United States Patent [19]

Koehne et al.

[11] **3,895,730**

[45] **July 22, 1975**

[54] **SAFETY CONTAINER**

[75] Inventors: **Anthony J. Koehne**, Severna Park; **Harry O. Baughan, III**, Baltimore, both of Md.

[73] Assignee: **Poly-Seal Corporation**, Baltimore County, Md.

[22] Filed: **Mar. 18, 1974**

[21] Appl. No.: **451,863**

[52] **U.S. Cl.** **215/216**; 215/221

[51] **Int. Cl.**[2] **B65D 55/02**

[58] **Field of Search** 215/9, 216, 221

[56] **References Cited**

UNITED STATES PATENTS

3,794,201	2/1974	Galer	215/9
3,826,395	7/1974	Montgomery	215/9
3,830,391	8/1974	Uhlig	215/9
3,831,797	8/1974	Stevens, Jr.	215/9

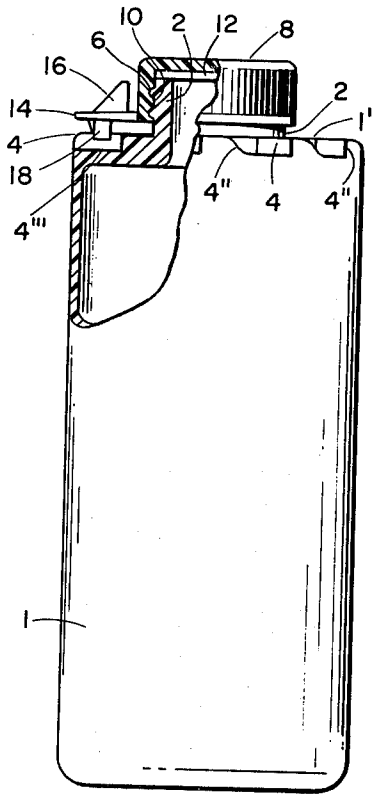
Primary Examiner—George T. Hall

Attorney, Agent, or Firm—J. Wesley Everett

[57] **ABSTRACT**

A safety container including an externally threaded tubular neck having an opening extending through the neck to the container wherein the neck extends outwardly from the container body to threadably receive a closure, the area of the top of the tubular neck being either perpendicular or tapered downwardly from the tubular neck in which at least the area adjacent the neck is provided with means cooperating with a locking means carried by the closure to prevent the normal rotation of the closure in the opposite direction to the downward pitch of the thread carried by the neck, the locking means being manually operatable to disengage the locking means carried by the closure to allow the closure to be rotated to remove the closure from the container neck.

1 Claim, 5 Drawing Figures



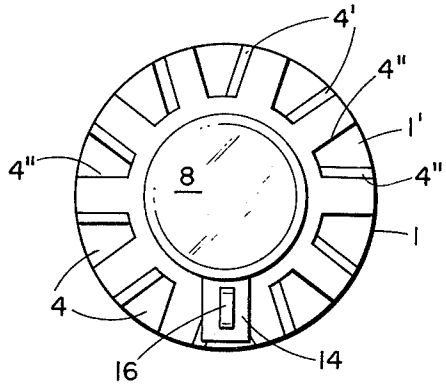


FIG. 3

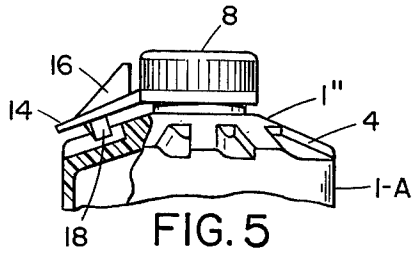


FIG. 5

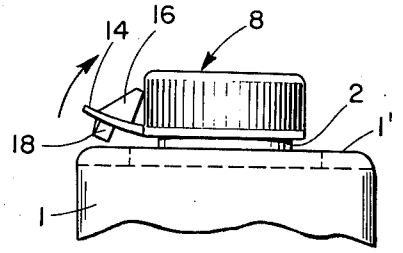


FIG. 4

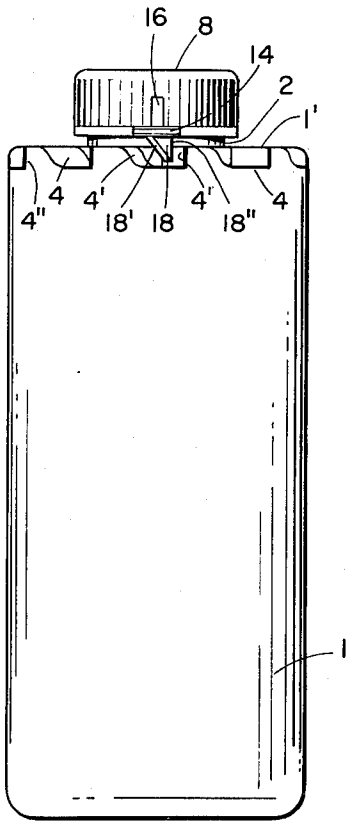


FIG. 1

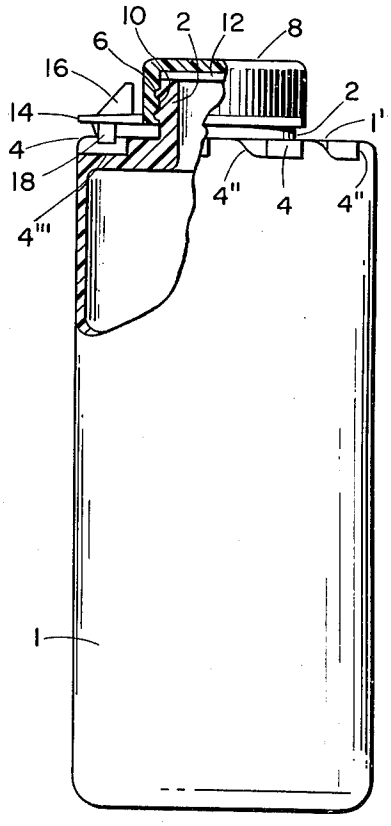


FIG. 2

SAFETY CONTAINER

The present invention relates to a safety container for storing medicines, poisons, etc., equipped with means to prevent the container closure from being easily or accidently removed allowing the ingredients to be poured from the container. There is a number of this type of container on the market; however, most are too complicated to mold with the present day equipment and are also too expensive, and it is the purpose of the present invention to eliminate these difficult features in forming the closure in particular.

One object of the invention is to provide a closure of this type in which the holding means is outside the closure itself to allow the holding means to be observed to insure a positive operation of the closure in securing the same on the container neck.

Another object of the invention is to provide a holding means wherein one of the holding elements is carried by the closure and the other holding element is formed in the area of the container adjacent the container neck.

A further object of the invention is to provide the holding element carried by the closure with means for limiting the movement thereof.

Still another object of the invention is to provide means for completely engaging the two holding elements when the closure is in a closed position upon the container neck.

While several objects of the invention have been noted, other objects, uses and advantages, will become apparent as the nature of the invention is more fully described in the following specifications and the accompanying drawing.

FIG. 1 is a view in elevation of the container and the closure therefor.

FIG. 2 is a view in elevation of the container shown in FIG. 1 rotated at a 90 degree angle to the view shown in FIG. 1, having a portion broken away to show the detail construction of the locking elements.

FIG. 3 is a plan view of the container and closure shown in FIG. 1.

FIG. 4 is a fragmentary view in elevation of the specific portion of the container showing the closure having its locking means disengaged.

FIG. 5 is a fragmentary view in elevation of a modified form of the container and closure.

In reference to the drawings like and similar references characters are used to point out like and similar parts throughout the several views.

The container 1 shown in FIGS. 1–4, and 1-A shown in FIG. 5 are shown as being in cylindrical form but may be in any desirable convenient form. The containers are formed with an externally threaded cylindrical neck 2. The adjacent area of the upper surface of the container surrounding the neck is either in a plane substantially perpendicular to the axis of the neck or in a tapered form as shown in FIG. 5. This area adjacent the neck may be at any desired angle with the elongated axis of the neck as shown at 1'' in FIG. 5 and is provided with a plurality of recesses to form a type of ratchet, each of the recesses having a sloping side 4' and a straight side 4'' parallel with the side of the tubular neck.

Threadably receivable on the external threads 6 of the neck 2 is a closure or cap member 8. The closure as previously stated is provided with an internal thread

10 adapted to engage the threads 6 on the neck 2. There is normally provided a sealing element 12 positioned between the inner upper surface of the closure and the outer end of the neck, as shown in FIG. 2.

The closure is provided with a flexible tab 14. Positioned on the upper surface of the tab adjoining its outer end is a stop 16. The stop is positioned adjacent to the outer end of the tab 12, and is formed or affixed to the upper surface of the tab. Formed or affixed to the under surface of the tab adjacent its outer end is a pawl 18, adapted to engage the ratchet teeth 4, formed in the upper surface 1' of the container shown best in FIG. 2 and at 1'' in FIG. 5. The tab normally extends outwardly from the closure 8 substantially parallel to the surface surrounding the neck, as shown in FIGS. 1, 2 and 5, when the closure is tightly screwed downwardly on the neck to close the neck opening.

As the closure is screwed downwardly on the neck the pawl 18 will begin to engage the recesses 4, and act as a ratchet holding means to prevent the closure from being rotated in the reverse direction. The pawl will move from one of the recesses to the other as the closure is tightened downwardly upon the container neck. It will be noted that the pawl 18 is provided with a bevelled side 18' which slides over the bevelled side 4' of the recess 4 when the closure is being applied to the neck. When the motion of the closure is reversed on the neck, the straight side 18'' of the pawl will engage the straight side 4'' of the recesses 4 and prevent the rotation of the closure and its removal from the container neck.

To remove the closure 8, the outer end of the tab 14 is raised as shown in FIG. 4 to a point where the pawl 14 becomes disengaged from the recesses 4 whereby the closure may be rotated in the opposite direction to remove the closure from the container neck.

In order to prevent the tab 14 from being broken off, the stop 16 is adapted to engage the side wall of the closure 8 (see FIGS. 4 and 5); otherwise, the tab is subject to being raised to a point where it will be broken or it will lose its resilience and not return to its proper normal position to engage the recesses 4 in future operations.

It will be noted that the pawl 18 preferably does not extend to the bottom 4''' (see FIG. 2) of the recess 4 when the closure is screwed on to the neck of the container, therefore, there will be no upward pressure on the side of the closure 8 to which the tab is attached when the pawl drops into one of the recesses. Having the member 18 extending upwardly from the bottom of the recess prevents any false impression that the closure is squarely and tightly fitted upon the neck.

Both the container and the closure are of such construction that each may be molded on a high production molding machine with a minimum number of molding operations. While the invention is shown in a specific form, it is not to be considered as a limitation as the scope of the invention is best defined in the appended claims.

I claim:

1. A container and safety closure therefor, including in combination:

a. a hollow container having an externally threaded tubular neck integrally molded thereon having its tubular opening extending into the hollow container, the area of the container extending outwardly from the neck being in a plane angularly

disposed to the elongated axis of the neck, the outer surface of the container adjacent the neck having a plurality of recesses extending inwardly from the outer upper surface of the container and equidistant from the neck;

b. an internal threaded closure cap adapted to screw on to and off the externally threaded neck;

c. said closure having a flexible tab formed integral with the lower edge of the cap and extending outwardly from one side thereof and parallel with the outer surface of the container adjacent the neck to a point overlying the recesses and out of engagement therewith, a pawl formed integrally with the

under surface of the flexible tab and positioned on the tab to engage the recesses in the container when the closure is threadably moved downwardly on the neck;

d. a stop member integrally formed on the tab and spaced outwardly from the closure cap, said stop extending upwardly from the upper surface of the tab at a point to engage the closure cap after the tab has been flexed to a point to disengage the pawl from the said recess in order to rotate the closure cap in its off direction.

* * * * *