

Jan. 28, 1969

S. KAZEL

3,424,338

RESEALABLE CAN

Filed June 19, 1967

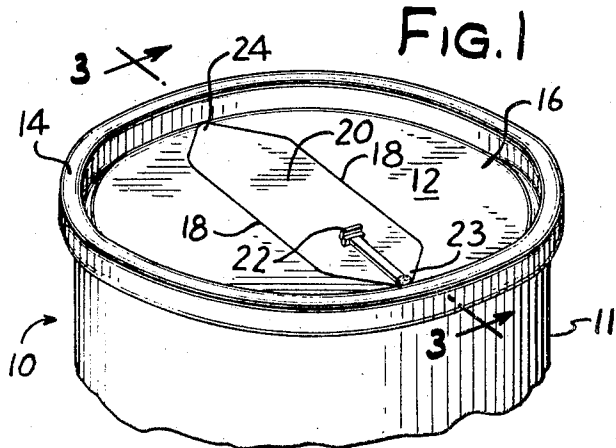


FIG. 2

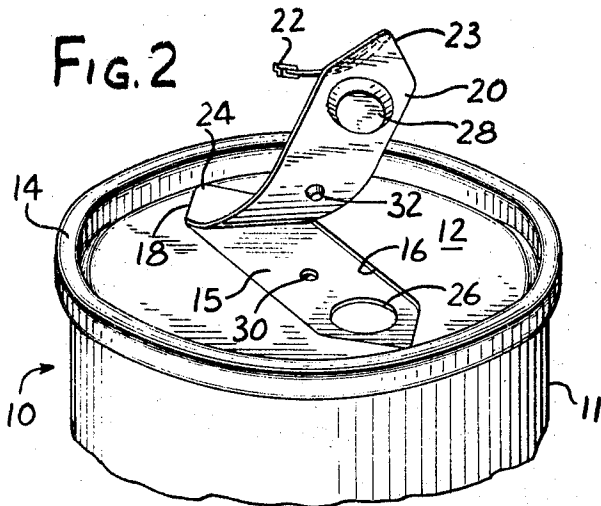


FIG. 3

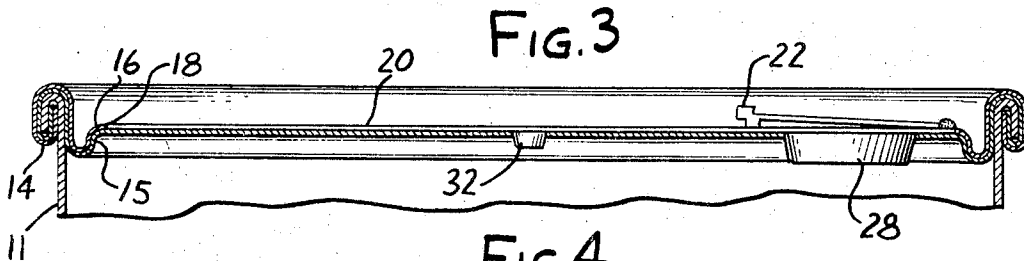


FIG. 4

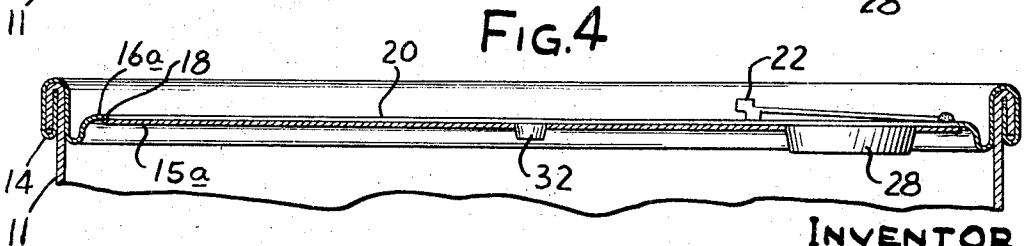


FIG. 5

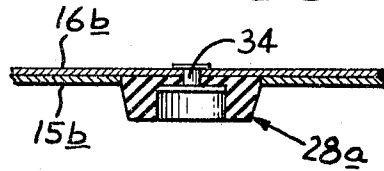


FIG. 6

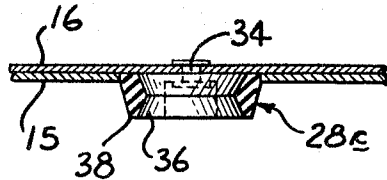
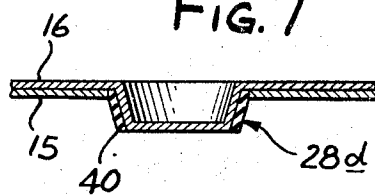


FIG. 7



INVENTOR  
SIDNEY KAZEL

by: Wolfe, Hubbard, Voit & Osann  
ATTYS.

1

3,424,338

**RESEALABLE CAN**

Sidney Kazel, 6131 N. Harding,  
Chicago, Ill. 60645

Filed June 19, 1967, Ser. No. 647,036

U.S. Cl. 220-54

7 Claims

Int. Cl. B65d 17/20, 39/16

**ABSTRACT OF THE DISCLOSURE**

A resealable can end member construction including inner and outer layers of rigid material wherein the outer layer is provided with a tear strip defined by score lines and the inner layer includes an opening beneath the area bounded by the tear strip which opening is smaller in dimension than the tear strip opening. A resilient plug depending from the undersurface of the tear strip enables the can to be easily resealed with assurance that liquid and gas tightness appears even with repeated opening and closing of the can.

A resealable can end member construction of the foregoing type wherein provision is made for venting the end member to facilitate pouring when the tear strip is lifted, yet which can be sealed in a liquid and gas tight manner substantially the same as the pour opening.

The present invention relates to cans which are opened by way of an integral tear strip provided on the end member of the can, and more particularly to an improved end member construction for cans of the type commonly used for containing liquids, particularly carbonated beverages, and the like. In its principal aspects the invention is concerned with an improved end member construction for a can which includes a tear strip arrangement defined by score lines and provided with a pull tab and characterized by the ability to more effectively re-seal the end member after initial opening therewith, yet which assures liquid and gas tightness even with repeated openings and resealings.

Heretofore end members of cans have been provided with tear strips integrally formed on the can tops defined by weakened areas or score lines and provided with a pull tab which is grasped to enable tearing of the strip completely from the can. Such arrangements do not provide for resealing of the can end members once the strip has been removed.

One approach to the problem of resealing a can end member having a tear strip is that disclosed in U.S. Patent No. 3,216,609, issued Nov. 9, 1965, to Clayton Bogert. However, the arrangement is such that the tear strip with an attached sealing member must be pressed back in the opening formed in the top of the can when the tear strip is lifted. As a consequence, the tear strip can be easily pressed too far inwardly when resealing with the result that a liquid and gas tight seal is not formed. In addition, should the strip be completely removed from the can top and then reapplied with excessive pressure, it can be pushed through the opening and fall into the can.

Accordingly, it is a general aim of the present invention to provide an improved end member construction which overcomes all of the foregoing disadvantages and which is characterized by its ability to reliably effect resealability of a can opened by a tear strip.

Another object is to provide a resealable can includ-

2

ing a tear strip which may be kept from interfering with the drinking of the liquid contents directly from the can.

It is a more specific object of this invention in one of its aspects to provide a resealable can of the foregoing type in which lifting of the tear strip uncovers both a pouring opening and a vent opening, both openings being resealable, to facilitate flow of liquid from the pouring opening.

Other objects and advantages of the invention will become apparent as the following description proceeds, taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a perspective view of a can embodying the features of the present invention;

FIG. 2 is a perspective view of the can shown in FIG. 1, and illustrating the tear strip in an open position;

FIG. 3 is an enlarged, fragmentary, longitudinal section along line 3-3 of the can shown in FIG. 1, and illustrating also details for the exemplary chime for connecting the end member to the sidewall;

FIG. 4 is a longitudinal section view similar to FIG. 3 but here illustrating a slightly modified form of connecting the end member;

FIG. 5 is a cross section view illustrating details of a modified form of plug member secured to the tear strip with a rivet;

FIG. 6 is a cross section view similar to FIG. 5 showing another modified form of plug member connected to the tear strip; and

FIG. 7 is a cross section view similar to FIG. 6 illustrating still another modified form of a plug member depending from the tear strip.

While the invention is susceptible of various modification and alternative forms, certain embodiments thereof have been shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that it is not intended to limit the invention to the particular forms disclosed, but, on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as expressed in the appended claims.

Referring now to the drawing, there is illustrated in FIG. 1 an exemplary can or container 10 having a generally cylindrical body or sidewall 11. In the illustrative form of the invention, the opposite ends of the can (only one being shown) are closed by disc shaped end members indicated generally as 12 which are secured to the extremities of the sidewall 11 by a curled seam or chime 14. The formation of the chime 14 may, for example, be by bending, turning, rolling or similar manufacturing procedures well known to those skilled in the art.

In accordance with one of the important aspects of the present invention, the end member 12 of the can comprises adjacent layers or plies defining inner and outer members 15, 16, respectively, there being two plies as here shown (FIG. 3). In the illustrative form of the invention (FIG. 3) the inner and outer end members 15, 16 both have their extremities bent or turned over into substantially U-shaped configurations as is the marginal edge of the sidewall only inverted so that the chime formed consists of eight plies.

In carrying out the present invention, the outer end member 16 includes weakened areas or score lines 18 defining a tear strip 20. As shown in FIGS. 1 and 2, the score lines 18 define a generally elongated tear strip and

a pull tab 22 is attached adjacent one end 23 of the tear strip so that it can be lifted to provide an opening in the outer member 16. The score lines may intersect at the opposite end 24 of the tear strip 20 to enable easy removal of the entire strip where it may be desired, for example, to drink the contents directly from the can. On the other hand, the tear strip may be lifted and bent back with the end 24 remaining attached to the outer end member as illustrated in FIG. 2.

In accordance with another of the important aspects of the present invention, the inner end member 15 includes an opening 26 disposed within the area beneath the tear strip formed in the outer end member with the peripheral edges of opening 26 being spaced from the peripheral edges of the tear strip opening in the outer member whereby lifting of the tear strip uncovers the opening 26 in inner end member. Additionally, provision is made for sealing the inner member opening 26 associated with the tear strip overlying the inner end member 15 not only for initial construction of the cans but also to enable resealing of the opening 26 after lifting or removing the tear strip.

To this end, the tear strip is provided with a depending plug 28 disposed on the underside of the tear strip and adapted to sealingly engage the opening 26 in the inner member. Referring to FIG. 3, the plug 28 which is preferably made of a suitable resilient material or plastic such as polyethylene, is shaped to conform with the configuration of opening 26. As here shown, the plug 28 being generally frustoconical in shape is suitably attached to the underside of the tear strip 20 by an adhesive or the like. The tapered wall of the plug permits it to be easily pressed back into the opening 26 of the rigid inner end member 15 for resealing the can after it has been opened.

Of course, while the plug 28 and opening 26 as shown are circular, it will be understood that the particular configuration thereof may vary without departing from the invention. It is important, however, that opening 26 in the inner member 15 be dimensioned smaller than the tear strip dimensions so that upon resealing of the opening there is no likelihood of forcing the tear strip and consequently the plug into the can without effecting sealing engagement.

In accordance with still another aspect of the present invention, provision is made for including a vent opening in the end member of the can to facilitate pouring by allowing air to enter the can when the tear strip is lifted, yet which can be sealed liquid and gas tight in substantially the same manner as the opening 26. To this end, a second opening 30 which is preferably much smaller than opening 26 is formed in the inner member 15 lying beneath the area bonded by the tear strip formed in outer member 16. A second depending plug 32 attached to the underside of the tear strip is adapted to engage the opening 30 when it is desired to reseal the can. The vent plug 32 also is preferably made of resilient material such as plastic and the like.

Referring to FIG. 4 there is shown a slightly modified form of end member construction in accordance with the present invention. As in the previous form, there are two plies defining inner and outer members 15a, 16a, respectively, however, in the present arrangement, only the outer end member 16a is secured to the extremity of the sidewall to form a part of the chime 14. The inner member 15a is generally disc shaped covering the tear strip opening and as herein shown is secured in a sealed manner to the underside of outer member 16a by any suitable means such as welding, adhesive or the like. It will be appreciated, of course, that either the inner or outer layers or both may be attached to the extremity of the can sidewall.

Referring to FIG. 5, there is shown a slightly modified form of depending plug 28a disposed on the underside of the tear strip adapted to engage the opening 26a in

the inner member 15b. In the present instance, the plug 28a is formed entirely of resilient material attached to the tear strip by a rivet 34. In FIG. 6 there is shown another modified form of plug 28c similar to that shown in FIG. 5 and again attached by a rivet 34, however, in the present instance the plug comprises a rigid button 36, preferably metallic, and a sleeve member 38 formed of resilient material surrounds the button 36.

Referring to FIG. 7, there is shown still another modified form of plug 28d, which in the present instance is integrally formed from the tear strip by stamping and the like. The resilient sleeve 40 surrounding the plug fits securely into the opening in the inner end member to form a liquid and gas tight seal.

With either of the foregoing modified forms of the depending plug 28 it will be seen that the resilient portion which sealingly fits into the inner layer opening can be provided with a circumferential projection or bead to provide a snap fit between the plug and opening.

In view of the foregoing, it will be seen that the invention provides a can end member construction which allows a tear strip to be removed for pouring the contents from the can and yet enables the can to be easily resealed with assurance that liquid and gas tightness occurs even with repeated opening and closing of the can. Moreover, in the two ply arrangement with the opening in the inner layer which receives the plug being smaller than the tear strip opening, there is no chance of pushing the strip and plug into the can whereby a seal would not be effected. The end member layers which would preferably be metallic or other similar rigid material provide a sound construction particularly where the can contains pressurized fluids and yet may be fabricated with conventional methods and equipment.

I claim as my invention:

1. For use with a can having a sidewall and a pair of end members respectively connected to opposite extremities of the sidewall, the combination of one of said end members being formed of inner and outer layers of rigid material, the outer layer being connected to the extremity of the sidewall, score lines defining a removable tear strip and first opening in said outer layer, means connected to said strip for lifting the strip away from the outer layer, means defining a second opening formed in said inner layer beneath the area bounded by the tear strip in the outer layer; said inner layer opening being dimensioned smaller than the tear strip opening, and resilient plug means depending from the underside of said tear strip and sealingly engaging the inner layer opening when said end member is fabricated and adapted to be pressed back into the inner layer opening for resealing the can after the tear strip has been lifted away from the outer layer.

2. The end member as defined in claim 1 wherein each of said inner and outer layers is connected to the extremity of the sidewall.

3. The end member as claimed in claim 1 wherein said plug means is made entirely of resilient material and attached to said tear strip.

4. An end member as claimed in claim 1 wherein said plug means is integrally formed with said tear strip and includes a resilient sleeve member attached thereto.

5. The end member as defined in claim 1 wherein the inner layer covers the tear strip opening of said outer layer and is secured to the outer layer.

6. The end member as claimed in claim 1 wherein said depending plug means comprises a rigid button attached to the tear strip and includes a resilient sleeve surrounding the button.

7. An end member as claimed in claim 1 wherein said inner layer includes a vent opening formed therein beneath the area bounded by the tear strip in the outer layer and resilient vent plug means depending from the underside of said tear strip and sealingly engaging the vent opening when said end member is fabricated and

3,424,338

5

6

adapted to be pressed back into the vent opening for re-sealing the can after the tear strip has been lifted away from the outer layer.

3,281,024 10/1966 Henchert et al. ----- 222—484  
3,341,057 9/1967 Frankenberg ----- 220—54

**References Cited**

5

GEORGE T. HALL, *Primary Examiner*.

**UNITED STATES PATENTS**

U.S. Cl. X.R.

2,705,346 4/1955 Schlabach et al. --- 220—24 XR 220—24