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Mills

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[54] **SAFETY CONTAINER**

[76] Inventor: **Richard L. Mills,** 2961 Westgate Ave., San Jose, Calif., 95125

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[52] **U.S. Cl.** **215/201,** 215/41, 215/81, 206/42

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

[58] **Field of Search** ..... 215/9, 81, 41, 37 R; 206/42

[56] **References Cited**

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Primary Examiner—George T. Hall

Attorney, Agent, or Firm—Paul B. Fihe

[57] **ABSTRACT**

A safety container including an open top receptacle with a downturned flange on its perimeter and a resilient cap having an upturned flange on its perimeter adapted for engagement with the receptacle flange, the two flanges being held in interlocking engagement by a spring member preferably taking the form of a compressible member secured to the cap and projecting into the receptacle to maintain resilient engagement with its contents.

3 Claims, 6 Drawing Figures

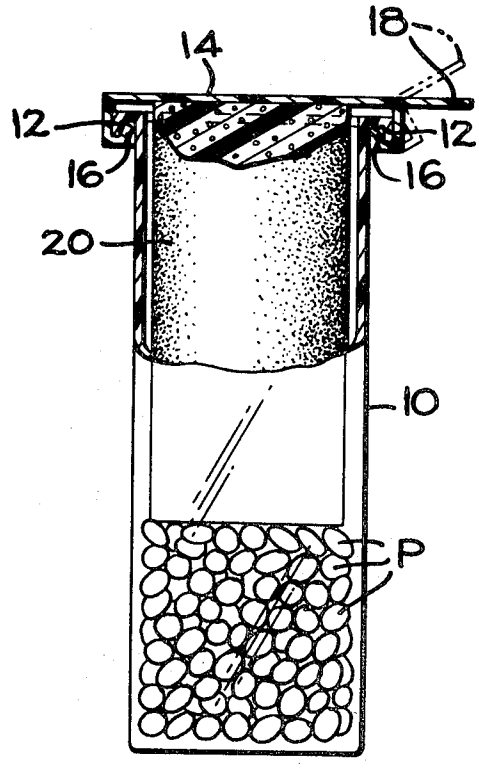
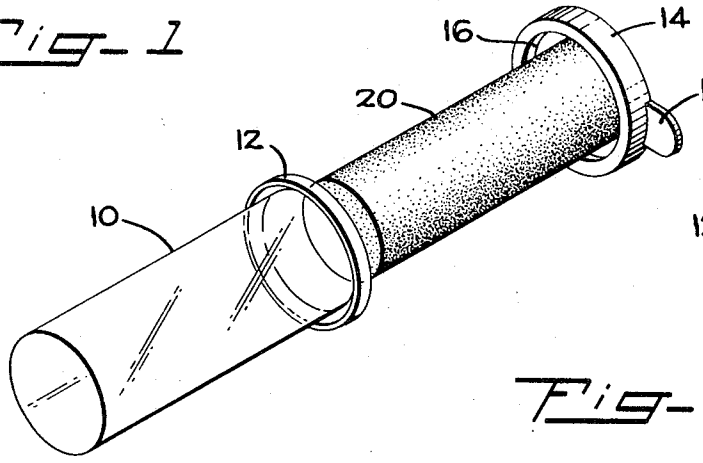


Fig-1



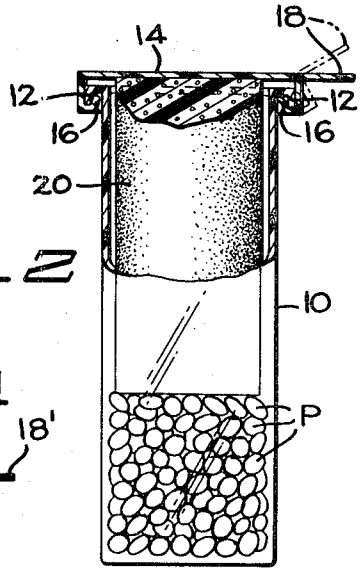
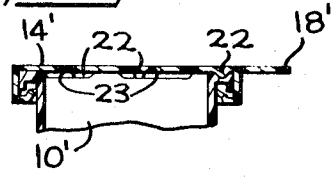


Fig-2

Fig-3A



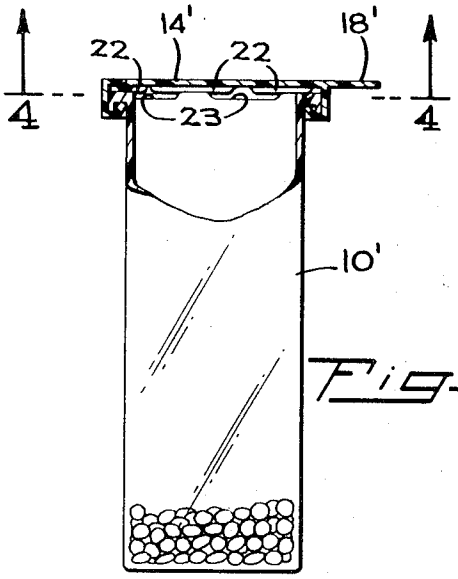


Fig-3

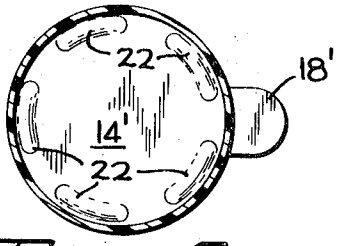


Fig-4

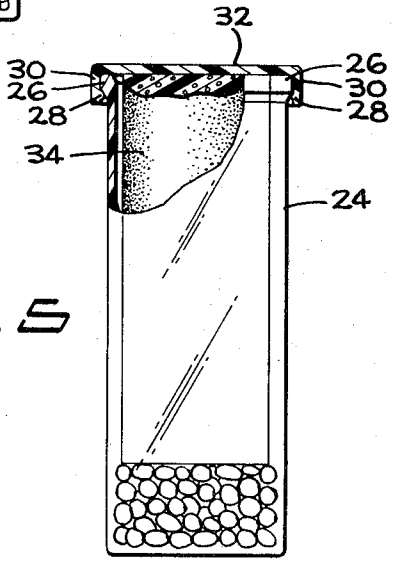


Fig-5

SAFETY CONTAINER

FIELD OF THE INVENTION

The present invention relates generally to containers and more particularly, to a safety container for pills or the like.

BACKGROUND OF THE INVENTION

Conventionally, containers for pills take the form of small glass bottles or plastic vials having an open top to which a screw cap or resilient snap-on cap can be easily applied or removed. The ease of access to such containers has presented a serious problem in that more than half a million Americans were accidentially poisoned in their homes in **1969** and the greatest percentage of these involved childeren under the age of five. The problem has become so serious that certain States have introduced legislation providing for mandatory "child-resistant" packaging. Prior attempts to solve the problem have resulted in rather complex and expensive containers which provide not only an economic limitation on their practical adoption but also in most cases has resulted in a container which was difficult and inconvenient for adults to open.

Additionally, a small wad of cotton is normally placed in conventional pill containers to maintain the contents immobile and preclude fracture or rattling thereof particularly during transport. Although such cotton functions effectively when the bottle is filled, when it becomes partially emptied, the cotton wad is insufficient in dimensions to maintain its intended function. Furthermore, the cotton has been found to interfere with access to the pills by the user and is frequently removed immediately after purchase to overcome this practical difficulty.

SUMMARY OF THE INVENTION

Accordingly, it is a general objective of the present invention to provide a safety container for pills or the like which is simple and inexpensive to fabricate yet is arranged to enable ease of access in a fashion which is, however, unobvious to a child. As a secondary objective, the safety container also incorporates means for maintaining the contents of the container immobile yet readily facilitating discharge of one or more pills when required. In general terms, these objectives are achieved by providing a receptacle having an open top to which a cap is applied readily but in a fashion so that removal of the cap can only be achieved through the initial step of pushing the cap towards the receptacle which is in direct contradiction to the normal removal step of pulling the cap away from the receptacle. Thus a child, who has removed caps from containers by pulling the cap or unscrewing the same, will, if he functions on the basis of his limited experience, be unable to remove the cap from the safety container of the present invention. By way of example, this functional cooperation between the cap and receptacle for the pills or other items is achieved by providing an upturned flange on the cap which is arranged to interlock with a downturned flanged on the top of the receptacle, such interlocking connection precluding direct pulling of the cap from the receptacle. Spring means are interposed in some fashion between the cap and receptacle to maintain the interlocking relationship of the flanges but such spring means can be overcome by pushing the cap

towards the receptacle whereupon a pulling force at one position on the perimeter of the cap which is formed of resilient material and has its flange reduced in dimensions at such position enable such flange then to cam over the exterior of the flange on the receptacle to provide separation of cap and receptacle.

The mentioned spring means can take the form of periodically depressed segments which are arranged to resiliently engage the lip of the receptacle adjacent its open top or, as an alternative can take the form of a compressible member of expanded resilient polyethylene material which is secured to the central portion of the cap and projects downwardly into the receptacle, the compressive force against the bottom of the receptacle or any contents thereof reacting against the top to resiliently urge the cap and receptacle towards separation so as to maintain the previously described interlocking flanges in such interlocking engagement. Such compressible member thus has a dual function of resiliently maintaining the cap and receptacle in their assembled relationship and at the same time exerting a compressive holding force against the contents of the receptacle to preclude rattling or fracture thereof. However, when the cap is removed, the compressible member is removed therewith thus providing full access to the contents of the receptacle.

BRIEF DESCRIPTION OF THE DRAWING

The state objectives of the invention and the manner in which they are achieved, as summarized hereinabove, will be more readily understood by reference to the following detailed description of the exemplary structures shown in the accompanying drawings wherein:

FIG. **1** is an exploded view of a safety container embodying the present invention, the receptacle and cap elements being separated,

FIG. **2** is an enlarged cross-sectional view through the container with the cap applied to the receptacle portion,

FIG. **3** is a cross-sectional view similar to FIG. **2** illustrating a modified embodiment of the invention,

FIG. **3A** is a cross-sectional view similar to FIG. **3** showing the cap in a different circumferential disposition on the receptacle,

FIG. **4** is a sectional view taken along line **4—4** of FIG. **3** illustrating the interior surface of the cap constituting one element of the container of FIG. **3**, and

FIG. **5** is a cross-sectional view similar to FIGS. **2** and **3** illustrating yet a third embodiment of the invention.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS OF THE INVENTION

With initial reference to FIGS. **1** and **2**, the first illustrated embodiment of the invention includes but two elements which are shown separated and disassembled in FIG. **1** and are shown in their assembled relationship to form the safety container in FIG. **2** with a number of pills P therewithin.

One element of the container takes the form of a generally hollow cylindrical receptacle **10** which preferably is formed by rigid plastic material, the upper end of the receptacle being open and surrounded by a lip portion which projects outwardly and thence downwardly to form a downturned flange **12**.

The second element of the structure includes a generally circular cap **14** formed of resilient plastic material which is turned down at its perimeter, thence extends inwardly and finally is turned upwardly thus to provide an upturned flange **16** generally dimensioned so that it can interlock with the downturned flange **12** on the receptacle **10**,as clearly shown in FIG. **2.** More particularly, the interior surface of the upturned flange **16** of the cap **14** is tapered to facilitate ease of pressed application of the cap **14** over the flange **12** at the lip of the receptacle **10,** the resilient plastic material allowing the cap flange **16** to cam downwardly over the flange **12** of the receptacle **10** and thence snap inwardly into the interlocking position shown in FIG. **2.** At one position in its circumferential extent, the upturned flange **16** of the cap **14** is reduced in dimensions and preferably is severed at the center of such reduced portion in radial alignment with an outwardly projecting tab **18** on the cap.

Spring means, which in this first embodiment of the invention takes the form of a compressible member **20,** is attached to the central interior portion of the cap **14** and adapted to project into the receptacle **10** when the two elements are assembled and thus acts to urge the two elements away from one another, thus to resiliently hold the interlocking flanges **12, 16** in their interlocking engagement as shown in FIG. **2.** This compressible member **20** is sufficiently long so that when the receptacle **10** is completely emptied of its contents, compressing engagement with the bottom of the receptacle is obtained. On the other hand, if the receptacle **10** is partially or completely filled, the compressible member **20** is more extensively compressed but still exerts a force tending to maintain the interlocking engagement of the receptacle and cap flanges **12, 16.** Accordingly, if a direct pull is placed on the cap **14,** the interlocking flanges **12, 16** retain the elements in their assembled relationship and preclude such direct removal of the cap **14** from the receptacle **10.**

In order to enable removal of the cap **14,** it is initially pushed downwardly thus to bring the reduced portion of the cap flange **16** below the level of the receptacle flange **12** whereupon the tab **18** may be grasped with the other hand and pulled upwardly to effect a pivotal motion of the adjacent portion of the cap **14,** as shown in phantom lines in FIG. **2,** which brings a portion of the cap flange **16** to the exterior of the receptacle flange **12** whereupon continued pulling effects an outward camming of the entire cap flange around the exterior of the receptacle flange,thus ultimately enabling complete separation of the cap **14** from the receptacle **10.** It will be readily observed that the initial pressing of the cap **14** towards the receptacle **10** is in direct contradiction to normal techniques for removal of a cap from any form of receptacle and, as a consequence, young children are effectively restrained from opening the described safety container.

As will be obvious from the foregoing discussion, the compressible member **20** which maintains the interlocking engagement of the flanges **12, 16** also maintains engagement with the pills P or other contents of the receptacle as shown in FIG. **2** regardless of the quantity of the contents remaining in the receptacle and thus at all times precludes rattling and fracture of the pills. However, since the compressible member **20** is attached to the cap **14,** removal of the cap in the manner described hereinabove will, at the same time, remove the compressible member from its position of insertion within the receptacle **10** so that complete access to the receptacle contents is provided.

As has been intimated by the foregoing description, other spring means than the compressible member **20** shown in FIGS. **1** and **2** can be utilized to hold the flanges in interlocking position and one modified arrangement is illustrated in FIGS. **3** and **4** wherein the receptacle **10'** is of similar configuration to that shown in FIGS. **1** and **2** and corresponding parts are accordingly denominated by like reference numerals with an added prime notation. In turn, the cap **14'** has a very similar construction so that corresponding parts are also indicated by like numerals with an added prime notation. However, the spring means, rather than taking the form of the compressible member **20** described in connection with the first embodiment of the invention, constitute periodically depressed segments **22** formed in the top of the cap **14'** which project downwardly into engagement with the lip of the underlying receptacle **10'** as clearly shown in FIG. **3,** the configuration of the cap segments **22** being shown in FIG. **4.** However, the lip of the receptacle **10'** is periodically provided with depressed segments **23** matching those of the cap **14'.** Therefore, if the cap **14'** is turned, its segments **22** are shifted into mating relationship with the intermediate depressed segments **23** of the lip as shown in FIG. **3A** whereupon the laterally projecting tab **18'** can be grasped and pulled upwardly to enable removal of the cap **14'.**

It is further to be understood that the compressible member **20** as described in connection with the first embodiment of the invention can be effectively utilized in various containers, one example being illustrated in FIG. **5** wherein a standard receptacle **24** is provided with a slight protrusion **26** adjacent its open upper end which is arranged for resilient snap-type engagement by an indentation **28** on the interior of a flange **30** of a resilient cap **32,** such structure being generally conventional. However, in accordance with the present invention, a compressible member **34** can be attached to the interior surface of the cap **32** so as to be inserted into pill-engaging relation, as illustrated, when the cap **32** is applied to the receptacle **24,** it being understood that the compressive force exerted by the compressible member **34** is selected to be less than the resilient snap engagement of the cap **32** with the receptacle **24** so as to preclude accidental separation. Furthermore, while it is preferred that the compressible member **34** be attached to the cap **32,** it can be insertd as a separate unit and the cap then applied to hold it in position whereby the contents of the container are resiliently engaged and precluded from rattling or possible fracture.

Yet a number of additional modifications can be visualized without departing from the spirit of the invention and the foregoing description of the three embodiments is accordingly to be considered as purely exemplary and not in a limiting sense, and the actual scope of the invention is to be indicated only by reference to the appended claims.

What is claimed is:

1. A safety container for pills or the like which comprises,

a receptacle having an open top,

a removable cap for the open top of said receptacle,

a compressible member adapted to substantially fill said receptacle and maintained in resilient engage-

ment with the receptacle contents by application of said cap to said receptacle,

means forming an upturned flange on said cap, and

means forming a downturned flange on said receptacle dimensioned to provide interlocking connection with the upturned flange on said cap whereby said compressible member resiliently holds said cap and receptacle in interlocked connection.

2. A safety container for pills or the like which comprises,

a receptacle having an open top and a downturned flange adjacent its open top,

a cap having an upturned flange dimensioned to interlock with the flange on said receptacle,

said cap being resilient, its flange being dimensionally reduced at one position and having an integral laterally-projecting tab adjacent the reduced flange portion, and

spring means interposed between said cap and said receptacle to resiliently maintain the flanges in interlocking disposition,

said spring means being formed by periodically depressed segments of said resilient cap which are arranged to engage periodically depressed segments of said receptacle.

3. A safety container for pills or the like according to claim **1** which comprises,

means forming a projecting tab on said cap, the flange on said cap being dimensionally reduced adjacent said tab,

said cap being formed of resilient material.

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