A child resistant cap includes: (a) a main closure base; (b) an outer ring that functions as a safety collar; (c) a dispensing mechanism on the base; (d) an overcap. The base attaches to a top dispensing container and the horizontally rotatable ring is attached to the base. The overcap has protrusions and the ring has corresponding cut outs. Because the overcap and ring are frictionally engaged, when one rotates, the other rotates with it. They must be held separately and rotated relative to one another to effect proper alignment for overcap removal and container dispensing. In some embodiments, the base is eliminated and the ring is attached directly to a container rim.
BACKGROUND OF INVENTION

[0001] a. Field of Invention

The present invention relates to child resistant caps, and more particularly to overcaps with safety rings for tubes, bottles and other capped containers. The present invention child resistant safety caps include improvements that enhance the functionality as well as the safety of prior art devices.

[0002] b. Description of Related Art

The following patents are representative of the field pertaining to the present invention:

[0005] U.S. Pat. No. 3,703,974 to Leo Boxer and Robert Boxer describes a safety cap and container combination wherein the container mouth includes a plurality of spaced ribs or flanges, each having a differently located, notched out passageway over which a cap member having at least one projecting internal lug is positioned in a single movement to close the container. In one form of the invention, a bead at the rim of the container mouth may be provided to mate with an internal groove in the cap member to seal tightly the cap member to the container. In order to remove the cap member, it is moved partially away from the container to disengage the bead from the groove and the lug member is then positioned and aligned with each slot and advanced therethrough in successive fashion to open the mouth of the container.

[0006] U.S. Pat. No. 3,782,578 to Gene Ballin sets forth a novel disposable closure. The device includes an opener for opening a closure cap along a score line around the base of an annular channel without piercing the cap. It includes a collar which rotatably and slidably engages the cap and includes a peripheral wall provided with circumferentially spaced depending arcuate teeth of greater thickness than the channel and stop elements which limit the downward movement of the device on the cap. The device is pressed downward and rotated so that the teeth wedge between and spread the channel walls to sever the closure along the full length of the score line. The piercing of the channel by the teeth is prevented by the stop elements.

[0007] U.S. Pat. No. 4,095,718 to Cheung Tung Kong describes a convertible safety cap. A cap is provided for closing a container having a locking portion for use in a precautionary arrangement to prevent children from obtaining access into the container. The cap is convertible so as to cooperate with such a container to provide not only such a precautionary arrangement but also an alternative easy opening arrangement. The invention includes a cap, an annular disk and a locking rim with notches through which tabs on the cap may pass.

[0008] U.S. Pat. No. 4,361,243 to Risto Virtinen describes a closing means for a container, tube or the like. This device is a closing means for a nozzle that is fixably mounting on a container or for a tube or the like. The closing means is operable when turned into a predetermined position that is indicated by indicators provided on the closing means and on the container. It is settable diametrically opposite to each other, and characterized in that the lower rim of the closing means or the upper rim of the container is provided with a separate background ring extending at least partially behind the indicator of the closing means and the indicator of the container.

[0009] U.S. Pat. No. 5,356,043 to Glynn describes a spray dispenser device closure. It includes a main closure base for attachment to a container, an outer ring, a spray mechanism attached to the base and an overcap. The main closure base has a top portion with a circular horizontal track thereon for attachment with an outer ring. The outer ring has a circular inside wall with a horizontal track thereon for attachment to the track of the base so as to connect them in such a way as to be horizontally and freely rotatable thereabout. The outer ring has a top with an inwardly biased ledge for retaining an overcap and has at least one cut out on the ledge to permit an overcap to be inserted and removed from the outer ring. The spray mechanism is attached to the top of the base and extends therethrough for insertion into a container. The overcap has a circular bottom adapted to be inserted into the outer ring and over the spray mechanism. The bottom of the overcap has at least one protrusion which has a geometry of adequate size to freely move through the cut out of the ledge of the outer ring. When the overcap is inserted and rotated, it can not be removed unless the protrusion is aligned with the cut out. In preferred embodiments, the ledge of the outer ring has adequate flexibility to allow the overcap to be pushed down without alignment of the protrusion and the cut out, but not to be removed unless alignment is first provided.

[0010] U.S. Pat. No. 5,429,255 to Glynn describes a dispenser closure, having a main closure base for attachment to a container, an outer ring and a push-pull dispenser mechanism attached to the base. The main closure base has a top portion with a circular horizontal track thereon for attachment with an outer ring and the outer ring has a corresponding circular inside wall horizontal track. They are connected so as to be freely horizontally rotatable thereabout, but otherwise permanently connected to one another. The outer ring has a top with an inwardly biased ledge for retaining a push-pull sleeve of the push-pull mechanism, and has a downwardly extended aspect to the ledge to retain the sleeve closed, and at least one cut out on the ledge to permit the sleeve to be pulled up to an open position. The sleeve has a circular bottom for inserting into the outer ring and over a push-pull stem of the push-pull mechanism. The bottom of the sleeve has at least one protrusion with geometry of adequate size to freely move up the cut out of the ledge of the outer ring when aligned therewith.

[0011] U.S. Pat. No. 5,462,181 to Glynn describes dispenser closure includes a main closure base attachable to a container, an outer ring, an inner cap removable attached to the base and an overcap. The main closure base has a top portion with a circular horizontal track thereon for attachment with an outer ring. The outer ring has a circular inside wall with a horizontal track thereon for attachment to the track of the base so as to connect them in such a way as to be horizontally and freely rotatable thereabout. The outer ring has a top with an inwardly biased ledge for retaining an overcap and has at least one cut out on the ledge to permit an overcap to be inserted and removed from the outer ring. The overcap has a circular bottom adapted to be inserted into the outer ring and over the spray mechanism. The bottom of the overcap has at least one protrusion which has a geometry of adequate size to freely move through the cut out of the ledge of the outer ring. When the overcap is inserted and rotated, it can not be removed unless the protrusion is aligned with the cut out. In preferred embodiments, the ledge of the outer ring has adequate flexibility to allow the overcap to be pushed down without alignment of the protrusion and the cut out, but not to be removed unless alignment is first provided.
U.S. Pat. No. 5,509,580 to Glynn describes a spray dispenser device closure. It includes a main closure base for attachment to a container, an outer ring, a spray mechanism attached to the base and an overcap. The main closure base has a top portion with a circular horizontal track thereon for attachment with an outer ring. The outer ring has a circular inside wall with a horizontal track thereon for attachment to the track of the base so as to connect them in such a way as to be horizontally and freely rotatable thereabout. The outer ring has a top with an outwardly biased ledge for retaining an overcap and has at least one cut out on the ledge to permit an overcap to be inserted and removed from the outer ring. The spray mechanism is attached to the top of the base and extends therethrough for insertion into a container. The overcap has a circular bottom adapted to be inserted into the outer ring and over the spray mechanism. The bottom of the overcap has at least one protrusion which has a geometry of adequate size to freely move through the cut out of the ledge of the outer ring. When the overcap is inserted and rotated, it can not be removed unless the protrusion is aligned with the cut out.

U.S. Pat. No. 5,657,905 to Glynn describes a spray dispenser device closure. It includes a main closure base for attachment to a container, an outer ring, a spray mechanism attached to the base, a semi-flexible tether, and an overcap. The main closure base has a top portion with a circular horizontal track thereon for attachment with an outer ring. The outer ring has a circular inside wall with a horizontal track thereon for attachment to the track of the base so as to connect them in such a way as to be horizontally and freely rotatable thereabout. The outer ring has a top with an outwardly or, alternatively, an inwardly biased ledge for retaining an overcap and has at least one cut out on the ledge to permit an overcap to be inserted and removed from the outer ring. The overcap has a circular bottom adapted to be inserted into or, alternatively, onto the outer ring and over the spray mechanism. The bottom of the overcap has at least one protrusion which has a geometry of adequate size to freely move through the cut out of the ledge of the outer ring. When the overcap is inserted and rotated, it can not be removed unless the protrusion is aligned with the cut out. The semi-flexible tether has a rest position and a twisted position and has a first end connected to the outer ring and a second end connected to the overcap.

U.S. Pat. No. 5,727,704 to Glynn describes a container closure device, which includes a container, a collar ring and a cap. The container has a neck, an open top and a horizontal retainer track thereon for affixing a collar ring thereto. A collar ring affixed to a track of the container has a plurality of cut outs on a ledge to permit a cap to be inserted and removed from the collar ring. The cap has a plurality of bosses which correspond to and are sized to freely move through the cut outs of the ledge of the collar ring and, when the cap is so inserted and rotated, of adequate size to cause frictional engagement and to cause simultaneous rotation of the cap and the collar ring and to prevent removal of the cap from the collar ring, except when the cap and the collar ring are held separately and are rotated relative to one another such that the bosses and the cut outs are in alignment for lift up removal of the cap from the collar ring. Corresponding bosses and cut outs have different lengths and depths so that one boss cannot slip through a non-matched cut out.

Notwithstanding the prior art, the present invention is neither taught nor rendered obvious thereby.

SUMMARY OF INVENTION

The present invention relates to a child resistant cap with safety collar and various enhancements. The cap includes: (a) a main closure base; (b) an outer ring that functions as a safety collar; (c) a dispensing mechanism on the base; (d) an overcap. The main closure base is for attachment to a container, and has a top portion having a circular horizontal track thereon for attachment of the outer ring thereto. The outer ring has a circular inside wall with a horizontal track thereon for attachment to the track of said base so as to connect said outer ring to said base so as to be horizontally and freely rotatable thereabout. The outer ring also has a top with an outwardly biased ledge for retaining an overcap, and has at least two cut outs on said ledge to permit an overcap to be inserted onto and removed from said outer ring. The outer ring also has at least two speed bumps located below said outwardly biased ledge adapted to reduce for horizontal movement of an overcap until minor frictional engagement is surpassed by minimal force. The dispensing mechanism at the top of said base extends therethrough for insertion into a container.

In the present invention described above, the overcap has a circular bottom adapted to be inserted into said outer ring and over a dispensing mechanism, said bottom having at least two protrusions thereon which have geometries of adequate size to freely move through said at least one of said at least two cut outs of said ledge of said outer ring and when said overcap is so inserted and rotated, of adequate size and geometry to prevent removal of said overcap from said outer ring, except when said at least two protrusions and said at least two cut outs are in proper alignment, said overcap having at least two opposing gripping pads located on its exterior.

Thus, further to the present invention described above, the outer ring ledge has an underside and said at least two protrusions of said overcap have tops wherein the underside of said ledge and the top side of said at least two protrusions are in frictional contact with one another when said overcap is inserted into said outer ring. Further, when one of said outer ring and said overcap are rotated, the other of said outer ring and said overcap rotates therewith, wherein said frictional contact may be overcome manually by holding one of said outer ring and said overcap and rotating the other of said outer ring and said overcap. This enables the user to position the protrusions and cut outs in proper alignment for removal of the overcap, thereby permitting dispensing of the container contents.

In some embodiments, in the present invention described above, the main closure base has means for attachment to a container. In some preferred embodiments, the means for attachment is threading.

In some embodiments, in the present invention described above, the at least two speed bumps are two speed bumps, having each speed bump on opposing sides of one of said at least two cut outs.

In some embodiments, in the present invention described above, the cut outs are directly opposite one another. In other embodiments, they are not.

In some embodiments, in the present invention described above, the child resistant cap with safety Collar and enhancement of claim 1 wherein said overcap includes a measuring cup at its top.

In some embodiments, in the present invention described above, there are at least three cut outs and a corresponding number of protrusions, said cut outs and protrusions being evenly spaced from one another.

In some embodiments, in the present invention described above, the underside of said ledge and said top of
said at least one protrusions have non-smooth topographies to enhance said frictional contact.

[0025] In some embodiments, in the present invention described above, at least one of said ledge and said at least two protrusions are flexible so as to permit insertion of said overcap onto said outer ring without alignment of said at least two protrusions and said at least two cut outs, and are upwardly inflexible so as to prevent removal of said overcap from said outer ring, except when said at least two protrusions and said at least two cut outs are in proper alignment.

[0026] In some embodiments, in the present invention described above, the overcap further includes a plurality of vertical friction pads located on its inside and positioned to be adjacent the outside of said ledge when on said outer ring.

[0027] In a different embodiment of the present invention, the present invention child resistant cap with safety collar and enhancement is for direct attachment to a container having a rim of greater diameter than its adjacent neck, and wherein the container has a top dispenser. It includes an outer ring for attachment to the rim of the container and an overcap. The outer ring has a circular inside wall with a horizontal track thereon for attachment to the rim of the container so as to connect said outer ring to said rim so as to be horizontally and freely rotatable thereabout. The outer ring also has a top with an outwardly biased ledge for retaining an overcap, and has at least two cut outs on said ledge to permit an overcap to be inserted onto and removed from said outer ring. The outer ring (safety collar) further has at least two speed bumps located below said outwardly biased ledge adapted to reduce for horizontal movement of an overcap until minor frictional engagement is surpassed by minimal force. The overcap has a circular bottom adapted to be inserted into said outer ring and over said container, said bottom having at least two protrusions thereon which have geometries of adequate size to freely move through said at least one of said at least two cut outs of said ledge of said outer ring and when said overcap is so inserted and rotated, of adequate size and geometry to prevent removal of said overcap from said outer ring, except when said at least two protrusions and said at least two cut outs are in proper alignment, said overcap having at least two opposing gripping pads located on its exterior. Further, the outer ring ledge has an underside and said at least two protrusions of said overcap have tops wherein the underside of said ledge and the top side of said at least two protrusions are in frictional contact with one another when said overcap is inserted into said outer ring. Thus, when one of said outer ring and said overcap are rotated, the other of said outer ring and said overcap rotates therewith, and wherein said frictional contact may be overcome manually by holding one of said outer ring and said overcap and rotating the other of said outer ring and said overcap. This enables the user to position the protrusions and cut outs in proper alignment for removal of the overcap, thereby permitting dispensing of the container contents. This version of the present invention may include the following components or features: In some embodiments, in the present invention described above, the main closure base has means for attachment to a container. In some preferred embodiments, the means for attachment is threading. In some embodiments, in the present invention described above, the at least two speed bumps are two speed bumps, having each speed bump on opposing sides of one of said at least two cut outs. In some embodiments, in the present invention described above, the cut outs are directly opposite one another. In other embodiments, they are not. In some embodiments, in the present invention described above, the child resistant cap with safety collar and enhancement of claim 1 wherein said overcap includes a measuring cup at its top. In some embodiments, in the present invention described above, there are at least three cut outs and a corresponding number of protrusions, said cut outs and protrusions being evenly spaced from one another. In some embodiments, in the present invention described above, the underside of said ledge and said top of said at least one protrusions have non-smooth topographies to enhance said frictional contact. In some embodiments, in the present invention described above, at least one of said ledge and said at least two protrusions are flexible so as to permit insertion of said overcap onto said outer ring without alignment of said at least two protrusions and said at least two cut outs, and are upwardly inflexible so as, to prevent removal of said overcap from said outer ring, except when said at least two protrusions and said at least two cut outs are in proper alignment. In some embodiments, in the present invention described above, the overcap further includes a plurality of vertical friction pads located on its inside and positioned to be adjacent the outside of said ledge when on said outer ring.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate preferred embodiments of the invention and together with the detail description serve to explain the principles of the invention. In the drawings:

[0029] FIG. 1 shows a partial front partially cut view of a present invention spray dispenser device closure;

[0030] FIG. 2 shows a top view of an outer ring used in the closure shown in FIG. 1;

[0031] FIG. 3 shows a bottom view of the overcap used in the closure shown in FIG. 1;

[0032] FIG. 4 shows a partial cut side view of a portion of an overcap and outer ring illustrating details of the closure shown in FIG. 1;

[0033] FIG. 5 shows a top view of an alternative embodiment outer ring for a present invention closure;

[0034] FIG. 6 shows a front, uncut view of the present invention overcap shown in FIG. 1, including an alignment arrow;

[0035] FIG. 7 shows front, partially cut view of an alternative embodiment present invention overcap with a measuring cup and printed rather than indented gripping pads;

[0036] FIG. 8 shows a front, partially cut view of another embodiment of a present invention child resistant cap with an outer ring that includes a built-in gel or foam activator, and an overcap which includes a measuring cut;

[0037] FIG. 9 illustrates a top view of outer ring 201 shown in FIG. 8; and,

[0038] FIG. 10 shows front, cut view of an alternative embodiment present invention overcap.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0039] Referring now in detail to the drawings wherein like reference numerals designate corresponding parts throughout the several views, various embodiments of the present invention are shown.
FIG. 1 shows a front partially cut, partial view of a present invention dispenser device closure. Here, main closure base 1 is shown attached to container 51.

As in any present invention embodiment, the container may have any dispensable flowable material such as liquid, sprayable liquid, gel, foam or the like. The dispensing component of the container may generally be referred to as a nozzle and could be a spray nozzle that is push activated or otherwise activated, a push-pull dispenser, a screw cap or a lift dispenser. The main container base may simply have an opening for the nozzle or include functional parts that may connect to or otherwise come in contact with a nozzle or nozzle activator.

Main closure base 1 is attached by known conventional means and may include crimping, heat sealing, force fitting, irreversible threading or any other known attachment means. Overcap 3 is shown in its cut view along with outer ring 5. Main closure base 1 includes base track 7. In this case, it is a horizontal, circular indentation, as shown. Alternatively, it could be an annular protrusion or bead. Outer ring 5 has a track catch 9 which, in this case, is a protrusion which fits into base track 7 and allows outer ring 5 to be freely horizontally rotated about main closure base 1. As an alternative, if base track 7 were a bead protrusion, then outer ring track catch 9 would be an indentation instead of a protrusion.

In other words, it is not critical as to whether the base or the outer ring has the male or female portion of the track. In any event, by “track” is meant either an indentation or a protrusion so that a complementary component rides the track. This is similar to tracks for a subway which may be protruding from the ground such as in the underground section or indented into the roadway such as above ground tracking.

Also shown in FIG. 1 are opposing gripping pads 51 and 53 for a user to grip overcap 3 for aligning the makes arrow on the outer ring 5 (not shown here) with arrow 33 show on the front of main closure base 1. This embodiment also has two speed bumps not shown in this cut FIG. 1, but illustrated in FIG. 5 below and in other embodiments discussed further below.

FIG. 2 shows a top view of outer ring 5. Referring both to FIGS. 1 and 2, outer ring 5 has a ledge 21 with cut outs 11 and 19. Extending downwardly from ledge 21 and elaborated more with respect to FIG. 4 below, are elevational sections that maintain some friction between overcap 3 and outer ring 5. Thus, when a user rotates outer ring 5 without touching overcap 3, overcap 3 will travel with outer ring 5, so as to maintain non-alignment and eliminate chance of alignment for removal of overcap 3 from outer ring 5.

FIG. 3 shows a bottom view of overcap 3. Referring now to FIGS. 1 and 3, overcap 3 has a top 17 and a side wall 15 which includes inwardly extending protrusions 13 and 25 at its bottom 16. These are of adequate geometry so as to be able to fit into and slide out of cutouts 11 and 19 of ledge 21 of outer ring 5. These protrusions 13 and 25 are opposite another and of the same geometry but could be different in geometry or not directly opposite one another as discussed with respect to FIG. 5, below. This FIG. 3 embodiment also includes speed bumps (not shown) such as are shown and described in conjunction with FIG. 5.

Also shown in FIG. 1 is a front view of spray mechanism 23 that includes spray nozzle tip 27 and a spray depressor 29. This is connected to main closure base 1 and extends downwardly therethrough so as to extend into container 51 (not shown). While spray mechanism 23 is shown to be a spray nozzle which may rely upon pressurized contents and depression for release thereof, it could very well be a pump, or other known spray mechanisms such as an atomizer.

When overcap 3 is not atop the closure shown but is separate therefrom, in one embodiment, the protrusions 13 and 25 must be aligned with cut outs 11 and 19, inserted therein and then rotated to secure the overcap and render it child resistant. However, in an alternative and more preferred embodiment, ledge 21 and/or protrusions 13 and 25 have adequate flexibility so that overcap 3 may be pressed downwardly and, with the flexion of either the protrusion or the ledge 21, or both, overcap 3 will snap into place so that the protrusions 13 and 25 end up under ledge 21 in a secure, child resistant fashion. The flexibility will be minimal such that overcap 3 cannot then be removed, except by alignment of protrusions 13 and 25 with the cut outs 11 and 19.

FIG. 4 shows a front cut, partial view of overcap 3 and outer ring 5 from FIG. 1. Identical parts are identically numbered. Protrusions 43, e.g., downwardly extending bumps or triangular cross-sectioned extensions are located on the underside of ledge 21 and similar protrusions 41 are located on the topside of protrusion 13. These nest when overcap 3 is snapped onto outer ring 5 and enhance the friction between the overcap 3 and the outer ring 5. In fact, due to the friction between the overcap 3 and the outer ring 5, mentioned above, if either only the overcap 3 or only the outer ring 5 is rotated, the other will rotate with it and the non-alignment feature will be maintained. Thus, in preferred embodiments, a user can only remove overcap 3 by holding outer ring 5 with one hand and rotating overcap 3 with the other hand or vice versa so as to overcome the friction between the two and align the protrusions 13 and 25 with cut outs 11 and 19 for subsequent removal of the overcap 3 from the outer ring 5 to provide access to the spray mechanism 23.

FIG. 5 shows a top view of an outer ring 71 that may be used in an alternative embodiment closure of the present invention. Here, ledge 73 has cut outs 75 and 77 that are not directly opposite one another and are of different sizes. This further restricts the removal of an overcap therefrom because, when two cut outs are opposite one another, there would be two opportunities or positions upon a 360 degree rotation for removal of an overcap. However, with the arrangement shown in FIG. 5, only one unique position will allow for proper alignment and removal of an overcap. In addition, the foregoing, hidden track 81 has two vertical speed bumps 83 and 85. These are located on opposing sides of cut out 77, so as to inhibit accidental movement between the ring and the overcap to decrease accidental proper alignment and undesired opening of the overcap. A user must overcome the friction between the protrusions and the speed bumps to achieve proper alignment for overcap removal and subsequent container dispensing.

FIG. 6 shows a front, uncut view of the present invention overcap 3 shown in FIG. 1, including an alignment arrow 65. A user will hold the outer ring 5 in one hand, the overcap 3 in the other hand, rotate one relative to the other to overcome the friction between the ledge and the protrusions and when arriving at the speed bumps, overcome that frictional resistance, align the alignment arrow 65 with arrow 33 (FIG. 1), lift the overcap 3 off the ring 5 and activate spray depressor 29 as desired.

FIG. 7 shows front, partially cut view of an alternative embodiment present invention overcap 101 with sidewall 103, open bottom 105, with a measuring cup 111 with prede-
termined volume 115, with graduated dosage markers, such as marker 117 and with flat (e.g., printed), rather than indented, gripping pads 107 and 109. Alignment arrow 119 is shown in front with the gripping pads 107 and 109 on the sides. Alternatively, these gripping pads 107 and 109 could be front and back positioned.

[0052] FIG. 8 shows a front, partially cut view of another embodiment of a present invention child resistant cap with an outer ring 201 that includes a built-in gel or foam activator 213 and an foam or gel dispensing nozzle 211, and an overcap 203 which includes a measuring cup 231. Outer ring 201 is directly attached to the rim of container 251 so that it is horizontally rotatable thereabout. Ring 201 includes an inside recess for attachment to the container rim, and an alignment arrow 205, as well as a track 207 with speed bumps 215 and 217. It has a ledge 209 with a plurality of cutouts, such as cutout 219. Ring 201 has overcap 203 attached to it and this overcap 203 has an open top 229 and sidewall 225, and includes protrusions, such as protrusion 227 frictronically engaged with and under ledge 209. In this embodiment, measuring cup 231 had a formed center 233 to fit above nozzle 211, as shown. The invention here functions in identical fashion as the embodiments described in the preceding Figures. However, because the ring 201 is directly attached to the container rim, a base piece has been eliminated. Further, nozzle 211 and nozzle activator 213 are integrally formed into the ring 201, eliminating another separate production piece. This is clear from its top view. FIG. 9 illustrates a top view of outer ring 201 shown in FIG. 8, showing both cutouts 219 and 249, and illustrating the position and tilt capability of the activator 213 (due to the cut portions in the top of ring plate 245).

[0053] FIG. 10 shows front, cut view of an alternative embodiment present invention overcap 301 with sidewall 307 and top 303. On the inside of sidewall 307 is one of a plurality of protrusions, protrusion 309. Also included is a vertical friction pad 311. There may be a plurality of such friction pads and these further reduce accidental slippage and alignment between the overcap and the ring (not shown) as the friction pad presses against the horizontal outside of the ring ledge or other external surface.

[0054] Although particular embodiments of the invention have been described in detail herein with reference to the accompanying drawings, it is to be understood that the invention is not limited to those particular embodiments, and that various changes and modifications may be effected therein by one skilled in the art without departing from the scope or spirit of the invention as defined in the appended claims. For example, components may reverse the male and female aspects without exceeding the scope of the invention. The overcap may snap into the inside of a ring instead of on its outside with the track of the ring being on an inside surface instead of an outside surface. Also, for example, the protrusions and cutouts could be reversed and located on the ring and overcap, respectively.

What is claimed is:

1. A child resistant cap with safety collar and enhancement, which comprises:
   a) a main closure base for attachment to a container, said base having a top portion having a circular horizontal track thereon for attachment with an outer ring;
   b) an outer ring having a circular inside wall with a horizontal track thereon for attachment to the track of said base so as to connect said outer ring to said base so as to be horizontally and freely rotatable thereabout, said outer ring also having a top with an outwardly biased ledge for retaining an overcap, and having at least two cut outs on said ledge to permit an overcap to be inserted onto and removed from said outer ring, and having at least two speed bumps located below said outwardly biased ledge adapted to reduce for horizontal movement of an overcap until minor frictional engagement is surpassed by minimal force;
   c) a dispensing mechanism at the top of said base and extending therefrom for insertion into a container;
   d) an overcap having a circular bottom adapted to be inserted into said outer ring and over said dispensing mechanism, said bottom having at least two protrusions thereon which have geometries of adequate size to freely move through said at least one of said at least two cut outs of said ledge of said outer ring and when said overcap is so inserted and rotated, of adequate size and geometry to prevent removal of said overcap from said outer ring, except when said at least two protrusions and said at least two cut outs are in proper alignment, said overcap having at least two opposing gripping pads located on its exterior; and,
   further wherein said outer ring ledge has an underside and said at least two protrusions of said overcap have tops wherein the underside of said ledge and the top side of said at least two protrusions are in frictional contact with one another when said overcap is inserted into said outer ring such that when one of said outer ring and said overcap are rotated, the other of said outer ring and said overcap rotates therewith, and wherein said frictional contact may be overcome manually by holding one of said outer ring and said overcap and rotating the other of said outer ring and said overcap.

2. The child resistant cap with safety collar and enhancement of claim 1 wherein said main closure base has means for attachment to a container.

3. The child resistant cap with safety collar and enhancement of claim 2 wherein said means for attachment is threading.

4. The child resistant cap with safety collar and enhancement of claim 1 wherein said at least two speed bumps are two speed bumps, having each speed bump on opposing sides of one of said at least two cut outs.

5. The child resistant cap with safety collar and enhancement of claim 1 wherein said cut outs are directly opposite one another.

6. The child resistant cap with safety collar and enhancement of claim 1 wherein said overcap includes a measuring cup at its top.

7. The child resistant cap with safety collar and enhancement of claim 1 wherein said there are at least three cut outs and a corresponding number of protrusions, said cut outs and protrusions being evenly spaced from one another.

8. The child resistant cap with safety collar and enhancement of claim 1 wherein said underside of said ledge and said top of said at least one protrusions have non-smooth topographies to enhance said frictional contact.

9. The child resistant cap with safety collar and enhancement of claim 1 wherein at least one of said ledge and said at least two protrusions two are flexible so as to permit insertion of said overcap onto said outer ring without alignment of said at least two protrusions and said at least two cut outs, and are upwardly inflexible so as to prevent removal of said overcap
from said outer ring, except when said at least two protrusions and said at least two cut outs are in proper alignment.

10. The child resistant cap with safety collar and enhancement of claim 1 wherein said overcap further includes a plurality of vertical friction pads located on its inside and positioned to be adjacent the outside of said ledge when on said outer ring.

11. A child resistant cap with safety collar and enhancement for direct attachment to a container having a rim of greater diameter than its neck, which comprises:

a) an outer ring having a circular inside wall with a horizontal track thereon for attachment to the rim of a container having a rim of greater diameter than its adjacent neck, said container having a top dispenser, so as to connect said outer ring to said rim so as to be horizontally and freely rotatable thereabout, said outer ring also having a top with an outwardly biased ledge for retaining an overcap, and having at least two cut outs on said ledge to permit an overcap to be inserted onto and removed from said outer ring, and having at least two speed bumps located below said outwardly biased ledge adapted to reduce for horizontal movement of an overcap until minor frictional engagement is surpassed by minimal force;

b) an overcap having a circular bottom adapted to be inserted into said outer ring and over said container, said bottom having at least two protrusions thereon which have geometries of adequate size to freely move through said at least one of said at least two cut outs of said ledge of said outer ring and when said overcap is so inserted and rotated, of adequate size and geometry to prevent removal of said overcap from said outer ring, except when said at least two protrusions and said at least two cut outs are in proper alignment, said overcap having at least two opposing gripping pads located on its exterior; and,

further wherein said outer ring ledge has an underside and said at least two protrusions of said overcap have tops wherein the underside of said ledge and the top side of said at least two protrusions are in frictional contact with one another when said overcap is inserted into said outer ring such that when one of said outer ring and said overcap are rotated, the other of said outer ring and said overcap rotates therewith, and wherein said frictional contact may be overcome manually by holding one of said outer ring and said overcap and rotating the other of said outer ring and said overcap.

12. The child resistant cap with safety collar and enhancement of claim 11 wherein said main closure base has means for attachment to a container.

13. The child resistant cap with safety collar and enhancement of claim 12 wherein said means for attachment is threading.

14. The child resistant cap with safety collar and enhancement of claim 11 wherein said at least two speed bumps are two speed bumps, having each speed bump on opposing sides of one of said at least two cut outs.

15. The child resistant cap with safety collar and enhancement of claim 11 wherein said cut outs are directly opposite one another.

16. The child resistant cap with safety collar and enhancement of claim 11 wherein said overcap includes a measuring cup at its top.

17. The child resistant cap with safety collar and enhancement of claim 11 wherein said there are at least three cut outs and a corresponding number of protrusions, said cut outs and protrusions being evenly spaced from one another.

18. The child resistant cap with safety collar and enhancement of claim 11 wherein said underside of said ledge and said top of said at least one protrusions have non-smooth topographies to enhance said frictional contact.

19. The child resistant cap with safety collar and enhancement of claim 11 wherein at least one of said ledge and said at least two protrusions two are flexible so as to permit insertion of said overcap onto said outer ring without alignment of said at least two protrusions and said at last two cut outs, and are upwardly inflexible so as to prevent removal of said overcap from said outer ring, except when said at least two protrusions and said at least two cut outs are in proper alignment.

20. The child resistant cap with safety collar and enhancement of claim 11 wherein said overcap further includes a plurality of vertical friction pads located on its inside and positioned to be adjacent the outside of said ledge when on said outer ring.