

- [54] **EASY OPENING CONTAINER**
- [72] Inventor: **Albert J. Holk, Jr.**, Frankfort, Ill.
- [73] Assignee: **Continental Can Company, Inc.**, New York, N.Y.
- [22] Filed: **Nov. 23, 1970**
- [21] Appl. No.: **91,645**
- [52] U.S. Cl. **220/54**
- [51] Int. Cl. **B65d 17/24**
- [58] Field of Search **220/54, 48**

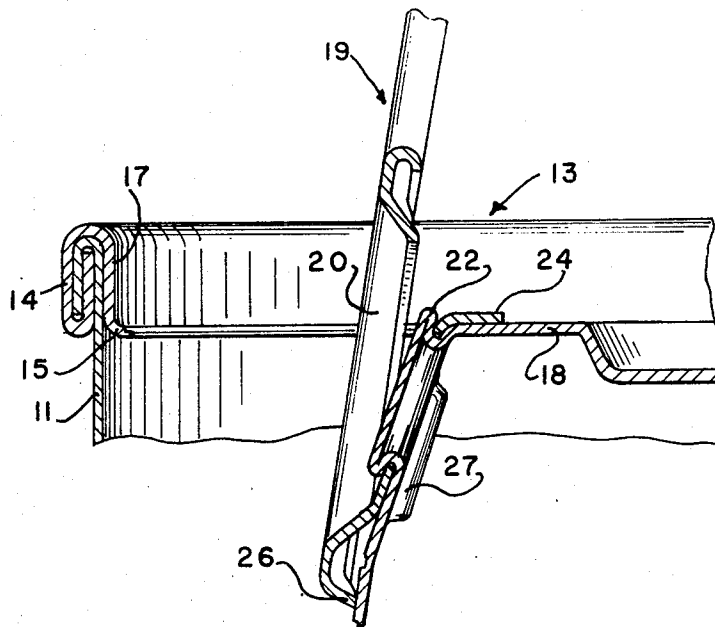
Primary Examiner—George T. Hall
Attorney—Fred P. Kostka, Joseph E. Kerwin and William A. Dittmann

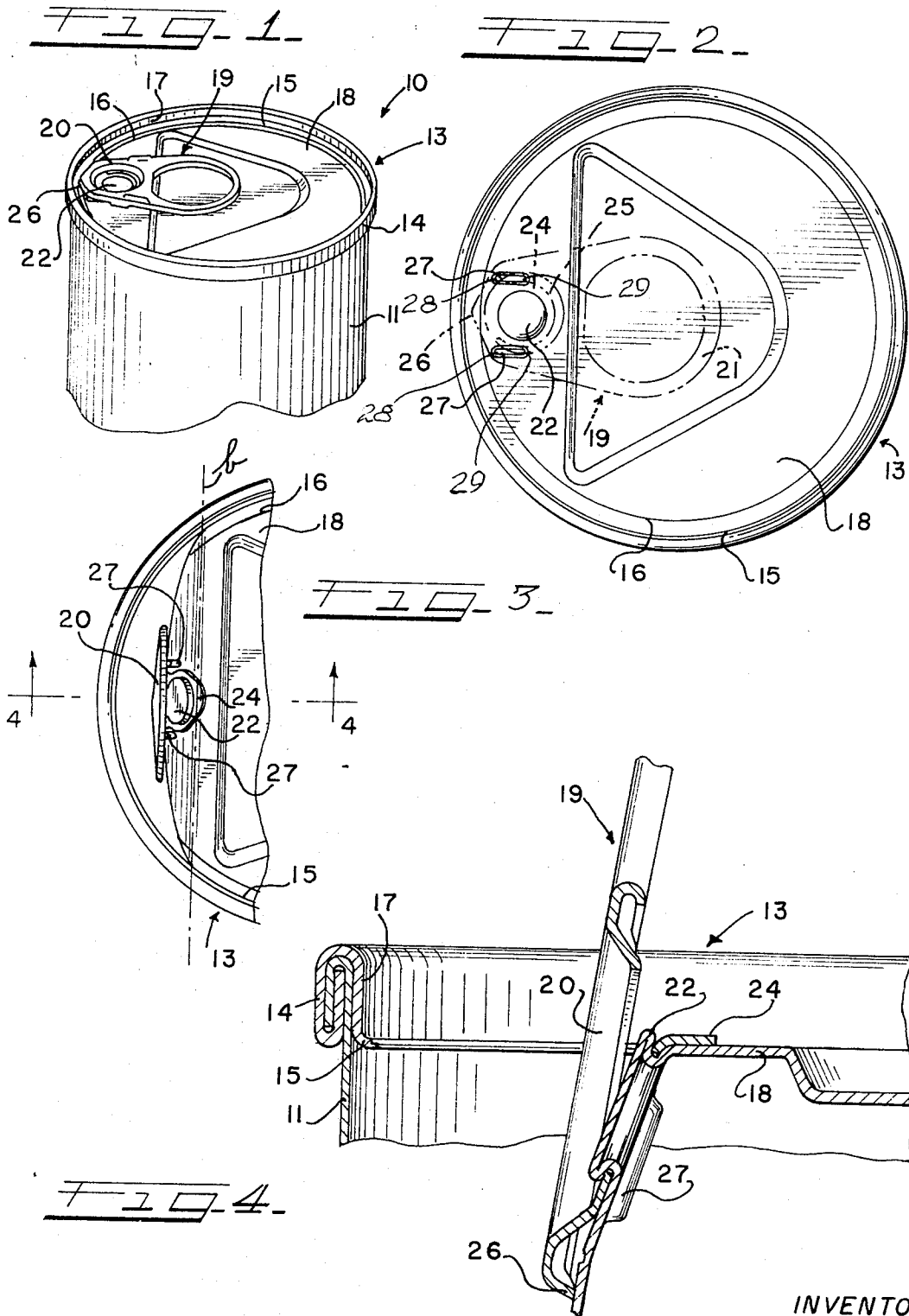
[57] **ABSTRACT**

A full panel type of easy opening container having means for increasing the initial opening arc of the score line during upward tilting of the pull tab. The rigidifying means comprises beads arranged to form a rigid panel portion at the rivet so that a bend line occurs behind the rivet upon penetration of the pull tab nose into the container.

- [56] **References Cited**
- UNITED STATES PATENTS**
- 3,404,801 10/1968 Silver 220/54
- 3,591,037 7/1971 Schrecker 220/54

4 Claims, 4 Drawing Figures





INVENTOR
ALBERT J. HOLK, JR.
BY *Fred P. Kostka*
ATT'Y.

EASY OPENING CONTAINER

BACKGROUND OF THE INVENTION

The present invention relates to easy opening containers and more particularly to an arrangement for improving the opening characteristics of an easy opening end of the full opening type.

Easy opening end closures of the full opening type include a pull tab attached to the removable panel portion for upward tilting movement. Upon upward tilting of the pull tab a rupturing nose on one end of the tab and lying adjacent the weakening line defining the removable panel portion severs the weakening line. The weakening line which is in close proximity to the chuck wall breaks along an arc of the circumference. The length of the arcuate break is dictated by the fold line along which the separated panel portion bends as the nose penetrates downwardly into the container.

Heretofore, such bending has occurred along a relatively short chord so that only a short arcuate segment is separated. This requires that a relatively longer arc of the weakening line must be separated by an upward pulling force on the pull tab. In fact, under some circumstances, the length of the initial arc is such that the ends thereof occur at a location at which it is difficult to transmit the pulling force from the pull tab. Frequently, under the latter condition, a user will apply such a force on the pull tab that the latter breaks from the container. This is undesirable because the breaking of the pull tab requires that separate tools be used to complete the severance of the removable panel from the container.

SUMMARY OF THE INVENTION

By the present invention, it is proposed to improve the initial opening characteristics in a manner which overcomes the difficulties encountered heretofore.

This is accomplished generally by the provision of a pair of ribs disposed on opposite sides of the rivet which is used to fasten the pull tab on the removable panel portion. The ribs are arranged to extend parallel to the tilting axis of the pull tab. The ribs terminate at one end in close proximity to the weakening line and at the other remote end in close proximity to the diameter of the rivet.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary perspective view of a container embodying the structure of the present invention;

FIG. 2 is a top plan view of the container end closure with a pull tab illustrated in phantom lines to show underlying details;

FIG. 3 is a fragmentary top view of the easy opening structure showing the condition of the removable panel portion at the initial break of the weakening line with the pull tab broken away to show underlying detail; and

FIG. 4 is a cross sectional view taken generally along the lines 4-4 of FIG. 3 with the pull tab shown in an erect position just immediately prior to the application of an upwardly pulling force.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, there is shown an easy opening container 10 comprising generally a container body 11 having a bottom closed end. The other end has an easy opening end closure 13 attached thereto as by means of a double seam 14.

The easy opening end closure 13 includes a recessed panel 15 having a peripheral weakening line 16 formed as by scoring. The peripheral weakening or score line 16 is disposed adjacent to an upstanding chuck wall 17 and defines a removable

panel portion 18.

A pull tab 19 having a forward portion 20 and a finger grip portion 21 is attached to the removable panel portion 18 by means of a rivet 22. The rivet 22 is formed integral with the removable panel portion 18 and extends through an opening provided in an attachment ear 24 in the forward portion 20 of the pull tab 19. The attachment ear 24 is formed as by a U-shaped lance 25 with the open end facing a score line penetrating nose 26. The nose 26 is disposed adjacent the score line so as to sever upon upward tilting of the pull tab 19 about the attachment ear 24.

Upon upward tilting of the pull tab 19 by grasping the finger grip portion 21, the nose 26 penetrates the score line to tear an arcuate portion thereof. As the pull tab 19 is further tilted toward an upright position, the removable panel portion gradually curls and bends downwardly into the container. Heretofore, such downward bending of the removable panel portion has been limited to bending along a line which extends across the forward end of the rivet. The bending line is in the nature of a chord of which the ends define the limits of the length of the arc that is severed along the score line.

To increase the length of the severed arc, by the present invention there is provided a means for rigidifying the removable portion adjacent the weakening line so that a bending line is formed on the far or inboard side of the rivet and thereby increases the length of the arc. To this end, there is provided a pair of downwardly projecting beads 27 disposed in parallel relationship on opposite sides of the rivet. The forward or outboard ends 28 of the beads 27 lie in close proximity to the score line 16. The rear or inboard ends 29 lie in close proximity to the circumference of the rivet 22 and along a line passing approximately through the center thereof. Thus, upon tilting the pull tab 19 bending along a line on the front side of the rivet is prevented by beads 27 which rigidify the removable panel portion in this area. Rigidity is also created in part by the rivet 22 because the beads 27 lie in close proximity thereto.

Upon further tilting of the pull tab 19 to an upright position as shown, the area of the panel including the beads 27 and rivet 22 bends along a line as shown in FIG. 3 across the rear side of the rivet. The arc of the severed score line 16 is of greater length than heretofore and the ends of the severed arc lie in closer proximity to the center of the container so that a lesser pulling force is required to initiate further separation of the removable panel from the end closure 13. In this manner, the opening characteristics of the container are improved.

What is claimed is:

1. An easy opening container comprising an end closure having a weakening line defining a removable panel portion, a pull tab having a finger grip portion and a forward portion, a nose on said forward portion, rivet means extending through said forward portion for tiltably attaching said pull on said removable panel portion so that said nose penetrates said weakening line upon lifting of said pull tab, and bend resisting means disposed on opposite sides of said rivet and extending from close proximity to said weakening line to said rivet so that said panel bends along a line passing in close proximity to the inboard side of said rivet upon severance of said weakening line and tilting of said pull tab to an upright position.

2. The invention as defined in claim 1 wherein said rigidifying means comprises a pair of beads disposed on opposite sides of the rivet.

3. The invention as defined in claim 2 wherein said beads extend parallel to the longitudinal axis of the pull tab.

4. The invention as defined in claim 3 wherein a substantially U-shaped attachment ear is provided in said forward portion, and wherein said rivet is made integral said removable panel portion and extends through an opening formed in said attachment ear.

* * * * *