United States Patent [19]

Schaefer

[11] **3,830,393**

[45] **Aug. 20, 1974**

[54] **SNAP-ON SAFETY CLOSURE FOR FLEXIBLE CONTAINERS**

[75] Inventor: **Robert Bey Schaefer,** Willistown, Pa.

[73] Assignee: **Pennwalt Corporation,** Philadelphia, Pa.

[22] Filed: **July 28, 1972**

[21] Appl. No.: **276,181**

[52] **U.S. Cl.** ..... **215/9,** 215/41, 215/46 R, 220/60 R, 150/.5

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

[58] **Field of Search** ..... 215/9, 41, 46 R; 220/60 R; 150/.5

[56] **References Cited**

UNITED STATES PATENTS

3,434,614	3/1969	Mollen	215/41
3,667,637	6/1972	Bagguley et al.	215/9

Primary Examiner—George T. Hall

Attorney, Agent, or Firm—Stanley Bilker

[57] **ABSTRACT**

A snap-on closure for flexible containers is resistant to removal by small children. An enlarged shoulder on the container body is engaged by the smaller perimeter of the cap when the latter is snapped upon the container mouth. By making the cap difficult to grasp in closed disposition, entry is obtained only by distorting the shoulder sufficiently to permit insertion of a fingernail under the perimetrical edge of the cap thereby enabling lift off. Instructions for the removal of the cap as well as for the reclosure thereof are incorporated on the container to facilitate actuation by those of reading age.

5 Claims, 4 Drawing Figures

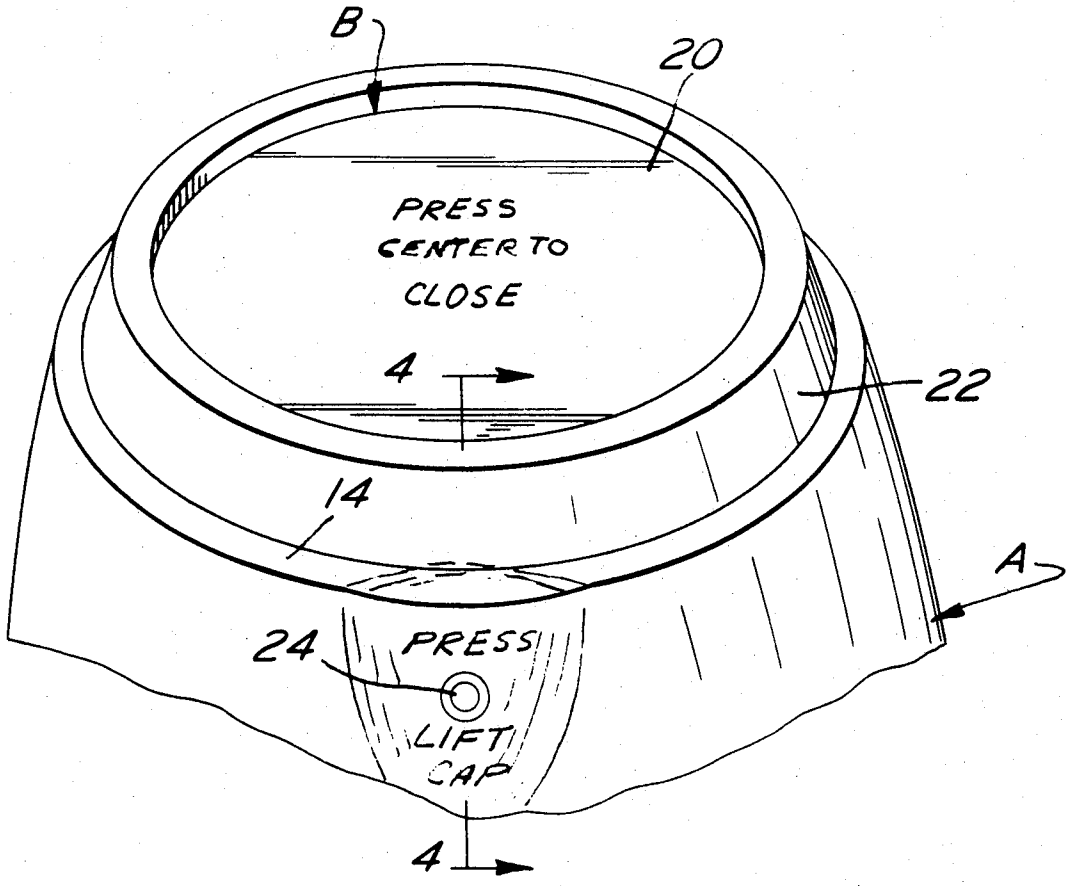


FIG. 1

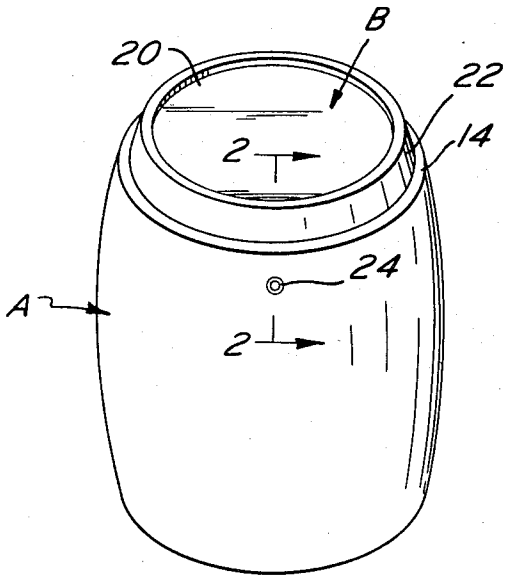
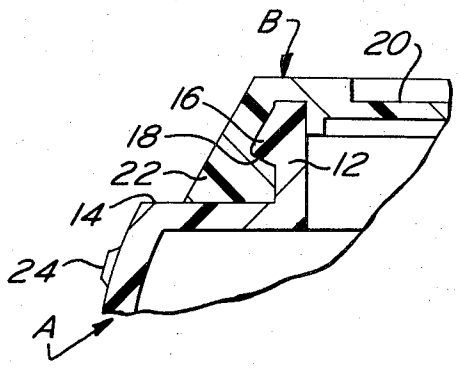


FIG. 2



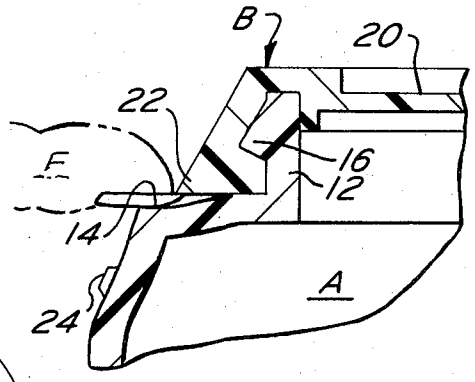


FIG. 4

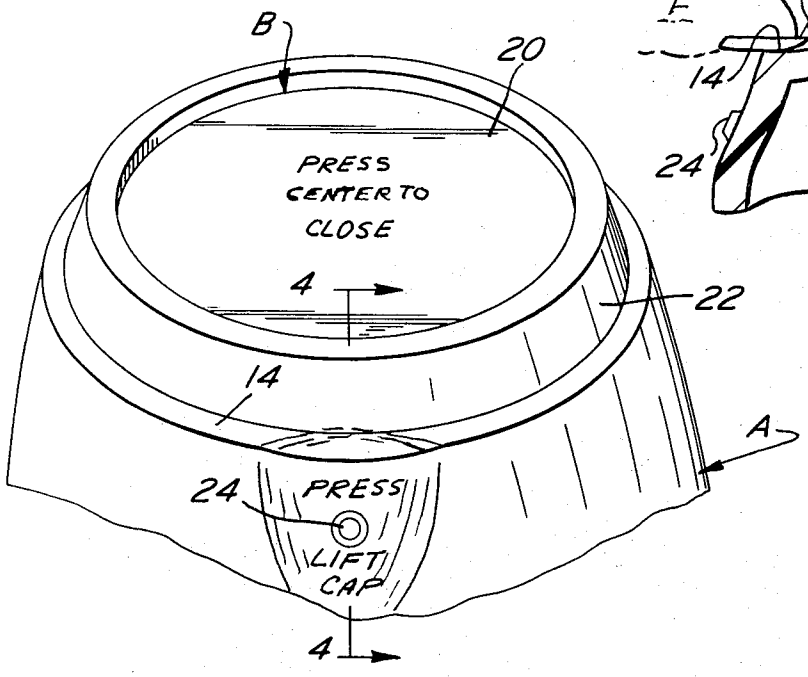


FIG. 3

SNAP-ON SAFETY CLOSURE FOR FLEXIBLE CONTAINERS

This invention relates to closures for flexible containers, and more particularly relates to a safety snap-on closure which is resistant to removal by small children as in the case where the container is used for dispensing medicaments or hazardous materials, either in liquid, capsular or particulate form.

Since many injuries and deaths are caused each year, especially to very young children, by easy access to bottles and other containers carrying poison or other harmful substances, The Poison Prevention Packaging Act of 1970 has been enacted. In general, this act requires that such toxic substances be specially packaged in a manner which renders it significantly difficult for a child under five years to gain access to the contents within a reasonable time without affording difficulty to an older child or adult to obtain entry. In my prior U. S. Pat. No. 3,360,147 there is shown and described a flexible plastic container which employs a screw-cap closure in which opposed intermeshing teeth are only released by application of deliberate pressure sufficient to distort the closure and disengage the interlocked teeth.

The present invention is directed to a snap-on type closure using a cap that is difficult to grasp and manipulate when locked over the container mouth. However, upon application of deliberate pressure upon the container walls, a gap is created between the edges of the cap and an enlarged shoulder under the container neck which permits entry of a fingernail or tip of the finger thus enabling the cap to be lifted.

It is therefore an object of this invention to provide a safety snap-on closure for flexible containers holding poisonous or hazardous substances.

Another object of this invention is to provide a snap-on closure for flexible containers which is difficult to remove by small children who do not have the required two-hand coordination for correct manipulation of the closure in order to gain access to the contents.

Yet another object of this invention is to provide a safety snap-on closure which is readily fabricated from commonly available materials and whose parts may be easily operated after reading the instructions by an adult or older child to release the cap, but not readily opened by a child below reading age.

Other objects of this invention are to provide an improved device of the character described that is easily and economically produced, sturdy in construction and both highly efficient and effective in operation.

With the above and related objects in view, this invention consists of the details of construction and combination of parts as will be more fully understood from the following detailed description when read in conjunction with the accompanying drawing in which:

FIG. 1 is a perspective view of a flexible container having a snap-on safety closure embodying this invention.

FIG. 2 is a sectioned view taken along lines 2—2 of FIG. 1.

FIG. 3 is a fragmentary perspective view showing the manner of manipulating the container in order to expose the underside of the closure preliminary to removal.

FIG. 4 is a sectional view taken along lines 4—4 of FIG. 3.

Referring now in greater detail to the drawings in which similar reference characters refer to similar parts, there is shown a snap-on safety closure for containers which makes access significantly difficult for very young children without presenting undue burdens to normal adults.

The container includes a body portion A having a snap-on cap B both being molded of a suitable flexible and resilient plastic material, such as polyethylene, polypropylene, polyvinyl chloride, polytetrafluorethylene or the like. The body portion A may be of any configuration and includes a generally tubular neck **12** which projects from an extended surface shoulder portion **14.** The neck **12** serves as the mouth of the container. A bead **16** is formed peripherally about a medial portion of the neck and acts as a detent for engaging a complementary groove **18** formed on the interior wall of the cap B.

The cap B includes a central disk portion **20** having a skirt or flange portion **22** extending entirely thereabout. The perimeter of the skirt **22** is smaller than the circumference of the shoulder **14** so that the outer margin of the shoulder always extends beyond the periphery of the skirt. The under edge of the cap B is preferably flat to make surface to surface abutment with the flat face of the shoulder thereby normally defining an extremely fine line about the entire area of contact. Thus, when the cap B is snapped over the neck **12** there is ordinarily no gap between the shoulder **14** and the skirt **22** which is readily engaged for lifting the cap. In addition, the cap B is of extremely shallow construction and having a truncated conical configuration wherein the outer wall of the skirt **22** diverges outwardly from the central portion **20** so that grasping the cap B when stretched in place over the neck **12** is under normal circumstances most difficult. See FIGS. **1** and **2.**

In order to remove the cap B, the body portion A is depressed at a point **24** adjacent the outer margin of the shoulder **14** until the latter is dropped down under the lip of the skirt. The point **24** may be defined by a button but preferably by a position marked with instructions. As is apparent from FIGS. **3** and **4,** the gap provided under the lip of the skirt **22** when the shoulder is depressed allows entry of a tip or nail of a finger F whereby the cap B may then be lifted and peeled off from the neck **12.** The closure is capable of being resealed simply by pressing down upon the center portion **20** of the cap B after it has been applied to the mouth of the neck. In this regard, the bead **12** has an upper surface which makes an angle of 60° with the horizontal and a lower surface which makes an angle of 60° with the horizontal thereby functioning as a tooth. The upper surface of the bead thus acts as a ramp for camming the skirt **22** over the bead and the lower surface of the bead effects interlocking engagement with the groove **18.**

It is also evident that the external configuration of the cap B may be spherical or faceted in design rather than conical, so long as the shape resists being securely grasped by one's fingers when the cap is locked in place. While it is preferable that the undersurface of the skirt **22** and upper surface of the shoulder **14** are flat and at right angles to the axis of the neck **12,** so long as the lip of the skirt forms a flush line at its outer edge inwardly of the shoulder, the deterrent closure is effected.

It is also to be observed that the written instructions on the body portion A and the cap B serve to advise one of reading age to take the appropriate steps to remove the cap B and to replace it. However, a non-reader would experience difficulty in removing the cap.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied without departing from the spirit thereof, and the scope of the invention is to be determined as claimed.

What is claimed is:

1. A dispensing container having a snap-on closure resistant to removal by small children comprising:

a body portion formed of flexible resilient material including a tubular neck projecting from an extended shoulder portion,

a cap of resilient material including a skirt having an internal dimension complementary with the exterior of said neck and an exterior perimeter smaller than the periphery of said shoulder portion,

means for detachably locking said cap on said neck so that the margin of the skirt abuts entirely against said shoulder portion,

the exterior of said cap being so configured and arranged when in locked disposition on said neck as to render grasping thereof by one's fingers difficult, and

at least one pressure zone on said body portion for effecting distortion when pressed at said shoulder portion to allow entry of one's fingernail under the margin of the skirt whereby said cap may be lifted and then peeled from said neck.

2. The container of claim **1** wherein the means for detachably locking said cap on said neck comprises a bead circumscribing said neck and a complementary groove in the interior of said skirt.

3. The container of claim **1** wherein said shoulder portion is substantially flat.

4. The container of claim **1** wherein said cap is of shallow configuration.

5. The container of claim **1** wherein the cap may be replaced and interlocked over the neck after having been previously lifted.

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