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Ryles

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[54] **SAFETY CLOSURE**

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[73] Assignee: **Medical Plastics Pty. Limited,** Edwardstown, Australia

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[52] **U.S. Cl.** **215/224**

[51] **Int. Cl.** **B65d 55/02,** B65d 85/56, A61j 1/00

[58] **Field of Search** ..... 215/9, 41, 46 R, 224, 225, 215/306

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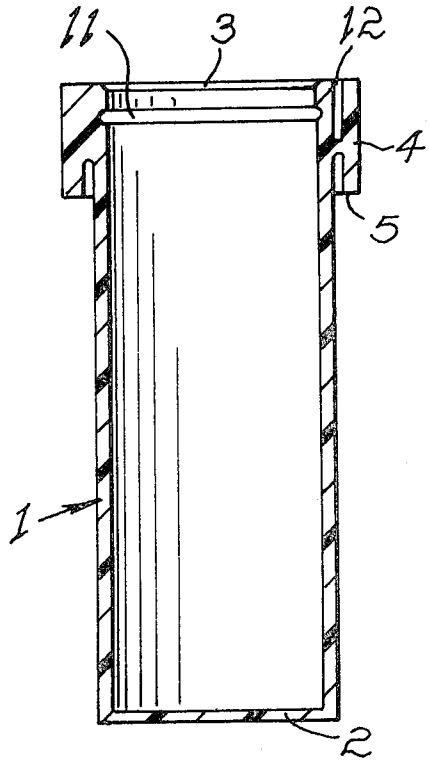
Primary Examiner—George T. Hall

Attorney, Agent, or Firm—Oldham & Oldham

[57] **ABSTRACT**

A child proof safety closure for a container, phial, bottle or the like having a portion on the cylindrical surface of the closure which is depressable to allow opening of the closure and yet which is not readily distinguishable from the remainder of the cylindrical surface of the closure member.

14 Claims, 12 Drawing Figures



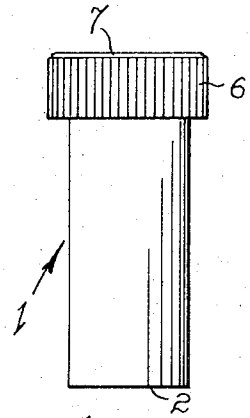


FIG 1

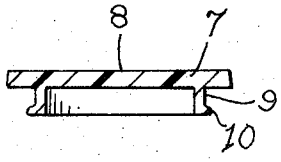


FIG 2

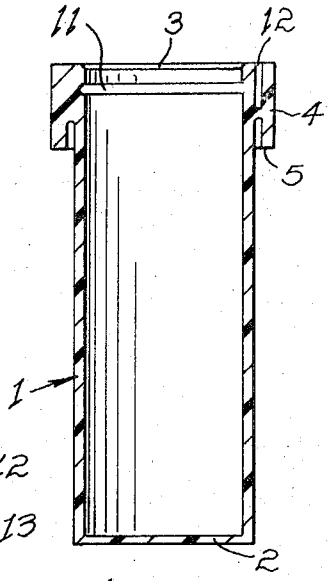


FIG 3

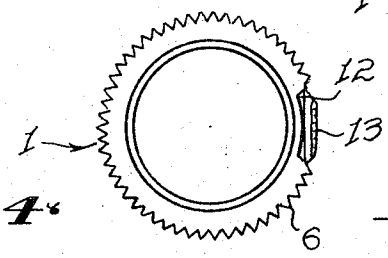


FIG 4

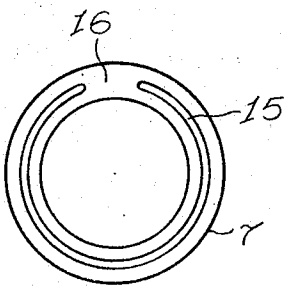


FIG 5

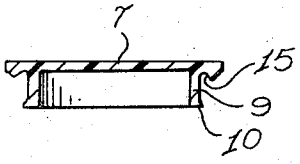


FIG 6

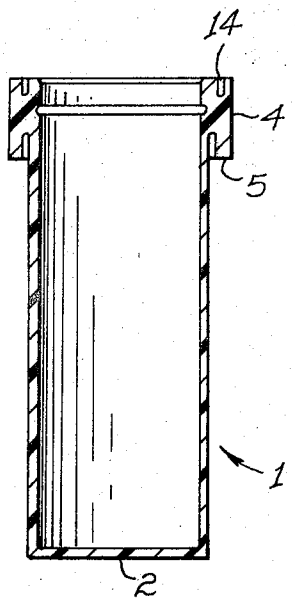


FIG 7

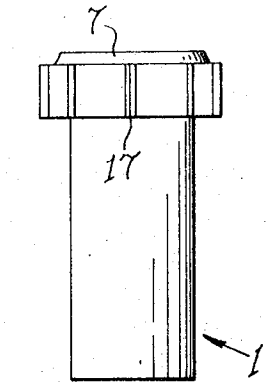


FIG 8

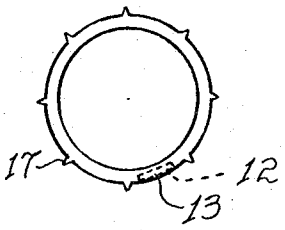


FIG 9

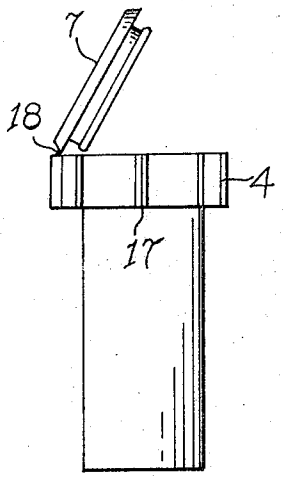


FIG 10

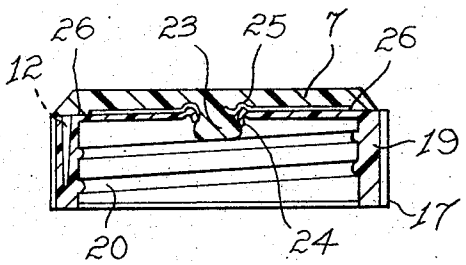


FIG 11

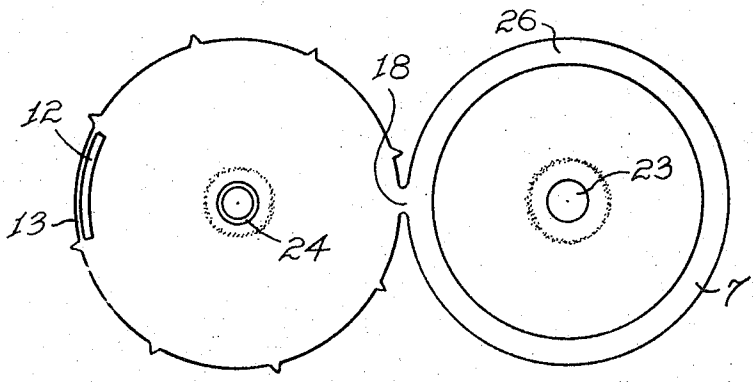


FIG 12

SAFETY CLOSURE

BACKGROUND OF INVENTION

This invention relates to a container or phial to contain pills, tablets and the like, and more particularly to such a container which is very difficult or virtually impossible for a child to open but is also easily opened by an adult.

Known types of such containers or phials are of the press and turn type, either having a cap which is pressed to disengage and release, or a top which is freely rotatable and is pressed to engage means which are then turned to release and remove the top.

However these have the disadvantage in that they are relatively easy for a child to open, and also after a number of operations the elasticity of the material lessens due to the inherent memory characteristics of plastics material, so that they become progressively easy to open.

Hence it is an object of this invention to overcome the above disadvantages and to provide a medicine pill or tablet phial or container which is very difficult for a child to open and also which is relatively simple and easy for an adult to manipulate and open.

SUMMARY OF INVENTION

There is thus provided according to this invention a closure member for a container, the closure member having an outer surface, an opening in the top of the member, a snap-on lid adapted to open and close the opening and be retained in its closed position to give the appearance of the top of the closure member, the closure member having a portion on its outer surface which is displaceable to allow a finger of the user to remove the snap-on lid, the displaceable portion being a portion that is not readily distinguishable from the remainder of the closure member.

In another aspect the invention includes an open ended body, the body adjacent the open end being shaped to provide a facsimile of a screw on type cap, a lid adapted to close the open end of the body, and means providing that a portion of the facsimile is depressable to allow the lid to be removed.

BRIEF DESCRIPTION OF DRAWINGS

In order to more fully understand the invention, various embodiments thereof will now be described but it is to be realised that these are given as preferred forms only and that the invention is not to be limited to the precise details thereof.

In the drawings FIG. **1** is a view of one form of the closure fitted to a phial type of container,

FIG. **2** is a sectional view of the lid,

FIG. **3** is a section view of the container,

FIG. **4** is a plan view of the container top,

FIG. **5** is an underneath view of the lid of a second embodiment,

FIG. **6** is a sectional view of the lid of FIG. **5**,

FIG. **7** is a sectional view of the container of the second embodiment,

FIG. **8** is a view of a container and cap of the third embodiment,

FIG. **9** is a plan view of the container of FIG. **8**,

FIG. **10** is a view of the container with the cap in the open position of the embodiment of FIG. **8**,

FIG. **11** is a sectional view of a cap and container top of a fourth embodiment, and

FIG. **12** is a plan view of embodiment of FIG. **11** with the lid in the open position.

DESCRIPTION OF PREFERRED EMBODIMENT

The phial or container **1** is preferably cylindrical in shape with a closed bottom **2** and an open top **3.** From the top **3** of the container and extending part way downwardly is a thickened portion **4** ending in a depending flange **5,** the thickened portion being serrated **8** or grooved **6** to give the appearance of the conventional screw type cap fitted to the container.

A snap-on lid **7** is provided to close the open end of the container, the lid having a planar top portion **8,** a depending circular flange **9** depending circumferentially from the lower face thereof, the outside edge of the flange at the lower portion thereof having a circumferential bead **10.** The inside wall of the container **1** adjacent its open end has a circumferential groove **11** into which the bead **10** is adapted to be a snap fit.

The diameter of the lid **7** is preferably slightly less than the outside diameter of the facsimile cap or thickened portion **4** so that when the lid **7** is snapped into position, the lid **7** and facsimile give the appearance of a conventional screw on type cap.

In order to enable the lid **7** to be easily removed, a portion of the thickened portion **4** is provided with a slot **12,** the slot opening upwards so that the lid **7** covers the slot when the end is in position, and the slot **12** being arcuate and only extending a small portion of the distance around the container. The slot thus provides a flexible portion **13** of the thickened portion **4** which can be easily depressed, the portion **13** when depressed allowing a finger of the user to engage under the portion of the lid **7** overlying the slot **12** so that the snap on lid **7** can easily be flipped off.

When the lid **7** is applied, the container has the appearance of a conventional screw on cap, and can only be opened by depressing the portion of the facsimile overlying the slot **12** so that portion is depressed and the finger of the user can engage the edge of the lid **7.**

In order to facilitate opening and ensuring that the portion to be depressed is easily located, certain identification means or devices may be provided around the facsimile, so that the user can depress in the area of the slot. These could be letters, numerals or the like and the user in one embodiment may only know the correct point to press to open.

However as the greatest danger in the misuse of these tablets lies in the pre-school child who cannot read, specific instructions could be incorporated on the container or lid as to where to press and hence the pre-school child can be deterred from opening the container.

The container and lid can be easily moulded from conventional mouldable plastic type material, the depressable portion thus being flexible and returning to its original position after each depression.

In an alternative embodiment shown in FIGS. **5–7** the upper end of the container **1** can be provided with a fully circumferential slot **14** instead of the above described slot **12.** The under surface of the lid **7** is in this instance provided with a depending rib **15** situated between the flange **9** and the edge of the lid. This rib **15** is adapted to fit into the above circumferential slot **14,**

but the rib **15** is not truly circumferential in that it extends around the lid except for a small gap **16** in the rib, this gap **16** in the rib **15** allowing the facsimile portion adjacent the gap **16** to be depressed in the above described manner.

In this case the pressure is applied at a point in relation to the lid **7** and to this end the identification means or indicators can be provided on the lid **7** itself.

In both the above embodiments the lid **7** may be loose, that is not permanently attached to the container, but in either alternative above the lid could be hinged by a hinge portion so that on removal the lid does not flip off and be lost or fall onto the floor or into inaccessible places.

In a further alternative not shown in order to cause further confusion to the child, the facsimile portion and the lid fitted thereto could be freely rotatable on the body proper, the body being provided with a flange or groove and the facsimile portion similarly provided with grooves and flanges and is permanently fitted thereto in a freely rotatable manner.

This would result in the child or other unauthorised person being further confused who would continue to attempt to open the container by turning and screwing the facsimile portion.

In the above embodiments the container had an open upper end and adjacent this open end the container had a thickened portion with a depending flange, the portion being serrated or grooved to give the appearance of a conventional screw type cap. These serrations extend longitudinally of the container and were closely spaced as in a conventional type cap.

However in accordance with a further embodiment shown in FIGS. **8, 9** and **10,** the serrations are much more widely spaced and are spaced to be approximately equal to the length of the slot **12,** although this spacing and the length of the flexible portion **13** may be varied with respect to each other as desired. In this way the serrations become more like spaced longitudinal ribs a ridge **17** on the thickened upper portion **4** of the container. The length of the flexible depressable portion **13** and the spacing of the ribs **17** are such that a finger of the user can be inserted between the ribs to depress the flexible portion **13.**

This makes the flexible portion easier to depress due to the absence of the serrations overlying this portion and more importantly prevents a child biting the flexible portion upon insertion into his mouth due to the spacing of the ribs and also their height to prevent the child's teeth engaging the flexible portion.

The snap on lid is bevelled or angled back at a sharp angle from its lower surface to the upper surface, so that the upper surface has a lesser diameter than the lower surface and is attached by a small hinge **18** to the container top.

In this way the angled edge prevents the child's teeth attaining a grip in the lid for the teeth would slip off this angled edge.

The above embodiments are primarily directed to open ended cylindrical containers to contain loose tablets, pills, capsules and the like. However many poisonous and potentially dangerous substances other than tablets, pills, capsules and the like are kept in the home, such as liquids, powders, pastes, granules and the like and it is an object of this invention to provide a means whereby not only small medical containers, but also liquid containers, bottles, flasks, and liquid containers of smaller size, tins of powder or granules, packets of tablets which are wrapped in a paper strip or foil folded in concertina fashion in a packet or package and also tubes of paste can be rendered child proof and tamper proof to prevent the opening of the container of package by a child.

In one form of this embodiment a cap **19** can be internally threaded at **20** to match the threads of the container, bottle, flask or the like and by the use of an adhesive, catch, lock or the like can be rigidly and permanently secured thereto after screwing on the cap. The cap includes a lid **7,** serrations, ridges, ribs or the like and a flexible portion as previously described, and the lid may be pivoted or hinged thereto.

At the top end of the cap **19** there is provided a top portion **21** having an aperture **22** therein. On the inside of the lid **7** there is provided a cooperating sealing stud **23** adapted when the cap is snapped or fitted into place to seal the aperture **22.**

Preferably the aperture **22** is provided with a spout like member **24** which could have sharp upper and lower ends, and the sealing stud **23** has an enlarged end so that the sealing stud is snapped through the spout and the lower or inside end of the spout is in sealing engagement against the enlarged end of the sealing stud. The cap **7** adjacent the stud **23** may be recessed as at **25** to allow the upper or outer end of the spout **24** to protrude thereinto. This end of the spout is preferably sharp so that pouring of the liquid in the container is facilitated.

The aperture **22** and its spout **24** and the cooperating stud **23** may be centrally located on the cap, but alternatively it may be off-set to one side of the cap and an air bleed or breathing hole (not shown) provided in the cap top on the opposite side so that pouring is facilitated, the air bleed or breathing hole allowing the air to enter the container or the like as pouring proceeds. Also the aperture and the sealing stud may be non circular, arcuate, elongated or the like as is desired for the particular requirements.

The cap may be moulded of any suitable plastic materials, such as polyethylene, polypropylene or other plastics as desired, and this lid is formed with an annular sealing flange **26** to seal on the upper edge of the cap **19.**

It is to be realised that the liquid seal provided by the aperture and stud may be varied in shape and function as desired.

The invention can also be applied to powder containers in which case instead of a pouring aperture or spout, the top of the cap is provided with the normal array of holes, the lid being adapted on its lower face to close the holes to prevent the powder issuing therefrom when the lid is in place, and if necessary saling by the annular flange **26** on the top of the container or cap.

Additionally also the cap instead of being formed separately from the bottle, container or the like, may be formed integrally with such a bottle or container by a combined injection moulding and blow moulding technique as in the previous embodiments. For example a tube could be injection moulded with the cap on one end and then the tube sealed and blow moulded to form the bottle, flask or container of the desired shape.

It is to be realised also that the invention is not only applicable to rigid bottles or containers but also to

squeeze type containers and also collapsible tubes of metal or plastic to dispense creams, pastes and the like.

Within the scope of the invention the cap need not be round, but may also be square, rectangular or the like with a correspondingly shaped lid in which case it can be fitted to or incorporated on a package or packet type container, such as those types of packets whose tablets etc., are packed in foil or paper and packages concertina wise in the packet.

In this case also the cap top can be attached to the packet or be integral therewith as above described.

Thus it will be realised that the invention has wide application not only in circular pill or capsule containers or phials but also to all types of containers, packages and the like to dispense liquids, powders, foil or paper packaged pills or tablets, pastes, granules and the like.

What is claimed is:

1. A rigid closure member for a container, the closure member being shaped to give the appearance of a conventional screw cap with longitudinal flutes, serrations, ribs or ridges on its outer surface, an opening in the top of the closure member, a snap on lid adapted to open and close the opening and be retained in its closed position to give the appearance of the top of the closure member, the closure member having a portion of its outer surface which is displaceable inwardly to allow a finger of the user to engage under the snap on lid to overcome the snap action of the lid, the displaceable portion being a portion that is not readily distinguishable from the remainder of the closure member.

2. A closure member as defined in claim **1** wherein the closure member has a slot in its top edge, the outer wall of the slot forming the displaceable portion.

3. A closure member as defined in claim **1** wherein serrations are formed on the outer surface of the closure member, a number of serrations covering the area of the displaceable portion.

4. A closure member as defined in claim **1** wherein longitudinally spaced ribs, ridges or flutes are provided on the outer surface, the displaceable portion extending between a pair of ribs, ridges or flutes the slot extending between the same pair of ribs, ridges or flutes and which are spaced to allow a finger of the user to engage the displaceable portion between the pairs of ribs, ridges or flutes.

5. A closure member as defined in claim **1** wherein the lid has a depending flange with a circumferential bead adapted to engage a circumferential groove in the top of the closure member, the lid being hinged by a hinge integral with the closure member and lid.

6. A closure member as defined in claim **1** wherein the closure member, lid and container are integrally moulded from a plastics material.

7. A closure member as defined in claim **1** wherein the closure member is rotatably mounted in a non-removable manner on the container.

8. A closure member as defined in claim **1** wherein the lid has a stud protruding from its wall face to engage and seal in an aperture in a top wall of the closure member.

9. A closure member as defined in claim **1** wherein the closure member has internal threads adapted to engage the complementary threads on a container, bottle, collapsible tube or the like, the closure member on engaging the complementary threads being locked, sealed, or adhesively secured thereto to prevent removal.

10. A closure member as defined in claim **1** wherein the lid overlies the slot and the edge of the lid is sloped towards its upper surface.

11. A combination of a cylindrical container and a rigid closure member for the cylindrical container, the container having at its open end a closure member including an enlarged annular portion on the outer surface thereof, the annular portion having a depending annular flange and simulating a conventional screw cap, a snap on lid adapted to close the opening of the container and shaped to form the top of the simulated cap, the annular portion having an arcuate slot in its top surface providing a resilient portion on the outer wall of the annular portion, the snap on lid covering the slot, whereby a finger of the user can displace the resilient portion inwardly to allow the finger to engage under the snap on lid to remove same.

12. A combination as in claim **11** where said snap on lid has a depending circular flange operatively engaging the wall of the opening and a radially outwardly extending top flange protruding beyond said circular flange but being shorter than the outer diameter of said annular portion, a portion of the lower surface of said top flange being exposed by pressing said resilient portion inwardly.

13. A combination as in claim **12** where said snap on lid engages said container to position the lower surface of said top flange immediately adjacent and overlying the end of said annular portion, and said circular flange has a rib thereon releasably engaging a recess in the wall of said opening.

14. A combination as in claim **12** where said slot extends only part of the length of said closure member and said resilient portion is at the top of the outer periphery of said annular portion.

* * * * *