Sept. 5, 1939. B. F. CONNER ET AL 2,172,159

CONTAINER CLOSURE MEANS

Original Filed May 4, 1934

Fig. 1

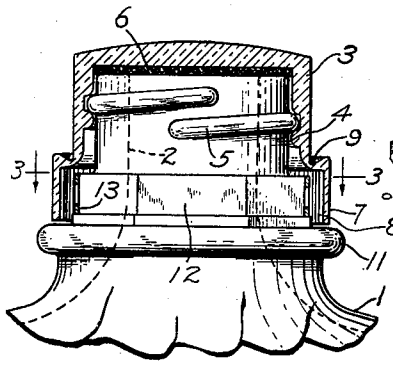


Fig. 2

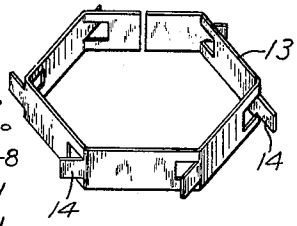


Fig. 3

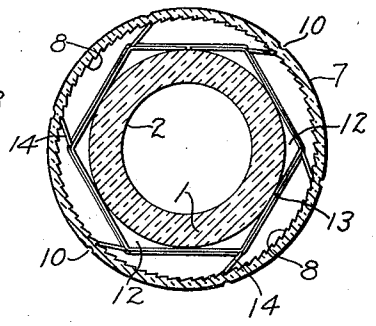


Fig. 4

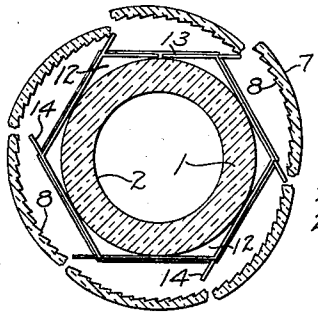


Fig. 5

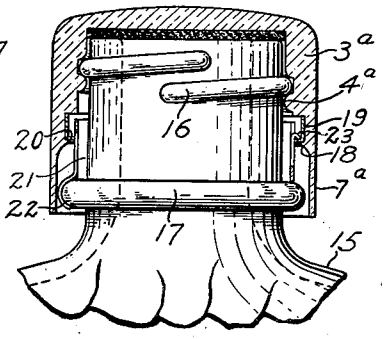


Fig. 6

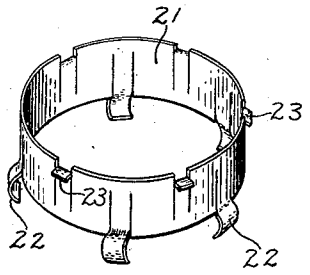


Fig. 7

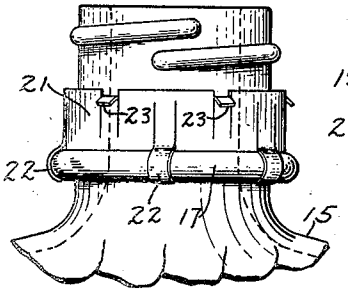


Fig. 8

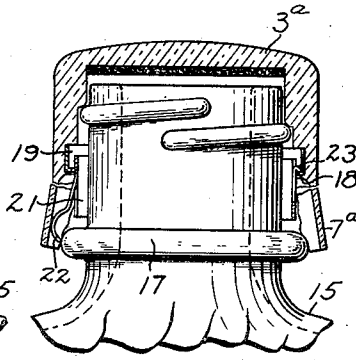
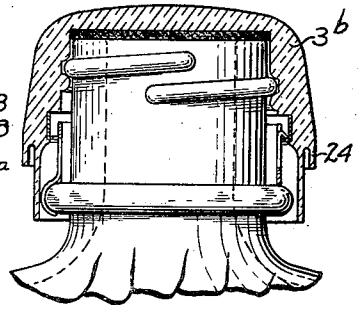


Fig. 9



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2,172,159

CONTAINER CLOSURE MEANS

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Original application May 4, 1934, Serial No. 723,865. Divided and this application July 30, 1934, Serial No. 737,530

6 Claims. (Cl. 215—42)

This invention relates to container closure means of the type having a readily breakable portion which is necessarily broken when the closure means or one member thereof is removed to permit access to or discharge of the container contents. A closure means of this character when properly put in place on a container serves, so long as it remains unbroken, as a definite indication to the ultimate consumer and to each intermediate distributor or dealer who handles the package that the original contents are intact and that there has been no substitution or adulteration. More particularly the present invention relates to Container closure means such as disclosed in our copending application, Serial No. 723,865, filed May 4, 1934, which has now matured into Patent No. 2,124,874 dated July 26, 1938, of which this present application is a division, and in our copending application Serial No. 737,529, filed on even date herewith which has now matured into Patent No. 2,054,034 dated September 8, 1936.

In a container closure means of this type there is a readily breakable indicator member which may be formed to also constitute a closure for the container. Associated with the readily breakable indicator member is a concealed device which permits free movement of the indicator in the closing direction into its normal position but which automatically serves to break a portion of the indicator member upon movement thereof in the opening or unsealing direction. The indicator member serves as a seal or lock for the closure, and when broken it provides a definite warning to anyone handling the package that the container may have been opened and the contents tampered with. The ultimate consumer or any distributor or dealer, by accepting only a package having the seal or indicator thereof intact, can thereby be certain that he is obtaining the original contents of the package as shown by the trade-mark or label or other marking thereon.

The object of the present invention is to provide a container closure means wherein the indicator member serves as the main or primary closure for the container, thus avoiding the necessity for a separate and independently effective primary closure, and wherein the breakable indicator portion is at the side instead of at the top, the closure being thus adapted for resealing after the indicator portion is broken.

Other objects of the invention will be apparent from the following specification and claims.

In the accompanying drawing there are shown several different embodiments of the invention, but it will be understood that the drawing is intended for illustrative purposes only and is not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawing:

Fig. 1 is a vertical sectional view of a container closure means embodying the invention, the said means being shown on a bottle.

Fig. 2 is a perspective view of the metallic breaking device shown in Fig. 1.

Fig. 3 is a horizontal sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is a view similar to Fig. 3, but showing the closure slightly turned in the unscrewing or opening direction so as to break the skirt portion thereof.

Fig. 5 is a vertical sectional view of an alternative container closure means embodying the invention.

Fig. 6 is a perspective view of the metallic breaking device shown in Fig. 5.

Fig. 7 is an elevational view showing the breaking device in place on the container.

Fig. 8 is a view similar to Fig. 5, but showing the closure slightly turned in the unscrewing direction to break the skirt portion thereof.

Fig. 9 is a view similar to Fig. 5, but showing a slightly different embodiment of the invention.

Referring to the drawing, particularly Figs. 1 to 4, 1 represents a container with which the container closure means embodying the invention may be used, the said container having a mouth or opening 2. The container is shown as being a glass bottle, but it will be understood that the invention may be used with a wide variety of containers.

The indicator element or closure is represented at 3, and it is shown as being a complete closure of the cap type entirely covering the opening 2 in the container. The closure 3 is provided with an internal thread 4 for engaging an external thread 5 on the container 1, and it has a liner 6 for engaging the top of the bottle to prevent the escape of the contents.

The closure 3 serves not only as the primary closure for the container or bottle but also as the member for indicating any opening or attempted opening of the container or bottle. In our aforesaid Patent No. 2,054,034 we have shown a member serving both as a closure and as an indicator, but the breakable indicator portion is there shown at the top with the result that after being broken the said member is no longer effective as a closure. In accordance with the present invention the

breakable indicator portion is in the form of an integral depending peripheral skirt 7 which may be broken without impairing the effectiveness of the member 3 as a closure.

The indicator element or skirt is provided with internal teeth or serrations 8, 8 as shown in Fig. 3, these preferably being very small to permit removal from the mold. Such removal is possible by reason of the resilience of the molded material while still hot. The teeth as shown in the drawing are somewhat exaggerated in size. An annular zone of weakness is provided at 9 to facilitate the breaking of the skirt, and, in order to further facilitate breaking, the skirt may have vertical grooves therein as shown at 10, 10 in Fig. 3.

The indicator member or closure 3 may be formed of any one of a variety of materials, but it is preferred to mold the said member from a material of the synthetic resin class. Such a material is somewhat brittle and is readily breakable when provided with sufficiently thin zones of weakness such as those at 9 and 10, and it has the further advantages that it is available in a variety of colors and can be readily molded to provide any desired external trade-mark or ornamental design. Synthetic resin material has the further advantage that upon breaking it does not form sharp fragments or splinters dangerous to the person opening the container. Container closures for the same general purpose as the present closure have commonly been made of glass or metal, and have been seriously objectionable because of the likelihood of injury to the hands of the user.

The bottle 1 is provided below the thread 5 and above the usual bead 11 with a non-circular portion 12. As shown this non-circular portion is hexagonal in horizontal section, but any other suitable non-circular shape may be substituted. Substantially fitting the non-circular portion 12 of the bottle is a metallic breaking device 13 as shown in detail in Fig. 2. This device may be a strip of metal bent to conform to the hexagonal or other non-circular shape of the bottle at 12. The breaking device 13 is provided with a plurality of substantially tangential resilient pawls 14, 14, as clearly shown in Fig. 2.

In using the closure means shown in Figs. 1 to 4 the metal breaking device 13 is first put in place on the bottle and then the closure 3 is screwed into engagement with the bottle in the usual manner. As the closure 3 moves downward into position, the skirt 7 extends over and around the breaking device 13 and into close proximity to the bead 11, the resilient pawls 14, 14 of the said breaking device snapping over the teeth 8, 8 on the interior of the skirt. Thus the closure can be freely screwed into position without any substantial resistance being offered by the breaking device.

With the parts thus assembled, access to the contents of the container can be had only by forcibly unscrewing the closure 3. When the closure is unscrewed the resilient pawls 14, 14 engage and hold the teeth 8, 8 and the pawls are caused to bend outward as shown in Fig. 4, thus breaking the skirt 7, ordinarily in several places. After the skirt 7 has been broken the remainder of the closure 3 can be removed to open the container.

In the construction shown in Figs. 1 to 4 a sufficient portion of the closure 3 remains intact after opening to enable the container to be resealed. The annular zone of weakness at 9 makes it possible for the customer to easily break away any portions of the skirt that may not be broken during the initial removal of the closure 3 from the container. When the container is resealed the sheet metal breaking device 13 may be left in place or removed as preferred.

In Figs. 5 to 8 there is shown another construction having a single closure with an integral breakable skirt. This construction differs from that shown in Figs. 1 to 4, in that the breaking device is bodily movable when the indicator member or closure is moved in the opening direction.

The bottle 15 is or may be substantially standard in form having the usual external thread 16 and the usual annular bead 17. The closure 3^a is or may be of conventional type so far as its upper portion is concerned. It is provided with the usual liner and with the usual internal thread 4^a to engage the external thread 16 on the bottle. The closure 3^a is provided with an integral downward extending readily breakable skirt 7^a. Above the skirt is an internal annular bead 18, small enough to be snapped off from the mold. A metallic ring 19 is held in place by the bead 18, this ring being preferably of such size that considerable force must be exerted to put it in place. When so put in place it is held firmly by the bead 18. The ring 19 has a very small inward projecting flange 20.

The breaking device 21 is in the form of a ring, which may be split if desired. It has a series of downward extending resilient fingers 22 shaped to engage the bead 17 on the bottle, and it has a series of outward projecting resilient teeth 23, 23. The device 21 is put in place on the bottle as shown in Fig. 7 before the closure is put in place.

Assuming the breaking device 21 to be in place as shown, the closure 3^a is screwed into place in the usual way. The skirt 7^a passes downward over the breaking device 21, and finally the teeth 23, 23 thereof snap over and engage the flange 20 of the ring 19.

When the closure 3^a is unscrewed the teeth 23, 23 cause the breaking device 21 to move upward with the closure. As the device 21 moves upward the fingers 22, 22 thereof are forced outward by the bead 17, and upon being so forced outward they break the skirt 7^a as shown in Fig. 8. The breaking of the skirt serves as an indication that the bottle has been opened, but the closure 3^a is nevertheless still effective for resealing.

The skirt 7^a may be broken irregularly, and in order to conceal the ragged line of breaking there may be provided a closure 3^b as shown in Fig. 9. This closure is similar to the closure 3^a except that there is provided a depending annular flange 24 which conceals the ragged break, and thus enhances the appearance of the closure when used for resealing.

What we claim is:

1. In combination in a container closure means, a container closure of the cap type adapted to normally completely cover the opening in a container and having an integral peripheral skirt portion near the bottom constituting an externally visible readily breakable indicator, and a normally concealed device permitting free movement of the closure in the direction to bring it into its normal container closing position, the said device being automatically connectible with the closure to move bodily therewith during movement thereof in the opposite direction and the said device engaging the container to cause the breaking of the indicator skirt portion of the closure during such opposite movement.

2. In combination in a container closure means, an internally threaded container closure of the cap type adapted to engage an external thread on a container and to normally completely cover the container opening, the said closure having an integral peripheral skirt portion below the thread constituting an externally visible readily breakable indicator, and a normally concealed device permitting free rotative movement of the closure in the direction to screw it into its normal container closing position, the said device being automatically connectible with the closure to move bodily therewith during movement thereof in the opposite unscrewing direction and the said device engaging the container to cause the breaking of the indicator skirt portion of the closure during such movement.

3. In combination in a container closure means, an internally threaded container closure of the cap type adapted to engage an external thread on a container and to normally completely cover the container opening, the said closure having an integral peripheral skirt portion below the thread constituting an externally visible readily breakable indicator, a gasket carried by the closure and adapted to directly engage the container to close and seal the mouth thereof, and a normally concealed device permitting free rotative movement of the closure in the direction to screw it into its normal container closing position, the said device being connectible with the closure to move bodily therewith during movement thereof in the opposite unscrewing direction and the said device engaging the container to cause the breaking of the indicator skirt portion of the closure during such movement.

4. In combination in a container closure means, an internally threaded container closure of the cap type adapted to engage an external thread on a container and to normally completely cover the container opening, the said closure having an integral peripheral skirt portion below the thread constituting an externally visible readily breakable indicator, and a normally concealed non-rotative device permitting free rotative movement of the closure in the direction to screw it into its normal container closing position, the said device being automatically connectible with the closure to move vertically therewith during movement thereof in the opposite unscrewing direction and the said device engaging the container to cause the breaking of the indicator skirt portion of the closure during such upward movement.

5. In combination, a molded threaded container closure adapted to engage an external thread on a container and to normally completely cover the container opening, the said closure having an integral peripheral skirt portion constituting an externally visible readily breakable indicator, and a normally concealed circumferentially extending metal device interposed between the container and the said skirt portion of the closure and held by the closure to move upward therewith upon unscrewing movement, the said metal device having a portion adapted to be forced radially outward by a bead on the container to break the said skirt portion of the closure during upward movement.

6. In combination, a molded threaded container closure adapted to engage an external thread on a container and to normally completely cover the container opening, the said closure having an integral peripheral skirt portion constituting an externally visible readily breakable indicator, and a normally concealed circumferentially extending metal device interposed between the container and the said skirt portion of the closure and having resilient teeth for automatically engaging the closure to cause the device to move upward in unison with the closure during unscrewing movement, the said metal device having a portion adapted to be forced radially outward by a bead on the container to break the said skirt portion of the closure during upward movement.

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