May 3, 1960 M. L. SMITH 2,935,219

CAP AND CONTAINER

Filed March 25, 1958

FIG. 1

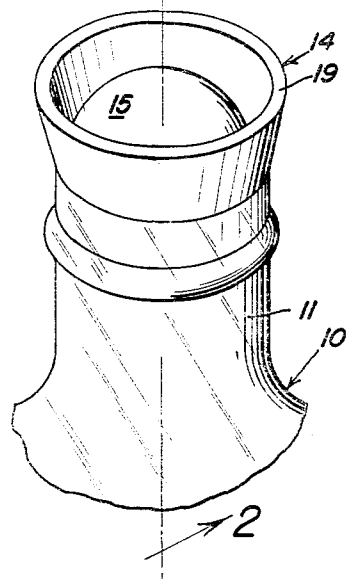
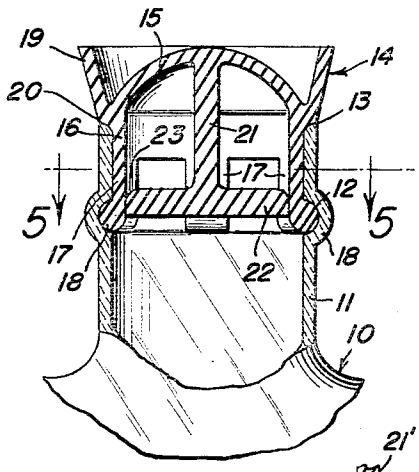


FIG. 2



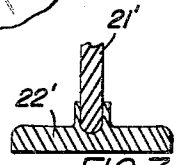
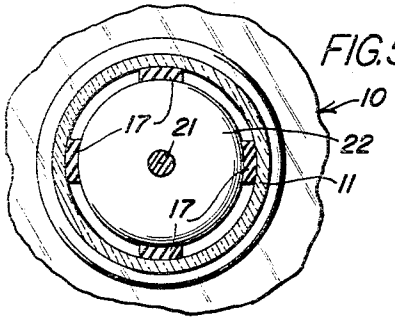


FIG. 7

FIG. 5



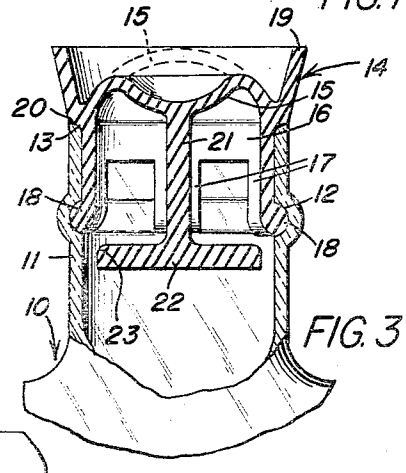


FIG. 3

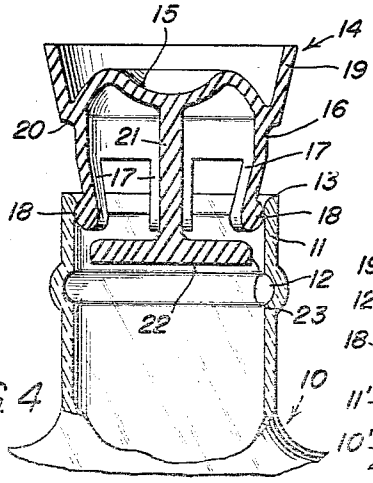


FIG. 4

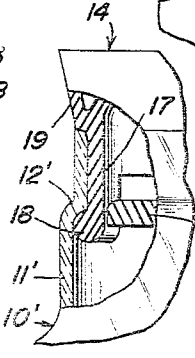


FIG. 6

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United States Patent Office

2,935,219

Patented May 3, 1960

2,935,219

CAP AND CONTAINER

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Application March 25, 1958, Serial No. 723,917

4 Claims. (Cl. 215—52)

This invention relates to a cap or closure and the container with which it is to be used, and more particularly to a cap and container for holding medicines, drugs or the like.

The object of this invention is to provide a cap which cannot be readily removed from its container by small children, so that when the unit is used for holding dangerous articles such as drugs or medicines, there will be less likelihood of the children gaining access to these dangerous articles.

Another object of the invention is to provide a container and cap wherein the cap cannot be removed except by applying pressure to the cap in a unique manner, whereby there will be less possibility of children opening or removing such a cap so that when the container contains poisonous substances or medicines, there will be less likelihood of children gaining access to such substances since the children will not be able to readily remove the cap from the container.

A further object of the invention is to provide a closure construction which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

Figure 1 is a perspective view illustrating the cap on the container.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a fragmentary sectional view similar to Figure 2, but showing the position of the parts when pressure is applied by means of a finger to a bulb or finger engaging portion of the cap.

Figure 4 is a view similar to Figures 2 and 3 but showing the cap partially disconnected from the container neck.

Figure 5 is a sectional view taken on the line 5—5 of Figure 2.

Figure 6 is a fragmentary sectional view illustrating a modification.

Figure 7 is a fragmentary sectional view of another modification.

Referring in detail to the drawings, the numeral 10 designates a portion of a container or jar which includes a neck 11 that has a groove 12 therein, and the outer end portion of the neck 11 is tapered or beveled as at 13.

There is further provided a closure or cap which is indicated generally by the numeral 14, and the cap 14 is adapted to be fabricated or made of a suitable yieldable or resilient material such as a suitable plastic, rubber or the like. As shown in Figure 2 for example, the cap 14 includes a curved finger engaging portion or bulb portion 15, and depending from the portion 15 is a cylindrical skirt portion 16. Depending from the skirt portion 16 is a plurality of spaced apart arms 17, and the arms 17 are provided with enlarged beads 18 on their outer end

portions. These beads 18 are adapted to selectively seat in the groove 12 of the neck 11.

The cap 14 further includes an upwardly extending outwardly flaring body portion 19, and defined below the body portion 19 is an annular recess 20 which is adapted to receive or engage the tapered end portion 13 of the neck 11. Depending from the intermediate portion of the bulb 15 is a shank portion 21, and arranged on the lower end of the shank portion 21 is a wedge 22. The wedge 22 is mounted for movement into and out of engagement with the inner surfaces of the arms 17, and the wedge 22 has its upper corner portion tapered as at 23.

Referring now to Figure 6 of the drawings, there is illustrated a slight modification wherein the container 10' includes a neck 11' which has a groove 12' that serves the same purpose as the previously described groove 12. Thus, the groove 12' is formed by making the neck 11' of stepped formation, whereas the previously described groove 12 is formed in an outwardly bulging section of the neck 11.

Referring now to Figure 7 of the drawings, there is illustrated a further modification wherein a shank portion 21' is adapted to be secured to a wedge 22', and the shank portion 21' is connected to the wedge 22' in any suitable manner, as for example by means of a suitable adhesive, cement or the like. Thus, in the previous arrangement, the shank portion 21 and wedge 22 were of integral construction, whereas in Figure 7 the shank portion 21' is separately made from the wedge 22', and the portions 21' and 22' are then affixed or secured together by any suitable means. The wedge 22' functions in the same manner as the previously described wedge 22.

From the foregoing, it is apparent that there has been provided a cap which is especially suitable for use on bottles or jars such as bottles containing medicines, poisons or the like. When the cap is in closed position, the parts are in the position shown in Figures 1 and 2 so that if a child attempts to remove the cap 14 from the container or bottle 10, the beads 18 will be maintained or urged into the groove 12 by means of the wedge 22 so that the cap 14 cannot be pulled off of the container 10 by a child. However, when an adult or person who is familiar with the construction of the cap desires to remove the cap from the container, it is only necessary to first press in on the portion 15 so that the parts will move from the position shown in Figure 2 to the position shown in Figure 3. Thus, as the portion 15 is pressed inwardly from the dotted line position shown in Figure 3 to the solid line position shown in Figure 3, it will be seen that the shank portion 21 will be moved and this will move the wedge 22 out of engagement with the arms 17. Then, by pulling on the body portion 19 of the cap 14, it will be seen that the cap can be readily removed since the beads 18 will be free to move out of the groove 12, since the arms 17 can flex inwardly slightly in view of the fact that the wedge 22 is no longer in locking or wedging position.

The groove for receiving the beads 18 may be formed as shown in Figures 1 through 5, or else it may be formed as shown in Figure 6. Thus, as shown in Figure 6 the groove 12' is formed by providing a stepped formation in the neck 11'.

In Figure 7 there is shown a modification wherein the shank portion 21' and wedge 22' are secured together in any suitable manner, instead of making these members of one piece or integral formation as shown in the other figures.

The cap and container of the present invention is adapted to be used for safely sealing toxic drugs and cleaning agent containers which are used in homes or the like and the construction is such that there will be a decrease in the possibility of children being poisoned by

taking internally toxic drugs, cleaning agents or the like. It is a well known fact that many children are poisoned each year because they are able to open existing or present containers after they have gained access to the containers. Thus, young children or babies often can pound or push or pull or turn with their hands, and these movements permit children to gain access to conventional containers since such seals are of the screw or plug or snap-on type.

With the present invention, the cap **14** is adapted to be removed from a container by applying two forces working in opposite directions and the use of such two forces in this manner is not within the reasoning power of children in early age groups. The cap is adapted to be made of a flexible material such as a flexible plastic and is adapted to be used on a container such as a container made of plastic or glass which has a molded lock ring with a groove therein. The simple construction permits low cost manufacture and the unit may be made as a disposable device. The portion **19** can be used as a finger grip.

Thus, it will be seen that there has been provided a cap and container which is constructed so that there will be less of a possibility of small children gaining access to caintainers which are used for holding liquid or dry toxic drugs or liquid or dry toxic cleaning agents or other substances which may be used in the home or the like.

To remove the cap, there is required the application of two forces. Thus, the thumb of the hand is used to force the portion **15** downwardly, and this action unlocks the cap from the container. Maintaining this force, several fingers can be slipped around the body portion **19** and a pulling force is applied, and this action removes the cap from the container. During early ages, most children lack the reasoning ability to use the hands to apply two opposing forces in the manner required to remove the cap from the container.

Furthermore, the cap is constructed so that there is provided a safe lock seal wherein the material of the cap is not subjected to tiring or unnatural expanded positions while it is in use, and when the cap is on its container, it is in its normal molded shape. Furthermore, the cap locks itself in the container in an automatic manner and after thumb pressure has been removed from the portion **15**, it will return to its natural molded position after it has been distorted.

The cap and container are positive and efficient in use, convenient to manipulate or operate, adaptable for low cost production in different sizes and it is durable so it can be used over and over again. Primarily the cap will help insure that children will not gain access to dangerous drugs, cleaning agents or the like.

When a child attempts to remove the cap by pulling out on the cap, the wedge **22** maintains the beads **18** firmly in the groove **12** so that the cap is securely locked in the container. However, when an adult or other authorized person first applies pressure to the portion **15**, the wedge **22** slides out of the position shown in Figure 2 to the position shown in Figure 3 so that the beads **18** can be pulled out of the groove **12**.

A slight taper **13** on the neck permits the parts such as the arms **17** to be inserted more easily. The slight taper **23** on the wedge **22** permits the wedge to raise without encountering obstructions.

The parts can be made of any suitable material and in different shapes or sizes. The number of arms **17** can be varied as desired.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

I claim:

1. In a device of the character described, a container including a neck provided with an annular groove, the outer end portion of said neck being tapered, a cap including a curved finger engaging portion, a cylindrical skirt portion depending from said finger engaging portion, a plurality of spaced apart arms depending from said skirt portion, the lower outer portion of each arm being shaped to define an enlarged bead for engagement with said groove, said cap further including an outwardly flaring upwardly extending body portion, there being an annular recess defined below said body portion for engagement with the top of the container neck, a shank portion depending from said finger engaging portion, and an annular wedge on the lower edge of said shank portion, said wedge being mounted for movement into and out of engagement with said arms, the upper portion of the wedge being tapered adjacent the outer periphery thereof.

2. In a device of the character described, a container including a neck provided with an annular groove, the outer end portion of said neck being tapered, a cap including a curved finger engaging portion, a cylindrical skirt portion depending from said finger engaging portion, a plurality of spaced apart arms depending from said skirt portion, the lower outer portion of each arm being shaped to define an enlarged bead for engagement with said groove, said cap further including an outwardly flaring upwardly extending body portion, there being an annular recess defined below said body portion for engagement with the top of the container neck, a shank portion depending from said finger engaging portion, and an annular wedge on the lower edge of said shank portion, said wedge being mounted for movement into and out of engagement with said arms, the upper portion of the wedge being tapered adjacent the outer periphery thereof, said cap being made of yieldable material.

3. In a container including a neck having an annular groove therein, a cap mounted for movement into and out of closing relation with respect to said neck, a plurality of relatively spaced depending arms on said cap, enlarged beads on the lower ends of said arms engaging the groove in said neck, a depending shank portion on said cap integral therewith and an annular wedge integral with the lower edge of said shank portion engaging said enlarged beads for maintaining said cap locked to said neck when only an outward pulling pressure is applied to the cap.

4. In a container including a neck having an annular groove therein, a cap mounted for movement into and out of closing relation with respect to said neck, a plurality of relatively spaced depending arms on said cap, enlarged beads on the lower ends of said arms engaging the groove in said neck for maintaining said cap locked to said neck when only an outward pulling pressure is applied to the cap, said cap including a manual depressible portion which engages said beads and when depressed will move out of engagement with said beads to permit the cap to be pulled from the neck of the container.

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