

[54] CONTAINER CLOSURE OPENING MEANS

[76] Inventor: **Robert A. Bennett**, 170 Sturbridge Rd., Easton, Conn. 06425

[22] Filed: **May 20, 1974**

[21] Appl. No.: 471,331

[52] U.S. Cl. **220/253; 220/266; 220/268; 220/277; 222/83; 222/541**

[51] Int. Cl. **B65d 51/18**

[58] Field of Search 220/253, 258, 265, 266, 220/268, 277; 222/83, 541

[56] **References Cited**
UNITED STATES PATENTS

3,261,504	7/1966	Salaka.....	222/83
3,486,665	12/1969	LaCroce	220/253
3,726,432	4/1973	Gentile	220/253

Primary Examiner—George T. Hall
Attorney, Agent, or Firm—Mattern, Ware and Davis

[57] **ABSTRACT**

A container closure apparatus comprises two cooper-

ating lids aligned in juxtaposed relationship. The lower of these two lids incorporates a raised button that protrudes through an opening in the upper lid when the lower lid is in a convex, closed configuration. When in the closed configuration, a drinking orifice region in the lower lid is sealed to the upper lid. Manual depression of the raised button brakes this seal around the drinking orifice and causes the lower lid to be in a concave, open configuration. This configuration is maintained by impingement of the uppermost protruding edge of the button against an edge of the upper lid opening.

The upper lid is then rotatable about the lower lid and alignment of the upper lid opening with the lower lid drinking orifice allows the pouring of the container's contents.

Realignment of the upper lid opening with the lower surface button and depression and release of the upper lid causes the lower lid to return to the closed, convex configuration.

25 Claims, 12 Drawing Figures

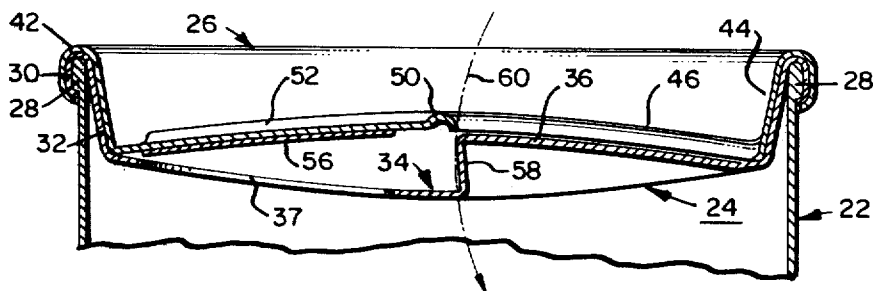


FIG. 1

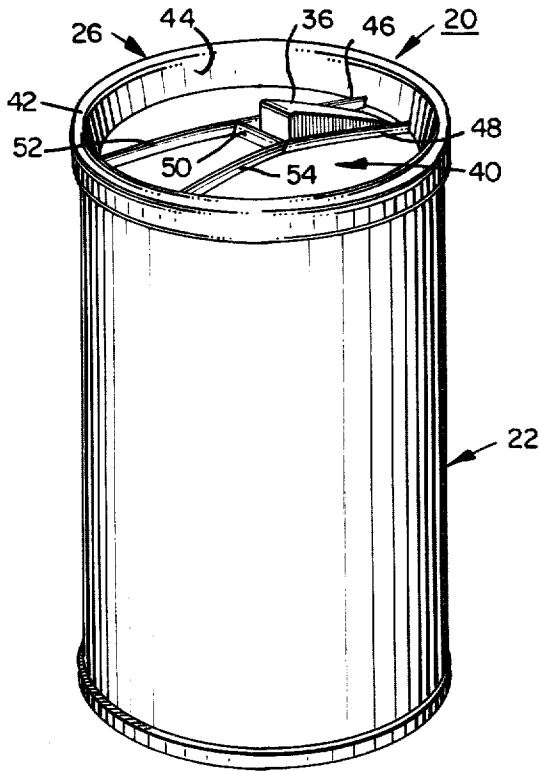


FIG. 2

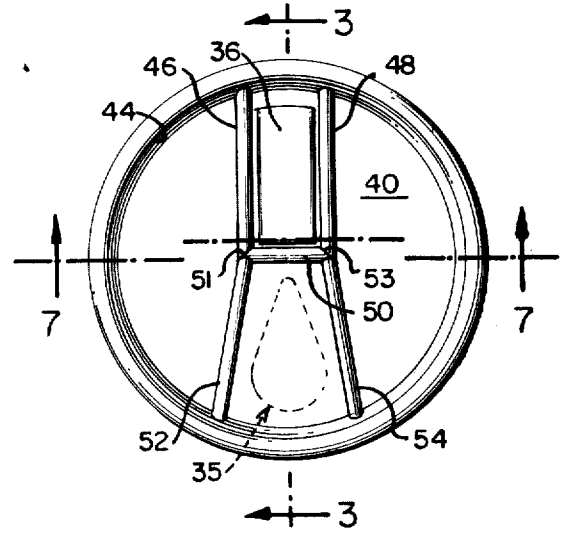


FIG. 3

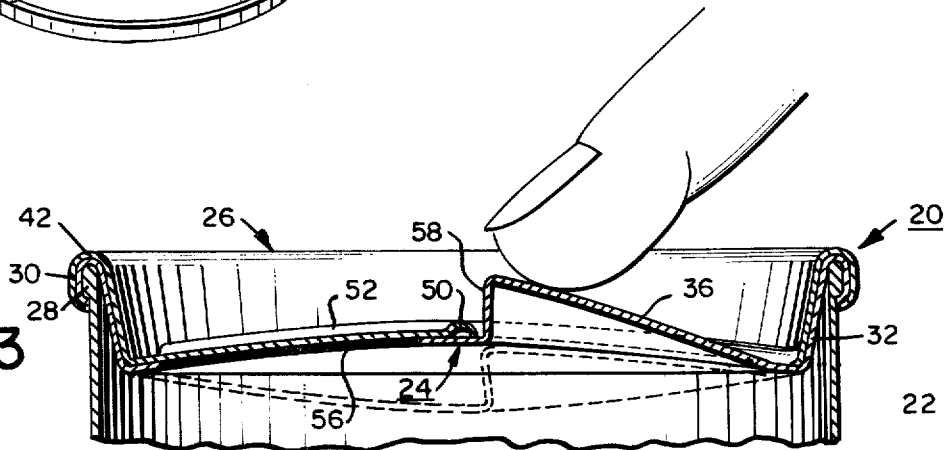


FIG. 4

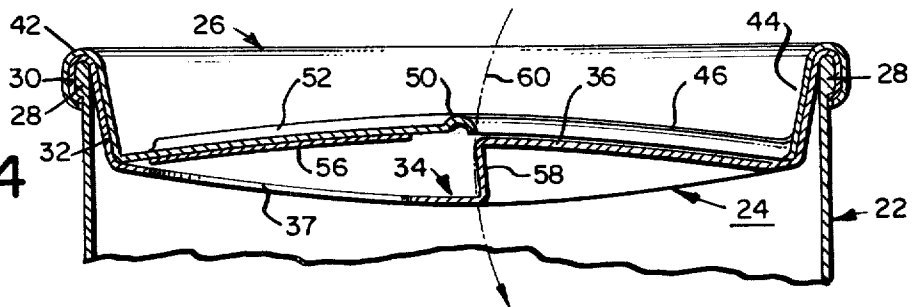


FIG. 3

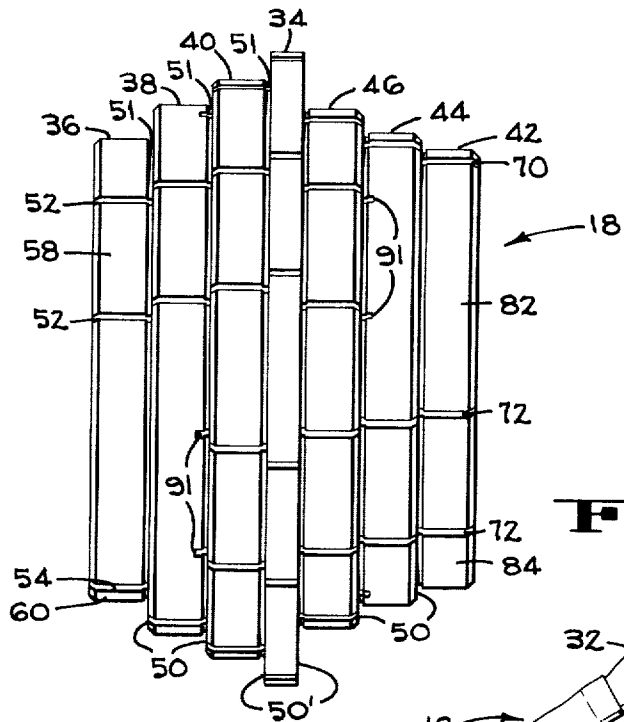


FIG. 5

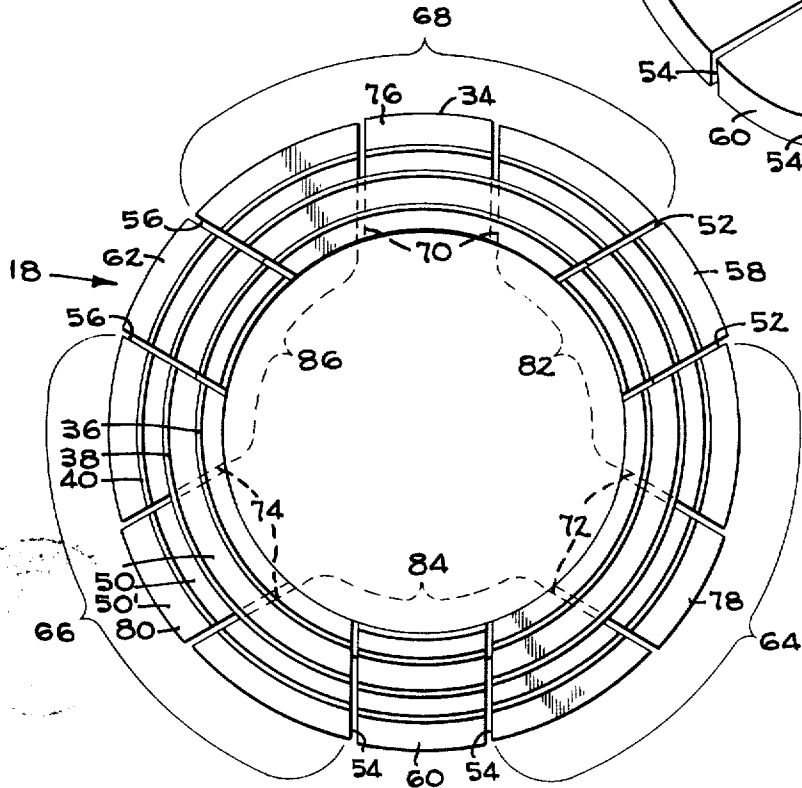
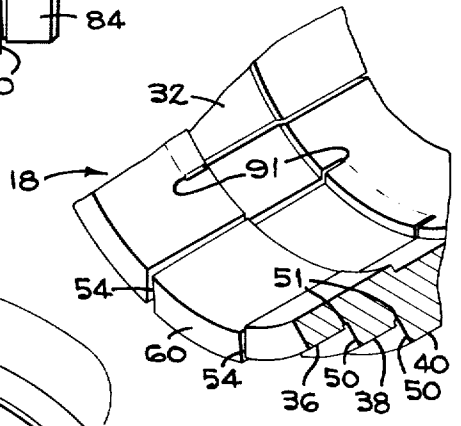
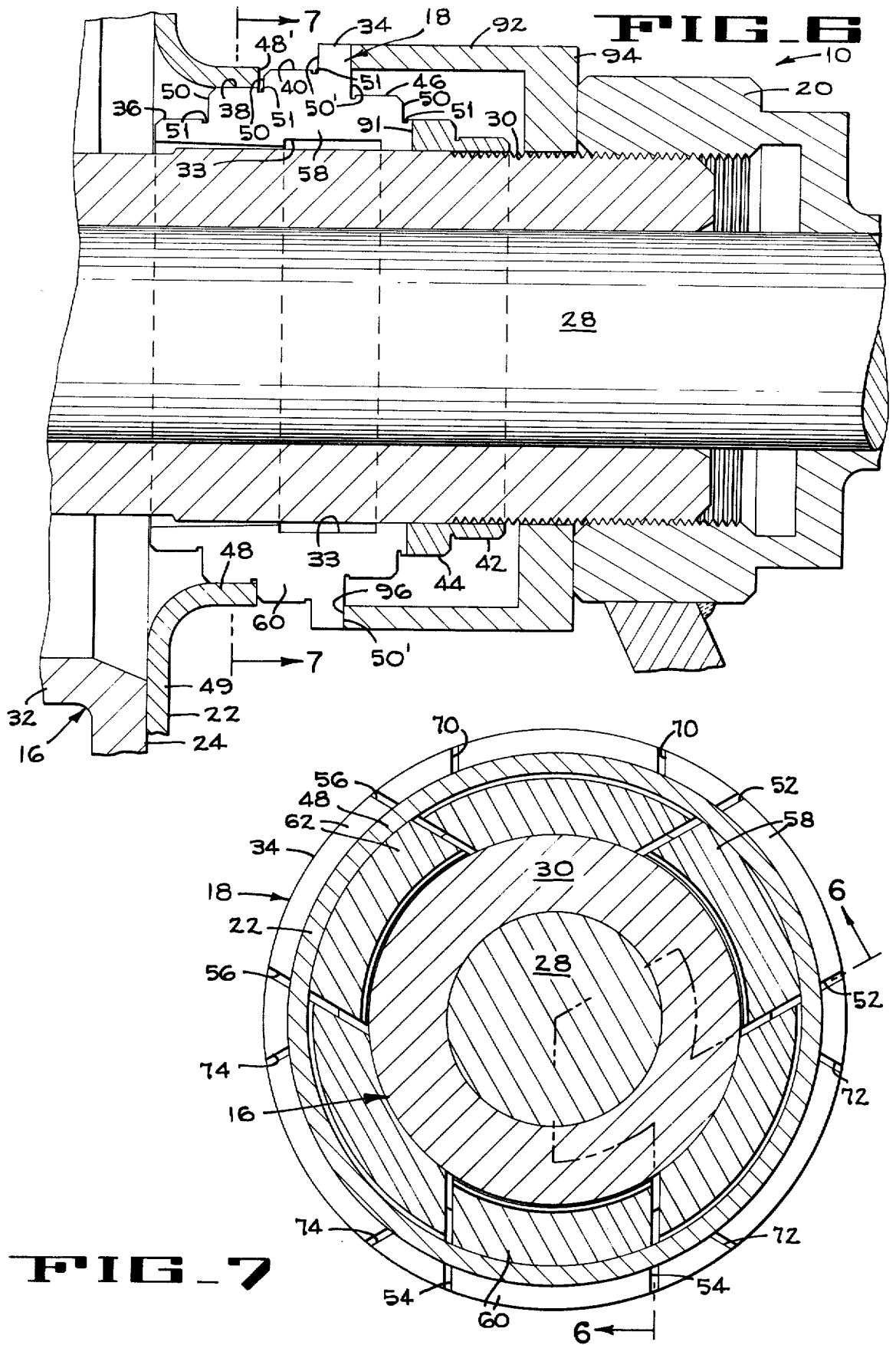


FIG. 4



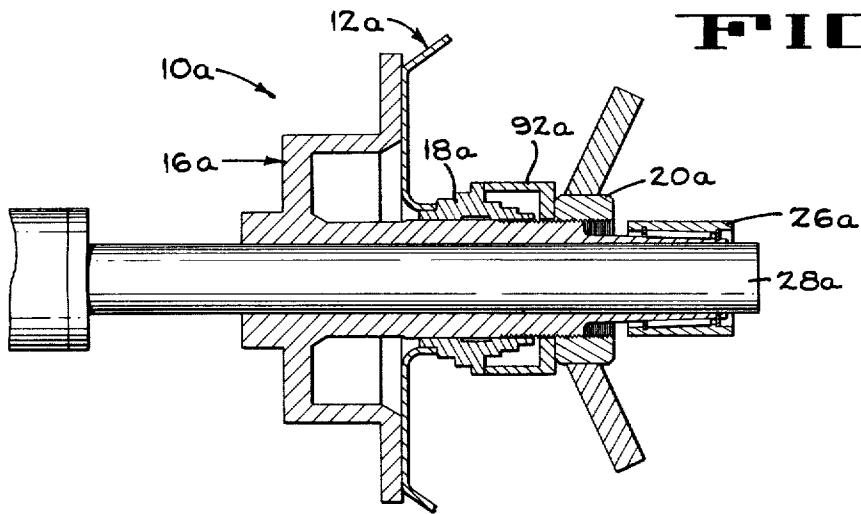


FIG. 8

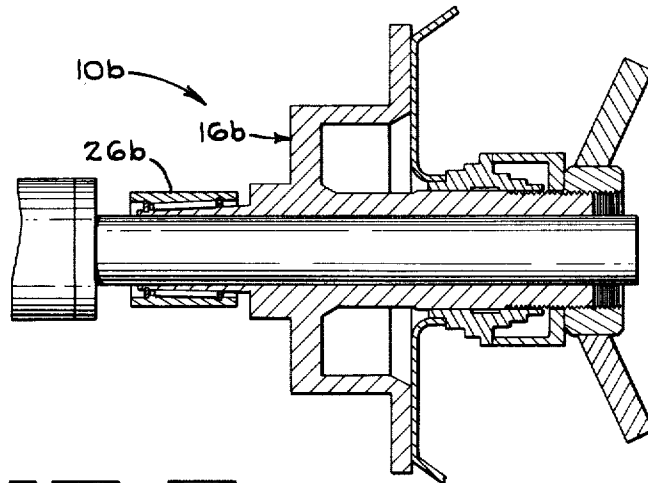


FIG. 9

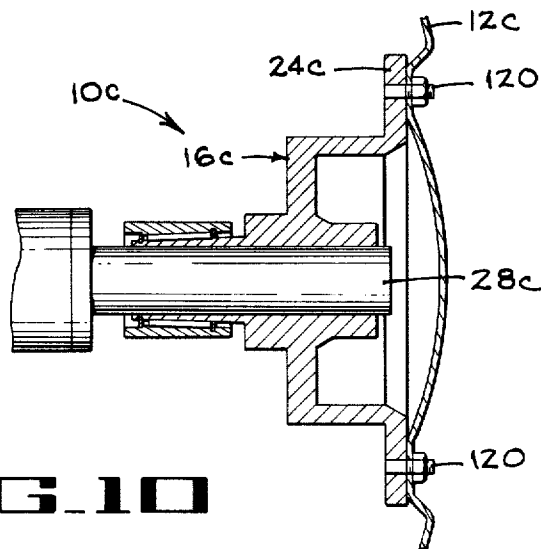


FIG. 10

CONTAINER CLOSURE OPENING MEANS**BACKGROUND OF THE INVENTION**

Methods for opening beverage can lids have posed a problem to beverage can manufacturers for many years. Initially, puncture type can openers were generally utilized for this purpose. In more recent times, the advent of the pull-ring attached to a tab portion of the can lid that has been scored or stamped has been widely used to allow the opening of beverage cans without the need for extra tools such as can openers.

However, it has become widely understood that the use of pull-rings is highly undesirable for several reasons:

1. once the pull-ring is removed from the beverage can it is often discarded causing an ever increasing amount of litter to our surroundings;
2. the pull-rings have been found to cause severe injuries when stepped on by man or animal; and
3. it has been recently discovered that due to the shininess and size of the pull-ring that when such rings are discarded in fish inhabited waters they are often swallowed by fish causing generally fatal injuries.

Thus it is quite apparent that the present use of pull-rings for the opening of container closures is not the proper solution to the problem of opening cans without the need of external implements in light of the various hazards that accompany these rings. In fact, due to the tremendous number of beverage cans sold annually, various state legislatures have enacted laws prohibiting the sale of beverage cans with detachable pullrings.

The present invention provides for means to open beverage lids without the need of external tools and that does not create any detachable parts. Furthermore, the present invention may be re-closed after the initial unsealing of the beverage lid without the need for adding any additional parts to the beverage container member. Furthermore, the present invention eliminates the common problem of having a portion of the contents of the beverage container squirt or spray out at the person opening the lid of the container.

The prior art, with respect to means for opening a container without the need for extra implementing tools is clearly distinguishable from the present invention. The present invention incorporates two cooperating lids aligned in juxtaposed relationship so as to provide for the opening and closing of a beverage container. The lower lid of these cooperating lids incorporates a raised button that protrudes through an opening in the upper lid when the container closure apparatus is in the closed configuration. By depressing this raised button, a drinking orifice is generated by breaking a seal between a portion of the lower and upper lids. The upper lid is then rotatable about the lower lid and alignment of the upper lid opening with the lower lid drinking orifice allows for the pouring of the container's contents. realignment of the upper lid opening with the lower lid button and depression and release of the upper lid causes the lower lid to return to the closed position.

The prior art does not disclose the use of two lids, one of which is rotatable about the other, so as to generate a means for opening a container with pressurized contents without the need of external implements. More particularly, U.S. Pat. No. 422,935, entitled "TOP FOR CANS," discloses a cam operated vertically reciprocal internal double stopper arrangement

for sealing two openings of an oil can. Although this invention does not utilize external implements to open and close the two holes used by this invention, the mechanism used for opening and closing the holes in the top of this lid does not use two rotatable lids but instead utilizes double stoppers placed on opposite ends of a cantilever arm which in turn is operated by a cam device having an operating arm extending through the center of the top of the can. It is therefore clear that the present invention is non obvious in light of this prior art patent.

In U.S. Pat. No. 1,993,745, entitled "POURING SPOUT CONTAINER," an invention is disclosed utilizing an alignment of two holes so as to allow the pouring of the contents within the container. This invention, however, does not utilize a lower lid capable of having two configurations, one of a convex, closed, configuration and another of a concave, open, configuration so as to allow for the breaking of a seal between the upper and lower surfaces and the generation of a drinking orifice in the lower lid. In addition, this invention does not disclose the use of a raised button for the changing of the lower lid from a convex, closed, configuration to a concave, open, configuration; nor does it disclose an opening in the upper lid in which a button interfits when in the closed configuration and where contents within the container are poured when the closure assembly is in the open configuration.

In addition, U.S. Pat. NO. 3,261,504, entitled "DISPENSING CLOSURE," discloses a two component rotatable closure member of the type designed to vary the size of the discharge aperture so that the user may select one of several apertures in order to vary the flow rate from the container. This invention however, as well as other prior art inventions, do not disclose the breaking of a seal between the upper and lower lids by a raised button protruding from the lower lid through an opening in the upper lid. In addition, none of the prior art inventions disclose the use of a convex-concave lower lid so as to allow for the breaking of the seal between the upper and lower lids nor the use of a raised button to prevent the rotation of an upper lid when the closure apparatus is in a closed configuration.

Lastly, U.S. Pat. No. 3,800,971 entitled "PUSH BUTTON LID FOR BEVERAGE CANS AND THE LIKE," discloses a means for opening a beverage can without the need for external implements that operates by the depression of a plug inserted in an opening in the lid. This plug, upon depression, drops to the bottom of the container. This invention clearly does not teach the present invention nor does it render the present invention obvious.

Thus it is clear that the present invention, utilizing a lower lid capable of two configurations and an upper lid rotatable about this lower lid when the raised button of the lower lid is depressed, is a marked advance in the art of container closures and more particularly the art of opening a container without the need for external implements.

SUMMARY OF THE INVENTION

The closure apparatus of the present invention provides for the rapid manual opening of containers without the need for external implementing tools. The present invention incorporates two cooperating lids that form a sealed closure assembly about the periphery of a container member. The lower or inner of these two

lids is sealed to the periphery of the container member. This lid incorporates a raised button that protrudes through an opening in the upper lid when the closure apparatus is in a closed configuration.

When in this configuration, the lower lid maintains a generally convex shape. A portion of the lower lid is sealed to the upper lid. Manual depression of the raised button causes the lower lid to flex downwardly into a generally concave shape. This downward flexing action breaks the seal between the lower and upper lids thereby generating a drinking orifice within the lower lid. The manually depressed button of the lower lid remains below the opening of the upper lid after depression thereof due to contact between the inwardly extending upward portion of this button with an edge of the upper lid defining a portion of the upper lid opening.

The upper lid fits over the entire lower lid except for the button of the lower lid. The upper lid fits over this lower lid in a manner that allows for a small clearance between the two lids except for the region between the two lids that is initially sealed and subsequently broken generating a drinking orifice in the lower lid when the raised button is depressed. This clearance allows the upper lid to be rotated about the lower lid when the button is depressed. Rotation of the upper lid about the lower lid allows alignment of the upper lid opening with the lower lid opening. When in this configuration, the contents within the container member may be readily poured through the aligned openings.

If any fluid remains within the container member following use thereof, the upper lid may be rotated so as to be realigned with the button of the lower lid. In this relationship, depression of the upper lid and subsequent release thereof, causes the button to be raised above the level of the upper lid, thereby allowing the lower lid to return to a convex shape, thus reclosing the container member.

These above operations may be repeated whenever the contents within the container member are desired to be removed or reclosed. The upper lid of the closure assembly is preferably recessed within the sidewall of the container member so as to prevent the button of the lower lid from protruding above the plane defined by the upper rim of this sidewall.

OBJECTS OF THE INVENTION

It is therefore a principal object of the present invention to provide a closure apparatus for container members that is manually opened and closed without the need for external tools.

An additional object of the present invention is to provide a closure apparatus for container members that prevents the rapid release of a portion of the pressurized contents within the container member when the closure apparatus is unsealed.

A further object of the present invention is to provide a closure apparatus for container members that does not generate detachable parts.

A further object of the present invention is to provide a closure apparatus for container members that is inexpensive and simple to manufacture.

A further object of the present invention is to provide a closure apparatus for container members that is safe and easy to manually open and close.

An additional object of the present invention is to provide a closure apparatus for container members that

is clean to operate and which prevents portions of the apparatus which are exposed to the environment from being immersed in the fluid within the container member.

An additional object of the present invention is to provide a closure apparatus for container members that prevents the accumulation of residue within the closure apparatus after its initial unsealing.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the invention will be indicated in the claims.

THE DRAWINGS

FIG. 1 is a perspective view of the present invention mounted on a standard beverage container;

FIG. 2 is a top plan view of the container closure apparatus of FIG. 1 showing a drinking orifice in phantom;

FIG. 3 is a cross-sectional side view of the container closure apparatus of FIG. 1 taken along line 3—3 of FIG. 2 and showing the position of the lower lid after depression of the raised button;

FIG. 4 is the same view of the container closure apparatus of FIG. 1 as shown in FIG. 3 showing the position of the lower lid after manual depression of the raised button of the lower lid;

FIG. 5 is a cross-sectional side view of the container closure apparatus of FIG. 1 showing the position of the lower and upper lids after the upper lid is rotated 180°;

FIG. 6 is a cross-sectional side view as shown in FIG. 5 showing the manual re-closing operation of the container closure apparatus of FIG. 1;

FIG. 7 is a cross-sectional side view of the container apparatus of FIG. 1 taken along line 7—7 of FIG. 2;

FIG. 8 is a top plan view of the lower lid of the container closure apparatus of FIG. 1 showing the scored tear drop portion of the lower lid;

FIG. 9 is a top plan view of the upper lid of the container closure apparatus of FIG. 1;

FIG. 10 is a top plan view of the container closure apparatus of FIG. 1 indicating the rotation of the upper lid about the lower lid after depression of the raised button of the lower lid;

FIG. 11 is an enlarged cross-sectional view of the peripheral rims and sidewalls of the lower and upper lids of the container closure apparatus of FIG. 1; and

FIG. 12 is a cross-sectional side view of an alternative configuration of the container closure apparatus of FIG. 1.

DETAILED DESCRIPTION

As can best be seen in FIG. 1, a container closure apparatus 20 of the present invention forms a recloseable lid for a container member 22. In a typical application; container member 22 may be any type of beverage container generally used to store soft drinks as well as beer and other products.

As best seen in FIGS. 1, 3 and 4 the container closure apparatus 20 of the present invention comprises two cooperating lids 24 and 26. The lower lid 24 is sealed to a circular rim 28 of container member 22 via a peripheral rim 30. In a typical manufacturing process, this rim 30 is rolled on the circular rim 28 of the container

member 22 thus forming a seal about the entire periphery of the container member.

The lower lid 24 also preferably incorporates a downwardly extending annular sidewall 32, a central portion 34 and a raised button 36. As best seen in FIGS. 1 and 3, the annular sidewall 32 allows the central portion 34 and the raised button 36 to always be lower than the uppermost portion of the upper lid 26. In this manner, the raised button 36 is never depressed when objects such as other container members are placed on top of this closure apparatus. This in turn prevents the unintended depression of button 36 during normal loading, shipping, and storing operations of the container members.

As best seen in FIGS. 2 and 8, the lower lid also includes a drinking orifice region 35. This region may be scored or stamped on the upper surface of lid 24 or it may be punched out.

As best seen in FIG. 1, the button 36 of the lower lid 24 protrudes through an opening 38 (see FIG. 9) of the upper lid thus allowing manual depression of this button as best seen in FIG. 3. The upper lid of the preferred embodiment of the present invention incorporates a central portion 40, a peripheral rim 42 and a downwardly extending annular sidewall 44. As best seen in FIGS. 2 and 9, the central portion 40 incorporates raised ribs 46, 48 and 50 to provide strengthening to the central portion about opening 38 while raised ribs 52 and 54 along with raised rib 50 provide strengthening for the section of the central portion 40 that lies over a drinking orifice 35 within lower lid 24 when the closure apparatus is in the sealed configuration. Raised rib 50 is free to flex downwardly due to diagonal cuts 51 and 53 between rib 50 and ribs 46 and 48 respectively. The need for such flexing action will be discussed later in this description.

As best seen in FIG. 3, when the container closure apparatus 20 is in the CLOSED configuration, the upper lid 26 overlaps the lower lid 24 except for the button 36 of the lower lid that protrudes through opening 38. As best seen in FIG. 11, the peripheral rim 42 and the sidewall 44 of the upper lid 26 do not make physical contact with the peripheral rim 30 or the sidewall 32 of the lower lid 24 or the sidewalls of the container 22. This spacing allows the upper lid 26 to be easily rotated about the lower lid and the container member when the closure apparatus 20 is in the OPEN configuration.

As best seen in FIG. 3, when in the CLOSED configuration a mechanical seal is formed by the lower lid 24 over container member 22 when the drinking orifice region 35 is a stamped portion 56 of lower lid 24. It is thus apparent that the lower lid 24 completely seals the contents within the container member 22 due to the seal about circular rim 28 of the container member 22 and can therefore seal beverages with carbonation. The stamped portion 56 is stamped on the outer surface of the lower lid so that the inner surface of this lower lid is completely sealed. The stamped portion 56 is attached to the upper lid 26 via standard cement used in present-day canning operations. Other techniques may be used to secure the stamped portion 56 to the upper surface such as riveting.

As best seen in FIGS. 3 and 4, upon manual depression of button 36, the central portion 34 is forced into a generally concave configuration. The depression of the central portion 34 causes the stamped portion 56

to tear away from the central portion 34 remaining on the inner surface of the upper lid 26. Upon completion of the tearing of the stamped portion 56 from the central portion 34, a drinking orifice 37 is generated in the lower lid 24 (see FIGS. 5 and 10). As best seen in FIGS. 3 and 4, depression of button 36 is allowable due to the space between raised rib 50 and sidewall 58 of button 36. Thus the arc 60 subtended by the uppermost portion of sidewall 58 is such that button 36 makes slight physical contact with flexible raised rib 50 before depression of the button below the convex shaped surface of the central portion of upper lid 26. The flexing of rib 50 due to diagonal cuts 51 and 53 is necessary in order for button 36 to make slight physical contact with raised rib 50 at the uppermost portion of sidewall 58 thereby maintaining button 36 below the convex shaped surface of central portion 40. Thus rib 50 not only acts as a strengthening rib for the upper lid 24 but also acts as restricting means for preventing button 36 from popping up after manual depression thereof.

As best seen in FIG. 10, after depression of button 36, the upper lid 24 may be rotated 180° so as to align opening 38 with drinking orifice 37. When so aligned, contents, within container member 22 may be easily poured therefrom. Drinking orifice 37 is shown in a tear-drop configuration, however it is apparent to those skilled in the art that this particular shape is not unique in order to have adequate pouring from the container member. The shape of the drinking orifice 37 may therefore be rectangular or any other shape that allows easy pouring from the container member. The drinking orifice must of course be large enough to provide for adequate air intake. Indeed two or more orifices may be used where the orifices are angularly spaced apart so that one may serve as a drinking orifice and a second may serve as an air intake region.

Re-closing of the container closure apparatus is best seen in FIGS. 5, 6 and 7. When in the OPEN configuration, the contents within the container member are easily poured through drinking orifice 37 through opening 38 as best seen in FIG. 5. When in this configuration, button 36 lies beneath the stamped portion 56 previously a part of lower lid 24 and still adhered to upper lid 26. As best seen in FIG. 6, the upper lid 26 may be rotated to realign button 36 with opening 38 of the upper lid. When in this configuration, manual depression of the upper lid in the region between raised ribs 52 and 54 (see FIG. 2) causes rib 50 to snap off the upper edge of sidewall 58 and to come to rest on the central portion 34 of lower lid 24. At this point, button 36 is able to protrude through opening 38 thus allowing central portion 34 of lower lid 24 to return to its normally convex configuration (see FIG. 7).

It should be noted that in the preferred embodiment of the present invention the convexity of the central portion 34 is in a ratio to the overall diameter of the central portion so as to cause the lower lid 24 to remember its convex state thereby allowing the central portion to always spring back to this convex state when raised rib 50 is not in contact with the upper portion of sidewall 58. It has been found that the preferred curvature of central portion 34 is 0.125 inches at its central position with a preferred diameter of 2.15 inches for a container member diameter of 2.5 inches. Thus the preferred ratio of central curvature to diameter of the central portion is 1:17.2.

It is also possible that the central portion 34 of lower lid 24 may have a greater convexity so that upon depression of button 36 the central portion remains in a generally concave configuration without the need for central rib 50 to abut against button 36. If the central portion 34 is of such a concave curvature after depression of button 36, rib 50 can raise button 36 after depression thus causing lower lid 24 to return to its CLOSED configuration (see FIG. 7). In this embodiment of the present invention, it is necessary for upper lid 26 to have a higher resiliency than lower lid 24 in order to lift the lower lid via rib 50. One manner in which this can be achieved is for the upper lids to be formed from a higher gauge material of the same material from which the lower lid is formed. Thus if 0.075 inch gauge aluminum is used for lower lid 24 it would be necessary to use approximately 0.0125 inch gauge aluminum for the upper lid in order to provide the necessary resiliency to lift lower lid 24 into its convex shape. Of course, the upper lid could use a different material such as steel which could then have a thickness corresponding to the aluminum of the lower lid and thereby providing for the necessary added resiliency.

It should be noted that when the container closure apparatus is returned to its CLOSED configuration, the stamped portion 56 no longer forms an integral part of lower lid 24, as it did prior to initial unsealing of the closure apparatus. Thus, a mechanical re-closing is possible with the present invention although a high pressure seal may no longer be obtainable. However, it is possible to put a resilient gasket on central portion 34 around drinking orifice 37 so as to provide a better re-sealing between lower lid 24 and upper lid 26 when the closure apparatus is re-closed.

It should also be noted that if the drinking orifice 37 is completely stamped out of lower lid 24 prior to initial sealing of the closure apparatus, the region of central portion 34 surrounding drinking orifice 37 of the region of central portion 34 surrounding raised button 36 is cemented to the corresponding region of upper lid 26 in order to form a pressure-tight seal. Since a re-sealing of this initial cementing is not possible with known cements, it is necessary to add a resilient gasket about drinking orifice 37 or opening 38 and attached to the corresponding lower surface of upper lid 26 or the upper surface of lower lid 24 in order to provide for a pressurized re-sealing when the closure apparatus is re-closed.

As best seen in FIG. 12, it is noted that the central portion of upper lid 26 need not be of a convex configuration but may be of generally planar configuration or even of a concave configuration. As shown in FIG. 12, the planar configuration embodiment of the present invention requires that the drinking orifice region 35 include a raised rib 62 and corresponding sidewalls so as to allow the stamped portion 56 to be cemented to the corresponding portion of upper lid 26.

Furthermore, the central portion 34 of lower surface 24 need not have continuous convex configuration but may have segmented portions generating a generally convex shape when in the CLOSED configuration. Thus the crucial requirement for the central portion of lower lid 24 is that it be of a configuration whereby depression of button 36 causes central portion 34 to have a generally concave configuration thereby breaking the seal of lower lid 24 generating an unsealed drinking or-

fice 37, and allowing upper lid 26 to be manually rotated about lower lid 24 and container member 22.

Furthermore, it should be noted that when the initial seal is broken on lower lid 24 the drinking orifice 37 does not communicate with opening 38 in the upper lid. Because of this initial non-alignment between drinking orifice 37 and opening 38, the potentially pressurized contents within container member 22 are not readily accessible to opening 38, thus preventing the squirting out of the contents as commonly occurs in present-day closure apparatus using the pull-ring. In addition, there are no parts of the closure apparatus that fall into the container member when the closure apparatus is initially unsealed. This eliminates the unsanitary problem found with present-day pull-rings and with the invention disclosed in U.S. Pat. No. 3,800,971 when the respective pull-rings and plugs are dropped through the generated openings into the contents of the container members.

Furthermore, the drinking orifice 37 from which the contents within container member 22 are poured is never exposed to the outside world until the closure apparatus is placed in the OPEN configuration. Therefore, there is no sanitary problem with drinking from this closure apparatus for the contents within the container member do not make contact with exposed portions of the closure apparatus.

Furthermore, the use of a tear-drop shape drinking orifice 37 with a portion thereof near the center of the lower lid 24 causes any fluid spilled during normal drinking to be gravitationally returned to container member 22 due to the concave configuration of the central portion 34 when in the OPEN position. In this manner, when the closure apparatus is re-closed, there is no fluid between lower lid 24 and upper lid 26 to be trapped therebetween or to be squirted out at the user.

What has thus been described is a novel apparatus for sealing pressurized fluids in a container member whereby these fluids may be unsealed and poured from the closure apparatus without the need for external tools and without the generation of removable items. In addition, the present invention may be easily re-closed in order to store any remaining contents within the container the later use. Furthermore, the present invention is extremely sanitary in preventing the dropping of any part of the closure apparatus into the fluid stored within the container member. Furthermore, the present invention may be manufactured via present-day stamping and rolling techniques and does not require that the container member be removed from the machine performing the sealing process of the closure apparatus as is necessary in the present-day manufacture of pull-ring lids for beverage containers due to the insertion of the pull-ring.

Having described the invention, what is claimed is:

1. A closure apparatus for a container having an open end, circular in cross-section, comprising:

A. A first lid peripherally mounted to at least a portion of said open end and incorporating a central portion depressible from a first closed position to a second open position; said central portion incorporating;

1. at least one orifice defining region; and
2. a manually depressible raised button; and

B. A second lid mounted for rotation with respect to said first lid incorporating a central portion in juxtaposed relationship to the central portion of said

first lid incorporating an opening with a configuration allowing the raised button of said first lid to protrude therethrough when the central portion of said first lid is in the closed position by preventing rotation of said second lid about said first lid; whereby the closure apparatus closes the container when the central portion of said first lid is in the closed configuration and opens the container by generating an orifice in each orifice defining region of the central portion of said first lid when said button is depressed thereby allowing rotation of said second lid about said first lid to align said opening with at least one of said orifices.

2. A closure apparatus as defined in claim 1 wherein each orifice defining region of the central portion of said first lid is interconnected to a corresponding region of said second lid when said first lid is initially in the first closed position.

3. A closure apparatus as defined in claim 2 wherein at least one orifice defining region is scored into the central region of said first lid.

4. A closure apparatus as defined in claim 2 wherein at least one orifice defining region comprises an opening in the central portion of said first lid, wherein the periphery of said opening is attached to a corresponding region of said second lid.

5. A closure apparatus as defined in claim 1 wherein the region of the central portion of said first lid that forms the periphery about said raised button is interconnected to a corresponding region of said second lid when said first lid is initially in the first closed position.

6. A closure apparatus as defined as in claim 1 wherein said orifice defining region is of a tear-drop configuration, the smaller cross-section of said region originating in the central region of the central portion of said first lid and said configuration extending radially outward to a region at the edge of said central portion and wherein said manually depressable raised button is in a region of said central portion approximately 180° displaced from said tear-drop configuration.

7. A closure apparatus as defined in claim 1 further comprising resilient gasket means interposed between the first and second lids and attached to one of said lids about the periphery of each orifice defining region.

8. A closure apparatus as defined in claim 1 wherein the central portion of said first lid is of a substantially convex configuration when said lid is in the first closed position and is of a substantially concave configuration when said lid is in the second open position.

9. A closure apparatus as defined in claim 8 wherein the central portion of said second lid is of a substantially convex configuration.

10. A closure apparatus as defined in claim 8 wherein the central portion of said second lid is of a substantially flat configuration and said orifice defining regions of the central portion of said first lid incorporates a raised table portion mating with a corresponding region of the central portion of said second lid.

11. A closure apparatus as defined in claim 1 wherein the central portion of said second lid further incorporates raised ribs about the periphery of said opening in said central portion.

12. A closure apparatus as defined in claim 11 wherein the central portion of said second lid further incorporates raised ribs in the region where said central portion is in juxtaposed relationship to the orifice defining region of the central portion of said first lid.

13. A closure apparatus as defined in claim 11 wherein at least one of said raised ribs is resiliently flexible.

14. A closure apparatus as defined in claim 1 wherein said first lid further incorporates a downwardly extending annular sidewall from the region where said lid is mounted to the open end of said container and to which said central portion is attached; whereby the raised button of said lid when said lid is in the closed position is below the plane defined by the open end of said container.

15. A closure apparatus as defined in claim 14 wherein the second lid further incorporates a peripheral rim mounted for rotation about the peripheral mounting of said first lid and a downwardly extending annular sidewall attached to said peripheral rim and terminating with the central portion of said second lid; whereby the central portion of said second lid lies below the plane defined by the uppermost portion of said peripheral rim.

16. A closure apparatus as defined in claim 1 wherein said manually depressable raised button is of a ramped configuration extending radially from the central region of the central portion of said first lid to the edge of said central portion and wherein the uppermost extension of said ramp is located in the central region of said central portion.

17. A closure apparatus as defined in claim 1 wherein at least a portion of the periphery of the central portion of the second lid about said opening in said central portion impinges upon the uppermost portion of said manually depressable raised button when said raised button is depressed.

18. A closure apparatus as defined in claim 17 wherein the central portion of the first lid returns to the closed position when the opening in the central portion of the second lid is aligned with the raised button of the central portion of the first lid and the central portion of the second lid is depressed and released.

19. A closure apparatus as defined in claim 17 wherein said portion of the periphery of the central portion of the second lid comprises a resiliently flexible rib.

20. A closure apparatus for a beverage container having an open end, circular in cross-section, comprising:

A. a first lid incorporating:

- a. a peripheral rim mounted to said open end;
- b. a downwardly extending annular sidewall extending from said peripheral rim; and
- c. a central portion extending from said sidewall depressable from a first, convex, closed position to a second, concave, open position; said central portion incorporating:
 1. at least one orifice defining region; and
 2. a manually depressable raised button; and

B. a second lid mounted for rotation with respect to said first lid incorporating:

- a. a peripheral rim substantially surrounding and in juxtaposed spaced relationship to the peripheral rim of said first lid;
- b. a downwardly extending annular sidewall in juxtaposed spaced relationship to the sidewall of said first lid, extending from the peripheral rim of said second lid; and
- c. a central portion extending from said sidewall and in juxtaposed relationship to the central por-

11

tion of said first lid, incorporating an opening with a configuration allowing the raised button of said first lid to protrude therethrough when the central portion of said first lid is in the closed, convex, position, thereby preventing rotation of said second lid about said first lid; whereby the closure apparatus closes the container when the central portion of said first lid is in the closed configuration and unseals the container by generating an orifice in each orifice defining region of the central portion of said first lid when said button is depressed thereby allowing rotation of said second lid about said first lid to align said opening with at least one of said orifices.

21. A closure apparatus as defined in claim 20 wherein each orifice defining region of the central portion of said first lid is interconnected to a corresponding region of said second lid when said first lid is initially in the first closed position.

22. A closure apparatus as defined in claim 21 wherein at least one orifice defining region is scored

12

into the central region of said first lid.

23. A closure apparatus as defined in claim 21 wherein at least one orifice defining region comprises an opening in the central portion of said first lid, wherein the periphery of said opening is attached to a corresponding region of said second lid.

24. A closure apparatus as defined in claim 20 wherein the region of the central portion of said first lid that forms the periphery about said raised button is interconnected to a corresponding region of said second lid when said first lid is initially in the first closed position.

25. A closure apparatus as defined in claim 20 wherein at least a portion of the periphery of the central portion of the second lid about said opening in said central portion further incorporates a resiliently flexible rib that impinges upon the uppermost portion of said manually depressable raised button when said button is depressed.

* * * * *

25

30

35

40

45

50

55

60

65

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 3,889,842
DATED : June 17, 1975
INVENTOR(S) : Robert A. Bennett

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the Abstract,, line 8, "brakes", should be
--breaks--

In the Abstract, line 9, cancel "driking" and substitute
therefor --drinking--

Column 1, Line 57, cancel "realignment" and substitute
therefor --Realignment--

Column 2, Line 8, cancel "deice" and substitute therefor
--device--

Column 4, Line 7, omit "reside"

Column 4, Line 9, cancel "to" and substitute therefore
--be--

Column 4, Line 58, cancel ";" and substitute therefor
-- , --

Column 7, Line 11, cancel "that" and substitute therefor
--than--

Column 7, Line 39, cancel "of" and substitute therefor
--or--

Column 7, Line 53, insert --a-- before "generally"

Column 8, Line 44, cancel first "the" and substitute therefor
--for--

Claim 6, Column 9, Line 32, delete second "as"

Column 10, Line 35, cancel "wher" and substitute therefor
--where--

Column 10, Line 36, cancel "erin" and substitute therefor
--in--

Signed and Sealed this

Sixteenth Day of November 1976

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks

UNITED STATES PATENT OFFICE Page 1 of 3
CERTIFICATE OF CORRECTION

Patent No. 3,889,842 Dated June 17, 1975

Inventor(s) Robert A. Bennett

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the Drawings:

Add FIGURES 5, 6, 7, 8, 9, 10, 11 and 12, as shown on the attached sheets.

Signed and Sealed this

Sixth Day of September 1977

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

LUTRELLE F. PARKER
Acting Commissioner of Patents and Trademarks

FIG. 5

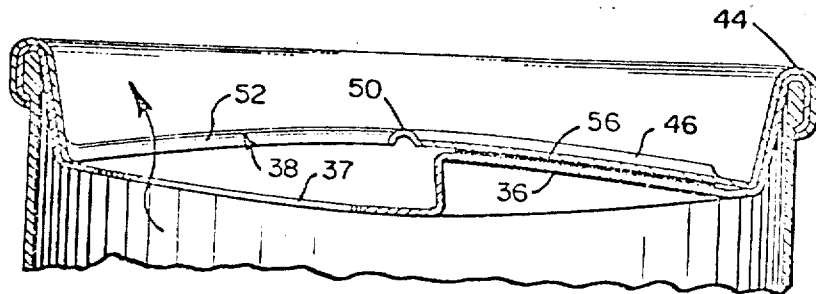


FIG. 6

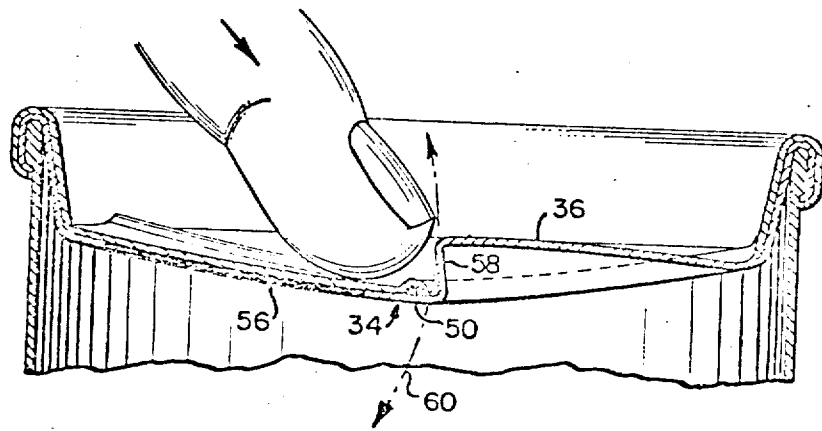
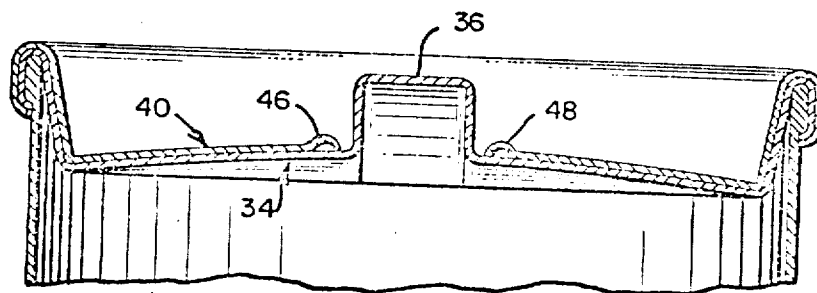


FIG. 7



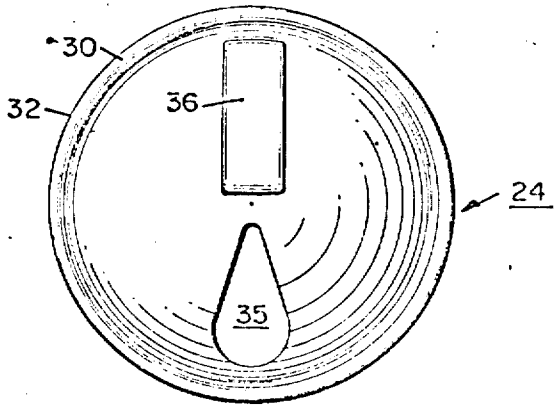


FIG. 8

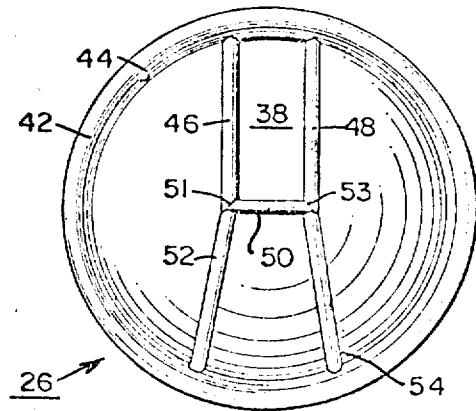


FIG. 9

FIG. 10

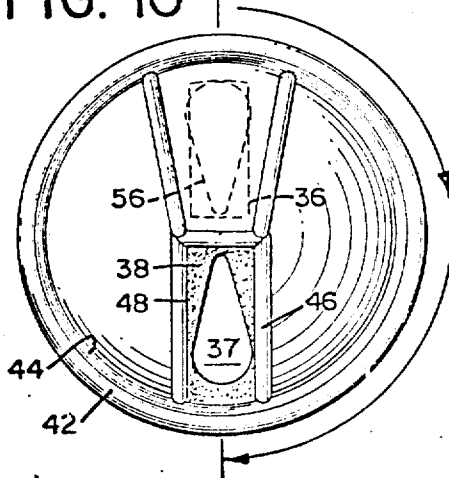


FIG. 11

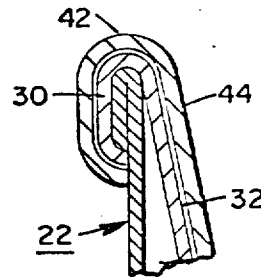


FIG. 12

