DOUBLE-ACTING CONTAINER SAFETY CLOSURE

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References Cited
UNITED STATES PATENTS
3,403,803 10/1968 Markowitz........................................ 215/9
3,567,057 3/1971 Landen ......................................... 215/43 R

FOREIGN PATENTS OR APPLICATIONS
1,550,450 11/1968 France ......................................... 215/43 R
1,560,099 2/1969 France ......................................... 215/43 R
559,264 8/1957 Belgium .......................................... 215/43 R

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ABSTRACT
The present invention includes a safety closure for use with a container, wherein a double-acting safety structure prevents the undesired removal of a cap from its associated container. Rotation of the cap in a tightening direction will result in threaded engagement with a safety ring member encircling the container's neck, while attempts to remove the cap from a tightened position by rotating same in the opposite direction will be fruitless, due to a lack of relative rotary movement between the cap and the ring member.

3 Claims, 17 Drawing Figures
DOUBLE-ACTING CONTAINER SAFETY CLOSURE


This invention relates generally to container closures, and more particularly to a safety closure for use with containers.

In virtually every household, an infinite variety of substances ranging from medicinal preparations; tablets and liquids to cleaning and pesticide solutions are maintained in bottle-type containers. A number of children become ill and even die every year as a result of consuming contents of such containers. These substances present a clear and present danger in the hands of children. Despite the attempts of parents to keep such dangerous substances out of the reach of children, their endeavors often fail and children always seem to find the means by which to reach the "unreachable.

A great need presently exists for a safety container or safety closure which is simple in design, economical to manufacture, and reliably capable of inhibiting removal attempts by children. My invention provides such a closure. In addition to various safety aspects of this invention, the novel structure described in detail below further provides inherent double self-locking characteristics which are quite valuable during shipping, for example, when containers are subjected to prolonged vibration. It must be further emphasized here that the forms of closure which are the subject of this invention are not restricted to uses in conjunction with containers for substances which are potentially dangerous to children, but may be used in conjunction with containers for other substances as well.

Prior art attempts to solve these needs have resulted in rather complex and relatively expensive structures which are not reliably operative. U.S. Pat. No. 3,656,646 dated Apr. 18, 1972 to C. R. Taylor discloses an example of an unsuccessful attempt to solve such problems. In one embodiment disclosed in this patent, three separate members are utilized with a container to control the relative movement between a closure cap and its associated ring member. The use of a helical spring member in this "Device" both adds to the cost of the combination, as well as adding to the cost of the assembly of these elements.

In the first embodiment disclosed in the above-mentioned Taylor patent, special clamping is needed to align a ring with the container neck, including visual assistance, only to assemble a device which is highly prone to wear and, thus, is quite unreliable.

My remarks concerning this prior art should in no way be construed as a reflection upon those seeking with me answers and solutions to an industry problem, but rather are highlighted here to give the reader a chronological picture of the more recent state of the art.

Accordingly, it is an object of the present invention to provide an improved safety container closure.

Another object of the present invention is to provide a safety closure for use with a container in which a double-lock feature prevents undersired opening of the container.

A further object is to provide a safety container closure which utilizes the cooperative interaction between a cap, a ring member, and a container's neck portion only.

Yet another object of the present invention is to provide a container closure which, in a predetermined manner, controls the removal characteristics of the container cap.

The present invention fulfills the aforementioned objects and overcomes the disadvantages of prior art solutions to problems by providing in a preferred embodiment of my invention, a container such as a plastic table bottle, for example, is formed with a neck portion of reduced diameter. A ring member formed on its outer surfaces with helically extending external threads normally encircles or annularly surrounds the neck portion. A cap or cover member formed with internal threads is adapted to engage and threadedly mate with said ring member such that clockwise rotation (for example) or tightening of the cap by the user will further advance the mating engagement between the cap and the ring member, thereby actually closing the contents of the container from the atmosphere. During this tightening movement of the cap, safety means, described in detail below, enables relative movement between the cap and the ring by inhibiting rotary movement of the ring in the same direction.

Opening of a container equipped with a safety closure according to the present invention is another matter, however. A child, for example, who has learned to unscrew containers and possibly many other articles about the house (to its parent's dismay), will normally attempt to open this closure by rotating the closure cap in a counter-clockwise or "removing" direction. This will not result in the expected, but instead will merely result in a turning of both cap and ring member without the removal of the cap. The child is thus isolated from what could very well be harmful or poisonous contents of the container.

Of course, it is intended that a person educated with this closure's characteristics, such as by illustrated instructions upon a disposable overall carton, be able to rapidly, simply and reliably gain access to the container contents. This is facilitated by merely holding the ring member relatively stationary during the counter-clockwise or "removing" rotation of the closure cap. A sufficient number of turns is contemplated for removal of the closure cap to insure against a child's proper relative movement of the closure cap and its associated ring member.

The invention will be more clearly understood from the following description of specific embodiments of the invention together with the accompanying drawings, wherein similar reference characters denote similar elements throughout the several views, and in which:

FIG. 1 is a perspective view illustrating a container equipped with a safety closure according to the present invention.
FIG. 2 is an enlarged, fragmentary perspective view illustrating bottommost portions of a closure cover member or cap, according to the present invention.

FIG. 3 is a fragmentary sectional elevational view looking along the lines 3—3 of FIG. 1.

FIG. 4 is a fragmentary sectional elevational view similar to FIG. 3 and illustrating another embodiment of the present invention.

FIG. 5 is a fragmentary sectional elevational view similar to FIGS. 3 and 4 and illustrating yet another embodiment of the present invention.

FIG. 6 is a perspective view of an aerosol container and safety closure according to the present invention.

FIG. 7 is a fragmentary sectional elevational view looking along the lines 70—7 of FIG. 6.

FIG. 8 is an enlarged fragmentary sectional elevational view looking along the line 8—8 of FIG. 7.

FIG. 9 is a fragmentary sectional elevational view illustrating an alternate embodiment of the present invention in which a double-acting locking structure resides.

FIG. 10 is a sectional plan view looking along the line 10—10 of FIG. 9.

FIG. 11 is a fragmentary sectional elevational view illustrating an embodiment of the present invention for use with an aerosol container.

FIG. 12 is a fragmentary sectional elevation view similar to FIG. 11 and illustrating an embodiment of the present invention for use with a bottle.

FIG. 13 is a front elevational view showing a safety closure cap of the present invention in association with an aerosol container, parts of which are broken away to illustrate the structure with greater clarity.

FIG. 14 is a partial elevational view showing the lower region of the upper cap element of the cover cap illustrated in FIG. 13.

FIG. 15 is a bottom plan view of the same upper cap element of FIG. 14.

FIG. 16 is a bottom plan view of a lower cap element comprising part of the cover cap assembly of FIG. 13, and

FIG. 17 is a sectional elevational view looking along the line 17—17 of FIG. 16.

Refferring now in more detail to the drawings, in FIG. 1 a container assembly 10 is illustrated wherein a bottle 11 is shown to be formed with a upwardly converging neck portion 12. Atop and covering the open end of neck portion 12, a closure assembly 13 is shown to consist of a cover member or cap 14 which, in turn, threadedly engages and is carried by a ring member or ring 15.

FIGS. 2 and 3 better illustrate the structure makeup of cover member 14 and ring member 15, together with their cooperative interengagement with each other and with neck portion 12 of the bottle 11.

In FIG. 2 the bottommost edges of cover member or cap 14 are shown to consist of a plurality of surfaces 16 which meet one another at similar angle to form what can be generally described as teeth 17. These teeth of serrations 17 extend around substantially the entire base edge portion 18 of cover member 14, and, as can best be seen in FIG. 3, matingly engage and nestle within similar teeth or serrations designating reference character 19 formed in an annular surface of ring member 15. A plurality of vertically extending ribs or grooves 20 formed in the outer surfaces of cover member 14 provide favorable gripping surfaces for the fingers of the user when tightening or removing cover member 14 from bottle 11 as will be described in more detail below. Similarly, vertical ribs or grooves 21 formed in the outer surfaces of ring member 15 function in much the same manner and, when cover member 14 and ring member 15 are tightened in a tightened position shown in FIGS. 1 and 3 of the drawings, ribs 20 and 21 substantially align themselves to present a unitary and continuous surface to a child, for example.

It should also be noted that the mere gripping of the combined ribbed surfaces 20 and 21 during an attempt to remove cover member 14 from bottle 11 will result in the simultaneous and joint turning of both cover member 14 and ring member 15 counterclockwise, for example. Note, ribs 20, 21 may be discontinuous.

Cover member 14 is formed in a cup-shaped configuration with helically extending internal threads 22 terminating adjacent base edge portion 18. Threads 22 normally engage external threads 23 formed in the outer annular surfaces of ring member 15, thereby enabling cover member 14 and ring member 15 to matingly engage one another, as shown in FIG. 3.

Ring member 15 includes a converging conical inner diameter portion 24 which meets cylindrical inner diameter portion 25. This inner configuration of ring member 15 facilitates its being positioned over and in contact with neck portion 12 of bottle 11. An upper bearing surface 26 of ring member 15, when used with a bottle 11 shaped in a manner similar to that shown in FIG. 3, will engage and bear against outwardly extending lip 27 of the bottle. Also, if desired a suitable annular bead (not shown) may be provided about cylindrical portion 25 so as to stabilize the ring member 15 axially and prevent any cocking of the ring member 15 about the bottle neck. In this way, the contents of bottle 11 are isolated from the atmosphere by a closure which will not be opened by children, for example.

Note, any suitable sealing means may be provided between the lips 27 and the inner top surface of cover member 14.

In operation, with ring member 15 situated about neck portion 12 of bottle 11, as shown in FIG. 3, cover member 14 is threaded upon ring member 15 by gripping ribs 21 with one hand, while simultaneously tightening cover member 14 with the other hand in engagement with ribs 26. During the final stages of tightening of cover member 14 upon ring member 18, a frictional yielding of teeth 17 over teeth 19 results in a firm, but removable, locking of cover member 14 with ring member 15. Cover member 14 may be removed from ring member 15 by holding ribs 21 with one hand relatively stationary, and rotating cover member 14 with the other hand engaging ribs 20. During the removal of cover member 14 from ring member 15, there will be an initial purposeful resistance to their separation by means of the interengagement of teeth 17 and 19 which provide a two-way relative movement with respect to one another.

The reader will note that the embodiment described for FIGS. 1—3 illustrate teeth which are visible (see FIG. 1) when viewing container assembly 10. FIGS. 4 and 8 illustrate alternate embodiments of the configuration illustrated in and already described for FIGS. 1—3 wherein teeth 17 and 19 are hidden from one viewing container assembly 10. The advantages residing in the embodiments illustrated in FIGS. 4 and 8 include the additional difficulty a child will have in removing
hending the manner in which one must act in removing cover member 14 from ring member 15 in order to gain access to the contents of bottle 11.

In FIG. 6, an aerosol container assembly 28 is shown to include a container proper 29 which is equipped with a closure assembly 30 according to the present invention. It is contemplated that container proper 29 consists of a conventional pressurized "can" made from sheet metal, for example, and having cylindrical side walls 31 which terminate by transition in an inner conical nose portion 32 which, in turn, extends between a lower bead 33 and an upper bead 34, respectively. FIG. 7 best illustrated the disposition of these elements and further illustrates a conventional valve-actuating, finger-depressible button 35 extending upwardly from the center of neck portion 32.

Closure assembly 30 consists basically of two cooperative elements, namely a cap or cover member 36 and an associated ring member or ring 37. In FIG. 7, it is seen that ring member 37 comprises an upper substantially planar portion 38 which is formed with a central opening 39. The edges of upper planar portion 38 defining opening 39 are normally disposed immediately beneath upper bead 34 such that ring member 37 is free to rotate about conical neck portion 32, but cannot be removed from the aerosol can because of the interference between planar portion 38 and upper bead 34.

Substantially vertically extending annular and cylindrical wall 40 of ring member 37 joins upper planar portion 38 at an annular corner 41, and is formed with helically extending external threads 42 which matingly engage internal threads 43 formed in vertical wall 44 of cover member 36.

An upwardly turned annular flange 45 defines a recess between flange 45 and wall 40. A plurality of upstanding teeth 46 extend upwardly from a horizontal portion 47 of ring member 37 joining flange 45 and wall 40. Horizontal portion 47 normally rests upon lower bead 33 of container 29. Reinforcing webs 48 join upper planar portion 38 and wall 40 at preselected points and are preferably molded integral with the remainder of ring member 37.

Cap or cover member 36, shown in FIGS. 6, 7 and 8, includes the cylindrical vertical wall 44 already mentioned which is closed at its upper end with a substantially planar top portion 49. An inner wall 50 which is also vertical and cylindrical is integrally formed with top portion 49, such as by injection moulding, and extends substantially coaxially with respect to vertical wall 44. Walls 44 and 50 are joined by reinforcing webs 51 at preselected points there between. In addition to the internal threads 43 formed in wall 44, this wall is further formed at its lowestmost edges with downwardly extending teeth 52 which, in turn, are adapted to matingly engage teeth 46. Teeth 46 and 52 are yieldable such that upon the threaded tightening of cover member 36 upon ring member 37, at the end of the tightening stroke which constitute clockwise rotation of cover member 36, for example, teeth 46 and 52 will exhibit upon forceful application deformable frictional resistance before interlocking with each other, thereby providing a rather safe, locked closure which isolates the contents of container 29 from a child, for example.

The reader will note that the embodiment described for FIGS. 6–8 includes a toothed configuration wherein teeth 46 and 52, and their interengagement, are not visible to the viewer of aerosol container assembly 28. This invisibility feature is further desirable when attempting to insure against the undesired or unauthorized opening of closure assembly 30. It is, of course, within the scope of the present invention to utilize closures described for FIGS. 1–8 with containers of types other than those illustrated for purposes of describing the invention.

Turning now to FIGS. 9 and 10, a preferred embodiment of the present invention is illustrated wherein further double-lock characteristics are exhibited. A closure assembly 53 is shown in FIGS. 9 and 10 consisting of a container 54, shown fragmentarily, which is formed with a upstanding neck portion 55 extending upwardly to a lip 56. Container 54 may be of the type already described in FIG. 1 as container 11. Neck portion 55 of container 54 is formed with a plurality, preferably four of outwardly extending projections 57, each of which includes a bearing surface 58. Bearing surfaces 58 of adjacent projections 57 lie in planes that are substantially perpendicular with respect to one another, and these projections 57 are relatively stiff.

Encircling neck portion 55 of container 54 is a ring member 59 which, in turn, if formed with an inner cylindrical surface from which rather slender and suitably tapered projections 61 extend to their respective four extremities which, in turn, are in contact with bearing surfaces 58 in the position shown in FIG. 10. While a specific structural shape or configuration of projections 61 and 57 are shown in FIG. 10, it is contemplated by the present invention to vary the shape of these projections to accomplish the same functions to be described below.

It should be obvious upon viewing FIG. 10 that, assuming neck portion 55 to be stationary, clockwise rotation of ring member 59 is inhibited by the interference of projections 61 with bearing surfaces 58 of projections 57. On the other hand, counter clockwise rotation of ring member 59 will result in spaced and intermittently deformable engagement of the incline surfaces of projections 57 by projections 61 such that a retarding snapping action will be experienced upon counter clockwise rotation of ring member 59. The outermost vertical surface of ring member 59 are formed with ribs 62 and teeth 63 of the type of function already described for ribs 21 and teeth 23, respectively, of ring member 15 (FIG. 3). Similarly, ring member 59 is formed with a plurality of upstanding teeth 64 which are similar to teeth 19 of this same ring member 15. Positioned atop ring member 59 is a cover member 14 of the type already described for FIGS. 1–5 and, for convenience, possessing the same reference characters.

In operation, it can best be seen in FIG. 10 that the turning of cover member or cap 14 in a "tightening" or, in this case, clockwise direction over ring member 59 will result in ring member 59 remaining substantially stationary with respect to cover member 14 such that internal threads 22 will threadedly engage external threads 63 until cover member 14 is near a completely tightened position. At this point, teeth 17 of cover member 14 will engage upstanding teeth 64 of ring member 59 such that, upon continued tightening of cover member 14, teeth 17 and 64 will matingly engage one another to provide a firm interlocking. FIG. 10 illustrates cover member 14 completely tightened over ring member 59 such that the contents of bottle or con-
container 54 are isolated from children of the environment.

To open the container or to remove cover member 14 from the container, it is necessary to grip ribs 62 of ring member 59 with one hand while turning cover member 14 in a "removing" or counter-clockwise direction to forcibly separate the two members. In the absence of this predetermined method of removing cover member 14 from ring member 59, the mere turning of cover member 14 in a "removing" or counter-clockwise direction will result only in a free turning of cover member 14 together with ring member 59 in a counter-clockwise or "removing" direction with projections 61 deformingly passing projections 57 upon their repeated engagement while the entire cover member 14 and ring member 59 combination is turned. Children are prevented from gaining access to the contents of bottle or container 54 with the aid of the combination of projections 57 and 61, which act as limit stops, together with the locking action of teeth 17 and 64, respectively. This double-locating structural action is unknown to the prior art.

FIGS. 11 and 12 are meant to illustrate further embodiments of this invention wherein locking teeth 65 and 66 are utilized to interlock ring members 67 and 68. In the case of FIG. 11, this combination is shown with a fragmentary representation of an aerosol can 71 formed with an outwardly turned lip 72, while on the case of FIG. 12, a bottle 73 is fragmentarily shown to include an outwardly turned lip 74. The threaded inter-engagement of caps 69 and 70 with their respective ring members 67 and 68 is similar to that already described for cover members 14 and 36 with their respective ring members 15 and 37. In the case of the embodiment shown in FIG. 11, locking teeth 65 are visible, while in FIG. 12, locking teeth 66 are hidden from a person viewing the closure assembly.

Referring now to FIGS. 13-17 of the drawings, wherein details of structures described in my pending application Ser. No. 141,524 are disclosed, FIG. 13 illustrates a safety closure or cap is there generally designated 120 and illustrated in position on a can or aerosol container 121. The container 121 may be conventional, including a generally cylindrical body part 122, and an upwardly tapering portion or conical neck 123. The upper conical neck portion 123 terminates at its upper end in a relatively small, circumferential or annular bead 123. The lower region of the neck portion 123 is formed with an annular of circumferentially extending upwardly facing groove or trough 124, which merges into a relatively large, lower circumferential protrusion or annular bead 125. A discharge valve stem 126 may extend upwardly from the container 121, centrally within the smaller upper bead 123, and may be provided on its upper end with a finger actuable button 127.

The cover cap or closure 120 includes a lower or inner cap element 130, and separably secured thereto an upper or outer cap element 131. The lower or inner cap element 130 may be integrally formed of suitable material, such as plastic, or otherwise fabricated, as desired, and may include a cylindrical side wall 132, and a radially inwardly extending annular flange 133 on the upper edge of the side wall 132. That is, the annular flange 133 of the lower cap element 130 defines a generally flat, circular, centrally apertured top wall on the cylindrical, lower element side wall 132. The annular flange or inner element top wall 133 defines centrally thereof a through aperture 134; and, a plurality of triangular ribs or gussets 135 are arranged in angularly spaced, radial array, each extending interiorly between the side wall 132 and annular flange 133. The ribs or gussets 135 thus effectively stiffen and reinforce the annular flange 133.

Extending peripherally about and projecting radially outwardly from the lower edge of the lower cap element 130 is an annular flange 136, which is provided on its radially outer edge with an upturned peripherally extending lip or cylindrical wall 137 coaxial with and spaced outwardly from the cylindrical side wall 132. The radially outstanding lower edge flange 136 may be provided with cutout formations or slots 139 at spaced locations there about. That is, the slots 139 may each extend circumferentially, being arranged in circumferentially spaced relation. Further, a suitable formation, such as a dimple or depression 138 may be formed in the underside of the flange 136, adjacent to and spaced from each slot 139, as best seen in FIG. 13.

The lower annular flange 136 and its upturned lip or wall 137 may be considered together as flange means, providing an effective manual gripping and holding action with respect to the lower cover element 130, as will appear more fully hereinafter. In association with the aerosol can or container 121, the lower cap element 130 has its opening 134 receiving the conical container neck 123, having been snap engaged downwardly past the small upper bead 123 for retention by the latter of the annular flange 133. The lower outstanding flange 136 may extend radially over the upwardly facing container recess or groove 124 and rest on the lower, larger annular container bead 125, see FIG. 13. Thus, the lower cap element 130 is effectively retained against substantial movement longitudinally of the can 121, as well as removal therefrom, while being freely rotatable relative thereto.

The upper cap element or closure member 131 may include a generally cylindrical side wall 140 of a diameter suitable for closely spaced circumposision about the exterior of the lower cylindrical side wall 132, and having its lower edge 141 engageable into and removable from the upwardly facing annular channel 142 defined between the side wall 130, lower flange 136 and upturned lip 137. When the lower edge 141 of upper cap element 131 is engaged in channel 142, the upper or outer cylindrical side wall 140 extends upwardly beyond the valve actuator 127, there being provided with an upper end wall or top 142 extending in closing relation across the upper end of the side wall 140. Additionally, a hollow tube-like member or backing element 143 depends from the underside of the top wall 142 having its lower edge abuttingly engageable with the upper surface of the lower cap element annular flange 133

Curried by lower regions of the upper cap element 131 are a plurality of fastener elements 145 for cooperating interfitting formation with the slots 139 and dimples 138, to define mating fastener elements therewith. More specifically the fastener elements 145 may each be defined by an arm having a depending portion 146 depending from the lower edge 141 of the cylindrical side wall 140. Extending from the lower end of each depending arm portion 146 is a circumferential arm portion 147, which extends a short distance, generally horizontally or circumferentially of the wall 140, being in
The upper side of each circumferential arm portion 147 may be provided with a detent formation, tit, or protrusion 148 projecting toward the edge 141.

In the assembled condition of FIG. 13, each fastener element or arm 145 is engaged downwardly through a respective fastener formation or slot 139 to locate the lower, circumferential arm portion 147 beneath the flange 136, within the recess 124. By manually grasping the flange means 135, 137 with one hand, and rotating the upper cap element 131 with the other hand, the depending arm portions 146 are each shifted in their respective slot 139, and the lower arm portions 147 are resiliently deflected downwardly by engagement of the respective detent 148 with the underside of the flange 136, until each detent snaps into its associated depression 138. This fully assembled condition is shown in FIG. 13. It will there be appreciated that grasping of either the upper, outer cover element 13, or the lower, inner cover element 130 by its flange means 136, 137 will effect simultaneous rotation of both elements freely about the container 121. However, deliberate relative rotation of the elements will permit of their separation. Such separation can only be effected by persons having adequate coordination and information as to the structure and operation of the safety cap.

Assembly of the safety cap 120 with a container 121 is quickly and easily made by mere snap engagement of the lower cap element opening 134 about the bead 123, the backing member 143 serving to reinforce and stiffen the flange 133 for this assembly operation.

The embodiments of the invention particularly disclosed are presented merely as examples of the invention. Other embodiments, forms and modifications of the invention coming within the proper scope of the appended claims will or course readily suggest themselves to those skilled in the art.

What is claimed is:

1. A child-resistant safety closure for use with a container or the like, comprising, in combination: a container neck portion having a bead or lip member, ring means in the form of a cup-shaped element and formed of a plastic material with outer thread means and encircling said neck portion so as to be freely rotatable thereabout and retained thereon by said bead or lip member, a cover member having a skirt and formed with inner thread means which normally contact said outer thread means of said ring means during use as a unit freely rotatable in both clockwise and counterclockwise directions, and concealed teeth means forming a part of both said cover member and said ring means for providing additional frictional interlocking resistance of said cover member to said ring means beyond the resistance of said thread means; said cup-shaped element having an outer skirt portion and an upturned flange edge portion forming a channel therebetween; the lower edge of said skirt of said cover member being adapted to be seated within said channel; and the lower edge of said skirt of said cover member and the base of said channel having said concealed teeth means; whereby removal of said cover member from said ring means requires the frictional yielding of said teeth means while one of said ring means or said cover member is held and the other rotated to disengage said threaded means of said safety closure.

2. The child-resistant safety closure according to claim 1, wherein said container is a pressurized container.

3. The child-resistant closure according to claim 1, wherein the bottom or base portion of said channel including an inner bevelled surface and said skirt portion of said cover member having a lower internal bevel surface adapted to seat on the bevelled surface of said ring means, and said bevelled surfaces having said concealed teeth means.

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