

[54] SAFETY BOTTLE CLOSURE

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[*] Notice: The portion of the term of this patent subsequent to Nov. 23, 1988, has been disclaimed.

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[21] Appl. No.: 225,752

[52] U.S. Cl. 215/9

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

[58] Field of Search 215/9, 43

[56] References Cited

UNITED STATES PATENTS

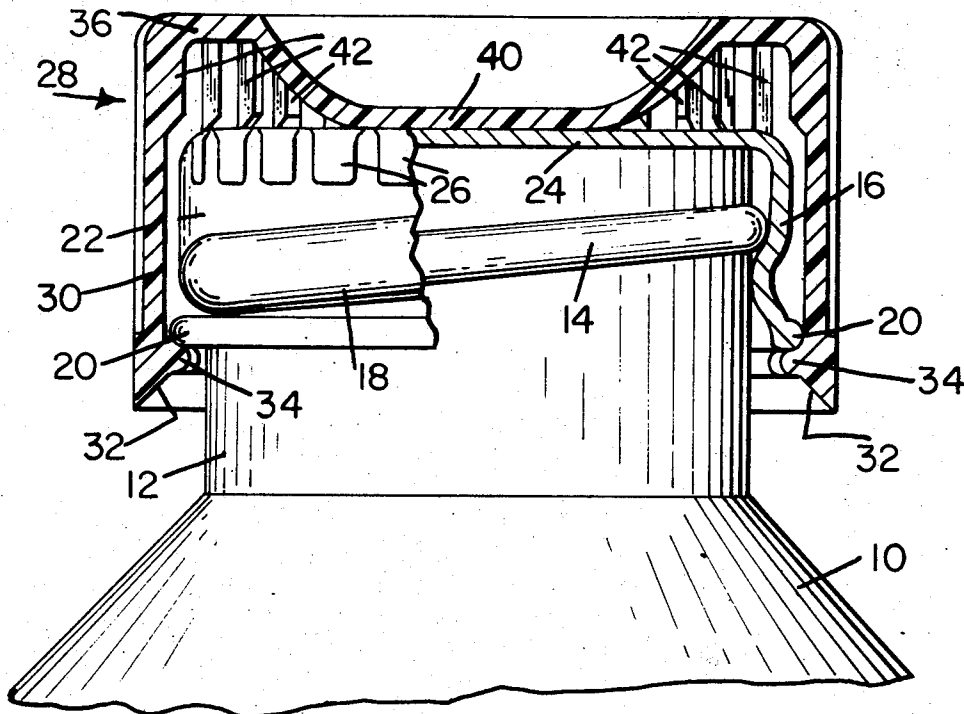
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Primary Examiner—George T. Hall
Attorney, Agent, or Firm—Charles R. Fay

[57] ABSTRACT

A closure cap of the screw-on or similar type having exterior knurls or the like at the periphery thereof, in combination with a safety overcap having complementary interior knurls or projections for selective engagement with the exterior knurls of the closure cap for turning the latter by rotation of the overcap, said overcap including a yieldable resilient depressed base engaging the base of the closure cap normally maintaining the overcap unengaged with respect to the closure cap. The interior knurls or projections on the interior of the overcap engage the exterior knurls at the periphery of the closure cap only upon the application of downward pressure on the safety overcap relative to the closure cap, said overcap rising to non-engaged position upon release of the pressure.

6 Claims, 5 Drawing Figures



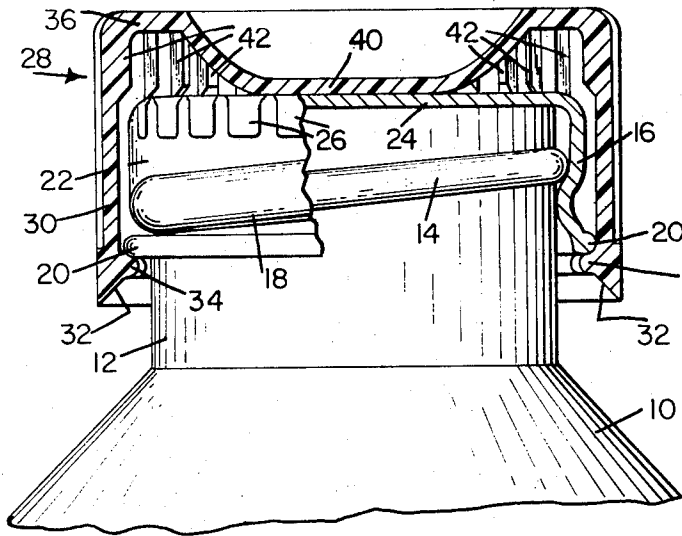


FIG. 1

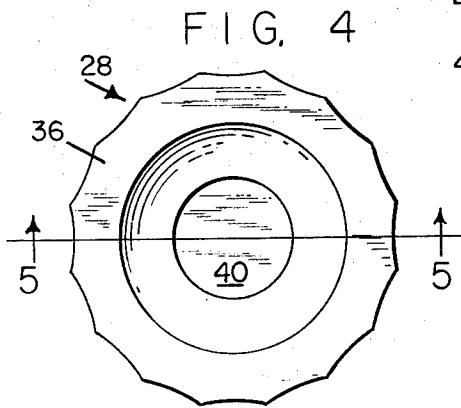


FIG. 4

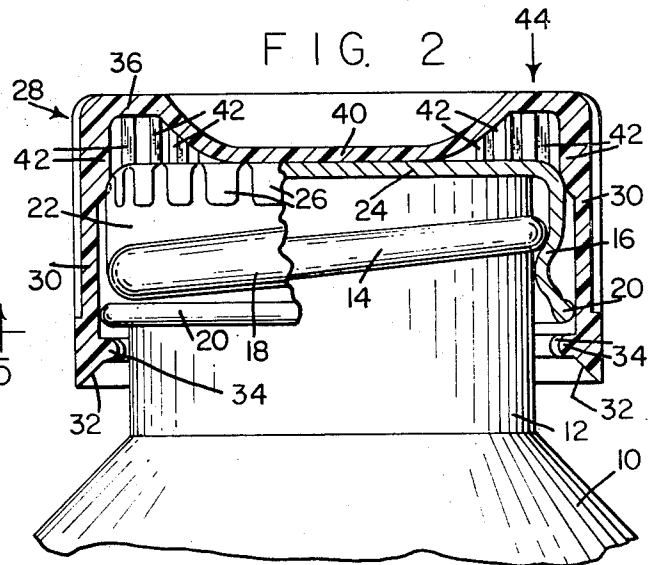


FIG. 2

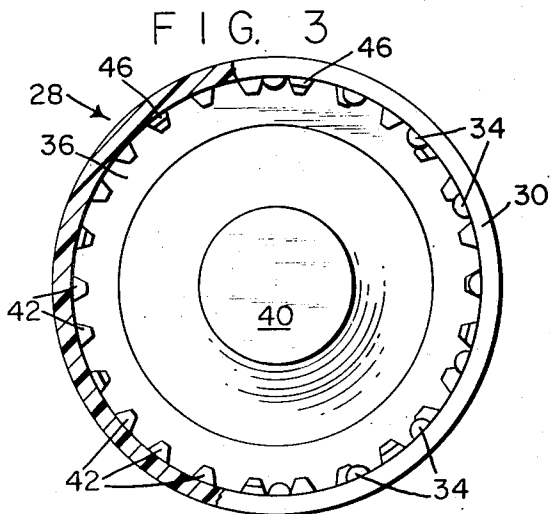


FIG. 3

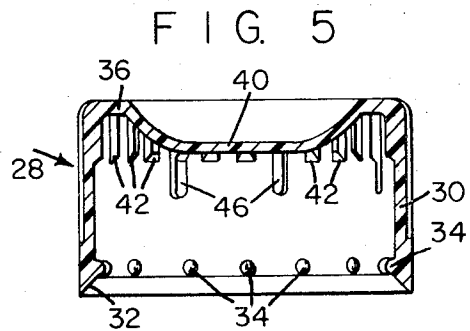


FIG. 5

SAFETY BOTTLE CLOSURE

BACKGROUND OF THE INVENTION

It has been a long standing problem to provide against accidental or unauthorized opening of certain containers for e.g., pharmaceutical use, etc., and this problem is especially acute with regard to children who are too young to understand the poison symbol, or to read warnings on labels. Many suggestions have been made and particular reference is made to U.S. Pat. No. 3,622,027, Nov. 23, 1971, the present application being in effect an improvement thereon.

Most of the constructions suggested are too expensive or too complicated for average or every-day use, and in most cases they require the making of special closure cap as well as a special overcap. The patent identified provides a relatively inexpensive construction, but the present case provides a simpler and less expensive but just as efficient and positive acting device.

SUMMARY OF THE INVENTION

A more or less conventional bottle closure cap is utilized. Such caps are usually made of metal or other suitable similar material and are provided with screw threads to screw onto the similarly threaded mouth of a standard container. Other similarly rotarily actuated means may be used as is well known in the art. However, this closure cap must have exterior knurls or indentations thereon, these being usually provided for the purpose of affording a good manual grasp to the person wanting to turn the cap in order to apply or dislodge it.

With this conventional closure cap, the present invention provides a new and improved safety overcap. This overcap can easily be made of plastic, metal or any suitable material, and it provides an overcap having a skirt with inwardly directed peripheral means to engage the edge of the conventional cap to prevent escape thereof. The overcap is provided with interior knurls or projections corresponding to those on the closure cap, which may be engaged therewith to lock the overcap and the closure cap together for simultaneous motion of the closure cap by the overcap for opening or closing the container in question.

Means is provided on the base of the overcap to impinge upon the base of the closure cap to yieldingly maintain the overcap in disengaged relation with respect to the closure cap, for independent rotation of the overcap, preventing opening of the container, particularly on the part of relatively small children. In this case the base of the overcap has a central inwardly depressed area contacting the base of the closure cap, the base of the overcap being resilient and capable of allowing pressure to be applied e.g. to the rim of the overcap, locking the overcap and closure cap together, allowing turning of the closure cap in either direction by the overcap; whereas on the other hand, when the overcap is released the depressed base of the overcap acts to move the overcap upwardly, releasing the cap engaging means described, once more providing only a rotative motion of the overcap relative to the closure cap. The skirt on the base of the overcap is made strong enough so that children at least will not be able to impress or distort the skirt between the thumb and fingers in order to grip the closure cap to turn it.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a vertical sectional view through the overcap and a part of the closure cap illustrating the closure cap in closed position with respect to the container and the overcap in unengaged relation with respect to the closure cap;

FIG. 2 is a vertical sectional view through the overcap and closure cap showing them in locked position;

FIG. 3 is a bottom plan view of the overcap;

FIG. 4 is a top plan view of the overcap; and

FIG. 5 is a sectional view on line 5—5 of FIG. 4.

PREFERRED EMBODIMENT OF THE INVENTION

Reference character 10 indicates a container which may be any kind of bottle or jar. Such a container may be provided with a neck 12 and as shown it has a screw-threaded construction as at 14 for the reception of a closure cap generally indicated at 16. The closure cap has a thread at 18 for engagement with the container neck thread 14 for closing and opening the container. The container cap itself is generally conventional and is of the kind ordinarily used to open and close pill bottles. However it is pointed out that other rotatably engaging means such as bayonet slots or the like may be utilized in place of the screw threads.

These closure caps are ordinarily provided with a crimped edge 20 on the skirt 22 thereof and have a solid base 24 provided with exterior knurls or indentations 26 around the periphery thereof adjacent the base. These knurls are normally for providing a good finger-grip on the cap in order to rotate it to open and close the container.

The safety overcap 28 of the present invention is most conveniently made of plastic but may be made of any other useful or convenient material and is molded in one piece. It has a depending skirt 30 with a free edge which may be slightly tapered if desired as shown at 32 for application to the closure cap; and there are adjacent the tapered edge a series of inwardly directed projections 34 which extend in under the crimp 20 on closure cap skirt 22 for connecting the overcap to the closure cap against accidental escape thereof.

The closure cap has a solid closed base 36 which is depressed centrally thereof resulting in a flattened area 40 or the like at the central portion thereof, and this is adapted to bear on the flat base of the closure cap in order to keep the overcap in an upward position relative to the closure cap as illustrated in FIG. 1.

The overcap has a series of inwardly directed projections 42 which appear on the interior of the skirt 30 thereof adjacent the junction of the skirt with the base 36. These projections are provided to interfit with the knurls or indentations at the exterior of the closure cap, and as shown in FIG. 2 when an inwardly directed pressure is exerted on the overcap in the direction of the arrow 44 the inwardly directed projections on the overcap engage and interfit with the knurls at the exterior of the closure cap, so that the two caps are connected together. In this relationship the closure cap may be rotated in either direction by rotating the overcap. However when manual pressure on the overcap is released, the central portion thereof as at 40, moves the overcap upwardly with respect to the closure cap from the FIG. 2 position to the position of FIG. 1, wherein the projec-

tions and knurls are unengaged; and the overcap may be rotated without rotating the closure cap, therefore providing a safety cap to prevent small children from opening the bottle and getting at the contents thereof.

Certain of the projections of the overcap extend downwardly a little farther than the projections 42, as at 46, and these stiffen the depending skirt of the overcap without however interfering in any way with the closure cap because they are shallower than the projections 42.

I claim:

1. The combination with a rotarily actuated generally conventional closure cap for a container, said cap having a closed base with a skirt, a plurality of closely spaced exterior knurls on the skirt at the junction thereof with the base, said skirt including means for connecting the closure cap with respect to the container when the cap is turned in one direction, the cap being released from the container when turned in the opposite direction,

of a safety overcap of resilient yieldable but self-sustaining plastic, said overcap including a base and a connecting skirt, a depressed area in the center portion of the base of the overcap, means adjacent the free edge of the skirt for engaging under the free edge of the closure cap skirt to hold the two caps together,

a series of inwardly directed spaced projections on the overcap skirt adjacent the base thereof, said projections conforming in general to the knurls, the depressed base normally engaging the base of the closure cap and maintaining the projections of the overcap unengaged with respect to the knurls, pressure inwardly on the base of the overcap engaging the projections with the knurls, connecting the two caps to rotate together, the overcap being inoperative for this purpose when the pressure is released due to the resilience of the material of the overcap at the depressed area at the center of the overcap.

2. The combination of claim 1 wherein certain of said projections are longer than others providing a stiffening means for the skirt of the overcap.

3. The combination of claim 1 wherein the free edge of the skirt of the overcap is flared slightly outwardly for ease of snapping the overcap onto the closure cap.

4. The combination with a rotarily actuated closure cap for a container, means for connecting the closure cap with respect to the container when the cap is turned in one direction, said cap being released from the container when the cap is turned in the opposite direction, said cap including a base and a depending skirt, the means for connecting the closure cap with respect to the container being embodied in the skirt, the skirt having a free-ended annular edge,

of a safety overcap, said overcap comprising a resilient yielding self-sustained base and a connecting skirt, the skirt having a free-ended annular edge, inwardly directed means at the edge of the skirt of the overcap engaging under the edge of the skirt of the closure cap, said inwardly directed means holding the two caps together against accidental escape of the overcap from the closure cap, the skirt of the overcap being longer than the skirt of the closure cap,

the closure cap having a circumferential series of closely spaced indentations arranged on the exterior thereof adjacent the junction of its skirt and base, and inwardly directed closely spaced projections corresponding to said indentations on the overcap at the junction of its base and skirt;

the base of the overcap extending inwardly, yieldably bearing on the base of the closure cap,

the base of the overcap normally holding the overcap in a position wherein the inwardly directed projections on the overcap are free and clear of the indentations on the closure cap, so that rotative motion of the overcap does not affect the closure cap, but the inwardly directed projections on the overcap being engaged with the indentations on the closure cap upon deflection of the base of the overcap under downward pressure thereon, whereby the two caps are engaged under such pressure and the closure cap turns in accordance with rotary motion of the overcap.

5. The combination of claim 4 wherein the depressed base of the overcap normally holds the latter out of locking engagement with the closure cap.

6. The combination of claim 4 wherein certain of the projections are longer in an axial direction, and shallower than the projections, stiffening the overcap.

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