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SAFETY CLOSURE FOR CONTAINERS

Fig. 2

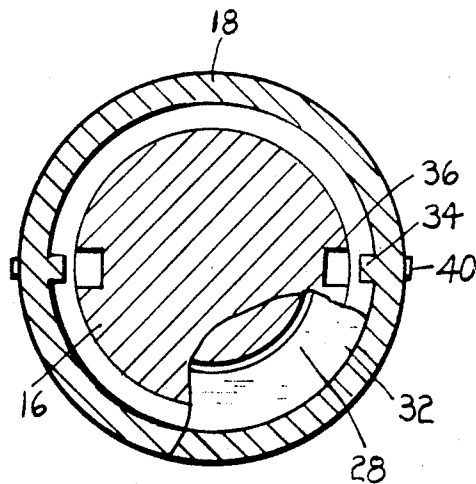
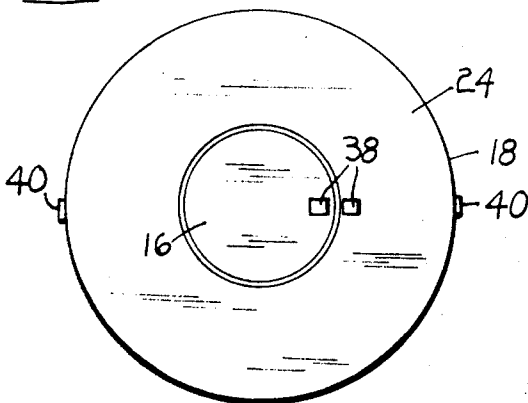
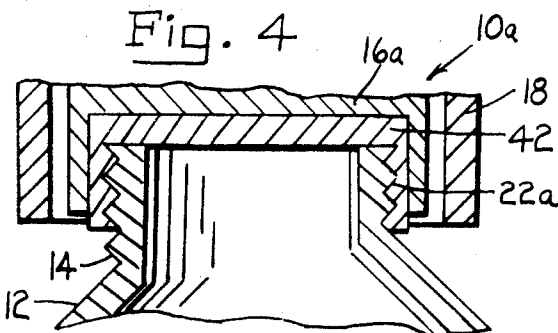


Fig. 4



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1

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SAFETY CLOSURE FOR CONTAINERS
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2 Claims

ABSTRACT OF THE DISCLOSURE

The invention is concerned with a closure for containers which is impossible for young children to remove so that they cannot get to the contents. The closure comprises an inner cap member arranged to be securely mounted on a container and an outer cap member which encloses the inner cap member. The outer cap member is freely rotatable on the inner cap member but has inwardly directed projections adapted to engage sockets in the inner cap member only when the sides of the outer cap member are compressed to cause engagement of the projections with the sockets so that the inner cap member can be rotated or otherwise manipulated for removal from the outer cap member. The closure has alignment means to locate the two cap members in a position of engagement of the projections and recesses.

BACKGROUND OF THE INVENTION

This invention relates to new and useful improvements in safety closures for containers.

It is desirable that certain medicines and other preparations be stored in a place well removed from the reach of children. Even though precautions are taken, however, young children nevertheless often find the medicine and swallow the contents. Safety caps for medicine bottles have heretofore been proposed but such structures do not provide a bottle cap which an adult can readily open and close and which at the same time is impossible for a young child to open.

SUMMARY OF THE INVENTION

The elements of the invention as set forth hereinbefore provide a safety container closure which has the objective that it requires sufficient dexterity and strength that only an older person can remove the closure, and more particularly to provide such a closure which requires simultaneous rotation and a side compression to accomplish an opening function.

More particularly, it is an object of the invention to provide a bottle closure of the type described which has an inner cap member and an outer cap member freely rotatable on the inner cap member, these two members having radially aligned projections and sockets which normally are disengaged one from the other but which are adapted to establish a connection between the parts when the sides of the outer cap member are compressed radially.

Another object of the present invention is to provide a safety bottle closure of the type described which can be opened only upon a compressive force being applied to opposed sides of an outer cap member at selected points, and including means designating positions for compressing the outer cap at said selected points.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a longitudinal sectional view of a closure embodying features of a first form of the present invention;

FIGURE 2 is a top plan view taken on the line 2—2 of FIGURE 1;

2

FIGURE 3 is a cross sectional view taken on the line 3—3 of FIGURE 1; and

FIGURE 4 is a longitudinal sectional view of a second form of the invention.

DETAILED DESCRIPTION

Referring now in particular to the drawings, and first to FIGURES 1—3 which show a first form of the invention, the closure is designated generally by the numeral 10. This closure has threaded engagement on a container 12 such as a bottle or the like, the cap of the container having been removed and discarded. Container 12 has the usual screw threads 14 on the upper neck portion thereof.

Closure 10 comprises an inner cap member 16 and an outer cap member or casing 18. The inner cap member 16 has a bottom apron portion 20 with internal screw threads 22 for engagement with threads 14 to mount the closure on the bottle.

Inner cap member 16 has a circular configuration and is enclosed within the outer cap member 18, the member 18 being tubular in construction for enclosing the member 16 around the sides thereof. The lower end of the outer member 18 is open and depends freely to a point at least as low as or lower than the bottom of apron 20 so that a child cannot grasp the lower end of inner part 16 and rotate it. The upper end of member 18 has an inturned radial flange or wall 24 which seats in an annular recess 26 in the inner member 16. Mounted connection between the members 16 and 18 is accomplished principally by an inturned, radial, annular flange 28 rotatably engageable in a lower annular recess 30. Thus, the cap member 18 has a positive mounting on the cap member 16 but at the same time is normally freely rotatable thereon. Cap member 18 is made of a material which permits it to be flexed slightly to accomplish the function of the present invention, as will be described hereinafter, as well as to provide assembly wherein the member 18 is adapted to be forced downwardly over the member 16 with the flange 28 distorted until it enters recess 30.

The inner diameter of outer member 18 is greater than the outer diameter of inner member 16 so as to provide a space 32 therebetween.

The inner wall surface of outer member 18 has a pair of projections 34 preferably located diametrically on opposite sides of member 16 and having a length which is less than the radial dimension of the space 32. The two projections 34 are associated with respective recesses or sockets 36 in the inner member 16 whereby upon proper alignment and sufficient inward radial compression of the side walls of the outer member 18 in the area of the projections 34, a rotatable connection between the two members can be established. Thus, normally the outer member 18 will turn freely on the inner member 16 wherein the latter part cannot be removed from the bottle without the opposed radial compressing forces being exerted at the two projections. Not only does the radial compressing force have to be applied but the projections 34 must be aligned with the sockets 36. To open the bottle it thus requires that radial compressive forces be imparted to opposed sides of the outer member 18 as well as simultaneous rotative forces. A small child does not have the strength and dexterity to accomplish the simultaneous compressive and rotative functions. The strength required to bring the projections into engagement with the sockets 36 is dependent upon the thickness of the side wall of the outer member 18 and of course upon the flexibility of the material, but in any case these structural specifications are preselected to make operation of the closure impossible for a small child.

A pair of index means 38, such as projections or printed marks, are provided on the upper surface of the closure. One of the index means is provided on the member 16 and the other index means is provided on the member 18, and when the two index means are aligned it is known that projections 34 are in alignment with sockets 36. Marking means 40, which may also comprise a projection or printed mark, are also provided on the outside of outer member 18 in radial alignment with the projections 34 in order that the operator knows exactly at what points to compress inwardly. Here again, not only would a child, in order to remove the closure, have to align the index means 38 but he would also have to apply the side compression in the desired places, as designated by the marking means 34. Such is in addition to possessing the necessary strength to compress the sides of the outer member 18 and simultaneously rotating the same. After the adult has installed the closure on the container, the outer cap member should be rotated to disalign the index means 38.

FIGURE 4 illustrates an embodiment of the invention arranged to fit on a cap 42 of a container and thus differs from the FIGURE 1 embodiment in that the cap is used as a part of the assembly. The closure is designated generally by the reference character 10a. It similarly employs two cap members, the outer cap member 18 being identical to that shown in FIGURE 1 and the inner cap member 16a being similar except that the inner portion 22a of the apron portion 20a is straight walled rather than having screw threads. The connection and support existing between the two cap members is the same as shown in FIGURE 1.

The socket formed by the apron 20a is of selected diameter so as to fit snugly on the cap 42 and at least so snug that it cannot be pulled from said cap by a child. The operation of the closure is similar to the operation described in connection with FIGURE 1 except that upon rotatable connection of the inner and outer cap members 16a and 18, the cap 42 is adapted to be removed and installed on the container.

It is to be understood that the forms of my invention herein shown and described are to be taken as preferred examples of the same and that various changes in the

shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention. It is preferred that the container and closure be constructed of an unbreakable material to prevent injury in the event of breakage and also to prevent access by breakage.

Having thus described my invention, I claim:

1. A safety closure for containers comprising an inner cap member having upper and lower ends and a cylindrical side wall portion, means defining a socket portion on the lower end of said inner cap member arranged for fitted engagement with a top portion of a container, a tubular outer cap member having a side wall encircling the outer side wall portion of said inner cap member, said outer cap member being of larger diameter than said inner cap member to form an annular space therebetween and being normally freely rotatable on said inner cap member, radially extending projection means on one of said inner cap member and said outer cap member extending into said space, means defining a recess on the other end of said inner cap member and outer cap member, said outer cap member being formed of a flexible material, the said projection means and recess being engageable upon sufficient inward flexing distortion of said outer cap member at said projection means and recess to connect said inner and outer caps for unitary rotation, and alignment means on the outer side of said outer cap member aligned substantially radially with the one of the said projection means and said recess that is mounted on said outer cap member.

2. The safety disclosure of claim 1 wherein said outer cap member has an upper end, and including second alignment means on the upper ends of each of said inner and outer cap members for designating radial alignment of said projection means with said recess.

References Cited

UNITED STATES PATENTS

2,847,139	8/1958	Christiansson et al.	215—9
2,964,206	12/1960	Everett	215—9
3,027,035	3/1962	Farago	215—9

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