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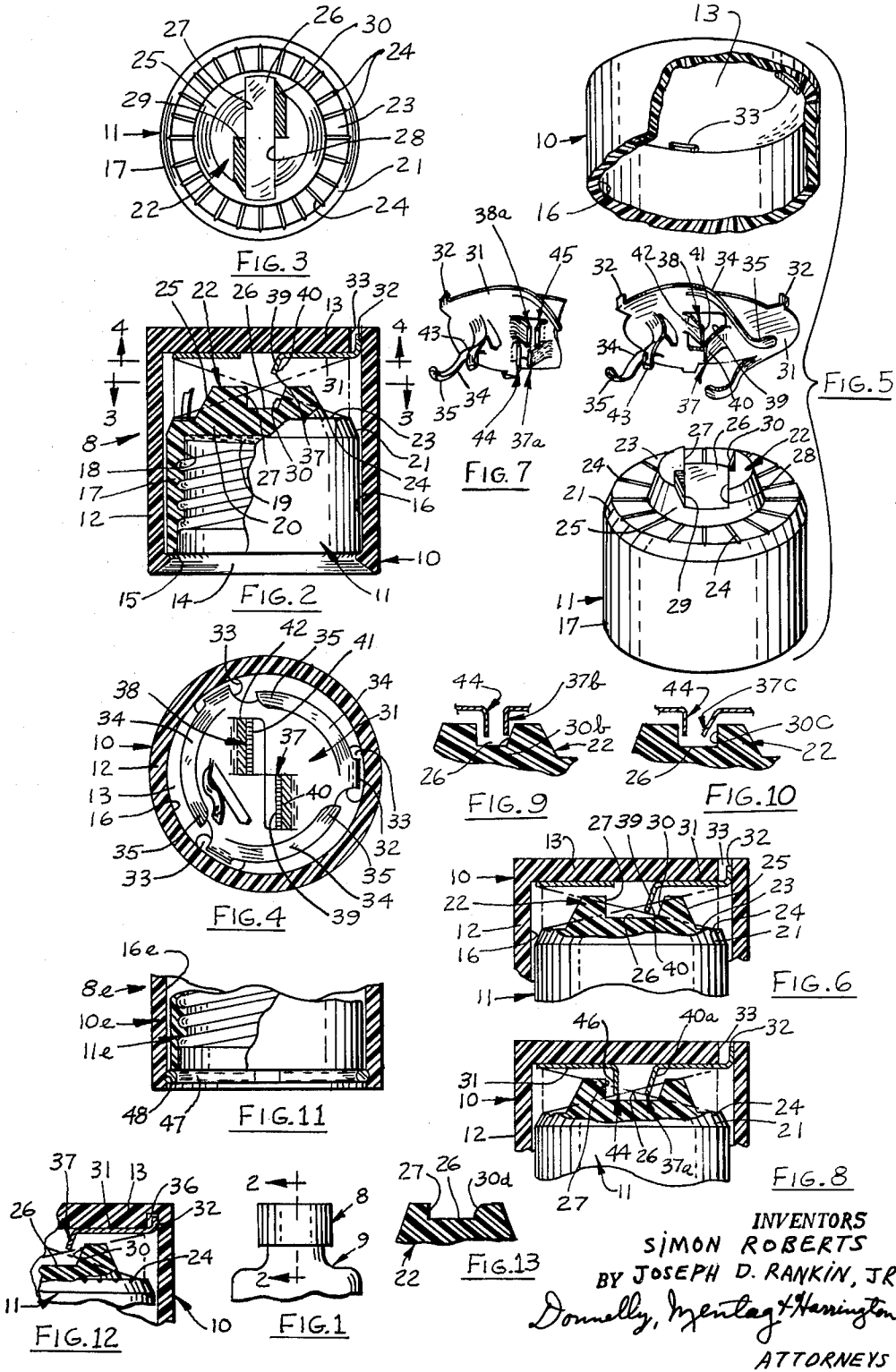
S. ROBERTS ETAL

3,260,393

SAFETY CAP FOR CONTAINERS

Filed May 10, 1965

2 Sheets-Sheet 1



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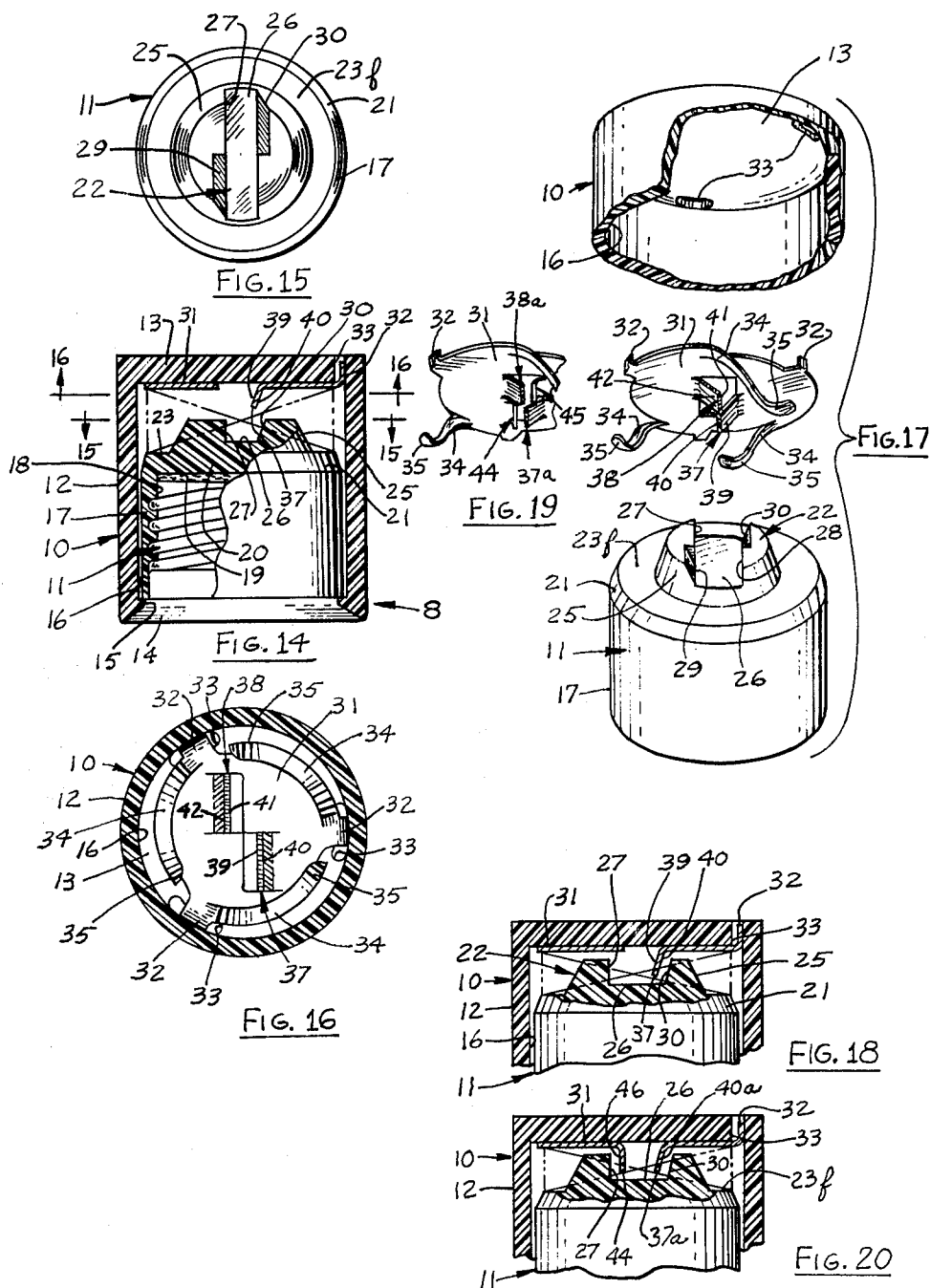
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3,260,393

SAFETY CAP FOR CONTAINERS

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This invention relates generally to a safety cap for containers such as bottles and the like, and more particularly to a safety cap which is virtually impossible to be opened by children because of its novel structural features.

It is the primary object of the present invention to provide a novel and improved safety cap which is constructed and arranged to prevent children from opening bottles and like containers which contain dangerous or injurious substances.

It is another object of the present invention to provide a novel and improved safety cap which operates in a manner similar to standard caps and may be simply operated by an adult, but wherein a young child would find it virtually impossible to operate to remove the safety cap from a container because he lacks the fully developed reflexes and controls necessary for operating the safety cap.

It is a further object of the present invention to provide a safety cap for a container which is provided with an audible signal means so that when a child plays with a container having the safety cap mounted thereon, a parent will be warned of this fact by a distinctive audible signal.

It is still another object of the present invention to provide a novel and improved safety cap for a container which automatically limits the amount of force which can be applied in tightening the cap so that an adult can open a container which has been closed by another person who is quite strong and who is in the habit of over-tightening a container cap in an attempt to make it safe for children.

It is still a further object of the present invention to provide a novel and improved safety cap which is adapted to operate on standard threaded or bayonet type closure containers.

It is still another object of the present invention to provide a novel and improved safety cap which is simple and compact in construction, economical of manufacture, reusable, efficient and sanitary in operation.

It is still a further object of the present invention to provide a novel and improved safety cap for a container which includes an inner cap member provided with means for sealing engagement with a container, an outer cap member telescopically mounted over said inner cap member and normally rotatable independently thereof and movable longitudinally thereof, a plate mounted in the outer cap member, means for releasably connecting said plate to one of said cap members, drive clutch means for connecting said cap members together for positive drive action for rotation of the inner cap member when the outer cap member is rotated in one direction to remove the safety cap from the container, and for torque limiting, releasable drive action for rotation of the inner cap member when the outer cap is rotated in another direction to attach the safety cap to the container, and spring means mounted between said cap members for normally biasing the clutch drive and driven means apart to inoperative positions to allow independent rotation of the outer cap member relative to the inner cap member.

Other objects, features and advantages of this invention will be apparent from the following detailed description, appended claims, and the accompanying drawings.

In the drawings:

FIG. 1 is a fragmentary, elevational view of the upper

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end of a container provided with a safety cap made in accordance with the principles of the present invention;

FIG. 2 is an enlarged, elevational view of the safety cap illustrated in FIG. 1, taken along the line 2—2 thereof, looking in the direction of the arrows, showing parts in section and parts broken away, and with noise maker grooves on the top surface of the inner cap member;

FIG. 3 is a plan view of the inner cap member of the structure illustrated in FIG. 2, taken along the line 3—3 thereof, looking in the direction of the arrows, with the outer cap member removed, and with noise maker grooves on the top surface;

FIG. 4 is a horizontal sectional view of the structure illustrated in FIG. 2, taken along the line 4—4 thereof, and looking in the direction of the arrows;

FIG. 5 is an exploded view, partially in section, of the safety cap illustrated in FIG. 2;

FIG. 6 is a fragmentary, elevational section view similar to FIG. 2, and showing the outer cover member moved downwardly to bring the clutch drive key into the clutch drive socket on the upper end of the inner cover member,

FIG. 7 is a perspective view of a modified clutch drive key structure;

FIG. 8 is a view similar to FIG. 6, and showing the modified clutch drive keys of FIG. 7 in the clutch drive socket;

FIG. 9 is a fragmentary, elevational section view of a modified clutch drive key and drive socket configuration;

FIG. 10 is a fragmentary, elevational section view of still another modified clutch drive key and socket configuration;

FIG. 11 is a fragmentary, elevational section view similar to FIG. 2, and showing a modification wherein the inner cover member is releasably secured in the outer cover member by a snap ring;

FIG. 12 is a fragmentary, elevational section view similar to FIG. 2, and showing a spring tang slot closed on the outer side;

FIG. 13 is a fragmentary, elevational section view of a clutch drive socket means and showing a curved clutch face;

FIG. 14 is an elevational view similar to FIG. 2 and showing a modified safety cap, with parts in section and parts broken away, and with the noise maker grooves removed;

FIG. 15 is a plan view of the inner cap member of the structure illustrated in FIG. 14, taken along the line 15—15 thereof, looking in the direction of the arrows, with the outer cap member removed, and with the noise maker grooves removed;

FIG. 16 is a horizontal section view of the structure illustrated in FIG. 14, taken along the line 16—16 thereof, and looking in the direction of the arrows;

FIG. 17 is an exploded view, partially in section, of the safety cap illustrated in FIG. 14;

FIG. 18 is a fragmentary, elevational section view similar to FIG. 14, and showing the outer cap member moved downwardly to bring the clutch drive key into the clutch drive socket on the upper end of the inner cap member;

FIG. 19 is a perspective view of the clutch drive key structure of FIG. 7 with the noise maker arm removed; and,

FIG. 20 is a view similar to FIG. 18, and showing the clutch drive keys of FIG. 19 in the clutch drive socket.

Referring now to the drawings, and in particular to FIG. 1, the reference numeral 8 generally indicates a safety cap made in accordance with the principles of the present invention, and it is shown in an operative sealing position on a container 9. As shown in FIG. 2, the safety cap 8 comprises an outer cap member, generally indicated by the numeral 10, in which is telescopically and slidably

mounted an inner cap member, generally indicated by the numeral 11. The outer cap member 10 is provided with the cylindrical side wall 12, which is formed with a smooth inner surface and which may be provided with a roughened outer surface for frictional engagement with the fingers of a person operating the safety cap. The outer cap member 10 is further provided with an integral top end wall 13. The lower end of the outer cap member 10 is open and is provided with a beveled or converging entrance lip or surface 14 that terminates in an integral retaining ring 15. The integral retaining ring 15 is of a slightly smaller diameter than the diameter of the interior 16 of the outer cap so as to provide a ledge on which the inner cap member 11 is seated.

As shown in FIGS. 2, 3 and 5, the inner cap member 11 is provided with a cylindrical side wall 17 which is of a diameter smaller than the inner diameter 16 of the outer cap 10, and of a size to provide free relative rotation between the two cap members. The inner cap member 11 is open at the lower end thereof and the interior 18 thereof is threaded for threaded engagement with a container as 9. The inner cap member 11 may be provided with a suitable sealing gasket 19 on the inner side of the integral top end wall 20. As best seen in FIGS. 2, 3 and 5, the outer peripheral side of the top end wall 20 is beveled, as indicated by the numeral 21.

As shown in FIGS. 2, 3 and 5, a clutch driven means, generally indicated by the numeral 22, is integrally formed on the upper end of the inner cap member 11. The clutch driven means 22 comprises a body which is centrally disposed on the outer side of the top wall 20, and which is surrounded by a horizontal annular surface 23, in which is formed a plurality of radially disposed grooves or notches 24. The grooves 24 are circumferentially spaced apart and are part of a noise making mechanism as more fully described in detail hereinafter.

The clutch driven means is provided with a beveled side wall 25, and a transverse socket 26 is formed therethrough for the reception of a mating clutch drive key, as explained more fully hereinafter. It will be understood, that side wall 25 may be vertical. As best seen in FIGS. 3 and 5, the clutch driven means 22 includes a pair of flat, positive drive clutch driven faces 27 and 28 which are vertically disposed on opposite sides of the slot 26, and in offset positions relative to each other. The positive drive clutch faces 27 and 28 extend inwardly from the outer edge of the clutch driven means 22 to the center thereof. A second pair of clutch driven faces 29 and 30 are formed on opposite sides of the slot 26 and in offset positions relative to each other. The clutch faces 29 and 30 are relieved faces, and as shown in FIG. 2, are formed at an acute angle relative to the vertical axis of the safety cap 8. As best seen in FIG. 3, the positive drive clutch face 27 is oppositely disposed relative to the torque limiting clutch driven face 30, and the same condition is present for the clutch drive and driven faces 28 and 29, respectively. The torque limiting clutch faces 29 and 30 also extend inwardly from the outer edge of the clutch driven means 22 to the center thereof.

As shown in FIGS. 2, 4 and 5, a circular plate 31 is disposed inside of the outer cap member 10 and it is made from a suitable spring material, as for example, a suitable spring metal material. The plate 31 is provided with a plurality of integral, peripherally disposed, circumferentially spaced apart tangs 32 which are disposed at right angles to the plane of the plate and are adapted to be slidably received in mating slots 33 formed through the top wall 13 of the outer cap member 10. It will be seen, that when the outer cap member 10 is rotated the tangs 32 will be engaged by the end walls of the slots 33 and carry the plate 31 with the outer cap member 10. As best seen in FIG. 2, the slots 33 are slightly larger in cross section than the cross section of the tangs 32 so as to provide clearance for passage therethrough of cleansing fluid into the safety cap between the inner and outer cap

members for flushing the safety cap. It will be seen that the tangs 32 thus releasably connect the plate 31 to the outer cap member 10.

As best seen in FIGS. 2, 4 and 5, a spring means is integrally formed on the plate 31 and comprises a plurality of spring legs 34 struck from said plate 31 at circumferentially spaced positions around the plate. The spring legs 34 have the upper ends thereof integral with the plate 31 and the other ends are curved upwardly toward the upper ends of the spring legs so as to provide a rounded lower end 35 which is adapted to slidably engage the upper surface 23 on the inner cap member 11. It will be seen that the spring means is thus mounted between the cap members and functions to normally bias the hereinafter mentioned clutch driven means and the aforementioned clutch drive means apart to inoperative positions, to allow independent rotation of the outer cap member 10 relative to the inner cap member 11. As shown in FIG. 12, the upper end of the slots 33 may be enclosed to form an enclosed tang drive slot 36.

The drive clutch mechanism employed in the invention further includes a clutch drive means which is integrally formed on the plate 31 for selective engagement with the clutch driven means 22 formed on the inner cap member 11. As best seen in FIG. 5, the clutch drive means comprises a pair of clutch drive keys 37 and 38 which are struck from the plate 31 and which are disposed at an acute angle relative to the vertical plane of the safety cap, as viewed in FIG. 2. The spring arms 34 normally bias the top wall 13 of the outer cap member 10 upwardly to a spaced apart position from the clutch driven means 22 so as to bring the clutch drive keys 37 and 38 to a position above clutch driven means 22. Accordingly, it will be seen that with the cap members in such spaced apart positions, the outer cap member 10 may be rotated freely in either the clockwise or counter-clockwise direction without having the clutch drive keys 37 and 38 engage the clutch driven means 22. As shown in FIG. 2, the clutch drive key 37 has an inner face 39 and an outer face 40. The clutch key 38 has an inner face 41 and an outer face 42.

The outer faces 40 and 42 on the clutch drive keys 37 and 38, respectively, coact with the slanted or relieved clutch driven faces 30 and 29, respectively, to provide a torque limiting means for tightening the inner cap member 11 on a container. The inner clutch drive faces 39 and 41 on the clutch drive keys 37 and 38, respectively, function with the vertical or flat faces 27 and 28 of the clutch driven means to provide a positive drive for unscrewing or removing the safety cap from a container.

The outer and inner cap members 10 and 11, respectively, may be made from any suitable material as for example, from a suitable molded plastic. The inner cap member 11 may be mounted in the outer cap member 10 in the following manner. The outer cap member 10 may be disposed in an inverted position and the plate 31 disposed inside of the outer cap member 10 with tangs 32 in seated engagement in the slots 33. The inner cap member 11 may then be forced into the outer cap 10 with the bevel 21 on the inner cap member 11 functioning to spread the integral retaining ring 15 to permit entry of the inner cap member 11 into the outer cap member 10. It will be seen, that the integral retaining ring 15 traps the inner cap member 11 in the outer cap member 10 and prevents removal therefrom. The inner cap member 11 is moved into seating engagement on the ledge formed by the retaining ring 15 by the biasing action of the spring legs 34.

In use, the safety cap 8 may be mounted on the threaded discharge end of a container 9 by grasping the outer surface of the outer cap 10 and positioning the upper end of the container in the leading edge of the inner cap member 11. Pressure is then exerted downwardly so as to move the outer cap member 10 relative to the inner cap member 11 and to bring the clutch

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drive keys 37 and 38 down into the socket 26 of the driven means 22, as shown in FIG. 6. The outer cap member 10 would then be rotated in a clockwise direction to bring the torque limiting clutch drive faces 40 and 42 into driving engagement with the slanted clutch driven surfaces 30 and 29, respectively. Continued clockwise rotation of the outer cap member 10 will thread the inner cap member 11 down into sealing engagement on the container. When the inner cap member 11 becomes tightly closed on the container 9, and the clockwise directed force on the outer cap member 10 is continued, the clutch drive keys 37 and 38 will slip up and over the slanted or relieve surface faces 30 and 29, thereby preventing damage to the safety cap. The operator will then know that the inner cap member 11 has been securely tightened and he will release pressure on the outer cap member 10 and permit the spring legs 34 to bias the two cap members apart, to the clutch inoperative position shown in FIG. 2.

It will be seen, that if a child obtains a container with a safety cap of the present invention thereon, he can freely rotate the outer cap member 10 relative to the inner cap member 11 without removing the inner cap member 11. An adult, on the other hand, can quickly and easily remove the safety cap 8 from the container by pressing downwardly on the outer cap 10 and turning the same until the clutch drive keys 37 and 38 engage the socket 26. The inner cap member 11 may be quickly and easily removed from a container by turning the outer cap member 10 in a counter-clockwise direction when the clutch keys 37 and 38 have been inserted in the socket 26, so as to bring the inner clutch drive faces 39 and 41 into driving engagement with the clutch driven faces 27 and 28 and with continued rotation of the outer cap member 10 provide a positive drive action by the clutch drive mechanism.

In order to warn persons in the household that a child may have obtained a bottle provided with a safety cap thereon and is playing with the same, the safety cap is equipped with a noise maker which generates an audible signal that may be heard by persons in the house in the vicinity adjacent the child. As shown in FIG. 5, the plate 31 has a resilient arm 43 struck therefrom or attached thereon and extended downwardly toward the inner cap member 11. The lower end or free end of the resilient arm 43 is adapted to engage the grooves or notches 24 in the upper surface 23 of the inner cap member 11 and create a noise when the outer cap member 10 is rotated independently of the inner cap member 11, in the same manner as a stick being run over a picket fence. The resilient noise making arm 43 is provided on the lower end thereof with a curved terminal portion, and this arm 43 is adapted to flex when the outer cap member 10 is moved downwardly into driving engagement with the inner cap member 11.

It will be obvious that the relative positions of the clutch driven means 22 and the plate 31 may be reversed so that the notches 24 and the clutch driven means 22 are carried on the inside of the top wall 13 of the outer cap member 10, and the plate 31 with its clutch drive means, spring legs, and noise making arm carried on the upper side of the inner cap member 11. This would be merely a reversal of parts.

FIGS. 7 and 8 show a modified form of clutch drive means wherein four clutch drive keys are employed instead of two as shown in FIG. 5. In this embodiment, the four clutch drive keys are struck from the metal plate 31 and the two slanted drive keys 37a and 38a function in the same manner as the clutch drive keys 37 and 38 of FIG. 5 for a torque limiting action during a clockwise rotation of the outer cap member 10 to tighten the inner cap member 11 on a container. The positive drive action for removing the inner cap member 11 would be provided by the two vertically disposed

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clutch drive keys 44 and 45 which are provided with outer flat or vertical faces, as 46 in FIG. 8, for engagement with the vertical faces 27 and 28 of the clutch driven means 22 for effecting a safety cap removal rotation. It will be seen that the four operative clutch faces of the embodiment of FIG. 5 are disposed on two clutch drive keys, whereas in the embodiment of FIGS. 7 and 8, the four operative clutch drive faces are disposed on one side each of four different clutch drive keys.

FIG. 9 shows a slight modification of the clutch drive mechanism in which the key 37b has been bent to the vertical position, parallel with the clutch key 44. The clutch driven relieved surface 30b has been disposed on an increased angle relative to the vertical axis through the inner cap member 11 as compared to the angle of the relieved surface 30 of FIG. 5.

FIG. 10 shows a further slight modification of the positions of the clutch drive key and the clutch driven torque limiting faces. FIG. 10 shows the clutch drive key 37c bent at an acute angle relative to the vertical axis through the inner cap member 11 and the torque limiting clutch driven face 30c disposed in the vertical plane with a flat face. The clutch drive key 37c functions with the clutch driven face 30c in the same torque limiting manner as the aforescribed clutch key 37 and clutch driven face 30.

It will be seen that the mating faces on the clutch drive keys and the clutch driven members may vary in angular disposition relative to each other in accordance with the material used in making the mating clutch parts and the load requirements for tightening the inner cap member 11. The prime requirement is that there be an angular disposition of one or both of the clutch drive faces and clutch driven faces relative to the vertical axis extending upwardly through the lower end of the clutch driven face at the point where it terminates at the surface of the clutch socket 26, or slightly above, as illustrated in FIGS. 6, 8, 9, 10, 12 and so forth.

FIG. 13 shows the clutch driven relieved face 30b formed with a curved face. It will be understood that the term "relieved surface," as used in this specification and claims, includes a curved surface as shown in FIG. 13 as well as slanting surfaces as shown in FIGS. 2 through 9, 12 and 14 through 20. This also holds true for the face of the driving member.

FIG. 11 shows a removable inner cap member indicated by the numeral 11e. The safety cap in FIG. 11 has been indicated by the numeral 8e and the outer cap by number 10e. In this embodiment the retainer ring 15 of the first embodiment has been replaced by a removable snap ring retainer member 47 which is adapted to be releasably mounted in the annular recess 48 formed in the inner surface 16e of the outer cap member 10e. The retainer snap ring 47 abuts the lower end of the inner cap member 11e, and retains it in the outer cap member 10e during normal use of the safety cap. The inner cap member 11e may be removed for cleaning purposes by releasing the retainer snap ring 47. Any suitable retainer snap ring may be used.

FIGS. 14 through 18 illustrate a slightly modified embodiment of the invention in which the noise maker means has been removed. In this embodiment the parts of the safety cap which are similar to the parts of the safety cap shown in FIGS. 1 through 6 have been marked with the same reference numerals with the exception of the upper surface of the inner cap member 11 which has been marked with the numeral 23f to indicate its change. The surface 23f is a smooth annular surface without the noise maker notches 24 of the first embodiment. FIG. 17 shows that the noise maker arm 43 has been deleted. The embodiment of FIGS. 14 through 18 would function in the same manner as the first described embodiment with the exception of the removal of the noise maker means.

FIGS. 19 and 20 illustrate the use of a four-part clutch

drive key mechanism similar to that shown in FIG. 7, but with the noise maker leg 43 removed.

It will be understood that the mechanically operated noise maker 43 may be mounted on any one of the three items including the outer cover 10, the inner cover 11 or the plate 31, and coact against suitable grooves or notches formed on one of the remaining two items.

Experience has shown that the safety cap of the present invention is an efficient safety cap which is simple for an adult to operate, while at the same time a young child finds it virtually impossible to open because he has not developed the conditioned reflexes and controls necessary to operate the safety cap in order to remove the inner cap member 11 from the container 9. The safety cap of the present invention limits the amount of force which can be applied in closing the inner cap member 11 so that an adult can open a container that has been closed by one who is quite strong and who is in the habit of over-tightening a container cap in an attempt to make it safe for children.

While it will be apparent that the preferred embodiments of the invention herein disclosed are well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope of fair meaning of the subjoined claims.

What we claim is:

1. A safety cap for a container, comprising:
 - (a) an inner cap member provided with means for sealing engagement with a container;
 - (b) an outer cap member telescopically mounted over said inner cap member and normally rotatable independently thereof and movable longitudinally thereof;
 - (c) a plate mounted in said outer cap member;
 - (d) means for releasably connecting said plate to one of said cap members;
 - (e) drive clutch mechanism for connecting said cap members together for positive drive action for rotation of the inner cap member when the outer cap member is rotated in one direction to remove the safety cap from a container, and for torque limiting, releasable drive action for rotation of the inner cap member when the outer cap member is rotated in another direction to attach the safety cap to the container, and including,
 - (1) clutch driven means on the other of said cap members, and
 - (2) clutch drive means on said plate selectively engageable with said clutch driven means; and
 - (f) spring means mounted between said cap members for normally biasing the clutch drive and driven means apart to inoperative positions to allow independent rotation of the outer cap member relative to the inner cap member.
2. A safety cap for a container as defined in claim 1, including:
 - (a) means for generating an audible signal when said outer cap member is rotated independently relative to the inner cap member.
3. A safety cap for a container as defined in claim 2, wherein said means for generating an audible signal comprises:
 - (a) a resilient arm moved by one of said cap members and having a free end engageable with the other cap member; and,
 - (b) said other cap member being provided with a plurality of grooves engaged successively by the free end of said resilient arm when said one cap member is rotated independently relative to said other cap member, thereby producing an audible sound.
4. A safety cap for a container as defined in claim 3, wherein:
 - (a) said resilient arm is carried by said plate which is releasably connected to one of said cap members.

5. A safety cap for a container as defined in claim 4, wherein:

- (a) said plate is releasably connected to the outer cap member; and,
- (b) said inner cap member is provided with said plurality of grooves.

6. A safety cap for a container as defined in claim 1, wherein:

- (a) said outer cap member is provided with at least one opening for the passage therethrough of cleansing fluid into the safety cap between the inner and outer cap members for cleaning the safety cap.

7. A safety cap for a container as defined in claim 1, wherein:

- (a) said plate is formed from a spring material and is releasably connected to one of said cap members; and,
- (b) said spring means comprises a plurality of spring legs struck from said plate, and each of said spring legs having one end integral with said plate and the other end in slidable engagement with the other of said cap members.

8. A safety cap for a container as defined in claim 1, including:

- (a) means fixed on said outer cap member and engaging said inner cap member for retaining the inner cap member in the outer cap member.

9. A safety cap for a container as defined in claim 1, including:

- (a) means releasably mounted on said outer cap member and engaging said inner cap member for retaining the inner cap member in the outer cap member.

10. A safety cap for a container as defined in claim 1, wherein:

- (a) said clutch drive means comprises a plurality of clutch drive keys integrally formed with said plate;
- (b) said clutch drive keys include a pair of positive drive faces, and a pair of torque limiting drive faces; and,
- (c) said clutch driven means comprises a first pair of clutch driven positive drive faces engageable by the pair of positive drive faces on clutch drive keys for rotating the inner cap member when the outer cap member is rotated in a direction to remove the safety cap from a container, and a second pair of clutch driven faces engageable by the pair of torque limiting drive faces on said clutch drive keys for rotating the inner cap member when the outer cap member is rotated in another direction to attach the safety cap to the container.

11. A safety cap for a container as defined in claim 10, wherein:

- (a) said second pair of clutch driven faces and said pair of clutch torque limiting drive faces are relieved, whereby when a predetermined torque is exerted on the second pair of clutch driven faces by the clutch torque limiting drive faces, the clutch torque limiting drive faces will slip over the second pair of clutch driven faces and the outer cap member will rotate independently of the inner cap member.

12. A safety cap for a container as defined in claim 10, wherein:

- (a) said first pair of clutch driven faces are provided with flat surfaces, and said first pair of clutch drive faces comprise said pair of positive drive faces and comprise flat surfaces which seat on the flat surfaces on said first pair of clutch driven faces for positive drive action.

13. A safety cap for a container as defined in claim 10, wherein:

- (a) said first pair of clutch driven faces are provided with flat surfaces, and said first pair of clutch drive faces comprise said pair of positive drive faces and comprise flat surfaces which seat on the flat surfaces on said first pair of clutch driven faces for positive drive action; and,

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- (b) said second pair of clutch driven faces are relieved and said pair of clutch torque limiting drive faces are provided with a flat surface disposed at an acute angle relative to said relieved clutch driven faces, whereby when a predetermined torque is exerted on the second pair of relieved clutch driven faces by the pair of clutch torque limiting drive faces with flat surfaces, the pair of clutch torque limiting drive faces will slip over the second pair of clutch driven faces and the outer cap member will rotate independently of the inner cap member.
14. A safety cap for a container as defined in claim 10, wherein:
- (a) said first pair of clutch driven faces are provided with flat surfaces, and said first pair of clutch drive faces comprise said pair of positive drive faces and comprise flat surfaces which seat on the flat surfaces on said first pair of clutch driven faces for positive drive action; and,
- (b) said second pair of clutch driven faces are provided with flat surfaces and said pair of clutch torque limiting drive faces are provided with relieved surfaces disposed at an acute angle relative to said second pair of clutch driven faces with the flat surfaces, whereby when a predetermined torque is exerted on the second pair of clutch driven faces with the flat surfaces by the pair of torque limiting drive faces with the relieved surfaces, the pair of torque limiting drive faces will slip over the second pair of clutch driven faces and the outer cap member will rotate independently of the inner cap member.
15. A safety cap for a container as defined in claim 10, wherein:
- (a) said one cap member is provided with a socket and said first pair of clutch driven faces are formed on opposite sides of said socket and in positions offset from each other, and said second pair of clutch driven faces are formed on opposite sides of said socket and in positions offset from each other; and,
- (b) said plurality of clutch drive keys are shaped to fit into said socket, and said pair of clutch positive drive faces are formed on opposite sides of said clutch keys and in positions offset from each other, and said pair of clutch torque limiting drive faces are formed on opposite sides of said clutch keys and in positions offset from each other.
16. A safety cap for a container as defined in claim 10, wherein:
- (a) said plate is made from a spring material and is releasably connected to one of said cap members; and,
- (b) said spring means comprises a plurality of spring legs struck from said plate, and one end of each of

said spring legs is integral with said plate and the other end is in slidable engagement with the other of said cap members.

17. A safety cap for a container as defined in claim 16, including:

(a) means for generating an audible signal when said outer cap member is rotated independently relative to the inner cap member.

18. A safety cap for a container as defined in claim 17, wherein said means for generating an audible signal comprises:

(a) a resilient arm moved by one of said cap members and which has a free end engageable with the other cap member; and,

(b) said other cap member is provided with a plurality of grooves engaged successively by the free end of said resilient arm when said outer cap member is rotated independently relative to said inner cap member, thereby producing an audible sound.

19. A safety cap for a container as defined in claim 18, wherein:

(a) said plate is releasably connected to said outer cap member; and,

(b) said inner cap member is provided with said plurality of grooves.

20. A safety cap for a container as defined in claim 19, wherein:

(a) said plate is provided with a plurality of tangs seated in recesses formed on the inner surface of said outer cap member for releasably connecting the plate to the outer cap member.

21. A safety cap for a container as defined in claim 18, wherein:

(a) said recesses are extended through said outer cap member to provide openings for the passage there-through of cleansing fluid into the safety cap between the inner and outer cap members for cleaning the safety cap.

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