

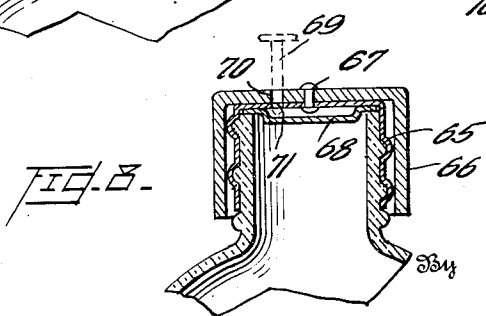
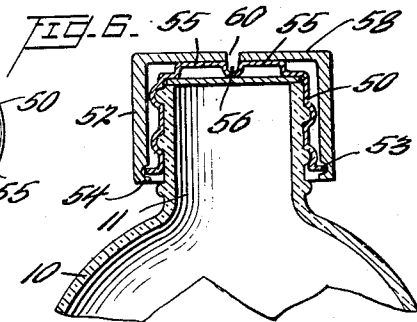
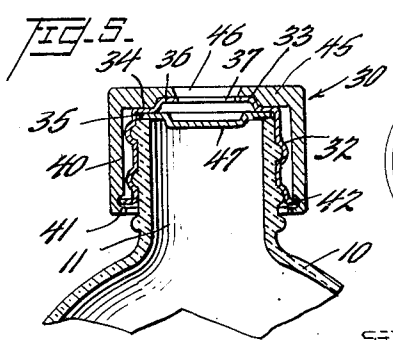
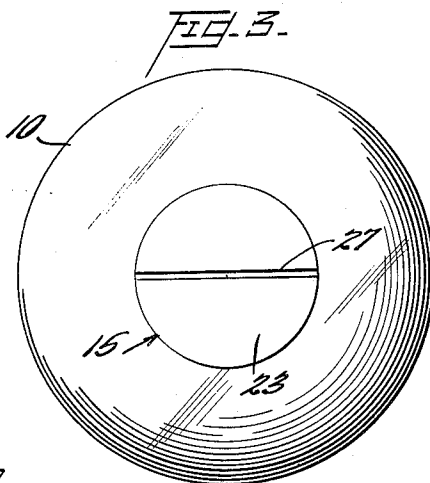
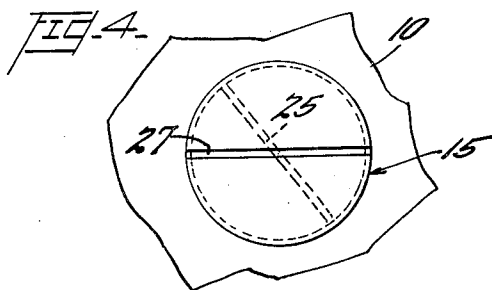
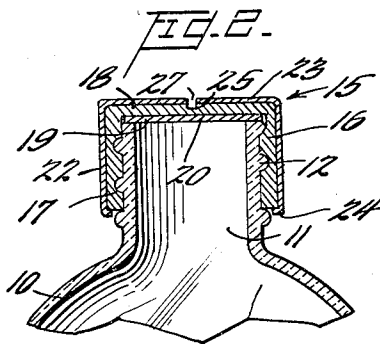
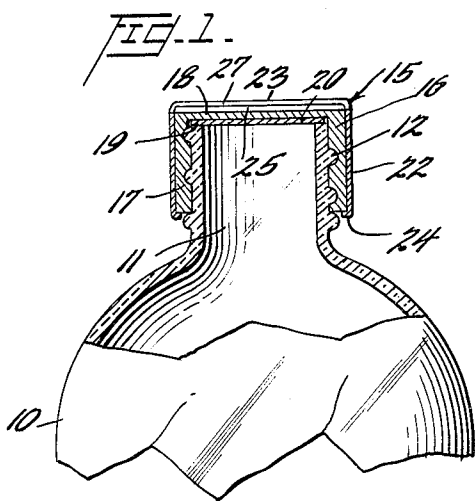
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SAFETY CLOSURE

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2,359,639

SAFETY CLOSURE

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6 Claims. (Cl. 215—98)

This invention relates to receptacle closures and more particularly to safety closures which are not readily loosened or removed from the receptacle or container to which they are applied, whereby unauthorized or incompetent persons may be deterred from access to the containers.

The general object of the invention is the provision of a novel and improved safety closure of the class described which is of simple and economical construction, easy to manufacture, and effective in accomplishing its purpose. However, the novel closure, at the same time, is readily removable by the use of one of a variety of simple household implements or other readily available accessories, but in a manner beyond the easy comprehension of a very young person or a person not entirely in possession of his faculties.

A very obvious practical application of my invention is its use in connection with caps or stoppers for bottles containing antiseptics, medicines, or poisons in homes where there are young children, or in hospitals for the treatment of certain classes of patients.

The invention in its preferred embodiment contemplates the provision of a bottle, jar, or other necked container having a screw threaded cap applied thereto, the threaded body of the cap being substantially completely covered by a freely floating guard or casing capable of substantially frictionless rotative movement with regard to the body of the cap, or at least with a smaller degree of friction than that between the threaded contacting portions of the container and the body of the closure, or that between the container mouth and the closure gasket or washer. It is of course necessary that any area of the inner body part of the closure which may be exposed, be insufficient to afford a grip by any ordinary manual means to effect the unscrewing of the closure.

To permit the closure cap to be removed to provide access to the contents of the container, openings or recesses are provided in the inner cap body and in the outer casing which may be brought into registry by relative rotation of these members. With the openings in registration, an implement—preferably one of common use—may be inserted in both and the two parts of the closure rotated in unison until the cap is unscrewed. In the preferred form of the invention, the openings comprise elongated narrow kerfs made in the two ordinarily independently movable members, so that a thin bladed instrument or object, such as an ordinary table knife, a nail file, a letter opener, a coin, or the like may be

used to interlock the members for simultaneous rotation.

Other objects and features of novelty will be apparent from the following specification when read in connection with the accompanying drawing in which certain embodiments of the invention are illustrated by way of example.

In the drawing:

Figure 1 is a vertical sectional view of the upper part of a bottle and closure embodying the principles of my invention;

Figure 2 is a similar cross sectional view taken at right angles to Figure 1;

Figure 3 is a top plan view of the container and closure;

Figure 4 is a fragmentary top plan view showing the two slots or kerfs in the respective elements of the closure, in displaced positions;

Figure 5 is a vertical sectional view similar to Figure 1 and showing a modified form of the invention;

Figure 6 is a vertical sectional view of another embodiment of the invention;

Figure 7 is a top plan view of the inner element of the safety cap shown in Figure 6; and

Figure 8 is a vertical sectional view of a still further modification of my invention.

In the embodiment illustrated in Figures 1-4 inclusive of the drawing, the receptacle or container to which the invention is applied comprises the bottle 10 having the neck 11 which is provided with the screw threads 12. The safety cap of closure which is applied to the bottle is indicated generally by the reference numeral 15 and comprises the inner body member 16 preferably made of a suitable plastic material and internally threaded as at 17 to correspond to the threads 12 of the bottle neck. Between the inner side of the top wall 18 of the member 16 and the upper edge 19 of the mouth of the bottle, there is interposed a washer or gasket 20 which may be made of any suitable slightly compressible composition of felted, laminated, fibrous, or plastic nature. It will be readily understood that when the member 16 is screwed upon the neck of the bottle, the gasket 16 will be compressed and sufficient friction to retain the closure tightly secured to the bottle will be developed between the cap 16, the gasket 20, and the bottle neck. Friction will also be set up between the threaded parts of the bottle and cap.

In order to prevent the displacement or removal of the cap by unauthorized or incompetent persons, the inner cap 16 is enveloped by an outer guard member or casing 22 which in this particu-

lar embodiment is made of sheet metal. The side walls of the casing 22 and also the top wall 23 of that member are preferably designed so as to fit snugly the outer contour of the inner member 16 but without any substantial friction when the parts are rotated relative to each other. In order to prevent the removal of the casing from the inner part of the cap the lower edges of the cylindrical portion are spun or turned under as at 24 to underlie the bottom edges of the inner member 16.

The top wall 18 of the inner member 16 is provided with a groove 25 which, in this embodiment, extends entirely across the top of the member 16 and opens laterally outwardly at the ends thereof. The groove or slot 25 is preferably rather narrow, not much wider than the thickness of a knife blade or of a coin of medium size. A slot 27 of substantially the same width as the kerf or groove 25 is formed in the upper wall 23 of the ordinarily freely rotatable shell or casing member 22, and this slot also extends entirely across the cap, opening outwardly at the ends.

It will be readily seen that the outer casing or shell 22 may be rotated relatively to the inner portion 16 of the cap until the slot 27 and the groove 25 coincide or are brought into registry as shown in Figures 1, 2, and 3 of the drawing. When in this position, a knife blade, a coin, or any narrow readily available instrumentality may be inserted in the registering slot and groove and the two elements of the cap thereby interlocked for unitary movement. Then by rotation of the outer member 22, or by rotary movement of the interlocking instrument itself, the safety cap may be unscrewed as a unit from the bottle and access to the contents obtained.

Then, in order to reapply the cap, the thin or bladed instrument is reinserted in the registering groove and slot and the cap screwed on to the bottle neck, sufficient pressure being applied to develop enough friction to retain the cap securely in place. Then after the tool or interlocking instrument is removed, the outer cap portion or casing 22 may be rotated through an angle of less than 180° to bring the slot 27 and the groove 25 into relatively displaced positions, as clearly shown in Figure 4 of the drawing.

In Figure 5 of the drawing, a modified form of the invention is shown in which there is applied to the neck 11 of the bottle 10 a safety cap designated generally by the reference numeral 30 and comprising an inner threaded member 32 made of sheet metal and adapted to be screwed onto the neck of the container. The upper wall 33 of the inner member is provided with shoulders 34 which bear upon the margins of the gasket 35 which rest upon the upper end of the neck of the bottle, and the central portion of the wall 33 of the inner member is raised as at 36. This raised portion is provided with a central transverse slot 37.

The metal inner member 32 of this form of the safety cap is enclosed by an outer guard member or casing 40 which is preferably made of plastic or ceramic material and is arranged to loosely enclose the inner cap member for substantially frictionless relative rotative movement. The casing 40 is retained upon the inner metal member 32 by means of the interfitting or overlapping of the flanges 41 and 42 on the respective lower edges of the skirts or cylindrical portions of the two members. The top wall 45 of the outer member 40 is provided with a central transverse slot 46 which may be brought into substantial regis-

try with the slot 37 of the inner member and a thin instrument such as the end of a knife blade or a coin may be inserted in the slots 37 and 46, interlocking the two elements of the cap, and permitting the removal thereof by a rotation of the outer casing. The gasket 35 may have a depressed central portion 47 to accommodate the inner end of the locking instrumentality.

Another embodiment of the invention is illustrated in Figure 6 of the drawing in which the inner member 50 is of sheet metal and is enveloped by an outer casing 52 of plastic or similar material, the two members being held together by means of flanges 53 and 54 formed on the respective parts. The central portion of the top wall of the inner member 50 is pressed or bulged upwardly to form two semi-circular raised areas 55 having a groove 56 formed centrally and extending transversely of the cap. The outer member 52 is provided in its top wall 58 with a slot 60 which may be brought into registry with the groove portion 56 and the members interlocked by a suitable instrument as in the case of the embodiments previously described. In this case, the inner cap member is not perforated and there is thus no possibility of leakage.

In Figure 8 there is shown still another embodiment of the invention in which the inner threaded metal closure portion 65 and the outer, preferably plastic casing portion 66 are rotatably secured together by means of the rivet 67, or other similar fastening element, in the central portions of their upper walls. A gasket 68 is provided with a depressed central portion to accommodate a pointed instrumentality such as suggested at 69 which is adapted to be inserted through the registering small openings 70 and 71 in the upper walls of the elements 66 and 65 respectively. These openings 70 and 71 are displaced radially from the central pivot provided by the member 67 and it will be readily seen that the instrument 69 will interlock the two members so that they may be rotated in unison and the cap removed.

It will be seen that by means of the present invention, there has been provided a very effective safety closure for containers of harmful substances, which while readily removable by an adult, will baffle the ingenuity of a young child or an incompetent person and thus save them from being injured by the contents of the container.

It will be further understood that various changes and modifications may be made in the embodiment illustrated and described herein without departing from the scope of the invention as defined by the following claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A safety container for medicines, poisons, and the like which comprises, in combination, a glass bottle having an externally threaded neck portion and a closure for said bottle comprising an inner inverted cup shaped body member made of plastic composition, the inner side walls of which are threaded for interengagement with the threads on the neck of the bottle, a somewhat compressible gasket seated within said closure and bearing at least marginally against the inner wall of the top of the closure and adapted to be pressed between the upper end of the bottle neck and said last named wall when the closure is applied, whereby leakage will be prevented and the friction between the inner closure member and the bottle itself will be increased, an outer enveloping thin metallic casing perma-

nently attached to, enclosing, and freely rotatable upon said inner plastic member, and conforming generally to its cup shaped configuration, having a cylindrical side wall and a substantially flat circular top wall, a groove in the top wall of said inner body member, a slot in the top wall of said casing member, extending there-through, and being of substantially the same length and width as said groove, said slot being capable of being brought into registry with said groove by rotation of said casing with respect to said inner body member, and the two members adapted to be interlocked for rotation in unison by the insertion of a thin blade or blade-like object into both the slot and groove.

2. A safety container for medicines, poisons, and the like which comprises, in combination, a receptacle having an externally threaded mouth and a closure for said receptacle comprising an inner inverted cup shaped body member the inner side walls of which are threaded for interengagement with the threads on the mouth of the receptacle, an outer enveloping casing attached to, enclosing, and freely rotatable upon said inner member, and conforming generally to its cup shaped configuration, having a cylindrical side wall and a substantially flat circular top wall, a narrow kerf formed in the top wall of the inner member and extending diametrically across it, a transverse narrow slit formed in the top wall of the outer casing member and extending across the same, being of substantially the same width as said kerf and adapted to be brought into registry therewith by rotation of said outer casing member with respect to the inner member, whereby a blade may be inserted into both the slot and the kerf to interlock the two closure members for applying and removing the closure.

3. A safety container for medicines, poisons, and the like which comprises, in combination, a receptacle having an externally threaded mouth and a closure for said receptacle comprising an inner inverted cup shaped body member the inner side walls of which are threaded for interengagement with the threads on the mouth of the receptacle, an outer enveloping casing attached to, enclosing, and freely rotatable upon said inner member, and conforming generally to its cup shaped configuration, having a cylindrical side wall and a substantially flat circular top wall, a narrow kerf formed in the top wall of the inner member, extending diametrically across it, and opening laterally outwardly of the said top wall, a transverse narrow slit formed in the top wall of the outer casing member, extending across the same, and also extending through the upper portions of the side wall, being of substantially the same width as said kerf and adapted to be brought into registry therewith by rotation of said outer casing member with respect to the inner member, whereby the edge of a blade or of an elongated flat object may be laid in the groove formed by the registering slot and kerf to interlock the two closure members for applying and removing the closure.

4. A safety container for medicines, poisons, and the like which comprises, in combination, a receptacle having an externally threaded mouth and a closure for said receptacle comprising an inner inverted cup shaped body member the inner side walls of which are threaded for interengagement with the threads on the mouth of the receptacle, an outer enveloping casing attached to, enclosing, and freely rotatable upon said inner member, and conforming generally to

its cup shaped configuration, having a cylindrical side wall and a substantially flat circular top wall, a somewhat compressible gasket seated within said closure and bearing at least marginally against the inner wall of the top of the closure and adapted to be gripped between the upper end of the bottle neck and said last named wall, when the closure is applied, whereby leakage will be prevented and the friction between the inner closure member and the bottle itself will be increased, a narrow kerf formed in the top wall of the inner member and extending diametrically across it, a transverse narrow slit formed in the top wall of the outer casing member and extending across the same, being of substantially the same width as said kerf and adapted to be brought into registry therewith by rotation of said outer casing member with respect to the inner member, whereby a blade may be inserted into both the slot and the kerf to interlock the two closure members for applying and removing the closure.

5. A safety container for medicines, poisons, and the like which comprises, in combination, a glass bottle having an externally threaded neck portion and a closure for said bottle comprising an inner inverted cup shaped body member made of metal, the inner side walls of which are threaded for interengagement with the threads on the neck of the bottle, a somewhat compressible gasket seated within said closure and bearing at least marginally against the inner wall of the top of the closure and adapted to be pressed between the upper end of the bottle neck and said last named wall when the closure is applied, whereby leakage will be prevented and the friction between the inner closure member and the bottle itself will be increased, an outer enveloping plastic casing permanently attached to, enclosing, and freely rotatable upon said inner metal member, and conforming generally to its cup shaped configuration, having a cylindrical side wall and a substantially flat circular top wall, an opening in the top wall of said inner body member, an opening in the top wall of said casing member, extending therethrough, and being of substantially the same length and width as said first named opening, said second named opening being capable of being brought into registry with said first named opening by rotation of said casing with respect to said inner body member, and the two members adapted to be interlocked for rotation in unison by the insertion of a thin blade or blade-like object into both said openings.

6. A safety container for medicines, poisons, and the like which comprises, in combination, a container having an externally threaded neck portion and a closure for said container comprising an inner inverted cup shaped body member, the inner side walls of which are threaded for inter-engagement with the threads on the neck of the container, a somewhat compressible gasket seated within said closure and bearing at least marginally against the inner wall of the top of the closure and adapted to be pressed between the upper end of the bottle neck and said last named wall when the closure is applied, whereby leakage will be prevented and the friction between the inner closure member and the bottle itself will be increased, an outer enveloping casing permanently attached to, enclosing, and freely rotatable upon said inner member, and conforming approximately to its cup shaped configuration, having a cylindrical side wall and a

substantially flat circular top wall, a pair of raised segmental bosses formed in the top wall of the inner body member with a straight walled slot remaining between them, an opening in the top wall of said casing member, extending vertically therethrough and being of substantially the same width and at least the same length as the slot provided in the inner member, said opening be-

ing capable of being brought into registry with said slot by rotation of said casing with respect to the inner body member, the construction and arrangement being such that the two members 5 are adapted to be interlocked for rotation in unison by the insertion of a blade-like object into the opening of the slot.

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