

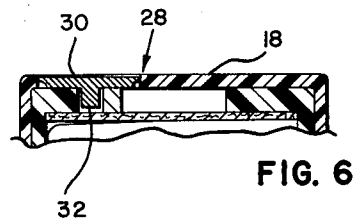
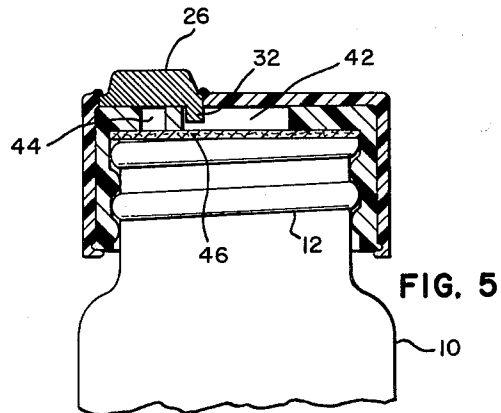
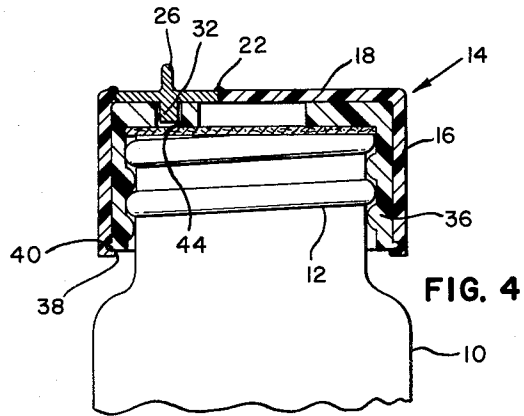
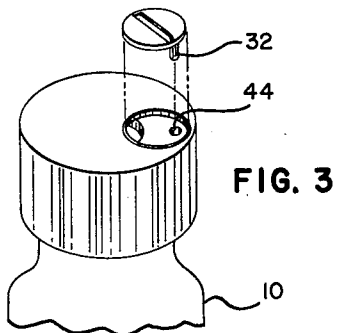
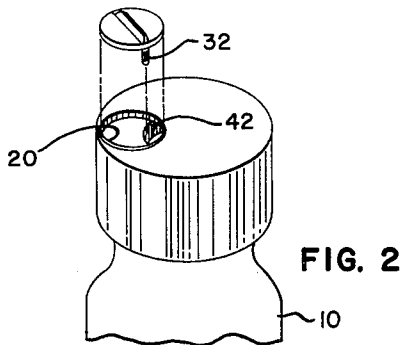
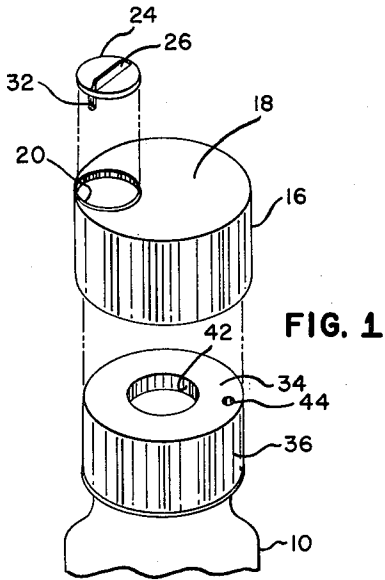
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SAFETY CLOSURE

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3,138,277

SAFETY CLOSURE

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This invention relates to a bottle or jar having a safety closure and more particularly to such a structure requiring, to open, manipulations which are difficult for small children.

It is an object of this invention to provide a safety closure, all parts of which may be made of inexpensive plastic, if desired.

It is a further object of this invention to provide for a container which is of conventional construction, insofar as it is equipped with the usual threads at the neck thereof, and a safety closure therefor which may be relatively easily manipulated by adults but only with difficulty by small children so that medicines, corrosive substances and poisons may be placed therein with relative safety.

Other objects and advantages of this invention, if not specifically set forth, will become apparent from the description which follows.

In the drawings accompanying this application:

FIGURE 1 is a fragmentary, exploded perspective view of a jar and the safety closure assembly of this invention.

FIGURE 2 is a fragmentary view of the jar and safety closure of this invention with the safety plug at a setting which will not permit the closure to be removed.

FIGURE 3 is a fragmentary view of the bottle and closure of this invention with the exterior cap portion of the closure oriented so that it may be locked to the interior cap portion with the safety plug to permit the entire closure to be removed from the bottle.

FIGURE 4 is a fragmentary enlarged side elevation, partially in section, with the locking plug in a position which permits the entire closure to be removed.

FIGURE 5 is an enlarged fragmentary side elevation with the locking plug in an alternate setting which will prevent the closure member from being removed.

FIGURE 6 is an enlarged fragmentary side elevation of a modified structure.

Generally, this invention comprises a container and safety closure therefor, the former having a cylindrical neck at the top and integral threads molded in the neck. The container is provided with a closure having an interior cap element including a planar top and a cylindrical collar having internal threads mating with the threads on the neck of the container. The top of the interior cap element has a first recess, the recess being circular and having its center at the center of the interior cap element. The interior cap element also has a second recess located between the first recess and the cylindrical collar. There is also provided an exterior cap element having a planar top and a collar fitting loosely concentrically about the collar of the interior cap element for rotation relative thereto. The exterior cap element has a passage therethrough of a sufficient size to permit access to the first and second recesses simultaneously. Finally, there is provided a removeable plug sized to fit into the passage in the exterior cap element, the plug having a pin extending downwardly therefrom for registry either with said second recess or with said first recess. The pin is sized relative to the first recess so that when in the first recess the pin may move freely whereby the exterior and interior cap element can be rotated freely relative to one another and the closure may not be removed. The pin is so sized relative to the second recess that when in the second recess the pin is restrained from movement whereby said cap members are locked against relative rotary

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movement and turning the outer cap removes both from the jar.

Referring now to the drawings wherein like characters refer to like parts throughout, there is shown a bottle or jar 10 which has continuous helical threads 12 about its cylindrical neck so that an ordinary cap might be screwed down tightly over the mouth. The container body 10 is conventional; it is the closure member which is the subject of this invention. Thus, the safety closure member of this invention requires no costly special bottle structure. The closure, generally 14, resembles in appearance a conventional cover having internal threads which register with the jar threads 12. The entire closure member consists of at least three parts, including the cylindrical exterior cap element 16 having a planar top 18. At one side of the planar top is a circular passage 20 or receptacle which, as shown in FIGURES 4 and 5, has a small lip 22 at the topmost edge thereof. As the element 16 is constructed of a plastic material which may be somewhat flexible, the lip is designed to hold in place the plug 24 which is circular and precisely sized to fit snugly within the hole 20. To permit removal of the plug, there may be provided an upright flange 26 which may be grasped by the fingertips. An alternate construction is shown in FIGURE 6 where a small depression 28 in the upper surface 18 of the exterior cap portion permits access of a thumbnail which may be forced beneath the entire locking plug 24 and the plug lifted thereby. In this embodiment, the plug 30 does not have the upright flange 26. Each of these plugs has a downwardly depending pin 32 which serves a function to be described in detail below.

The interior cap element also has a planar top 34 and cylindrical side walls 36 which fit loosely and concentrically within the side walls 16 of the exterior cap element. If the inner and outer cap members are not locked together in some fashion, they may be rotated relative to one another with ease. Longitudinal disengagement is prevented by means of a lip 38 on the outer cap or a tongue 40 on the inner cap which rides in a small groove in the inner surface of the side wall 16. Both are shown in FIGURE 4, though only one is necessary to provide assurance against the inner and outer caps becoming disassembled.

The inner cap element has a first recess 42 which is shown in the figures as a hole entirely through the surface 34 located with its center at the center of the cylindrical inner cap element. A second recess which may be a hole 44 or a slot entirely through the inner cap member is located between the periphery of the inner cap and the inner hole or recess 42. The recess 42 in the inner cap is of sufficient size to be visible when the plug is removed from the hole 20 in the outer cap element and if the outer cap element is properly set, both the hole 44 and a portion of the hole 42 are visible.

As seen in FIGURE 2, the plug may be inserted so that the pin 32 thereon extends into the inner recess 42. Hence, when the exterior cap portion is rotated, the pin 32 will simply describe a circle around the periphery of the large circular recess 42.

Alternatively, when it is desired to remove the entire closure from the bottle so as to permit access to the contents, the plug is removed and reinserted with pin 32, as shown in FIGURE 3, entering the small recess or hole 44. This locks the inner and outer cap elements together and the entire cover may be removed or screwed onto the jar.

In FIGURES 4 and 5, one may see, respectively, the arrangement whereby the cover may be removed (since the pin 32 is in the smaller recess 44) and the arrangement where the pin 32 is in the larger recess 42 and the

outer cap element may turn freely relative to the inner cap element.

The recesses are most conveniently made in the form of holes in the inner cap, in which case a conventional sealing element or gasket is required.

Obviously, many modifications and variations of this invention may be made without departing from the spirit and scope thereof, and therefore only such limitations should be imposed as are indicated in the appended claims.

I claim:

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

- (a) a container having a cylindrical neck at the top end thereof and integral threads molded in the cylindrical neck;
- (b) an interior cap element including a planar top and a cylindrical collar having internal threads mating with the threads on the neck of the said container, the top of said interior cap element having a first recess therein, the said first recess being circular and falling in the center of the top of the said interior cap element, said interior cap element having a second recess therein, said second recess being located in the top of the inner cap element between said first recess and the said cylindrical collar of said interior cap element;
- (c) an exterior cap element having a planar top and a collar fitting loosely concentrically about the collar of the interior cap element for rotation relative there-

to, said exterior cap element having a passage there-through of a sufficient size to permit access to the said first and said second recesses simultaneously;

(d) and a removable plug sized to fit into said passage in said exterior cap element, said plug having a pin extending downwardly therefrom for registry either with said second recess or with said first recess, said pin being sized relative to said first recess that when in said first recess, said pin may move freely in a circular direction whereby said exterior and interior cap elements can be rotated freely relative to one another, said pin being sized relative to said second recess that when in said second recess said pin is restrained from circular movement whereby the said exterior and interior cap members are restrained from relative rotary movement.

2. The structure of claim 1 wherein said plug is held in place by means of a lip about the upper edge of the said passage through the said outer cap element.

3. The structure of claim 1 wherein said plug has a flange on the upper surface thereof normal to the said upper surface to permit the said plug to be grasped by the fingers.

4. The structure of claim 1 wherein the said planar top of the exterior cap element has a recess immediately adjacent the said passage therethrough to permit access of a thumbnail intended to be slipped beneath one edge of said plug to facilitate removal of said plug.

No references cited.