

[54] SAFETY BOTTLE CAP

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[51] Int. Cl. B65d 55/02

[58] Field of Search 215/9, 43 A

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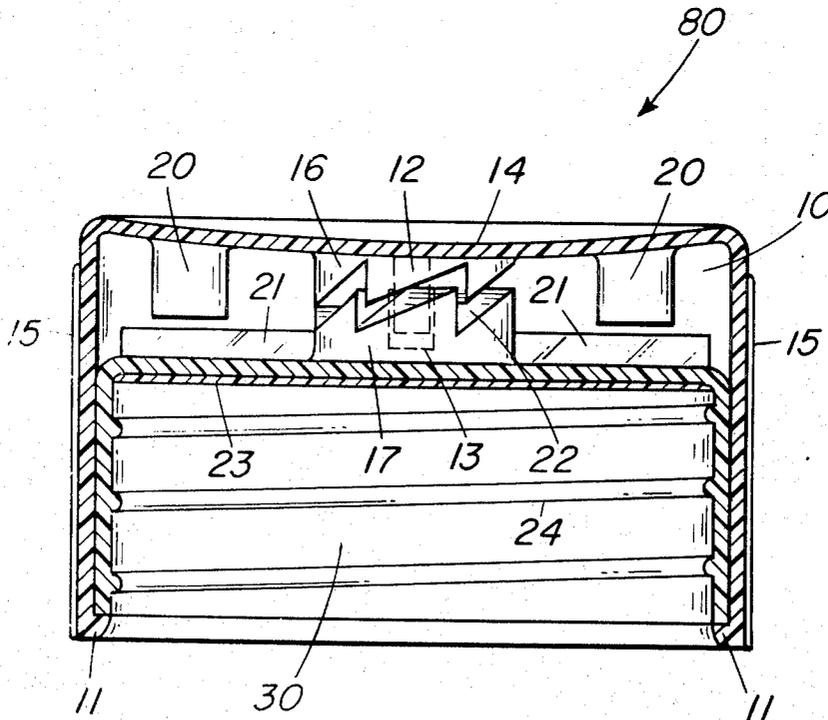
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[57] ABSTRACT

A safety cap for use on bottles, consisting of a cap within a cap arrangement, is provided. The inner cap is designed for being threaded onto the neck of a bottle for closing the opening. Over this inner cap, there is mounted an outer cap which, by means of a ratchet arrangement, interlocks with the inner cap when it is turned in a clockwise direction to apply the inner cap to the bottle.

When the outer cap is turned in a counter-clockwise direction in an attempt to remove the inner cap from the bottle, the ratchet arrangement does not interlock, but turns freely about the inner cap without turning the same. However, it may be made to interlock with the inner cap when it is desired to remove the same from the bottle, by pressing down on the concave top of the outer cap thereby engaging certain stops.

5 Claims, 6 Drawing Figures



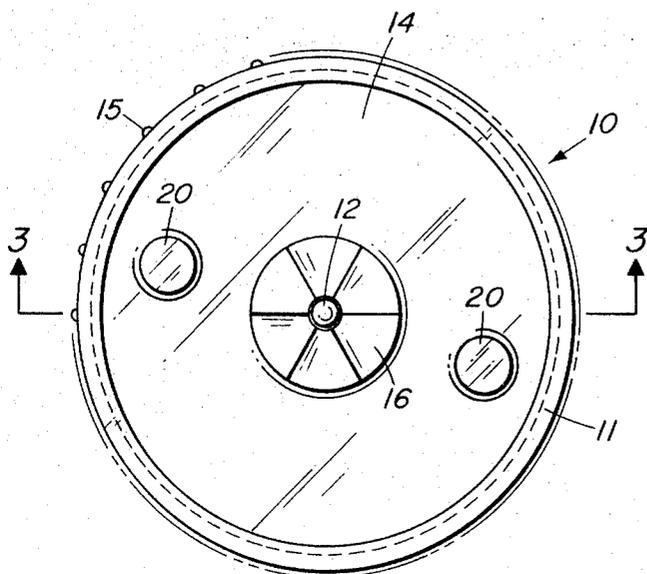


FIG. 1

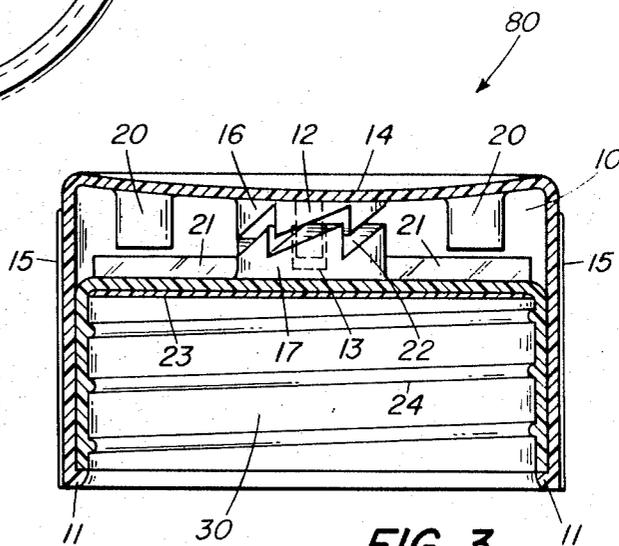


FIG. 3

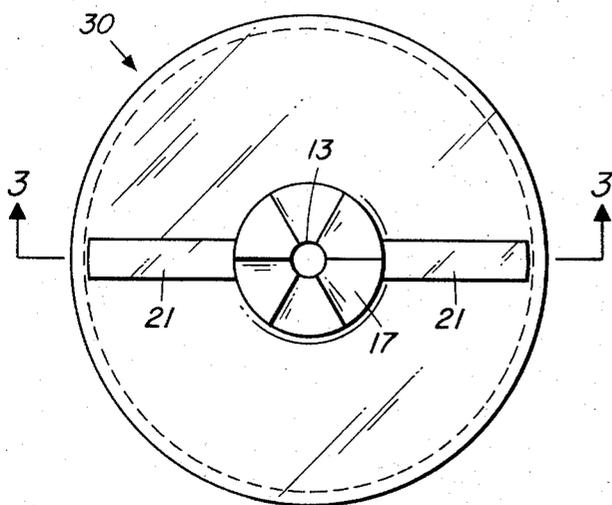


FIG. 2

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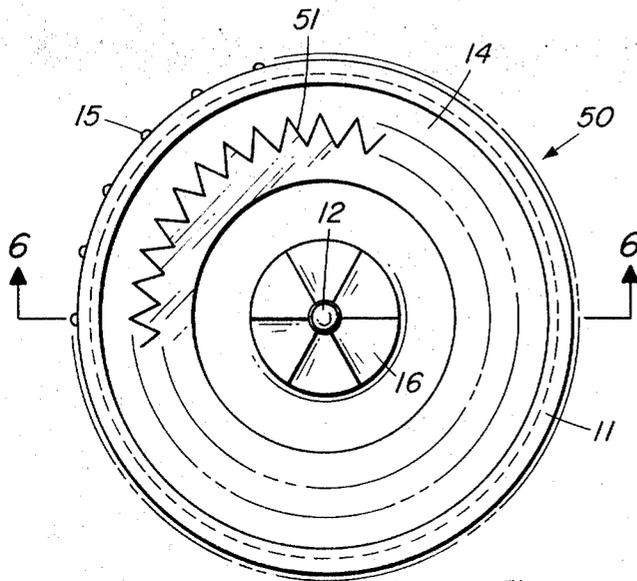


FIG. 4

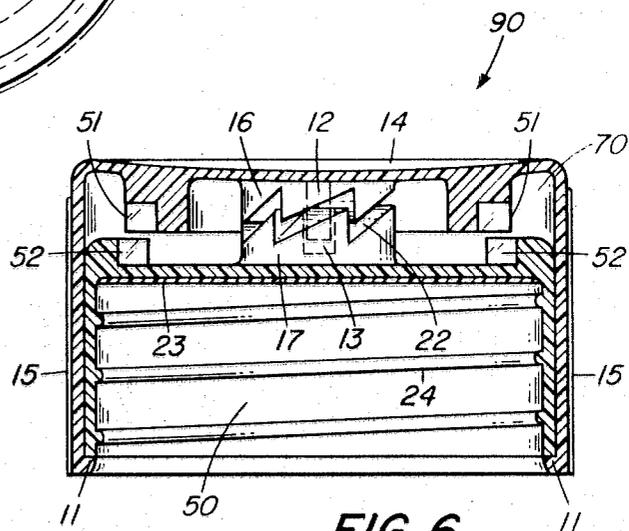


FIG. 6

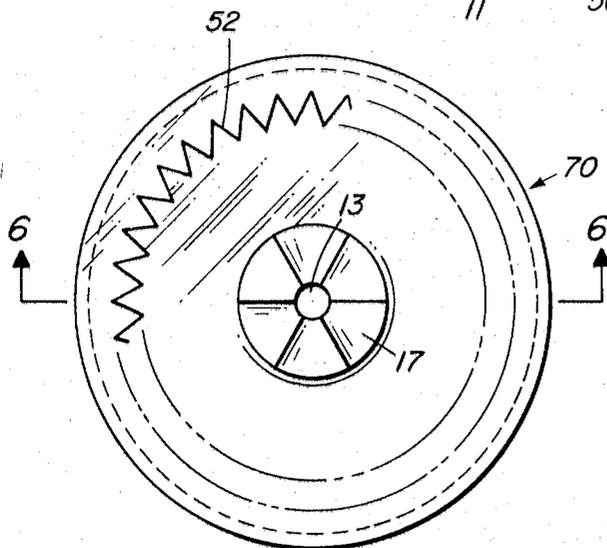


FIG. 5

SAFETY BOTTLE CAP

This invention relates to closures for containers, and more particularly to a safety device for closing the opening in the externally threaded neck of a container. There are many containers in the average home which contain contents varying from mildly harmful to lethal, if accidentally consumed by children. It is with this in mind that a foolproof safety bottle cap is deemed a necessity.

There has been some attempts in the past to provide such a cap, but they have not proven to be entirely satisfactory.

It is the object of this invention, therefore, to provide a reliable safety bottle cap comprising of a cap within a cap arrangement wherein when the outer cap is turned in a clockwise direction, the inner cap is always interlocked and turns also.

But when the outer cap is turned in a counterclockwise direction, the inner cap is not interlocked and will not turn. The concave top of the outer cap must be pressed down to interlock the outer cap with the inner cap to be able to rotate both of the caps in a counterclockwise direction.

Another object of this invention is to provide a reliable safety bottle cap to protect children from removing the tops of containers and possibly consuming something of a harmful nature.

When a child attempts to remove the safety bottle cap from a bottle, he will simply attempt to pull or turn it off. Pulling will be ineffective because of the threaded connection. Turning will be also ineffective because the outer cap will turn freely without turning the inner cap.

The child is not likely to realize that he must not only turn the outer cap in a counter-clockwise direction but also simultaneously press down on its concave top. While the safety bottle top is simple in its mode of operation, if the mode of operation is known, it nevertheless requires manual dexterity and strength which young children are not likely to have.

Other objects and attendant advantages of this invention will become more readily apparent and understood from the following detailed specification and accompanying drawings in which:

FIG. 1 is a bottom view of an outer cap only, of a safety bottle cap, depicting one embodiment of this invention;

FIG. 2 is a top view of the inner cap only, of the same embodiment of the invention as depicted in FIG. 1;

FIG. 3 is a cross section taken along line 3—3 of FIG. 1 of both the inner cap and the outer cap assembled together, depicting the same embodiment of the invention as shown in FIGS. 1 and 2;

FIG. 4 is a bottom view of the outer cap only, of a safety bottle cap, depicting a second embodiment thereof;

FIG. 5 is a top view of the inner cap only, of the same embodiment as depicted in FIG. 4; and

FIG. 6 is a cross section view taken along line 6—6 of FIG. 5 of both the inner cap and the outer cap assembled together, depicting the same embodiment of the invention as in FIGS. 4 and 5.

Referring in detail to the drawings in which like reference numbers refer to like parts in all figures, FIGS. 1, 2 and 3 illustrate one embodiment of this present invention of a safety bottle cap 80, consisting of a cap within a cap arrangement. An inner cap 30 is sur-

rounded by an outer cap 10. These two caps 10 and 30 form the assembly for the safety bottle cap 80 which is held together, and kept in a concentric relation, by a beaded thickness 11 on the bottom end of the outer cap 10, and also by a stabilizing pin 12 located in the top of the outer cap 10. This pin 12 is secured in a hole 13 in the top of the inner cap 30. These two caps 10 and 30 may be made of a suitable plastic type material. The inner cap 30 is preferably hard and unyielding while the outer cap 10 is of a somewhat yielding, flexible type.

The inner cap 30 is cylindrical, open at the bottom end and closed at the top end. Its sidewall is smooth on the outside and has threads 24 on the inside for applying the cap assembly 80 to the neck of a bottle.

An airtight seal 23 is applied to the inside of the top of the inner cap 30 to protect the contents of the bottle. On the top of, and as part of the entire inner cap 30, there is moulded stop bars 21, and one section of a tightening ratchet 17 for the top 80.

The outer cap 10 is cylindrical, open at the bottom end and closed at the top end. Its sidewall is smooth on the inside and ribs 15 are provided on the outside thereof for gripping. The top end surface of the cap 10 is concave 14 in shape and on the inside of the top, as part of the entire outer cap 10, there is moulded removing stops 20 for the cap assembly 80, and also the mating section of the cap tightening ratchet 16 for the tightening ratchet 17.

FIGS. 4, 5, and 6 illustrate a second embodiment of this present invention of a safety bottle cap 90. The two embodiments of the invention, namely cap assemblies 80 and 90, are similar and it need not to be explained again in detail except to note the differences. The removing stops 20 for the cap assembly 80 together with the stop bars 21 shown in FIGS. 1, 2, and 3, are replaced by two mating 360° toothed, cap removing stop sections 51 and 52, with section 52 being outside of the top and as part of the entire inner cap 70. The other section 51 is on the inside of the top and as part of the entire outer cap 50.

The safety bottle assembly 80 may be applied to the threaded neck of a bottle, for sealing its contents, by turning the outer cap 10 in a clockwise direction. This is achieved by the teeth on the ratchet section 16 in the outer cap 10 being applied against the teeth on the ratchet section 17 in the inner cap 30, thus revolving both the outer cap 10 and the inner cap 30 together.

After the safety bottle cap assembly 80 has been applied to the threaded neck of a bottle, the outer cap 10 may be turned freely in a counter-clockwise direction without turning the inner cap 30. The ratchet section 16 in the outer cap 10 is revolved in a direction opposite its teeth to allow it to slip over the ratchet section 17 in the inner cap 30 without meshing. Thus, the safety bottle cap can not be removed from the bottle.

However, the safety bottle cap assembly 80 may be removed from the threaded neck of the bottle by turning the outer cap 10 in a counter-clockwise direction and simultaneously pressing downwardly on the concave top surface 14 of the outer cap 10. The stops 20 on the outer cap 10 when pressed down engage against the stop bars 21 on the inner cap 30, thus interlocking and revolving both the outer cap 10 and the inner cap 30 together. Enough slack space 22, located between the ratchet section 16 on the outer cap 10 and the ratchet section 17 on the inner cap 30, is provided for the

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downward motion when the concave top surface 14 of the outer cap 10 is pressed down.

Obviously many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

We claim:

1. A safety cap assembly for closing the neck of a threaded container, comprising, a cylindrical inner cap formed of hard unyielding material, a cylindrical outer cap for said inner cap formed of a yielding flexible material, said inner cap being open at the bottom and closed at the top, said inner cap having a smooth outer surface and threaded on the inside for attachment to the threaded neck of a container, said outer cap being open at the bottom end and closed at the top, said top of said outer cap being of concave shape, said outer cap having a smooth inner surface for engagement with the smooth outer surface of said inner cap, mating means formed on the inside of the top of said outer cap and the outside of said inner cap for assisting in the stabilization of a concentric relationship between said inner and outer assembled caps, and disengageable engaging

means positioned between the inner top surface of said outer cap and the outer top surface of said inner cap for positioning said cap assembly on the neck of a container.

2. A safety cap assembly as recited in claim 1, wherein said outer cap is provided with peripheral flange means at its lower end for holding said inner cap concentrically within said outer cap.

3. A safety cap assembly as recited in claim 1, and sealing means positioned on the inside of the top of said inner cap for protecting the contents of said container.

4. A safety bottle cap assembly as recited in claim 1, wherein said disengageable engaging means consists of ratchet type sections secured respectively to the inner top surface of said outer cap and the outer top surface of said inner cap for locking said inner and outer caps together when said outer cap is pressed downwardly to engage said ratchet sections positioned between said caps and said caps are turned clockwise to lock said inner cap on said threaded neck of said container.

5. A safety cap assembly as recited in claim 4, and additionally means for removing said outer and inner caps from said threaded neck of said container.

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