

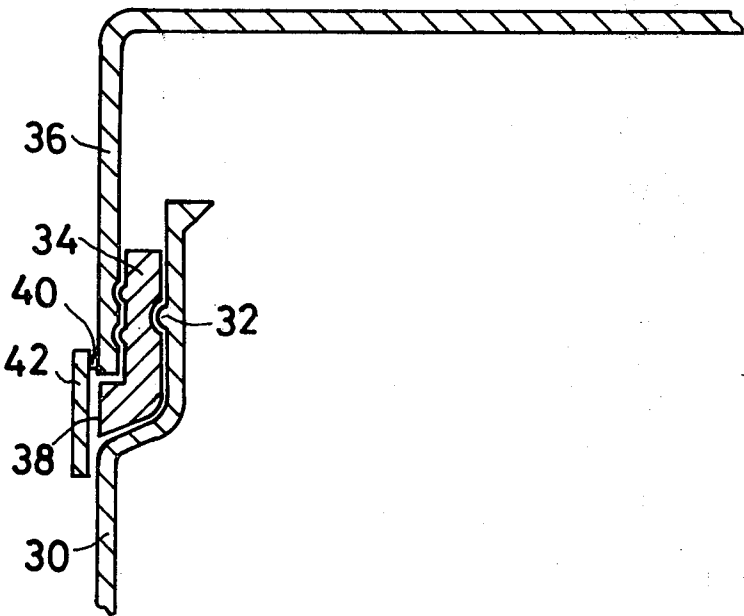
[54]	SAFETY AND SECURITY CLOSURE	3,595,427	7/1971	Markowitz.....	215/218
[75]	Inventor: Gerhard Schickedanz, Kreuzwertheim, Germany	3,837,518	9/1974	Gach.....	215/7
		3,858,743	1/1975	Mumford	215/7
[73]	Assignee: Adolf Hofmann Metall- u. Kunststoffwarenfabrik GmbH, Germany	<i>Primary Examiner</i> —George T. Hall <i>Attorney, Agent, or Firm</i> —Larson, Taylor and Hinds			
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[58]	Field of Search	215/9, 218, 219, 220, 7, 215/251, 254; 222/153, 182			
[56]	References Cited				
	UNITED STATES PATENTS				
	3,403,803 10/1968 Markowitz	215/218			

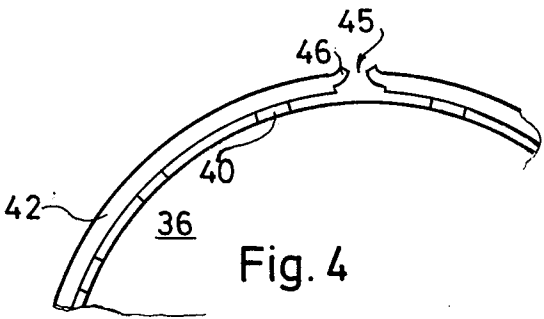
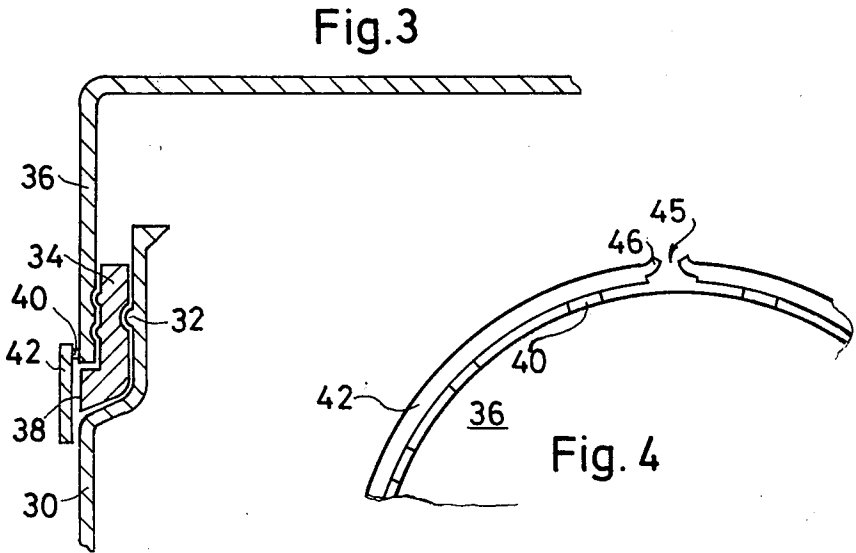
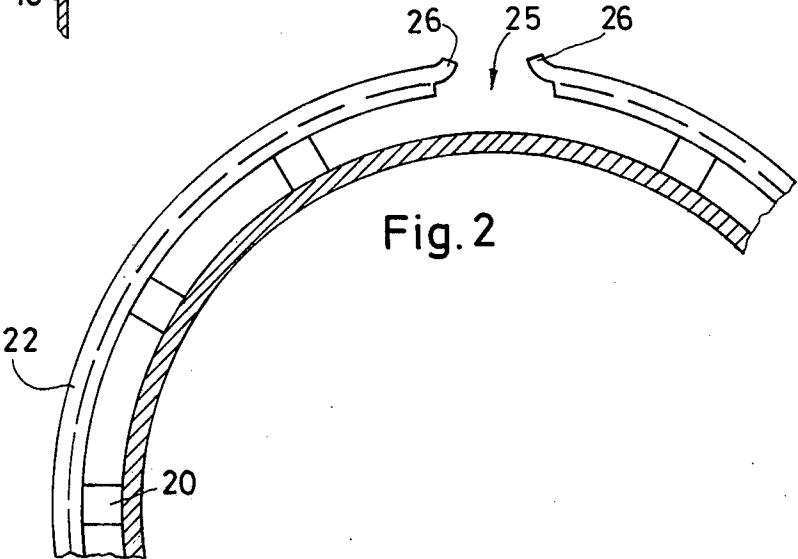
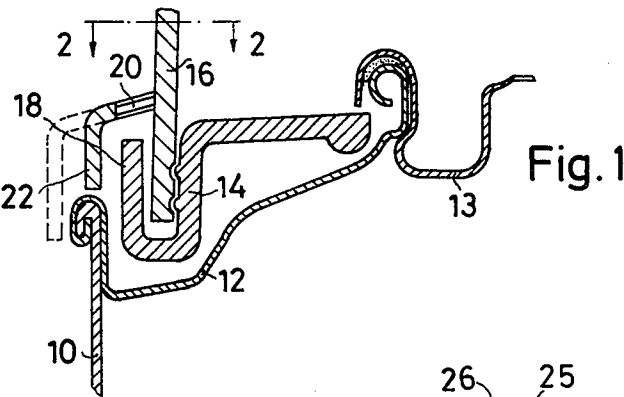
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[57] ABSTRACT

A safety closure for a receptacle, which closure has a ring surrounding the opening of the receptacle so as to be freely rotatable thereabout and prevented from moving axially thereof, and a cap screw threaded with the ring. Both the ring and the cap have a gripping surface, both of which surfaces must be gripped for turning the cap relative to the ring to open the receptacle. A sleeve covers the ring gripping surface and is removably, e.g. tearably attached to the cap.

9 Claims, 4 Drawing Figures





SAFETY AND SECURITY CLOSURE

BACKGROUND OF THE INVENTION

This invention relates to safety closures for receptacles such as cans, tubes, bottles and the like, and in particular it relates to a safety closure of the type having a ring rotatably mounted on a receptacle and threadedly engaged with a cap, wherein the cap must be turned relative to the ring to expose the receptacle opening.

Safety closures of the above described type are known, for example as described in U.S. Pat. No. 3,403,803, in which the ring is snapped over an external bulge on the neck of a bottle and is then seated thereon so as to be freely rotatable on the bottleneck but prevented from moving off of the bottleneck. The ring includes external threads which are engaged by internal threads of a cap such that the cap covers the opening of the bottle. Both the ring and the cap have outer gripping surfaces which are so shaped by corrugations or the like that the ring appears to be a part of the cap. The desired safety or security function is obtained because inexperienced individuals, particularly children, will turn the cap and the ring together on the bottleneck and this will simply turn both of them together freely about the bottleneck but will not effect separation of the screw threaded engagement between the cap and the ring. For such disconnection, it is necessary to hold both the ring and the cap so as to turn them relative to each other.

SUMMARY OF THE INVENTION

The purpose of the present invention is to provide an improved safety closure which has the additional feature of serving as a security closure so as to prevent initial opening of the receptacle and also to give a permanent visible indication of such an initial opening.

This purpose is achieved in accordance with the present invention by providing an external sleeve removably connected to the cap, for example by a tear-off connection, said sleeve covering the gripping surface of the ring. The sleeve prevents holding the ring fixed so that one cannot turn the cap relative to the ring. Only after the sleeve has been removed can the ring be grasped and the cap unscrewed from it. Further, the tearing or pulling off of the sleeve is immediately visible so that any unauthorized opening of the receptacle is then clearly visibly indicated.

In a preferred embodiment of the invention, the sleeve is formed as an annular, external member connected to the cap via lands, permitting the sleeve to be torn off from the cap. The sleeve can have one or more slits therein providing a location for one to grasp the sleeve for removal purposes, and advantageously the sleeve is cast in plastic in one piece with the cap. The sleeve may be bent outwards at the slits so as to facilitate engagement and tearing off of the sleeve.

The engagement of the ring with the receptacle will of course vary, depending on the type of receptacle to which the closure is applied. When used on bottles, the inner edge of the annular ring can be constructed so as to snap behind an annular bulge on the external surface of the neck of the bottle. When used in connection with an aerosol can, the inner edge of the ring can simply be snapped into place behind the edge of the upwardly protruding valve plate. Further, the cross-sectional shapes of the ring and cap can be of many different configurations such that the above described features

of the invention are present and so that the closure is adapted to fit onto receptacles of many different shapes. For example, the cross-sections can be selected so that the sleeve will lie substantially in the axial extension of the receptacle wall or alternatively the sleeve could extend over both the ring and the adjacent receptacle wall.

BRIEF DESCRIPTION OF THE DRAWINGS

There follows a detailed description of preferred embodiments of the invention to be read together with the accompanying drawings which are provided for purposes of illustration, and in which:

FIG. 1 is a partial cross-sectional view showing a portion of a receptacle with the closure of the present invention mounted thereon.

FIG. 2 is a partial horizontal sectional view taken along line 2—2 of FIG. 1.

FIG. 3 is a cross-sectional view similar to FIG. 1 and showing an alternative embodiment of the present invention.

FIG. 4 is a plan view of FIG. 3.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, like elements are represented by like numerals throughout the several views.

Referring to FIGS. 1 and 2, for simplicity only the upper portion of the receptacle is shown. In this case the receptacle is a can 10 of the aerosol spray type including a dome 12 with a valve plate 13 provided centrally therein. The annular ring 14 is snapped over the valve plate 13 such that the ring 14 is rotatable freely about the access opening including valve plate 13 but is prevented from moving axially off of the receptacle by engagement of the inner edge of the ring 14 with the outwardly protruding upper portion of the valve plate 13. The ring 14 has exterior screw threads which threadedly engage interior screw threads on a cap 16. The ring 14 includes an external gripping surface 18, and the cap 16 also includes a gripping surface, namely the exposed exterior portion thereof. In practice, the cap 16 is removed from the ring 14 to expose the opening, in this case the valve plate 13 by unscrewing the cap 16 from the ring 14.

However, in accordance with a main feature of the present invention, a security means is provided for preventing access to the gripping surface 18 so that one cannot grip the surface 18 to effect relative movement between the elements 14 and 16. This security means comprises a sleeve 22 which covers the gripping surface 18 and is secured to the cap 16 by means of lands or ribs 20 (see FIG. 2). In addition, the sleeve 22 is slit, as shown at 25 in FIG. 2 and preferably the ends 26 of the sleeve adjacent the slit are bent outwardly.

In practice, the sleeve 22, which covers the gripping surface 18 to thereby prevent unauthorized opening of the receptacle, is torn away from the cap 16 by grasping one of the ends 26 and pulling the sleeve, thereby breaking the lands 20 and exposing the gripping surface 18. After this tearing action has been completed, it cannot be reversed so that there is provided a visible indication that the security means has been removed.

The sleeve 22 can be shaped so as to correspond to a desired receptacle shape. FIG. 1 shows in solid lines an embodiment in which the sleeve is the form of a thin walled elongated ring formed essentially as an axial extension of the peripheral wall of the can. In dotted lines

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there is shown a different arrangement whereby the sleeve 22 projects outwardly over the peripheral wall of the can.

FIGS. 3 and 4 illustrate the application of the present invention to a bottle 30 having an external bulge 32 in the form of an annular ring formed integrally with the neck of the bottle. The ring in this case which is represented by the numeral 34 includes an internal annular groove which mates with the bulge 32 permitting free rotatable movement of the ring 34 about the neck of the bottle while preventing axial movement of the ring off of the bottle neck. The ring includes external screw threads which threadedly engage internal screw threads on a cap 36. The ring further includes a gripping surface 38 which in this embodiment is covered by a sleeve 42 which is integrally connected to the cap 36 by means of lands 40 which are similar to the lands 20 of FIG. 2. Referring to FIG. 4, the sleeve 42 includes a slit 45 with outwardly bent ends 46 similar to 25 and 26 of FIG. 2.

In either embodiment the closure may include a single slit or a plurality thereof. Any convenient means may be provided for effecting removal of the sleeve from the cap, but preferably the sleeve is constructed to be torn away as illustrated and described above. Preferably the sleeve is cast in one piece with the cap and is preferably of a plastic material. Obviously numerous arrangements are possible within the spirit and scope of the invention. For example, the sleeve could be formed as a downward extension of the cap.

Although the invention has been described in considerable detail with respect to preferred embodiments thereof, it will be apparent that the invention is capable of numerous modifications and variations apparent to those skilled in the art without departing from the spirit and scope of the invention, as defined in the claims.

I claim:

1. A safety closure for a receptacle having an access opening, comprising:
a ring for surrounding the access opening, said ring having means for mounting it on the receptacle so as to be freely rotatable about said access opening and secured against freely moving off of the recep-

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tacle, said ring including a gripping surface positioned to be gripped during opening of the closure, a cap covering said access opening and in screw threaded engagement with said ring such that turning movement of the cap relative to the ring results in removal of the cap from the ring for opening the closure to expose the access opening, said cap also including a gripping surface positioned to be gripped during opening of the closure, and a sleeve, attaching means for removably attaching the sleeve to the cap with the sleeve positioned to cover the gripping surface of the ring, whereby removal of the sleeve is necessary to expose the gripping surface of the ring, so that this gripping surface can be gripped along with that of the cap, to effect turning of the cap relative to the ring to open the closure.

2. A safety closure according to claim 1, said attaching means comprising a tearable connection between the cap and the sleeve, such that one can remove the sleeve from the cap by gripping it and tearing it away therefrom.

3. A safety closure according to claim 2, said tearable connection comprising a plurality of narrow lands spaced apart about the cap and providing the connection of the cap to the sleeve.

4. A safety closure according to claim 3, said sleeve being split at at least one location so as to provide a grasping means therefor.

5. A safety closure according to claim 4, said sleeve being bent outwardly at said split.

6. A safety closure according to claim 2, said sleeve being formed out of plastic in one piece with the cap.

7. A safety closure according to claim 1, said sleeve positioned to constitute an axial extension of the wall of the receptacle on which it is mounted.

8. A safety closure according to claim 1, said sleeve constructed to extend outwardly over the ring to adjacent the edge of the wall of the receptacle on which it is mounted.

9. A safety closure according to claim 1, said sleeve being formed as a lower extension of the cap.

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