

[54] **LOCKING FINGER SEALED CAP**

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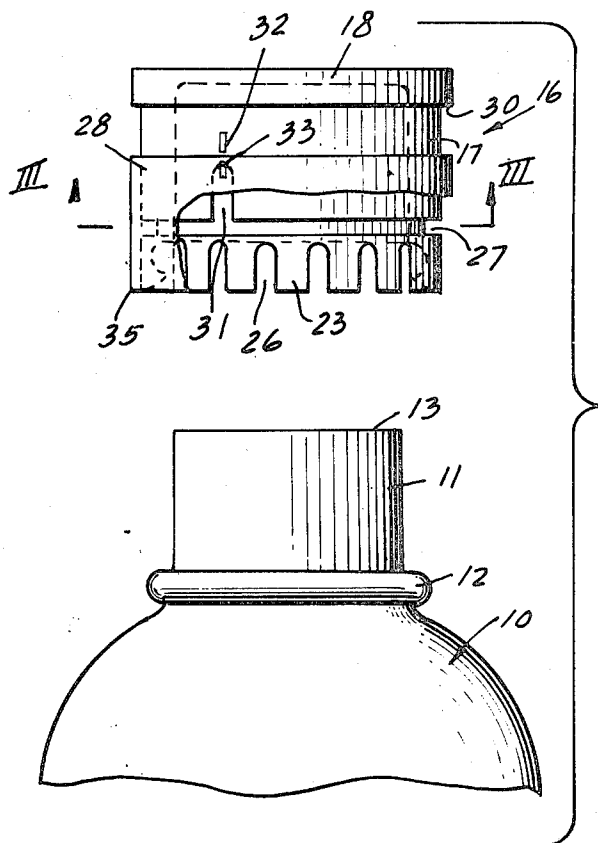
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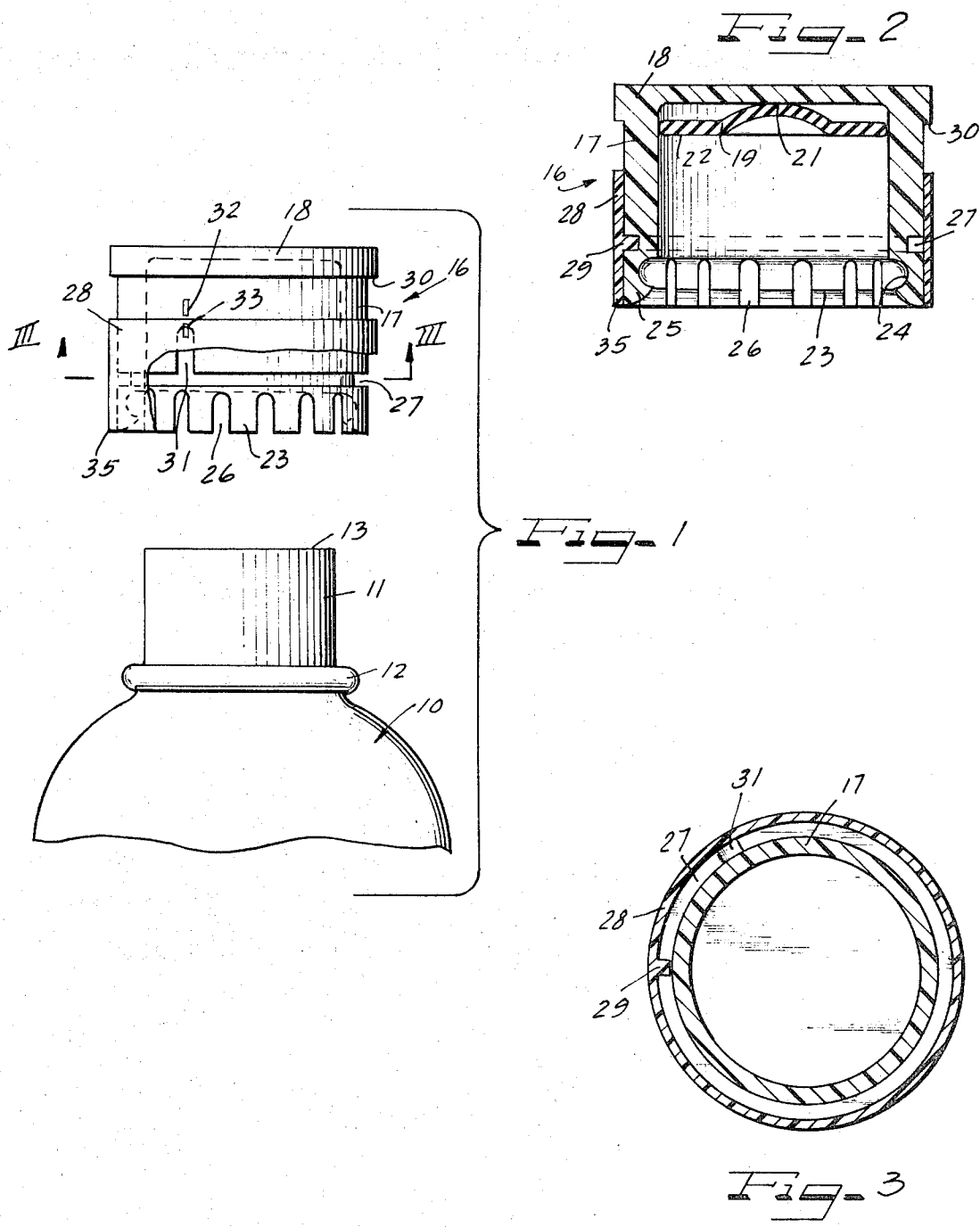
ABSTRACT

A locking cap for a bottle having a cap with downwardly extending fingers receivable over a rim formed on a bottle and including an annular slidable locking ring on the cap which when aligned with the cap in a first position is movable away from the flexible fingers so that they may flex outwardly and release the rim of the bottle and movable to a second position on the cap so as to substantially enclose the flexible fingers so that they cannot flex outwardly and the cap is locked to the bottle. A tongue and groove arrangement is formed between the ring and cap so that the ring may be moved from the locked to the unlocked position only when a particular orientation exists between the ring and the cap.

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1 Claim, 3 Drawing Figures





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LOCKING FINGER SEALED CAP

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates in general to safety caps for bottles or other containers and in particular to a simple inexpensive locking cap.

2. Description of the Prior Art

It is very desirable that medicines and other substances such as poisons be stored in containers which cannot be opened by small children. Various locking cap arrangements have been known such as tumbler-type locking caps formed with indicia which must be aligned with indicia on a container so as to remove the cap from the container.

SUMMARY OF THE INVENTION

The present invention comprises an improved inexpensive and simple locking cap which comprises a main body portion having downwardly extending flexible fingers which are receivable over a rim formed on most bottles and other containers. The fingers are formed with a groove into which the rim of the bottle is receivable and an annular locking ring is formed about the cap such that when it is in a first unlocked position the flexible fingers of the cap may flex outwardly over the rim on the bottle so that the cap may be placed on the bottle or removed from the bottle. The ring may be moved to a second locked position such that the ring engages the flexible fingers of the cap so that the fingers cannot move outwardly away from the rim on the bottle and the cap is locked to the bottle. An annular groove is formed in the main body portion of the cap and a projection on the ring extends into the groove so that the ring may be rotated relative to the cap. At one position in the cap a second groove extends at right angles to the first groove so that the projection on the ring may move into said second groove allowing the ring to move to the unlocked position. Index markings may be formed on the cap and the ring so that the angular position at which the ring may be moved to the unlocked position may be known if desired.

Other objects, features and advantages of the invention will be readily apparent from the following description of certain preferred embodiments thereof taken in conjunction with the accompanying drawing, although variations and modifications may be effected without departing from the scope and spirit of the novel concepts of the disclosure, and in which:

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 illustrates the upper portion of a bottle and the locking cap of this invention;

FIG. 2 is a sectional view of the locking cap of this invention; and

FIG. 3 is a sectional view taken on line III—III of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a bottle or container 10 formed with a neck portion 11 and having a rim 12 formed about the neck. The upper edge of the bottle neck is designated by numeral 13. The cap of this invention is designated generally as 16 and includes a main body portion 17 with a top cover 18. The lower portion of the main body portion 17 is formed with slits 26 to divide the

lower portion into fingers 23. The fingers 23 are formed with an internal groove 24 for receiving the rim 12 of the bottle therein and locking portions 25 of the fingers 23 engage the lower surface of the rim 12 when the cap is mounted on the bottle.

A locking ring 28 is slidably mounted on the main body portion 17 and is movable to an unlocked position on the main body portion 17 so as to engage a ledge 30 formed in the top 18 such that its lower edge 35 moves above the groove 24 thus allowing the flexible fingers 23 to flex outwardly for placing the cap 16 on or removing it from the bottle 10.

A groove 27 is formed in the main body portion 17 and the locking ring 28 has an inwardly extending projection 29 which is receivable in the groove 27 so as to lock the ring 28 in the locked position as shown in FIG. 2.

A vertical groove 31 is also formed in the main body portion 17 as shown in FIGS. 1 and 3 and when the ring 28 is moved relative to the main body portion 17 so that the projection 29 is aligned with the groove 31 the ring 28 may be moved upwardly relative to FIGS. 1 and 2 so that the ring 28 is in the unlocked position and the cap may be placed on the bottle 10 or removed from the bottle 10.

A flexible disc-shaped member 19 is mounted within the cap against the cover 18 as best shown in FIG. 2 and is attached at its center 21 to the cap cover 18 and has bottle engaging portions 22 at its outer surfaces for engaging the upper lip 13 of the bottle 10. When the cap 16 is placed over the bottle neck 11 such that the locking portions 25 engage the rim 12 of the bottle, the upper lip 13 of the bottle will partially compress the disc 19 thus forming a fluid seal between the disc 19 and the lip 13.

Indicia 32 is formed on the body portion 17 and a second indicia 33 is formed on the ring 28 such that when indicia 32 and indicia 33 are vertically aligned as shown in FIG. 1 the ring may be moved to the unlocked position such that its lower edge 35 clears the fingers 23 thus allowing the flexible fingers to deflect outwardly for placing the cap on the bottle or for removing the cap from the bottle.

The cap may be made of a suitable plastic such as polyethylene, for example.

In operation, to place the cap on the bottle indicia 32 and 33 are aligned and the ring 27 is moved upwardly against the shoulder 30 thus freeing the lower edge 35 of the ring 28 from the locking position of the flexible fingers 23. It is to be realized that the projection 29 travels in the groove 31 of the portion 17 as the ring 28 is moved to the unlocked position. The cap is then pressed down over the neck 11 of the bottle until the flexible fingers 23 are forced outwardly by the rim 12 of the bottle and the locking portions 25 of the fingers 23 engage the lower surface of the rim 12. The upper rim 13 of the bottle engages the sealing disc 19 and depresses the portion 25 of the disc to form a fluid seal. The locking ring 28 is then moved so that its lower edge 35 is substantially flush with the lower edge of the locking fingers 23 with the guide pin or projection 29 moving in groove 31. When the guide pin or projection 29 is aligned with the annular groove 27 in the member 17, the locking ring 28 is rotated so that the projection 29 is not aligned with the groove 31 thus locking the locking ring 28 in the locked position, shown in FIGS. 1 and 2, in which the ring prevents the flexible fingers

23 from flexing outwardly thus locking the cap to the bottle.

The present invention prevents children from removing a cap from a bottle unless they know the indicia 32 and indicia 33 must be aligned, thus aligning the locking pin or projection 29 with the groove 31 such that the locking ring 28 may be moved upwardly against the shoulder 30 so that the fingers 23 may be released from the rim 12.

It is seen that this invention provides a new and novel locking cap for preventing children and others from opening a bottle or container. Although it has been described with preferred embodiments it is not to be so limited as changes and modifications may be made therein which are within the full intent and scope as defined by the appended claims. I claim:

1. A safety cap for a container formed with an outwardly extending rim about its neck and formed below the neck of said container comprising:

a main body portion formed with an opening for receiving said neck of said container and formed with flexible fingers for passing over and claspingsaid

rim of said container;

a locking ring mounted on said main body portion and movable longitudinally of said body portion such that in a first position said flexible fingers are locked so that they cannot pass over said rim and in a second position said flexible fingers are unlocked so that they can pass over said rim, and

said main body portion is formed with an annular groove and said ring has a projection receivable in said annular groove to lock said cap to said container when said projection is in said groove, a longitudinal groove formed in said main body portion so as to meet said annular groove such that said projection of said ring may be received therein for a particular angular orientation of said ring and main body portion to allow said locking ring to move to said second position and a ledge formed on said main body portion and engageable by said locking ring in said second position such that said locking ring is mounted for limited longitudinal movement relative to said main body portion.

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