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C. T. ASBURY

3,246,791

CAN-OPENING ARRANGEMENT

Filed Aug. 12, 1963

2 Sheets-Sheet 1

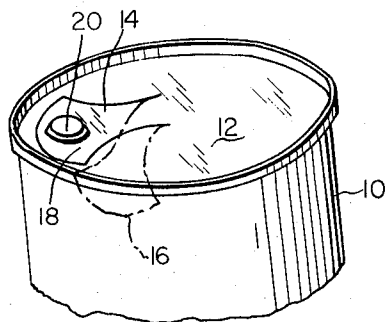


FIG-1

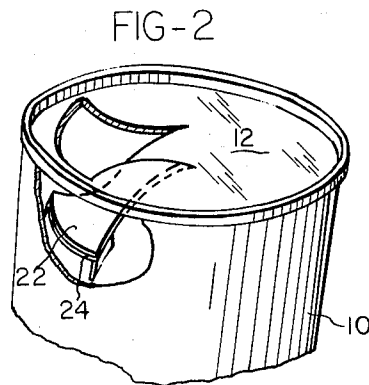


FIG-2

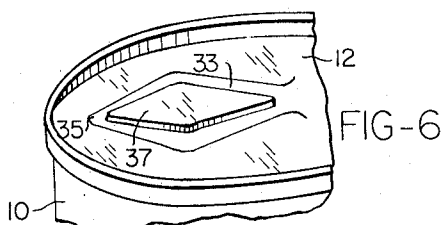


FIG-3

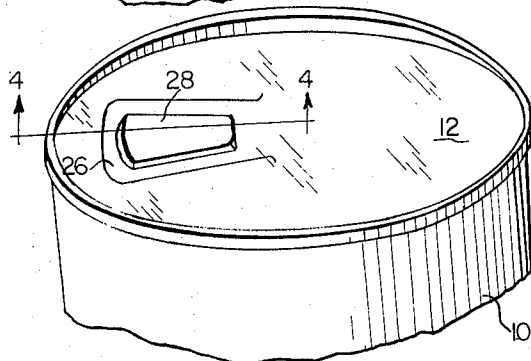


FIG-5

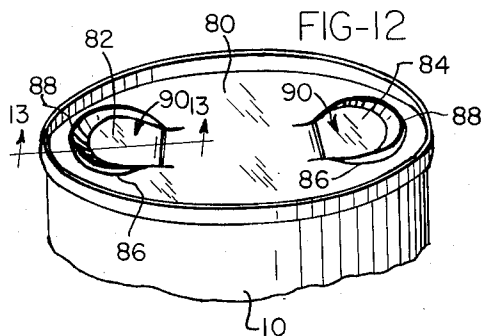
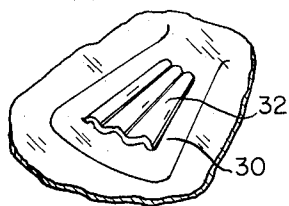


FIG-12

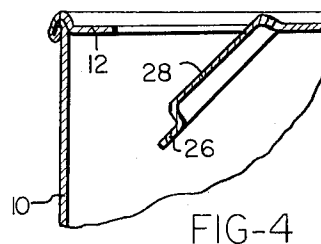


FIG-4

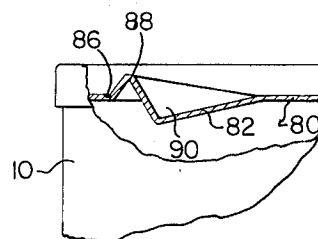


FIG-13

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FIG-14

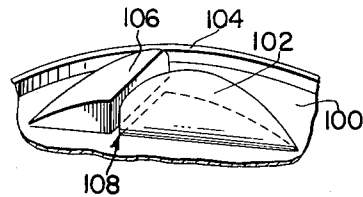


FIG-7

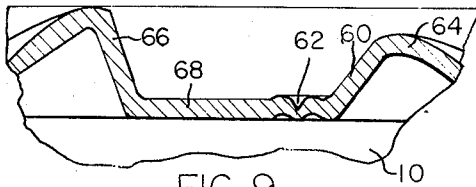
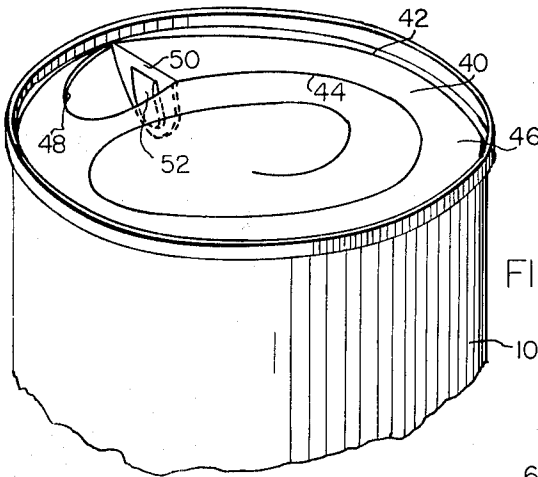


FIG-9

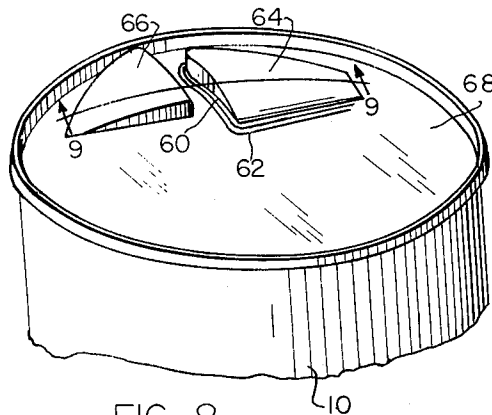


FIG-8

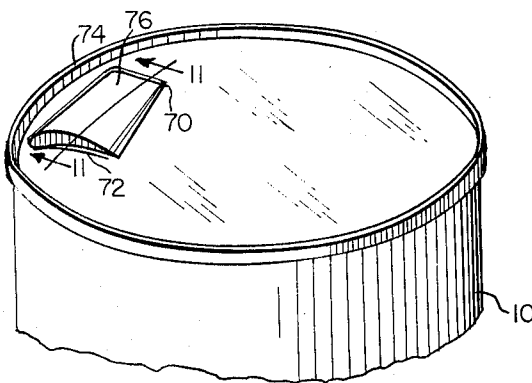


FIG-10

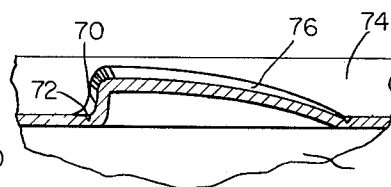


FIG-11

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CAN-OPENING ARRANGEMENT

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1 Claim. (Cl. 220-27)

This invention relates to containers and the like and is particularly concerned with containers having tear-open or snap-open closure means.

Tear-open and snap-open cans and the like are standard items of commerce and in connection with most of these containers, beverage cans for example, the container lid is provided with a scored region that can be snapped out to provide a pouring opening or so that the entire lid can be torn out to expose the container contents. A major difficulty that has been encountered in connection with the manufacture of such snap-open or tear-open lids is the connection of a tearing key to the lid material.

Welding is objectionable and cold welding has proved to be defective, and the manner in which the keys are presently connected to the lids is to form a blister on the lid forming a rivet integral therewith and to place the key over the rivet and flatten out the rivet. This manner of securing a key to the lid is time consuming and expensive and represents almost a major operation in the manufacture of such lids.

I have discovered by test and experimentation, that lids for beverage cans be constructed and arranged so that the tab that is normally torn out to open the container can be pushed in, thereby eliminating the necessity of putting a tearing key on the lid, thereby, in turn, eliminating the necessity for forming the aforementioned blister in the lid that rivets the key thereto.

I have found that containers can be readily and quickly opened by pushing the scored region inwardly and that this idea can even be employed for tearing out complete lids when the lid is properly scored.

Having the foregoing in mind, it is an object of this invention to provide an easy-opening container in which riveted-on keys and the like are eliminated.

Still another object of this invention is the provision of a container having a scored lid in which the lid can be opened by pressing a portion thereof inwardly.

Still another object of this invention is the provision of a container having a scored lid which can be substantially completely torn out by pushing in a portion of the lid and employing this portion as a key to tear the lid out.

Still a further object of this invention is the provision of a beverage can having a lid with a weakened zone therein that can be pushed into the can to provide a pouring or drinking opening for the can, and which weakened zone is protected against accidental displacement because of handling of the can.

These and other objects and advantages of this invention will become more apparent upon reference to the following specification taken in connection with the accompanying drawings, in which:

FIGURE 1 is a perspective view showing a can lid formed according to my invention;

FIGURE 2 is a view similar to FIGURE 1 showing a modified arrangement;

FIGURE 3 shows a still further modified arrangement;

FIGURE 4 is a section on line 4-4 of FIGURE 3 showing the tab pushed inwardly;

FIGURE 5 is a fragmentary perspective view showing how the portion of the lid to be pushed in could be reinforced on the outside of the lid;

FIGURE 6 shows a modification where the portion

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of the lid to be pushed inwardly is so constructed that the tearing out of the portion can be readily started;

FIGURE 7 is a view showing a modification in which substantially the entire lid is arranged to be torn out;

FIGURE 8 shows a modified arrangement including a protective device for preventing accidental opening of the can lid;

FIGURE 9 is a section on line 9-9 of FIGURE 8;

FIGURE 10 is a view like FIGURE 8, but shows the can without a safety device;

FIGURE 11 is a section on line 11-11 of FIGURE 10;

FIGURE 12 is a perspective view showing a modified type opening arrangement according to my invention;

FIGURE 13, is a sectional view indicated by line 13-13 on FIGURE 12, and

FIGURE 14 is a perspective view similar to FIGURE 8 but showing a somewhat different arrangement.

Referring to the drawings somewhat more in detail, in FIGURE 1 there is shown a can having body 10 and lid 12 secured thereto according to conventional practices such as by rolling the periphery of the lid and the upper lid of the can body into sealed relationship.

Lid 12 has a region thereon defined by a score line 14. This score line preferably does not define a closed path and may be in either the top or the bottom of the lid and is of such depth that while the lid will hold pressure on the contents therein, if necessary, the lid can easily be torn along score line 14. The lid, of course, is usually of metal as is the can body as well.

According to the present invention, the region within the score line 14 and which may be referred to as a tab, is adapted for being pushed inwardly into the can as indicated by the dot-dash outline 16, thereby to provide a drinking or pouring opening for the can. This is accomplished by applying pressure to the tab as by the thumb or with any suitable instrument. The applying of pressure to tab identified at 18 in the proper region is facilitated by forming a raised portion 20 on the tab in the region of the part thereof where the tearing of the tab from the lid is to commence.

In FIGURE 2, the tab, identified at 22 is stiffened by providing a stiffening member 24 secured thereto, which may be on the underside of the lid and which member may be in the form of a relatively thin piece of sheet metal formed to an angle or a channel. This stiffening member can be secured to the lid by adhesive or by a metallic fusion process.

In FIGURE 3 I show a tab 26 of somewhat different configuration and this tab has a raised portion 28 thereon extending substantially at full length thereof. This raised portion extends upwardly a substantial amount from the tab, although not projecting beyond the upper edge of the completed can, and is useful for permitting the tab 26 to be pushed far down into the can. By applying pressure to the left part of the raised portion 28, the tearing out of portion 26 can be commenced and by shifting the pressure along the raised part toward the unscored end of tab 26, the tearing out of the tab can be caused to project and the tab will extend down into the can as indicated in FIGURE 4.

In FIGURE 5 I show how a tab 30 can be reinforced by reinforcing member 32 secured to the top thereof, this reinforcing member taking the form of thin sheet metal or the like which can be corrugated to stiffen the reinforcing member and also to provide a region for applying pressure to the tab. It will be understood that when the reinforcing member is on the top of the tab as in FIGURE 5, it could be a plastic material or the like and highly satisfactory results would be had.

In FIGURE 6 I show a tab 33 which is so spaced that the end thereof where tearing will be commenced,

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indicated at 35, is of such reduced size that a great deal of pressure is not required for initiating the tearing. The tab has a raised portion 37 therein which stiffens the tab and which facilitates the application of pressure to the tab at the right place.

In FIGURE 7 there is shown a can in which the lid 40 has a first score mark 42 around the outer periphery and a second score mark 44 spaced inwardly therefrom. The two score marks define a region 46 that can be torn out from the can lid so that the entire lid is removed from the can and the contents completely exposed.

At one point about the periphery of the can, the score marks 42 and 44 are joined by an arcuate score mark 48 which defines a tab 50 of substantial size and which tab 50 may have stiffening means associated therewith which could take the form of the raised portion 52 that would also serve as a region for applying pressure to the tab. In the arrangement of FIGURE 7, the tab 50 is pushed inwardly by applying pressure thereto and the tab is of sufficient size that the end of the strip 46 can be grasped between the thumb and finger and the entire lid torn out from the can.

FIGURES 8 and 9 show an arrangement in which the tab 60 defined by score line 62 is provided with the raised portion 64 extending over substantially the entire area of the tab region. The projection 64 tapers upwardly from the inside of the tab toward the outside of the can and is highest where the tab will commence to tear. This raised portion is relatively large and pressure can easily be applied thereto either by the thumb or with a suitable instrument.

To prevent accidental tearing out of the tab, which might occur in the handling of the can, there is provided adjacent the tab a raised portion 66 in lid 68 which extends upwardly to a level slightly higher to that of raised portion 64, but not above the upper rim of the can. This will be seen in FIGURE 9 and it will be evident that raised portion 66 is a safety feature that prevents the tab from being accidentally knocked inwardly. At the same time, it will be understood that the tab 60 could be knocked inwardly deliberately by striking it with another can or a small instrument.

FIGURES 10 and 11 show an arrangement similar to that of FIGURES 8 and 9 except no safety device is shown. Instead, the tab 70 in FIGURES 10 and 11 as defined by score line 72 is so arranged that the tearing thereof commences close by the rim 74 of the can so that the rim itself provides the safety device for preventing accidental opening of the can.

The tab in FIGURES 10 and 11 includes the raised portion 76 which stiffens the tab and provides the region for the application of pressure thereto.

FIGURES 12 and 13 show a modified arrangement wherein lid 80 is provided with two tabs 82 and 84 defined by the score lines 86 and 88, respectively, whereby both tabs can be pushed in to provide, respectively, a pouring opening and an air inlet opening.

The tabs of the FIGURES 12 and 13 arrangements are further characterized in that a safety rib 88 was provided upstanding about the outer portion of each tab. The upstanding rib 88 may be combined with a recess portion 90 in the central part of the tab and this combination will form a sort of pocket in which the thumb can be placed whereby there will be little if any chance that the thumb will slip off the tab or be cut or scraped by the edge of the lid surrounding the tab after the tab has been pushed inwardly.

FIGURE 14 shows an arrangement wherein the lid

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100 has a portion 102 formed upwardly therein similar to the portion 64 of lid 68 in FIGURE 8. This portion extends upwardly to a height less than that of rim 104 to protect the portion against accidental opening during handling of the can. Adjacent portion 102 is another raised portion 106 which serves as a thumb guard and a safety projection, and this portion extends upwardly substantially to the upper level of rim 104.

I have found that by forming the projections 102 and 106 as shown, the lid is weakened in the region at 108 similarly to what would occur if the lid were scored as shown at 62 in FIGURE 8 and that the lid can be opened by applying pressure on projection 102 even though the lid has no specific score marks thereon.

All of the foregoing modifications are characterized in that no riveting of a tearing key is required and no welding is required, except for added metallic stiffening elements which might be utilized on the underneath side of the lid and all of the arrangements shown can be opened manually without any instruments or other devices.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions; and accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claim.

I claim:

A pressure container comprising; a sheet metal body and a sheet metal lid sealed thereto, a tab portion in the lid adapted to have pressure applied thereto from outside the container so the tab portion is pressed inwardly of the container, said tab portion being elongated, a score mark in the lid extending along the long sides of said portion and across one end thereof and forming a tearable weakened region in the lid which will rupture upon the application of pressure to said portion, the unscored part of the periphery of said tab portion at the other end thereof forming a hinge region about which the tab portion turns when it is pressed inwardly of the container, said tab portion having an upwardly formed region therein near said one end thereof and a recess therein adjacent said region, said region and recess combining to form a configuration for receiving the thumb or other implement for applying pressure to the tab portion to push it into the container and which configuration will prevent the thumb or other implement from slipping off said tab portion during the application of pressure thereto, said score mark extending part way only through said lid and leaving sufficient thickness of said lid at said score mark to prevent pressure in the container from causing rupture of the lid at the score mark.

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70 THERON E. CONDON, *Primary Examiner.*