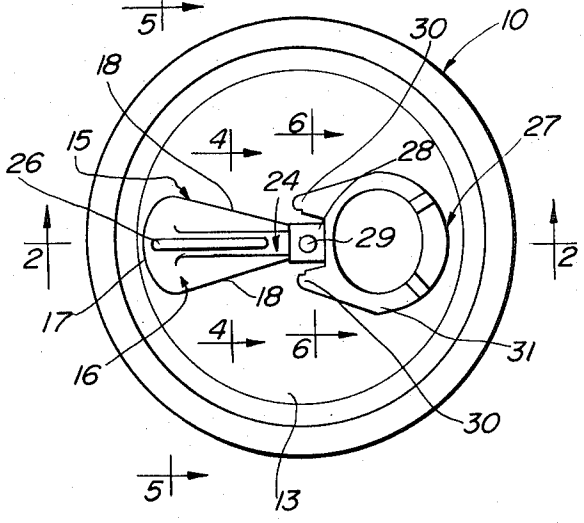


FIG - 2

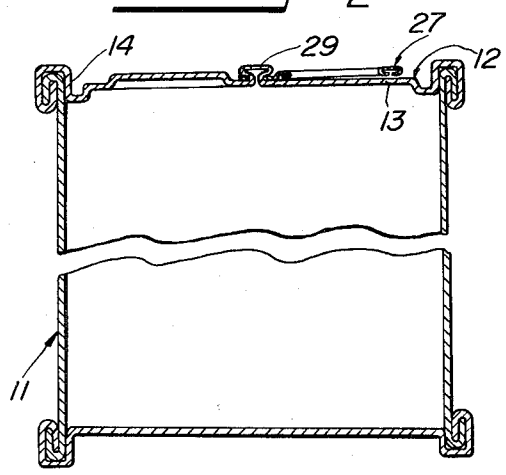


FIG - 3

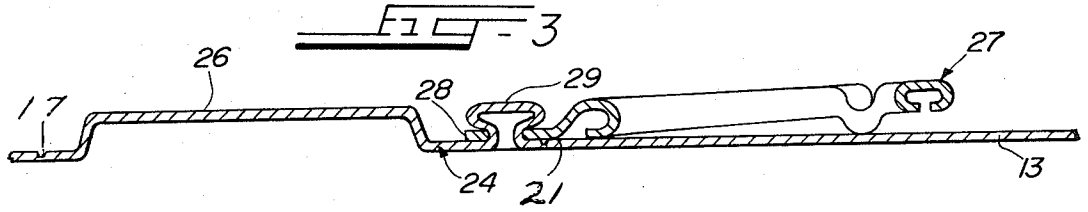


FIG - 4

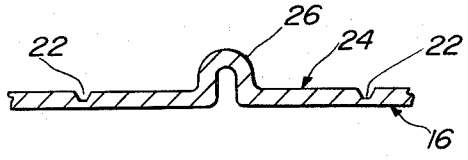


FIG - 5

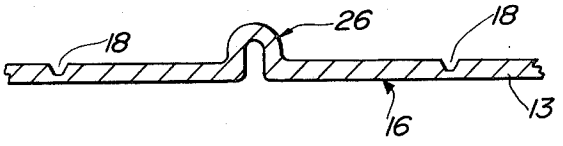


FIG - 6

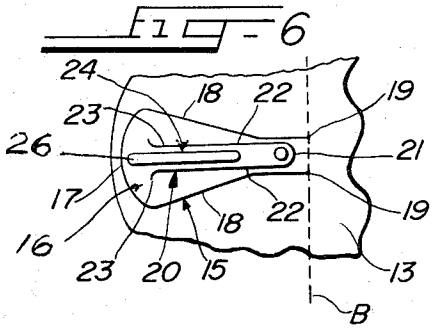


FIG - 7

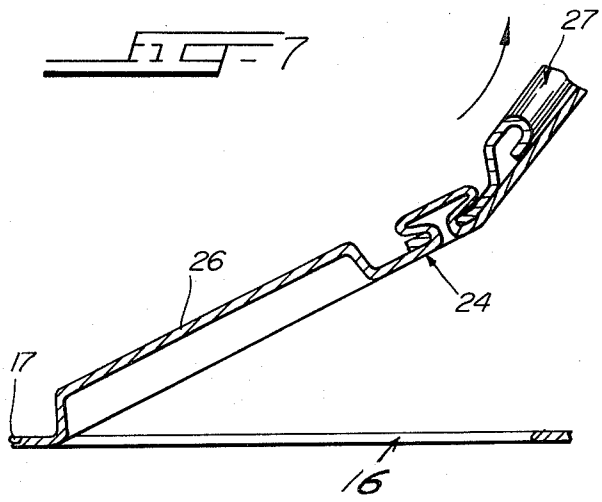


FIG - 8

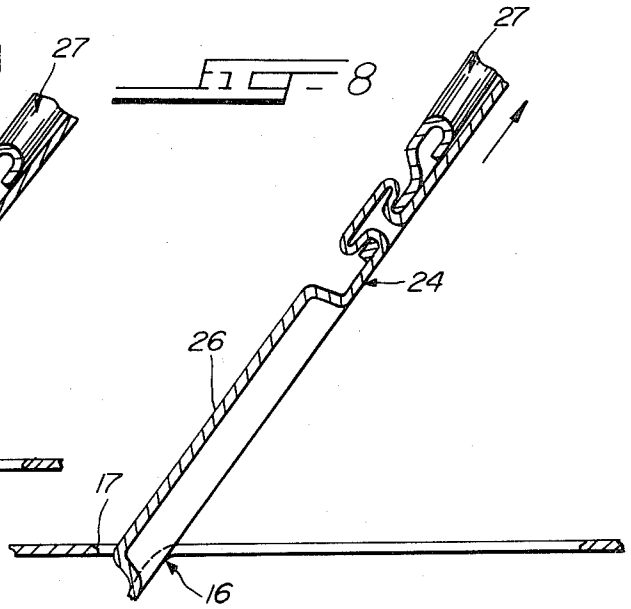


FIG - 9

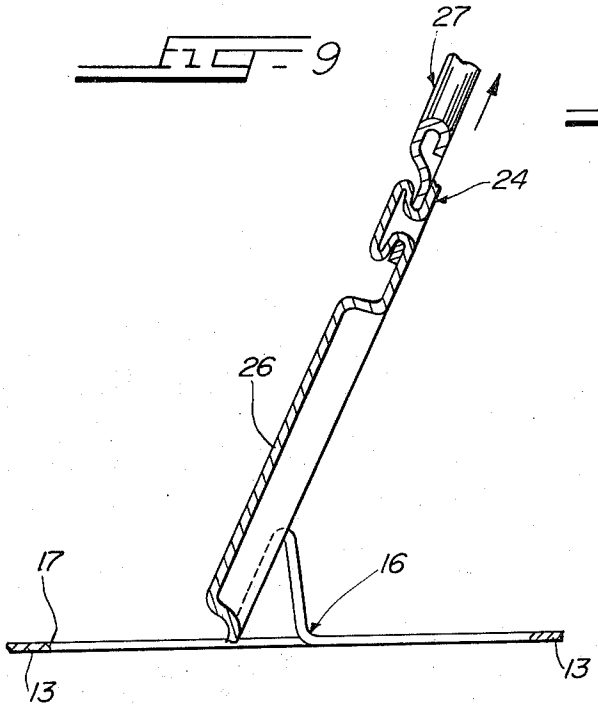
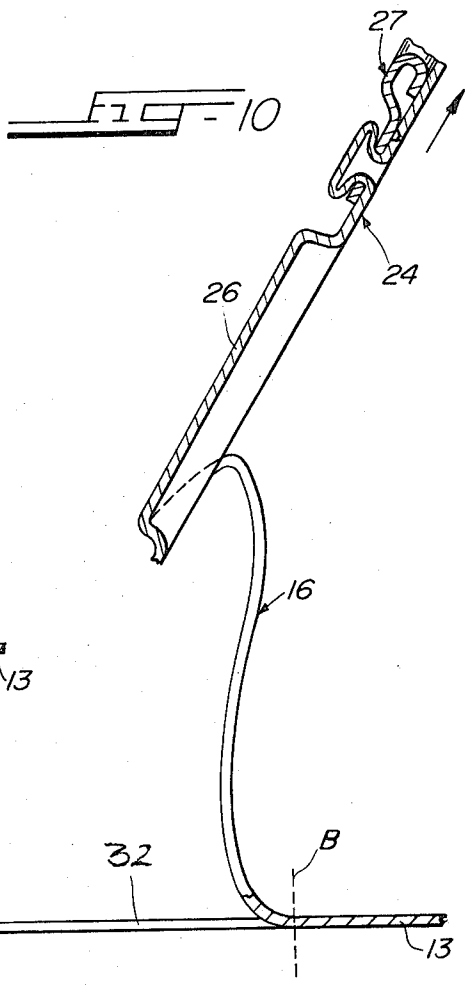


FIG - 10



EASY OPENING CONTAINER

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates to easy opening containers and more particularly to easy opening containers of the type wherein the tear portion after separation from the container to provide a pour opening remains attached to the container.

The prior art structure in which the tear strip is non-detachable is exemplified by U.S. Pat. Nos. 3,327,891, 3,373,895 and 3,386,613. These prior easy opening containers shown in the patents have the advantage that the tear portion is not completely separated from the container so that the tear portion is not discarded as litter.

By the present invention, it is proposed to provide an improved non-detachable tear portion in which the score line defining the tear portion is initially severed by a section of the tear portion itself which forms part of the pull tab structure.

The easy opening structure of th present invention comprises generally an end closure having a panel bounded by a peripheral chuck wall. The panel is provided with a radially extending U-shaped tear portion defined by a score line having a looped end adjacent to the chuck wall and a pair of spaced legs terminating in ends. A secondary or auxillary score line of generally U-shaped configuration defining a lever section is provided in the removable panel portion. The secondary score line is disposed with the terminal ends facing the looped end of the primary score line. The looped end of the U-shaped secondary score line is located closely adjacent to the line passing through the terminal ends of the primary score line. A pull tab is attached adjacent to the lever section within the loop so that upon upwardly pulling, the lever section separates. A bead is formed in the tear portion and extends between the terminal ends of the auxiliary score line and terminates adjacent the looped end of th primary score line. Upon lifting and severing of the auxillary score line the bead rigidifies the lever section so that the primary score line is severed at its looped end. Thereafter, upon further upward pulling, the primary score line is severed along its length and the tear portion is separated and bent rearwardly along a line extending between the terminal ends of the score. In this manner, a pour opening is formed in the end panel so that the container contents may be emptied therethrough.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a top plan view of a container having an end closure embodying the easy opening structure of the present invention.

FIG. 2 is a fragmentary cross-sectional view taken generally along the lines 2—2 of FIG. 1.

FIG. 3 is an enlarged cross-sectional view taken generally along the lines 2—2 of FIG. 1.

FIG. 4 is a cross-sectional view taken generally along the lines 4—4 of FIG. 1 and showing the stiffening bead formed in the lever section of the tear strip.

FIG. 5 is a cross-sectional view taken generally along the lines 5—5 of FIG. 1 and showing the bead structure adjacent the looped end of the primary score line.

FIG. 6 is a fragmentary top plan view of the end panel with the pull tab omitted to show in particular the primary and secondary score lines defining the tear potion and lever section, respectively.

FIG. 7 is a fragmentary cross-sectional view through the lever section with the latter shown in the position prior to initial severance of the primary score line.

FIG. 8 is an fragmentary cross-sectional view through the lever section as the primary score line is initially severed.

FIG. 9 is a fragmentary cross-sectional view similar to FIG. 8 but showing the relationship of the components when the length of the score line is partially severed.

FIG. 10 is a fragmentary cross-sectional view similar to FIGS. 8 and 9 but showing the relationship of the components when the full length of the score line is severed and the tear portion is bent away from the pour opening.

DESCRIPTION OF TH PREFERRED EMBODIMENT

Referring now to the drawings, the easy opening container **10** of the present invention is embodied in a container of generally circular cross-section and includes a body **11** and an end closure **12.** The end closure **12** is made from aluminum, tin plate, or other rupturable material and is formed with a central panel **12.** An annular upwardly inclined wall or upstanding chuck wall **14** extends upwardly from the periphery of the central panel **13** and at its upper end merges into a flange which is double seamed to the container body **11** in the usual way.

A substantially U-shaped primary score line **15** defining a removable panel portion **16** is formed on the central panel **13** and includes a bight or looped portion **17** located adjacent to the chuck **14** wall and a pair of legs **18—18** which converge slightly and terminate in ends **19—19.** The terminal ends **19—19** are spaced so as to provide two points which define a bend line B about which the removable panel or tear portion **16** is adapted to be bent. The U-shaped primary score line **15** is substantially radially disposed as illustrated and the tear portion **16** simulates somewhat of a tear drop shape.

A secondary or auxiliary score line **20** is located on the removable tear portion **16** between the legs **18—18** of primary score line **15.** The auxiliary score line **20** is substantially U-shaped having a bight or closed end **21** facing the terminal ends **19—19** of the primary score line **15.** A pair of spaced legs **22—22** terminate in spaced ends **23—23** which open toward the looped end **17** of the primary score line **15.** The secondary score line **20** defines in the nature of a lever section **24.** The terminal ends **23—23** of the auxiliary score line **20** are spaced sufficiently from the primary score line **15** to reduce the tendency to tear or rupture across this space when the lever section **24** is separated from the removable panel portion **16.** The ends of the legs **22—22** may also be flared outwardly to reduce the tearing possibility.

Located between the terminal ends **23—23** of the secondary score line **20** is a radially extending bead **26** which terminates at one end adjacent to the bight **17** of the primary score line **15** and at the other end intermediate the length of the legs **22—22.** The bead **26** renders the lever section **24** more rigid.

A pull tab **27** is fixed to the lever section **24** by means of a rivet **29** formed integral with the panel. The pull

tab **27** is of a standard construction and includes an attachment flap **28** and a pair of fulcrum legs **30—30.** The fulcrum legs **30—30** straddle the bight **21** of the secondary score line **20.** A finger grip portion **31** is grasped to tilt the pull tab **27** about the fulcrum legs **30—30** which engage the panel so that an upward force is applied on the rivet **29** to initiate severance of the looped end **21** of the lever section **24** as shown in FIG. **7.** Thereafter, upon further upward pulling, the remainder of the secondary score line **20** is separated so that the lever section **24** is tilted upwardly and the bead **26** applies a force on the looped end **17** of the primary score line **15** as shown in FIG. **8** to initiate severance thereof.

Further upward pulling on the pull tab **27,** causes the remainder of the primary score line **15** to be severed so that the removable panel portion **16** is separated from the panel **13.** The pull tab **27** then may be manipulated so that the separated removable panel portion **16** is bent about the line B (FIG. **6**) to provide a pour opening **32** in the panel **13** through which the contents of the container may be emptied.

What is claimed is:

1. An end closue for a container, said end closure comprising a panel, a primary score line terminating in spaced ends and defining a removable panel portion bendable about a line passing through said spaced ends an auxiliary score line disposed in said removable panel portion and defining a lever section substantially bisecting said removable panel portion between said spaced ends, said suxiliary score line having spaced legs terminating at ends located adjacent to said primary score line and a bight connecting the other ends of said legs located adjacent said line passing through said spaced ends of said primary score line, and means formed in said panel between said legs of said auxiliary score line to render said lever section substantially rigid adjacent said primary score line, and pull tab means attached to said lever section adjacent to said bight for severing said secondary score line and tilting said lever section upwardly out of the plane of said removable panel portion, said pull tab means extending from and in alignment with said lever section so as to overlie said panel whereby rigidified lever section initiates severance of said primary score line, and upon further upward pulling of said pull tab means said separable panel section is separated from said panel along the length of said prmary score line and bent about said line passing through said spaced ends of said primary score line to provide a pour opening in said panel.

2. The invention as defined in claim **1** wherein said primary score line is generally U-shaped with the open end of said U disposed adjacent the center of said panel, and wherein said auxiliary score line is generally U-shaped with the open end of said U facing the looped end of said U-shaped primary score line.

3. The invention as defined in claim **1** wherein sai means rendering said lever rigid comprises a bead disposed between said legs of said secondary score and terminating at one end adjacent the looped end of said U-shaped score line.

4. The invention as defined in claim **3** wherein said pull tab includes a pair of fulcrum legs straddling said secondary score line.

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