Nov. 8, 1949 F. L. QUIRING 2,487,728

CAP FOR POISON CONTAINERS

Filed June 10, 1947

FIG. 1.



FIG. 2.

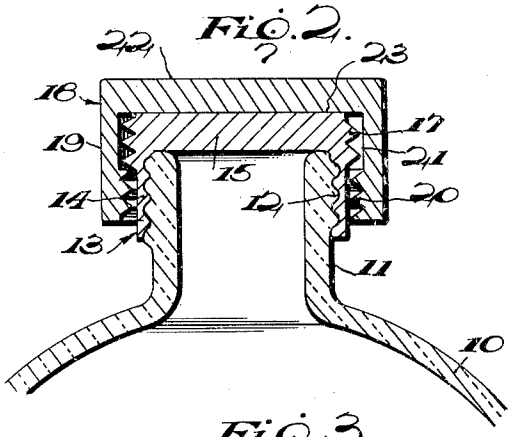


FIG. 3.

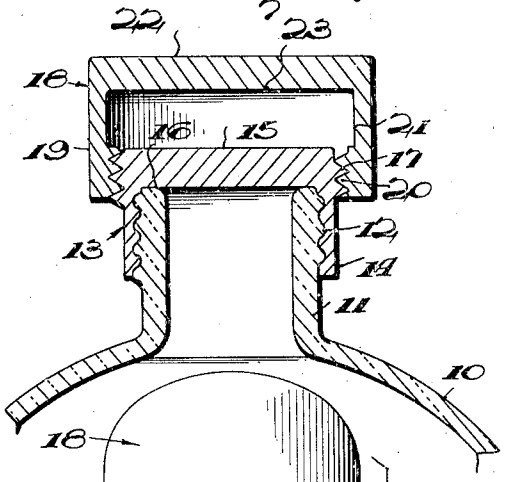


FIG. 5.

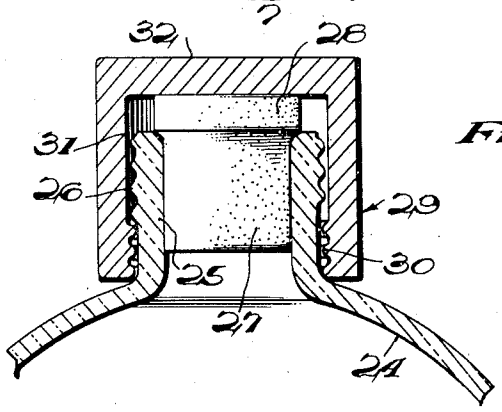
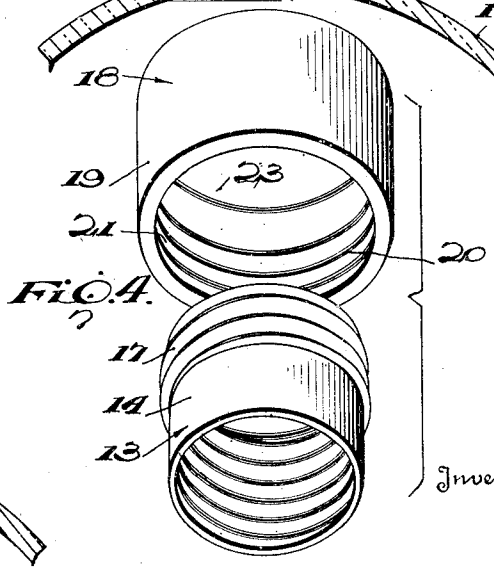


FIG. 4.



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CAP FOR POISON CONTAINERS

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3 Claims. (Cl. 215—9)

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My invention relates to caps for poison containers.

The primary object of my invention is to safeguard children and adults in the handling of poison containers, by providing a container cap which is not easily removed, and which therefore cannot be removed through mistake.

A further object of the invention is to provide a cap for poison containers which will signal the potential user of the poisonous contents as soon as the container cap is touched.

A still further object is to provide a container cap of the above mentioned character, which is extremely simplified and therefore very practical and inexpensive to manufacture.

Other objects and advantages of the invention 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 employed to designate like parts throughout the same,

Figure 1 is a perspective view of a poison container provided with a cap embodying my invention,

Figure 2 is an enlarged fragmentary central vertical longitudinal section through the same,

Figure 3 is a view similar to Figure 2, showing the outer cap in position to be removed,

Figure 4 is a perspective view of caps, and

Figure 5 is a fragmentary central vertical longitudinal section through a modified form of the invention.

In the drawings, where for the purpose of illustration are shown preferred embodiments of my invention, attention is called first to Figures 1 to 4 inclusive, wherein the numeral 10 designates a poison container or bottle of any suitable shape and size. The container or bottle 10 is provided with the usual vertical cylindrical dispensing neck 11, externally screw threaded at its upper end as shown at 12.

Mounted upon the screw threaded neck 11, and having screw threaded engagement therewith, is an inner closure member or cap 13. This inner cap 13 comprises a cylindrical tubular internally screw threaded skirt portion 14, to engage over the screw threads 12, and a flat circular top 15, providing an inner annular shoulder 16 to engage upon the top of the container neck 11 to seal the same. The upper end of the inner cap 13 is externally screw threaded, as at 17, and these screw threads 17 extend downwardly for a short distance only, such as two full threads, and terminate a substantial distance from the bottom of

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the cap. The external screw threads 17 are adjacent to the top 15. The outside diameter of the skirt portion 14 is equal to or less than the minor diameter of the screw threads 17.

The numeral 18 designates an external safety or signal cap for the poison container. This external cap 17 includes a cylindrical tubular skirt portion 19, internally screw threaded at its lower end for a short distance upward, such as two full threads. These internal screw threads terminate a substantial distance from the top of the external cap, and they are designated by the numeral 20. The internal cylindrical surface 21 of the skirt portion 19, above the screw threads 20 is preferably slightly undercut so that its diameter is greater than the outside diameter of the external screw threads 17. The internal cylindrical surface 21 extends upwardly axially above the internal screw threads 20 for a distance slightly greater than the axial dimension of the external screw threads 17 on the cap 13. The external cap 18 further includes a flat circular top 22, providing a flat internal circular surface or shoulder 23 to engage upon the top 15, when the caps 13 and 18 are both applied to the container, see Figure 2.

In use, the inner cap 13 is applied to the screw threaded neck 11 of the container in the usual manner, and tightened to seal in the contents of the container. The external safety cap 18 is then applied upon the inner cap 13, see Figure 3, and the screw threads 17 and 20 enter into engagement. The external cap 18 is screwed downwardly upon the cap 13, until the screw threads 20 disengage or overrun the screw threads 17. When this occurs the external cap 18 is loosely connected with the inner cap 13, and will not become disengaged therefrom. The loose connection exists because the diameter of the internal surface 21 is greater than the outside diameter of the screw threads 17, and the axial dimension of the surface 21 is greater than that of these threads. The screw threads 20 are now out of engagement with the screw threads 17, and disposed beneath the same, see Figure 2, and the cap 18 is free to turn in either direction upon the cap 13. There is also considerable axial clearance or end play between the caps 13 and 18, thus assembled, and the outer cap 18 will rattle upon the cap 13 when it is touched by the user. This rattling provides an audible signal to the potential user of the poison container as soon as the cap is touched.

In order to remove the caps from the container, it is first necessary to axially lift the outer

cap 18, and to simultaneously turn the same, until the screw threads 17 and 20 enter into engagement. When this has been done the outer cap 18 can be removed, but it is still necessary to remove the inner cap 13 to reach the poison contents. It is unlikely that a small child could understand the operations required to open the container. The caps provide a simple and safe closure means for poison containers, and are capable of wide application. It is desired to mold the caps 13 and 18 from suitable plastics material, but any other material desired may be employed. Obviously, the external design of the outer cap 18 may be varied as desired.

In Figure 5, I have shown a modification of the invention, wherein the numeral 24 designates a container, having a neck 25 externally screw threaded at its upper end for a short distance downwardly only, as shown at 26. The neck 25 is provided with an internal cork or stopper 27, having a top 28 which extends above the top of the neck 25, providing a flat seat or shoulder. The numeral 29 designates an external cap, similar to the cap 18, and provided with internal screw threads 30 at its lower end which extend upwardly for a short distance only. Cap 18 has an internal bore 31 of greater diameter than the outside diameter of the screw threads 26; and this bore is of such length that when the top 32 of the cap engages upon the top of the stopper 28, the screw threads 30 are disposed below the screw threads 26 and out of engagement therewith. When this condition exists the cap 29 is loose and freely rotatable in either direction.

The operation of the cap 29 is identical with the operation of the cap 18, and it is meant to serve the same purpose. The form of the invention shown in Figure 5 permits the use of the loose fitting and signaling upon a container provided with a stopper. The advantages and safety achieved are the same as with the first form of the invention.

It is to be understood that the forms of my invention herewith shown and described are to be taken as preferred examples of the same, and that various changes in the shape, size, and arrangement may be resorted to, without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, what I claim is:

1. A poison container including a member provided with external screw threads which terminate short of the inner end of the member, a cap having internal screw threads adjacent to its inner end and which terminate short of its outer end and provided between its internal screw threads and its outer end with a recess which has a diameter greater than the diameter of the external screw threads of the member and an axial dimension greater than the axial dimension of the internal screw threads, the cap having an internal axial dimension greater than the axial distance between the inner end of the external screw threads of the member and the exterior free end of the member, the arrangement being such that the cap may be screwed up so that its internal screw threads will move inwardly upon and inwardly beyond the external screw threads of the member, the external screw threads of the member being then rotatable within the recess.

2. A closure for a poison container, comprising an inner cap adapted to have screw threaded engagement with a container and provided with external screw threads which terminate short of the inner end of such cap, and an outer cap receiving the inner cap and having internal screw threads which terminate short of its outer end and a recess between the internal screw threads and its outer end, the outer cap having an internal axial dimension greater than the axial distance between the inner end of the external screw threads of the cap and the exterior free end of the inner cap and the recess having an axial dimension greater than the axial dimension of the exterior screw threads, the arrangement being such that the outer cap may be screwed up so that its internal screw threads will move inwardly upon and inwardly beyond the external screw threads of the inner cap, the external screw threads of the inner cap being then positioned within the recess of the outer cap so that the outer cap may rotate while the internal and external screw threads are out of mesh.

3. A poison container including a neck provided with external screw threads which terminate short of the inner end of the neck, a cap having internal screw threads adjacent to its inner end which terminate short of its outer end and provided between its internal screw threads and its outer end with a recess which has a greater diameter than the external screw threads of the neck and an axial dimension greater than the axial dimension of such external screw threads, the cap having an internal axial dimension greater than the axial distance between the inner end of the external screw threads of the neck and the outer end of the neck, the arrangement being such that the cap may be screwed up so that its internal screw threads will move inwardly upon and inwardly beyond the external screw threads of the neck, the external screw threads of the neck being then rotatable within the recess, and a stopper for insertion within the neck.

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