

# United States Patent

Bagguley et al.

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[54] **SAFETY DEVICE FOR FLIP CAP CLOSURE**

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[52] U.S. Cl. .... **215/9**

[51] Int. Cl. .... **A61j 1/00, B65d 55/02**

[58] Field of Search .... **215/7, 9; 220/85**

[56]

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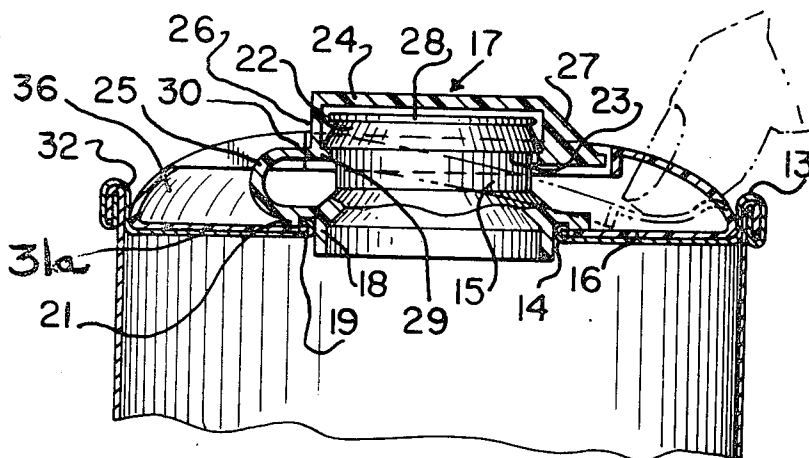
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[57]

**ABSTRACT**

A flexible safety shield for preventing the opening of a flip cap closure until the shield is depressed.

**4 Claims, 4 Drawing Figures**



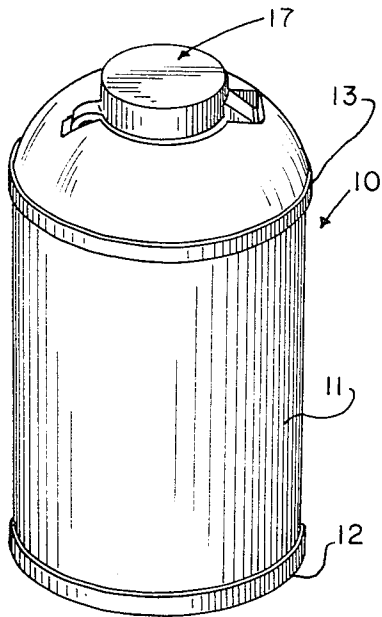


FIG. 1.

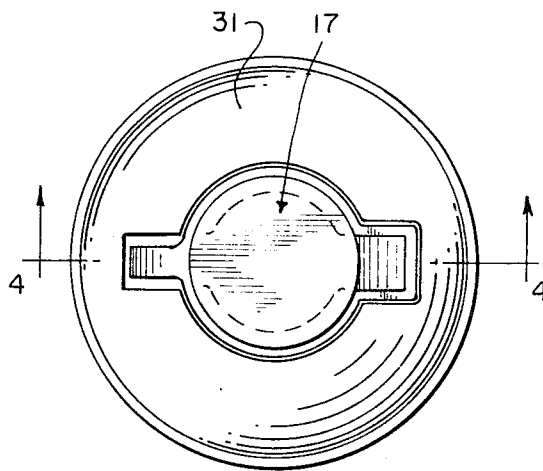


FIG. 2.

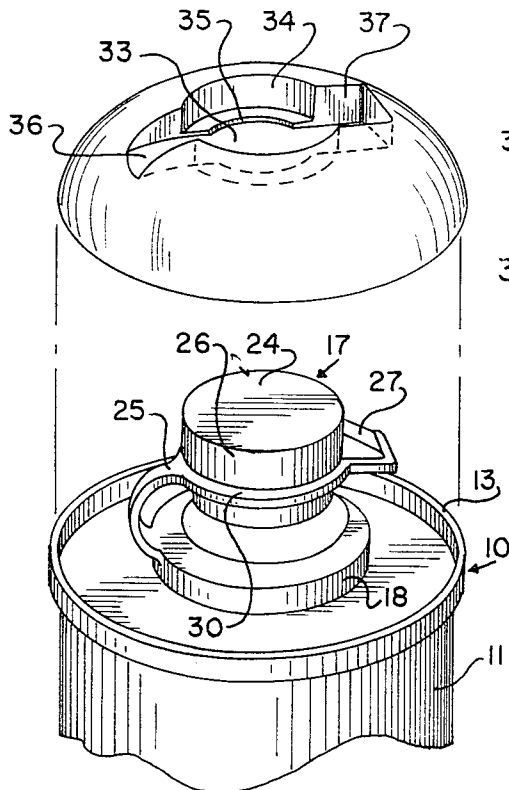


FIG. 3.

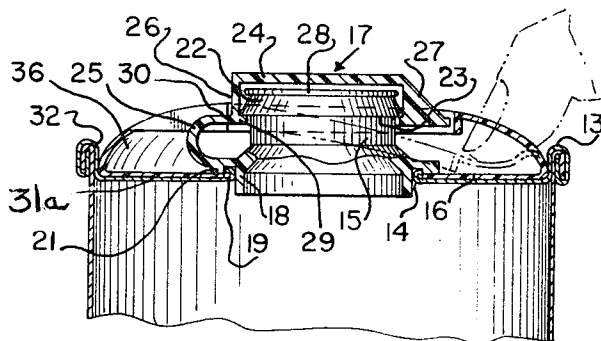


FIG. 4.

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## SAFETY DEVICE FOR FLIP CAP CLOSURE

## BACKGROUND OF THE INVENTION

The present invention relates to safety closures and more particularly to a device for preventing inadvertent opening of a cap covering the dispensing opening of a container.

The safety closure device of the present invention is intended primarily for use with caps of the type which are hingedly connected to a neck as to be insertable and removable from an axial opening in the tubular neck that serves as a product dispensing opening. These caps are generally identified as flip caps.

Flips caps are rigidly attached by means of the neck to one end of a container. A container may store an inherently dangerous product such as poison or products which when reacting with atmosphere create an explosive force within the container. Lye is an example of a product having these characteristics.

Flips caps have been used as closures for products of this type. However, flip caps have the disadvantage that they can be easily tampered with and readily opened by children. Also, in the event a reaction is taking place in the container, the flip cap structure readily yields under the force of an explosive reaction within the container so that the product sprays out the can. This is inherently dangerous to the user.

## SUMMARY OF THE INVENTION

By the present invention, it is proposed to provide a safety closure device for flip cap closures which overcome the difficulties encountered heretofore.

This is accomplished generally by the provision of a flexible shield which is snugly and removable seated within an up-standing peripheral wall at the upper end of the container. The shield includes means overlying portions of the flip cap which prevent opening of the latter until removal of the shield by flexing of the shield out of seating engagement with the wall.

## BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a container having a flip cap closure and a safety shield thereon embodying the structure of the present invention;

FIG. 2 is a top plan view of the structure shown in FIG. 1;

FIG. 3 is a fragmentary perspective view of the container shown in FIG. 1 with a safety shield in its removed position; and

FIG. 4 is a cross sectional view taken generally along the lines 4—4 of FIG. 2.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to the FIGURES, there is shown a container 10 including a container body 11 having a bottom end closure 12 and a top end closure 13. Seated in an axial opening 14 formed in a recessed panel 16 of the top end closure 13 is a flip cap 17.

The flip cap 17 is of more or less standard structure and includes a neck 15 having an enlarged lower end 18. A groove 19 is formed in the lower end 18 and receives a curled flange 21 for retaining the flip cap 17 on the end closure 13. The upper end of the neck is an enlarged tapered section 22 which terminates at its lower end in a projecting annular shoulder 23. The shoulder 23 provides a latch lip for latching a cap 24 more

fully to be described hereinafter.

Extending from one side of the lower end 19 of the neck is a hinge strap 25 which hingedly connects the cap to the neck 15. The cap top 24 includes a peripheral skirt 26 and an outwardly projecting nose 27 diametrically opposite the hinge strap 25. The nose 27 provides a lifting latch for lifting the cap. As shown, the cap skirt 26 defines a recess 28 which is bounded at its lower end by an inwardly projecting annular flange 29. An outer annular flange 30 on the skirt 26 lies coplanar with the flange 29.

In the closed position of the cap as shown, the flange 29 underlies the annular shoulder 23 so that the cap 18 is snugly and firmly seated about the tapered end 22. To lift the cap, it is only necessary to grasp the nose 27 and pull the cap 17 upwardly to release the ledge 29 from the shoulder 23.

For protecting the flip cap 17 and preventing tampering, there is provided a flexible safety dome 31 which is made from a thin sheet of plastic material. The dome 31 is sized so as to be seated on the end closure with the bottom edges portions snugly engaging the end closure chuck walls 32. As shown, the dome may be also provided with a base 31a which underlies the flange 21 on the closure neck 15.

A recessed circular opening 33 is axially formed in the dome 31 and is defined by a downwardly depending flange 34. Projecting into the opening 33 is a horizontal ledge 35. A radially extending slot 36 extends into the opening 33 and accommodates the width of the hinged flap 24. A second radial slot 37 disposed diametrically opposite the slot 36 accommodates the nose 27.

As shown, the ledge 35 is located in close proximity to the flange 29 along the lower edge of the cap 17. Moreover, the dome 31 extends sufficiently high so that the lower portion of the cap 17 is recessed therein. In fact, the lower edge of the nose 27 is disposed in the slot below the dome 31 so that it is not possible to gain gripping access on the nose 27. The cap in this manner is retained, locked or latched on the neck 15.

The dome 31 which is made from a flexible material may be flexed and manipulated by depressing downwardly so that the dome clears the underside of the cap flange 30 bounding the nose 27. The nose 27 may then be grasped by the fingers so as to be lifted from latching engagement with the flange 29 whereby the contents may be emptied from the container.

What is claimed is:

1. A container flip cap closure assembly including a neck attached at one end of a container and closure cap hingedly connected to the neck, a safety device comprising a shield seated in the end of said container, an opening in said shield through which said closure cap extends, said shield being in the form of a dome having a height so that said closure cap is recessed therein to prevent access to said closure cap and thereby hinging movement of said closure cap from a closed position on said neck, said shield being flexible whereby said dome may be depressed so that said closure cap is accessible and may be hingedly displaced out of said closed position.

2. The invention as defined in claim 1 wherein said opening is defined by a downwardly depending wall reinforcing said dome about said closure cap.

3. The invention as defined in claim 2 wherein said dome is substantially hemispherical.

4. The invention as defined in claim 3 wherein a ledge projects inwardly from the lower edge of said depending wall defining said opening, said ledge underlying said closure cap.

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