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3,370,169

PULL TAB OPENER

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FIG. 1

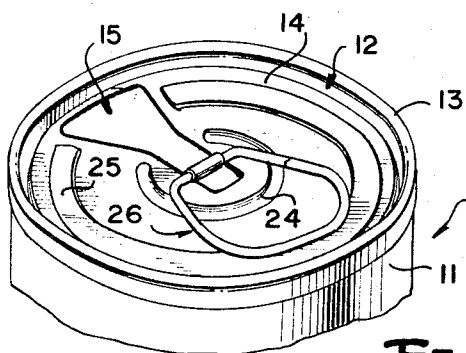


FIG. 2

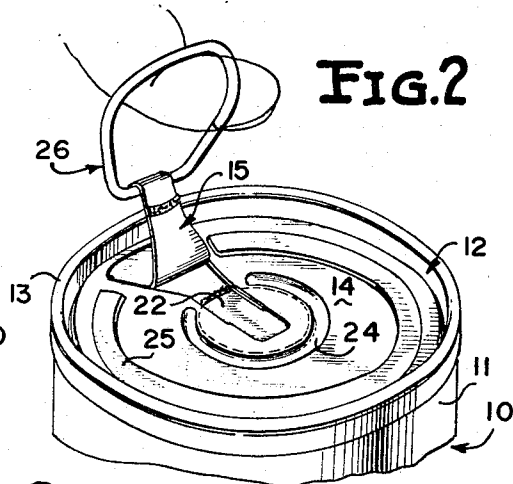


FIG. 3

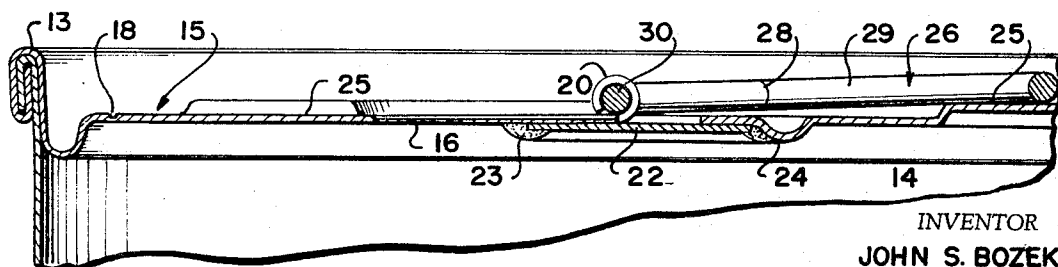
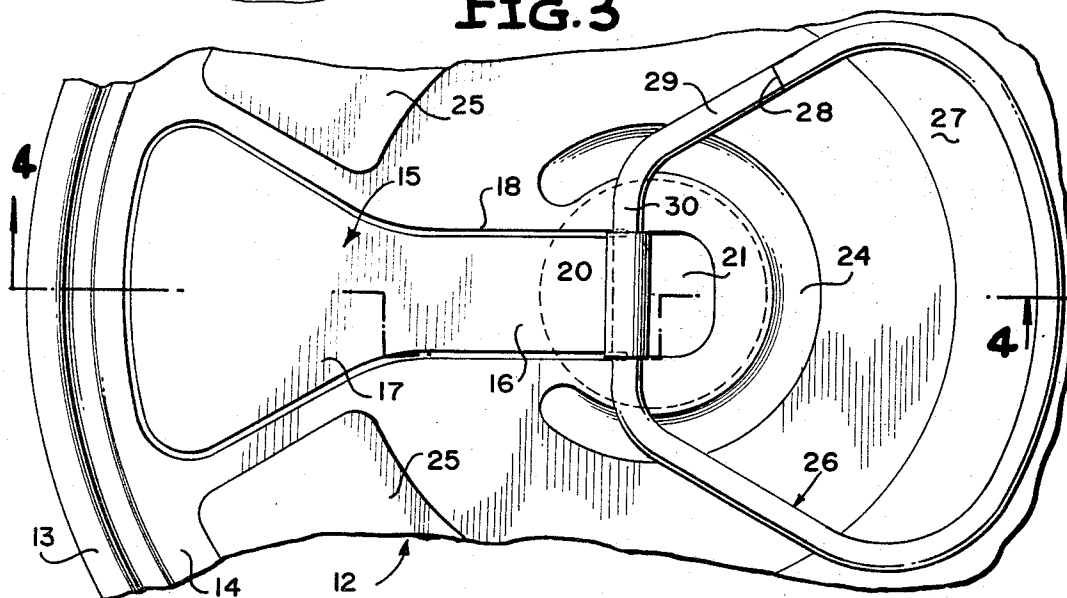


FIG. 4

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## PULL TAB OPENER

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6 Claims. (Cl. 220—54)

### ABSTRACT OF THE DISCLOSURE

This disclosure relates to an easy opening container end having a removable panel portion defined by a weakening line. A starting end part of the removable panel portion is completely severed from the container end and rolled upon itself to form a loop in which there is positioned a pin portion of a pull member. An internally directed generally C-shaped rib is formed about the starting end of the tear out portion and a sealing disk is seated within the rib and adhesively bonded in place.

This invention relates in general to new and useful improvements in containers of the easy opening type, and more particularly to a container having a removable panel portion which may be readily removed without the use of any implement.

It is well known that an extremely large number of easy opening cans having removable panel portions have been formed to date. These cans have pull tabs attached to the removable panel portions and due to the fact that the pull tabs are secured to the removable panel portions by means of rivets, the pull tabs are principally formed of sheet metal and therefore, cannot be readily gripped. The fact that the pull tab may not be readily gripped has two disadvantages. In the first place, it is difficult to apply the necessary force through the pull tab to the removable panel portion to effect the opening of the container. Secondly, because the pull tab cannot be readily gripped, when the container is of the internally pressurized type and there is a tendency for the removable panel to blow off after the initial rupture of the container, one cannot control the blowing off of the removable panel and attached pull tab because of the lack of proper grip.

It is the primary object of this invention to overcome the foregoing deficiencies of existing easy opening containers by forming the pull tab in the configuration of a ring through which one's finger may pass so that a firm grip may be had on the pull tab both for the purpose of facilitating the tearing away of the removable panel portion and assuring that there will be no accidental blow off of the removable panel portion.

Another object of this invention is to provide a novel easy opening container wherein the pull tab is attached to the removable panel portion by material of the removable panel portion and wherein a rivet formation is not utilized.

Another object of this invention is to provide a novel easy opening container which includes a removable panel portion having a pull tab attached thereto to facilitate the tearing of the panel portion from the remainder of the container, the panel portion having a starting end which is partially severed from the container and which is rolled upon itself to form a loop, and the pull tab having a pin passing through the loop and thus being hingedly connected to the removable panel portion.

A further object of this invention is to provide a novel container end of the easy opening type, the container end having a removable panel portion defined by a score line, the removable panel portion including a starting end which is severed from the remainder of the container end and there being attached to the starting end of the remov-

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able panel portion a pull tab in the form of a wire loop through which one's finger may be readily passed, the pull tab being secured to the removable panel portion by rolling the starting end upon itself to form a loop, and the wire of the pull tab having a pin portion extending through the loop.

Yet another object of this invention is to provide a novel easy opening container end in accordance with the foregoing object wherein the container end is sealed around the opening formed therein when the starting end of the removable panel portion is severed therefrom by providing the container end with a generally C-shaped downwardly directed rib generally encircling the opening and applying a separate sealing disk to the underside of the container end and bonding the same to the container end.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawing.

In the drawing:

FIGURE 1 is a top perspective view of a can incorporating the invention and shows the specific details of the end thereof.

FIGURE 2 is a top fragmentary perspective view similar to FIGURE 1 and shows the can in an intermediate stage of being opened.

FIGURE 3 is an enlarged fragmentary plan view of the can end of FIGURE 1 and shows specifically the details of the easy opening feature thereof.

FIGURE 4 is an enlarged fragmentary vertical sectional view taken along the line 4—4 of FIGURE 3.

Referring now to the drawing in detail, it will be seen that there is illustrated in FIGURE 1 a can which is formed in accordance with this invention, the can being generally referred to by the numeral 10. The can 10 includes a conventional can body 11 which has the upper end thereof closed by means of a can end, which is generally referred to by the numeral 12. The can end 12 is of the easy opening type and is secured to the can body 11 by means of a conventional double seam 13. The can end 12 includes an end panel 14 which, as is best shown in FIGURE 3, includes a removable panel portion 15. The removable panel portion 15 extends generally from the center of the end panel 14 radially outwardly and includes an inner strip like portion 16 and a radially outwardly flaring portion 17. The removable panel portion 15 is defined by a peripheral score line 18.

It is to be noted that the removable panel portion 15 has a starting end which is severed from the end panel 14 while remaining attached to the removable panel portion 15. The severing of the end panel 14 occurs generally along a continuation of the score line 18. The starting end of the removable panel portion 15 is rolled upon itself to define a hinge loop 20.

The severing of the starting end of the removable panel portion 15 so that it may be rolled to form the hinge loop 20 results in the formation of an open spacing or opening 21 in the central part of the end panel 14. Inasmuch as the end panel 14 must not be perforated, it is necessary that the opening 21 be sealed. In order to accomplish this, there is provided a sealing disk 22 which is best illustrated in FIGURE 4. The sealing disk 22 underlies the central part of the end panel 14 and is bonded to the underside of the end panel 14 as at 23 by means of any suitable bonding material although solder is preferred. Inasmuch as the disk 22 is sealed to the end panel 14 completely surrounding the opening 21, it will be seen that the end panel 14 is in effect imperforate.

In order to facilitate the positioning of the disk 22 during the bonding thereof to the end panel 14, the end

panel 14 is provided with a downwardly directed rib 24 which is generally C-shaped in outline and which is of a configuration to receive the disk 22 in nested relation. The rib 24 also serves to reinforce the central part of the end panel 14 so as to prevent the accidental rupture of the end panel 14 along the score line 18. It is also pointed out here that the accidental tearing of the strip like portion 16 of the removable panel portion 15 from the end panel 14 is additionally prevented by the solder or bonding material 23 which extends across the strap like portion 16 and secures the strap like portion 16 to the disk 22.

At this time it is pointed out that the end panel 14 may be further reinforced against undue flexure by a second generally C-shaped rib 25. The rib 25 projects upwardly from the general plane of the end panel 14 and is disposed adjacent the outer periphery of the end panel 14. It is to be noted that the opposite ends of the rib 25 terminate closely adjacent the outer part 17 of the removable panel portion 15.

In order to facilitate the tearing of the removable panel portion 15 from the end panel 14 in the opening of the can 10, there is provided a pull tab which is generally referred to by the numeral 26. The pull tab 26 is in the form of a loop and defines a finger receiving opening 27. The pull tab or pull ring 26 is formed of a single piece of wire having the opposite ends thereof disposed in opposed abutting relation as at 28. The ends of the wire, which is referred to by the numeral 29, may be welded together.

It is to be noted that the pull tab 26 has a straight pin like portion 30 which extends through the loop 20. It is to be understood that the relationship of the diameters of the pin like portion 30 and the loop 20 is such that the pull tab 26 is fixedly retained in engagement with the end panel 14 in the position generally shown in FIGURES 3 and 4, but may be readily pivoted to an upstanding position. After the pull tab 26 has been pivoted to an upstanding position, it is merely necessary for one to place his finger through the pull tab 26 and utilizing the same as a ring exert a pull upwardly and radially outwardly on the starting end of the removable panel portion 15. The removable panel portion may be readily torn from the end panel 14 and a firm grip may be maintained on the pull tab 26 at all times so as to prevent any possibility of the accidental blow off of the removable panel portion 15 after the tearing of the removable panel portion 15 progresses beyond the seal thereof with the disk 22. It is also pointed out that when the initial venting of the container 10 occurs, there has been considerable tearing of the removable panel portion 15 from the can end 12 and there is less likelihood of blow off.

Although only a preferred embodiment of the invention has been specifically illustrated and described herein, it is to be understood that minor variations may be made in the construction both of the pull tab and the removable panel portion without departing from the spirit and scope of the invention, as defined in the appended claims.

I claim:

1. A panel having means for facilitating the forming of an opening therein, said means comprising a removable panel portion integrally formed with said panel and defined by a peripheral weakening line, said removable panel portion having a starting end separated from said panel and leaving an open space in said panel, means sealing said open space, and pull means secured to said starting end for facilitating the removal of said removable panel portion, said panel being ribbed on the surface thereof remote from said pull means generally surrounding said starting end, and said sealing means being seated in the area generally defined by said ribbing.

2. A panel having means for facilitating the forming of an opening therein, said means comprising a removable panel portion integrally formed with said panel and defined by a peripheral weakening line, said removable panel portion having a starting end separated from said panel and leaving an open space in said panel, means sealing said open space, and pull means secured to said starting end for facilitating the removal of said removable panel portion, said sealing means being on the internal surface of said panel, said starting end is outwardly rolled upon itself to define a loop, and said pull means has a pin portion passing through said loop whereby said pull means is hingedly connected to said removable panel portion.

3. The panel of claim 2 wherein said pull means is in the form of a finger receiving pull ring.

4. The panel of claim 2 wherein said pull means is formed of a length of wire of which said pin portion is a part.

5. The panel of claim 2 wherein said pull means is in the form of a finger receiving pull ring, said pull means being formed of a single length of wire.

6. A panel having means for facilitating the forming of an opening therein, said means comprising a removable panel portion integrally formed with said panel and defined by a peripheral weakening line, said removable panel portion having a starting end separated from said panel and leaving an open space in said panel, means sealing said open space, and pull means secured to said starting end for facilitating the removal of said removable panel portion, said panel being ribbed on the surface thereof remote from said pull means generally surrounding said starting end, and said sealing means being seated in the area generally defined by said ribbing, said ribbing being C-shaped in outline and extending beyond said starting end and terminating closely adjacent said removable panel portion on opposite sides thereof.

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