United States Patent

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Continuation of application Ser. No. 622,966, Mar. 14, 1967, now abandoned. This application May 26, 1970, Ser. No. 40,614

[54] **CLOSURE MEMBER FOR A CONTAINER**
5 Claims, 8 Drawing Figs.

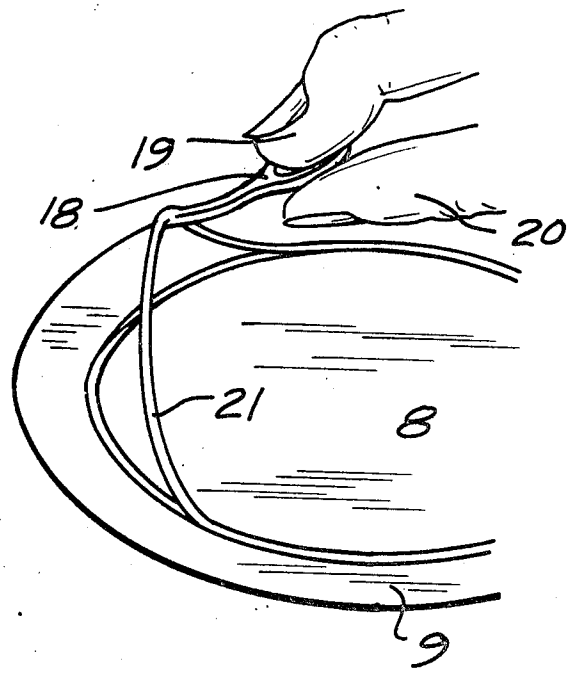
[52] **U.S. Cl.** **220/47,** 220/27, 220/46, 220/53
[51] **Int. Cl.** **B65d 43/02,** B65d 17/00
[50] **Field of Search** 220/47, 54, 46, 27, 53

[56] **References Cited**
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ABSTRACT: A closure for a container such as a can has a flat ring adapted to be secured along its outer edge to the rim of the container and a circular disc filling the opening of the ring except for a continuous narrow slot defined by the inner and outer peripheral outlines of the ring and the disc, respectively. Strips of an elastic plastic disposed on opposite sides of the ring and the disc cover the slot along its length and overlie the adjacent marginal portions of the ring and the disc. The strips are joined by a continuous neck portion extending through the slot thereby holding the disc in position and sealing it to the ring. Upon stripping of the upper strip the disc is exposed for removal, the remaining lower strip providing a smooth lining for the inner rim of the ring.



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SHEET 1 OF 2

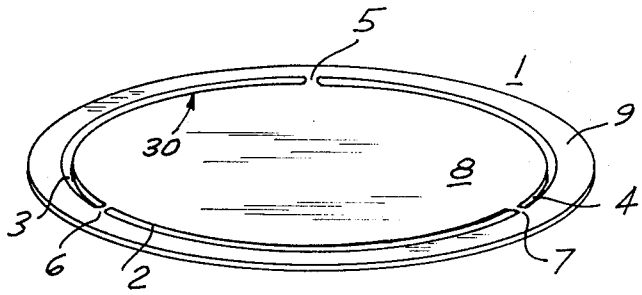


FIG. 1

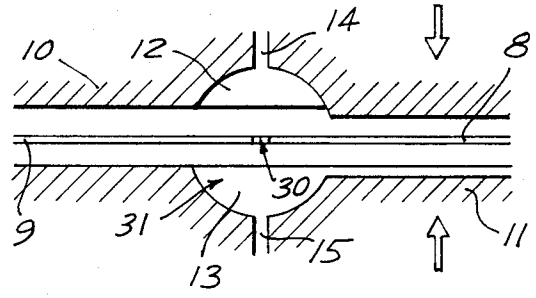


FIG. 2

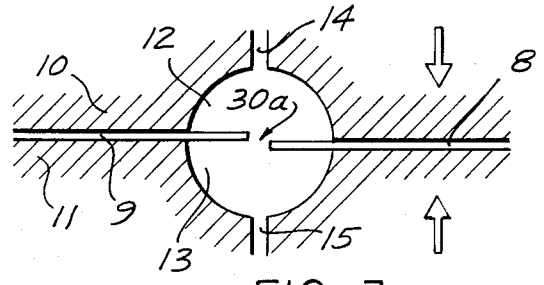


FIG. 3

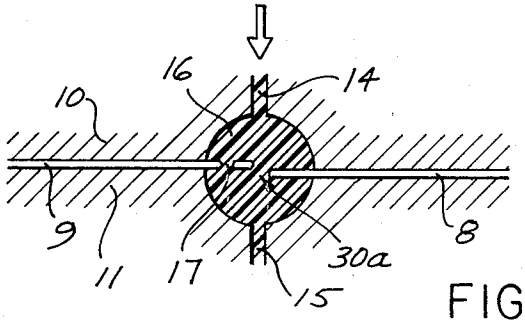


FIG. 4

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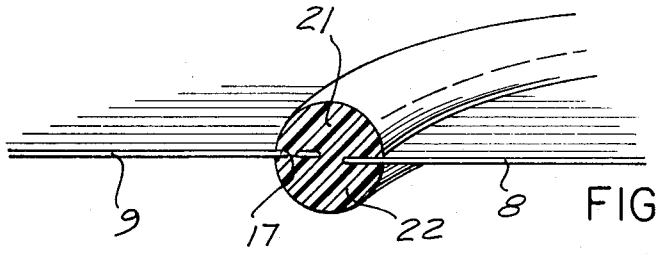


FIG. 5

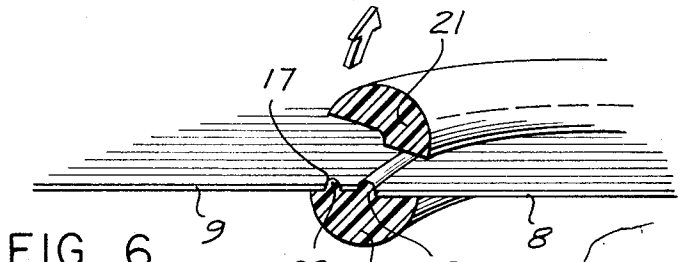


FIG. 6

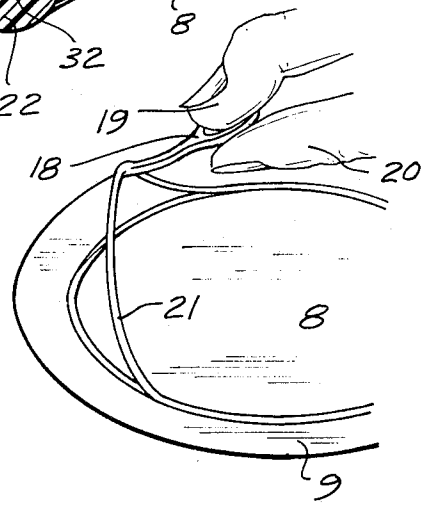


FIG. 7

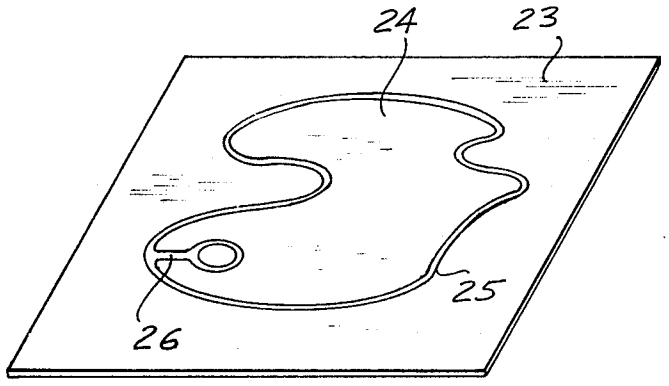


FIG. 8

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CLOSURE MEMBER FOR A CONTAINER

The present application is a continuation-in-part application based upon our copending application Ser. No. 622,966 filed Mar. 14, 1967, now abandoned.

The present invention relates to a closure member for a container such as a can, and more particularly to a can which can be opened by tearing out part of the cover. The container and the closure member therefor may be made of sheet metal, plastic or suitably impregnated paper such as plasticized paper.

BACKGROUND

Opening of cans or other containers is nowadays widely effected by tearing out a predetermined portion of the cover rather than by using a can opener. To make possible such tearing out of the predetermined portion of the cover, the cover portion is made tearable by score lines and generally has secured thereto a flap or grip which permits application of the necessary pull in a convenient fashion.

There are now known cans which provide for removal of only a small portion of the cover and also cans which permit removal of substantially the entire cover area. Cans of the latter type generally require two or more score lines. With either type of cans the pulled out cover portion tends to leave a rather rough edge which may cause injury to the user. Moreover, the score lines must be quite accurately made so that on one hand sealing of the can is maintained and on the other hand the cover portion can be turn out without requiring the application of undue force. The material used for producing the can must be selected so that it lends itself to the aforedescribed tearing operations. As a result, cans with a cover as now known which can be opened by tearing out a portion are comparatively expensive to produce and since cans must be made by mass production techniques, costs are a very important factors.

THE INVENTION

It is a broad object of the invention to provide a novel and improved closure member a portion of which can be torn out without leaving a rough edge at the remaining cover part and which permits reclosing though not resealing of the container by restoring the removed cover part.

Another important object of the invention is to provide a novel and improved closure member which eliminates the need for accurate scoring as heretofore necessary and permits the use of less expensive material for producing the containers and especially the cover member therefor thereby substantially reducing the overall costs of the containers.

Still another important object of the invention is to provide a novel and improved closure member which permits tearing out of virtually the entire cover member area by means of a single and conveniently producable slot.

SUMMARY OF THE INVENTION

The aforepointed out objects, features and advantages and other objects, features and advantages which will be pointed out hereinafter are obtained by substituting for the heretofore generally used scoring of the closure member a continuous narrow slot in the closure member thereby defining an annular outer part the outer rim of which is secured to the body of the can or other container in a conventional manner and an inner part or insert completing the closure member except for the slot. The insert is held in position and sealed to the outer part by sealing means in the form of beadlike strips on the top side and the inward side of the closure member. These strips cover the slot and also overlie the adjacent marginal portions of the outer part and the insert; they are joined to each other by a continuous frangible neck portion extending through the slot.

The strips are made of a plastic material which is elastic or pliable. The type of plastic material used for the strips and especially for the neck portion is such that the neck portion can be conveniently ruptured by applying a moderately powerful pull to the upper strip as will be more fully described hereinafter. Many types of plastic available in the market are suitable for the purpose; a thermoplastic such as polyethylene has been found to be suitable for the purpose. The strips are adhered to the underlying surfaces of the strips and the disc. The adhesion of the strips to the top surfaces and to the marginal inward surface of the disc should be such that it will hold the strips in sealing position but can be easily broken but the adhesion between the lower strip and the marginal surface of the outer part should be strong enough to retain the lower strip in position after the upper strip is pulled off and the insert is lifted as will be described more fully hereinafter. Adhesives suitable for the purpose are widely known or the sealing means itself may be of a self-adhering type. It is also possible and advantageous to secure the lower strip to the outer part by means of holes which are filled with the plastic material of the sealing means. Another possibility is to bend up at least the inner edge of the outer part.

The outer part and the insert may be disposed in slightly displaced relationship if it be desired to enlarge the space available for the neck portion without widening the slot.

A grip is preferably secured to the upper strip to facilitate stripping thereof when it is desired to open the can. As it is apparent, such stripping will uncover the insert for removal. There is no danger of the insert falling into the container as it remains supported by the lower strip. As it is also apparent, the container can be reclosed by simply restoring the insert to its position resting upon the lower strip.

DETAILED DESCRIPTION OF THE INVENTION

In the accompanying drawing several preferred embodiments of the invention are shown by way of illustration and not by way of limitation.

In the drawing:

FIG. 1 is a perspective view of a blank for producing a closure member according to the invention;

FIG. 2 is a diagrammatic, sectional view of a mold for finishing the blank of FIG. 1, the mold being shown in a partly closed position;

FIG. 3 is a sectional view similar to FIG. 2 but showing the mold fully closed;

FIG. 4 is a sectional view of the mold in its fully closed position and after its cavity is filled with plastic sealing material for forming the sealing strips;

FIG. 5 is a perspective fragmentary view of the finished closure member;

FIG. 6 is a fragmentary perspective view showing an intermediate stage of the opening of the closure member;

FIG. 7 is a diagrammatic view of the stripping of the upper strip for the purpose of opening the closure member; and

FIG. 8 is a diagrammatic view showing a modification of the closure member.

Referring now to the figures more in detail, the blank as exemplified in FIG. 1 is shown as a circular disc 1 including a concentric narrow slot 30 defining an outer ring 9 and a insert 8. The slot is divided by narrow and thus easily frangible bridges 5, 6 and 7 into three sections 2, 3 and 4 to hold insert 8 temporarily in position. Insert 8 can be removed as will be more fully explained hereinafter.

As stated before, the closure member may be made of suitable sheet metal such as aluminum. It may be also made of plastic, fiberglass or suitably treated papers, such as plasticized paper.

The outer rim of ring 9 should be visualized as being secured to a container such as a can (not shown), or integral therewith. The mounting of the closure member does not constitute part of the invention.

As it is now evident, removal of insert 8 will virtually completely uncover the open end of the can and such opening is effected by means of a single continuous slot 30 rather than by one or more score lines.

Finishing of the blank may be effected by placing it between two halves 10 and 11 of a mold of conventional design. The

mold includes a cavity 31 formed by a half 12 above the blank and a half 13 below the blank. The cavity is shown as having a circular cross section as such cross section is advantageous for the beadlike strips to be molded as will be described hereinafter but other cavity shapes may also be used. Plastic material for forming the strips is fed into the cavity halves by inlets 14 and 15, respectively. The blank is so placed in the mold that slot 30 is centered in the cavity as shown.

After insertion of the blank the mold is closed. As shown in FIG. 3 the mold halves are so arranged that insert 8 is somewhat displaced in its plane relative to ring 9 thereby breaking bridges 5, 6 and 7 and somewhat widening the slot as it is indicated at 30*a*.

The next step is injecting plastic material 16 such as polyethylene in flowable condition into the mold cavity as it is shown in FIG. 4. This figures also shows that the plastic material will fill slot 30*a* thereby forming a continuous neck portion 32 (see FIG. 6). The figure further shows that the marginal portion of rig 9 within the cavity has one or preferably several holes 17 which are also filled with the plastic material.

The closure member is now finished and can be removed from the mold.

FIG. 5 shows the finished closure member. As it is shown in this figure an upper circular strip 21 and a lower circular strip 22 now cover the slot thereby holding insert 8 in position and also sealing it to ring 9. They are joined by the afore mentioned neck portion 32. As stated before, the strips are comparatively loosely adhered to the underlying surfaces of the closure member but strip 22 is more strongly adhered to ring 9 by the plastic material 22*a* filling holes 17.

To open the closure member strip 21 is pulled away from the closure member. Such pulling away of the strip will rupture neck portion 32. To facilitate pulling off the strip a grip or flap 18 is secured to strip 21 preferably molded thereto. FIG. 7 shows fingers 19 and 20 of a hand of the user while applying the necessary pull.

As is evident, removal of strip 21 completely uncovers insert 8 so that the same can be lifted. The insert is prevented from falling into the container by resting on the protruding portion of strip 22. This strip also permits reclosing of the closure member by simply restoring the insert to the position of FIG. 6.

As is also evident, the part of the neck portion remaining on strip 22 constitutes a smooth lining along the edge of ring 9 thereby preventing injury to the fingers of a person reaching into the container.

While the figures heretofore described presume a cylindrical container such as a can and accordingly a circular closure member, the invention is not limited to such shape of the container and with it of the closure member. FIG. 8 shows a closure member 23 designed for a container of square cross section. The insert 24 to be removed also may take any shape. The slot of the closure member according to FIG. 8 is sealed on its top side by a strip 25 of the kind previously described. A flap or grip 26 is molded to the strip surface to pull off the strip as also previously described.

While the invention has been described in detail with respect to certain now preferred examples and embodiments of the invention, it will be understood by those skilled in the art, after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended, therefore, to cover all such changes and modifications in the appended claims.

What is claimed is:

1. A closure member for an open container, said closure member comprising:

an outer flat member having a central opening, said member being adapted to be secured along its peripheral edge to the rim defining a container opening;

a flat insert member substantially centered with reference to said opening and disposed in a plane substantially parallel with the plane of said flat member, the inner peripheral outline of the outer member and the peripheral outline of the insert defining a continuous slot therebetween, one side of said members constituting the top side and the other the inward side of said closure member; and

a sealing means made of an elastic plastic material disposed on opposite sides of said members, said sealing means covering the length of said slot and overlying adjacent marginal portions of said members, the sealing means being secured at least to the inward side of the outer member and including a frangible neck portion extending through said slot thereby joining the plastic material forming the sealing means on opposite sides of said members,

stripping of the plastic material on the top side of the closure member and rupturing said neck portion by such stripping exposing the insert member for removal while the plastic material on the inward side of the members remains adhered to the outer member thereby lining the inner peripheral outline of said member.

2. The closure member according to claim 1 wherein the plane of said insert member is displaced with reference to the plane of the outer member.

3. The closure member according to claim 1 wherein said marginal portion of the outer member has several spaced apart holes therethrough, the plastic material of the sealing means filling said holes.

4. The closure member according to claim 1 wherein a grip is secured to the sealing means on the top side of the closure member for stripping the plastic material on the top side by pulling said grip.

5. The closure member according to claim 1 wherein said outer member is in the form of a flat ring and said insert is in the form of a circular disc, and wherein said sealing means are in the form of two annular strips joined through the slot by said neck portion, each of said strips having a flat side abutting against surface portions of said ring and said disc.

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