Oct. 14, 1969 S. R. WOODRUFF 3,472,415

RECEPTACLE AND OPENING MEANS THEREFOR

Filed April 19, 1968

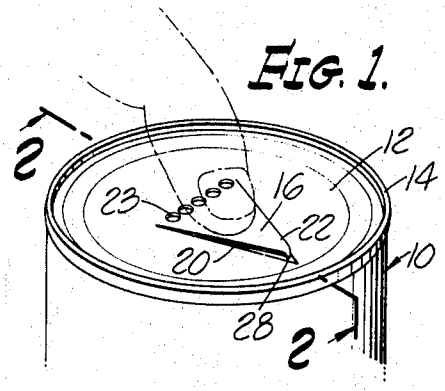


FIG. 1.

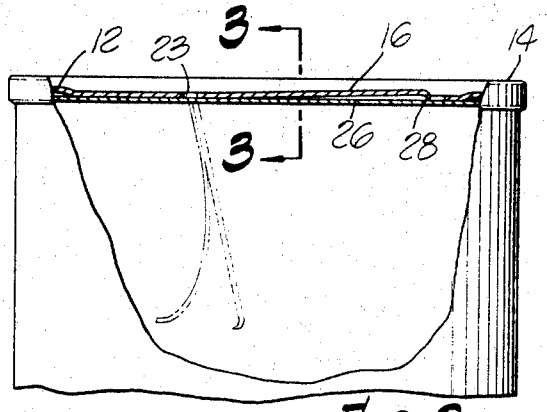


FIG. 2.

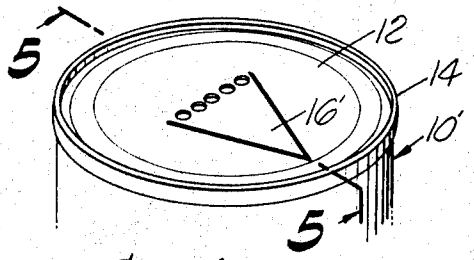


FIG. 4.

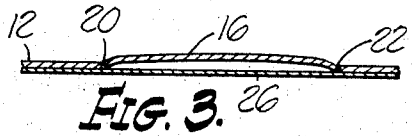


FIG. 3.

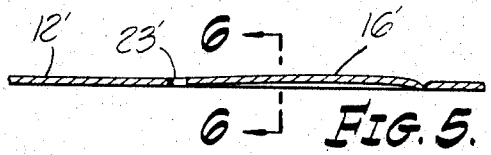


FIG. 5.

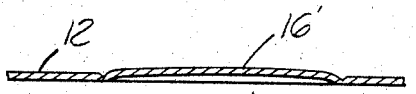


FIG. 6.

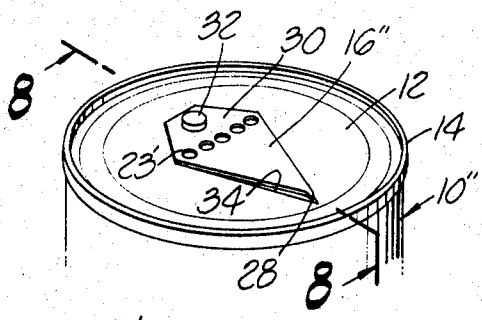


FIG. 7.

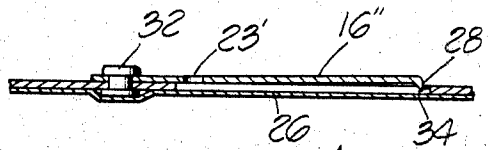


FIG. 8.

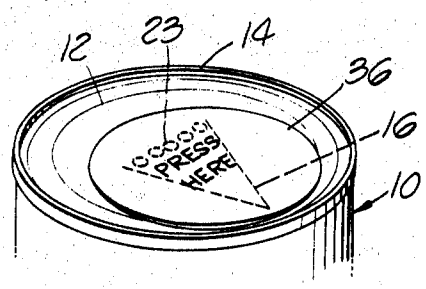


FIG. 9.

INVENTOR
STANLEY R. WOODRUFF

BY

Herzig, Walsh & Blackham

ATTORNEYS

United States Patent Office 3,472,415
Patented Oct. 14, 1969

3,472,415

RECEPTACLE AND OPENING MEANS THEREFOR

Stanley Ray Woodruff, Paradise Valley, Nev., assignor of one-third to Clarence A. Christmas, Las Vegas, Nev., and to George Rudiak and Harry F. Publow, co-partners, one-third interest

Filed Apr. 19, 1968, Ser. No. 722,681
Int. Cl. B65d 17/18, 17/24
U.S. Cl. 220—48 2 Claims

ABSTRACT OF THE DISCLOSURE

The device of the invention is an openable closure for a receptacle which is a push type opener. It is exemplified as an opener for tin cans such as beer cans. It takes the form of a V-shaped push tab, the side edges of which separate from adjacent portions of the top allowing the tab to push inwardly hinging about the base of the V. Preferably, a thin frangible material is provided as a layer on the underside of the can lid which is sheared by the edges of the V-shaped tab as it moves inwardly to provide the opening.

The invention relates to the field of receptacles or containers and particularly to manually openable closures therefor. That is, the improvement of the invention resides in means provided whereby the container can be manually opened without the use of an opener.

In a preferred form of the invention, it is exemplified as a push tab in the top of a container such as a beer can made of tin. In this form of the invention, a tab is formed of V-shape having side edges scored, perforated or otherwise formed so that they can readily separate from the adjacent material of the top. The tab can be pushed in by finger pressure to form a discharge opening the tab hinging about the base of the V. Preferably, a sheet of thin frangible material is provided underneath the can lid which is ruptured, that is, sheared by the edges of the V-tab to form an opening through, the can being sealed until this material is sheared. The apex of the tab preferably has a down turned point to assist in perforating and shearing the frangible material.

In a modified form of the invention, the frangible diaphragm underneath the lid is omitted. The sides of the V-shaped tab are formed so that the material will fracture as a result of finger pressure so that the tab is pushed into the can for opening. In a further form of the invention the tab can be formed as a separate piece that is secured to the top of the can such as by riveting. When the tab is pushed in through a corresponding shaped opening in the top of the can it ruptures or shears the frangible diaphragm underneath the lid.

In the light of the foregoing, the primary object of the invention is to provide an improved, manually openable closure for containers embodying a push tab that separates from a wall portion forming a discharge opening. A further object is to provide opening means as in the foregoing object wherein a sheet of frangible material is provided on the underside of the container lid which is ruptured or sheared by the push tab.

Another object is to provide a push tab type of opener wherein the tab is of V-shape and which separates from the adjacent material without embodying the inner sheet of frangible material.

Another object is to provide a push tab opener wherein the tab is separate from the material of the lid, is attached to the lid and moves inwardly through a similarly shaped opening in the lid and shears a frangible sheet of material underneath the lid.

Further objects and additional advantages of the invention will become apparent from the following detailed description and annexed drawings wherein:

FIGURE 1 is a perspective view of a preferred form of the invention;

FIGURE 2 is a sectional view taken along the line 2—2 of FIGURE 1;

FIGURE 3 is a sectional view taken along the line 3—3 of FIGURE 2;

FIGURE 4 is a perspective view of a second form of the invention,

FIGURE 5 is a sectional view taken along the line 5—5 of FIGURE 4;

FIGURE 6 is a sectional view taken along the line 6—6 of FIGURE 5;

FIGURE 7 is a perspective view of a third form of the invention;

FIGURE 8 is a sectional view taken along line 8—8 of FIGURE 7;

FIGURE 8 is a perspective view showing a feature which may be utilized with all three forms of the invention.

Referring to FIGURES 1, 2 and 3 of the drawings, these figures show an exemplary form of the invention as applied to a receptacle in the form of a tin can container, for example, a beer can. The invention provides a push-type or push-top opening means for the receptacle or can as designated at **10**. The can is made of a material such as tin having a top **12** and with a top peripheral flange **14**. Formed in the top **12** of the can is a section of this wall, that is, the top, which can be separated from the remaining portions of the top wall and moved inwardly by finger pressure to provide an opening. The section which separates is V-shaped as designated at **16** and is adapted to hinge about the base part of the V opposite the apex. The V shaped section **16** is formed along its side edges so that it can easily be separated from the fixed portions of the top wall. That is, along the edges as designated at **20** and **22** the material is weakened so that it can readily separate and this may be accomplished by scoring the material in a line along these edges so that the material can rupture along the score lines; or the material may be perforated, punched or stamped along these two edges **20** and **22** to provide a weakened line along these edges so that section **16** can separate from the fixed part of the wall and then hinge about a line across the V opposite from the apex. Preferably along this line **23**, a row of round holes is punched as shown to facilitate hinging of the material along this line. Alternatively, the material can be weakened along this line by pressing spaced elongated perforations or embossments into the material.

Provided on the underside or under surface of the top **12** is a layer preferably in the form of a disc of relatively thin frangible material such as tin foil as designated at **26**. This material may be adhered to the under surface of the top of the can **12** over its entire surface or at only certain areas thereof. Preferably at the apex of the section of material **16** the end is turned or pointed inwardly as shown at **28** so that when the section **16** is forced inwardly by finger pressure, the point **28** will pierce the frangible material **26** and then as the section is pushed inwardly about its hinge, its straight V edge sides will shear through the thin frangible material **26** to provide an opening as illustrated in FIGURE 2.

From the foregoing it can be observed that an openable closure or lid is provided which is extremely simple but yet effective. Fabrication of the container providing this type of push-in tab is also extremely simple and economical. The contents of the container are effectively sealed in until such time as the container is opened in the manner described. Stacking of the cans is possible since

the end flange **14** permits the push-in tab from being inadvertently pushed in.

FIGURES 4, 5 and 6 show another form of the invention which is similar to the form of the invention just described. In this form of the invention no frangible diaphragm is provided underneath the lid **12**. The material of the top **12** is formed along the side edges of the V shaped tab so that by way of finger pressure this tab can be forced inwardly, the edges separating along the sides of the V and the tab pushing inwardly to provide the opening.

FIGURES 7 and 8 show another form of the invention which is similar to the forms of the invention already described except in the following respects. The push-in tab **16''** as shown has a trapezoidal part as designated at **30** which is secured to the top **12** of the can by way of a rivet **32**. That is the tab **16''** is separate from the material of the top **12** but secured thereto.

In this form of the invention the frangible diaphragm **26** is provided as in the form of the invention shown in FIGURES 1, 2 and 3. The tab **16''** is provided with a point **28** as in FIGURE 1. In this form of the invention the tab **16''** is initially secured only to the top of the can by the rivet **32**, the side edges of the material of the tab **16''** not being secured to the fixed part of the top **12** of the can. That is, there is a V shaped opening in the top of the can **12** as designated at **34**. When the tab **16''** is pushed inwardly by finger pressure, it moves inwardly thru the opening **34**. The point **28** on the end of the tab pierces the frangible diaphragm and the side edges of the tab **16''** shear the diaphragm so that the tab forms an opening in it which is the discharge opening for the receptacle or container. The tab **16''** hinges along a similar line of opening **23'**. The frangible material **26** is positioned underneath the end of rivet **32**. The tab **16''** can rotate laterally about rivet **32** so that its point **28** can be moved to one side slightly so that it does not accidentally puncture the frangible material.

FIGURE 9 shows a modification which may be utilized in all forms of the invention. Placed over the tab **16**, **16'**, or **16''** is a disc of thin material **36** which may be flexible or rubberized material or comparable material attached to the top of the can by mastik or a similar adhesive. The words "PRESS HERE" preferably are imprinted on this piece of material. Obviously this piece of material could have other shapes such as being square. Thus, when a can such as shown in FIGURE 9 is opened, the tab moves downwardly as a result of the finger pressure while disengaging from the piece or patch of material **36**.

The patch **36** is then simply pulled off leaving an area including the tab which has been untouched by human hands. This arrangement provides positive assurance that no area that has been contacted by a person's fingers would come in contact with the material being poured out of the can. However, in the forms of the invention shown in the previous figures, the tab can easily be pushed in by pressing on it at a position adjacent to the base of the tab with the finger not coming in contact with the contents of the container. The material is of course then poured out thru an area adjacent to the apex of the V shaped opening so that the material actually would not contact the outside of the base part of the V shaped tab.

The construction and utilization of the invention and the manner in which it accomplishes the objectives and advantages as set forth in the foregoing will be readily apparent from the foregoing description as well as many additional advantages apparent therefrom.

The foregoing disclosure is representative of preferred forms of the invention and is to be interpreted in an illustrative rather than a limiting sense.

What is claimed is:

1. In a receptacle, a wall forming a part thereof, said wall having a triangular shaped opening therein, a triangular tab received within said opening and formed integrally with said wall along the base edge of said triangular tab, said base edge being structurally weakened over the length thereof to form a hinge, and the apex of said triangular tab being downturned to form a point, said apex and at least the portions of the remaining two sides of said tab immediately adjacent said apex being unconnected to said wall, and a frangible liner disposed against the inner surface of said wall to extend across said opening and adapted to be sheared by the inward movement of the apex end of said tab, said tab being displaceable inwardly from the plane of said wall by exerting finger pressure thereon between said base edge and said apex.

2. A receptacle as in claim **1** having a piece of flexible removable material overlying said triangular tab and the portion of said wall surrounding said opening.

References Cited

UNITED STATES PATENTS

2,082,760	6/1937	Berni	220—48
2,261,117	11/1941	Jack	220—27
2,569,905	10/1951	Schwark	220—48
2,642,203	6/1953	Seemuller	220—48
2,740,547	4/1956	Huntting	220—24
3,190,485	6/1965	D'Andrea et al.	220—48
3,204,805	9/1965	May	220—24
3,227,304	1/1966	Asbury	220—48
3,334,775	8/1967	Klein et al.	220—48
3,355,058	11/1967	Asbury	220—48

RAPRAEL H. SCHWARTZ, Primary Examiner