Nov. 1, 1955 L. S. BELL 2,722,328

SAFETY LOCKING CAP

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Fig. 1.

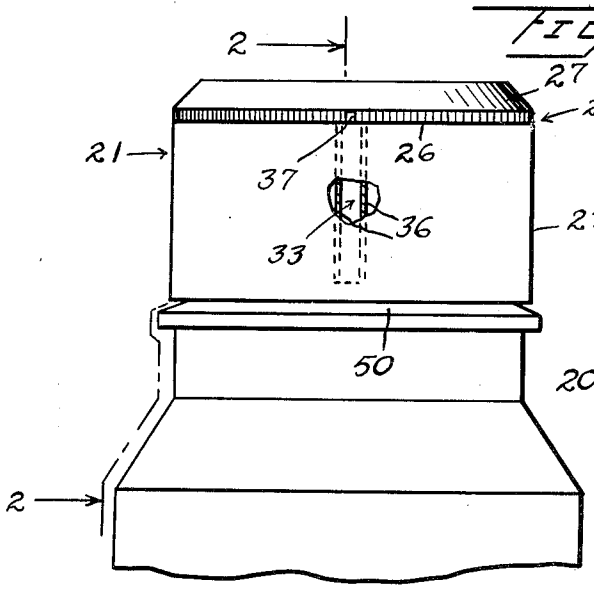


Fig. 8.

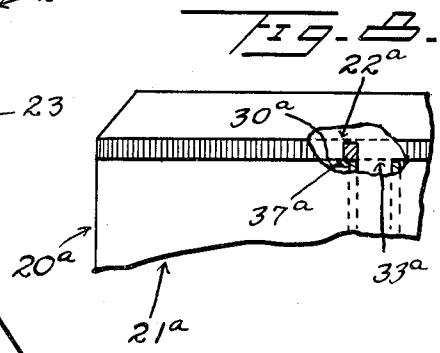


Fig. 6.

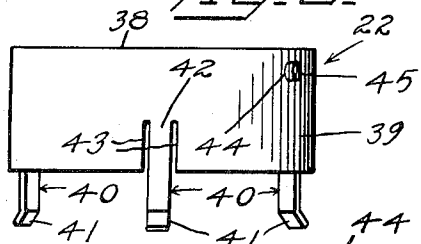
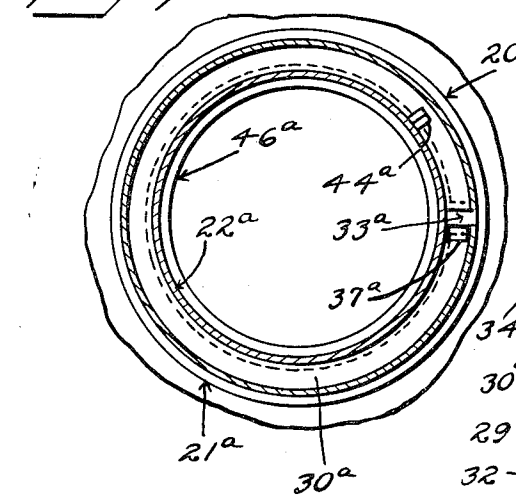


Fig. 7.



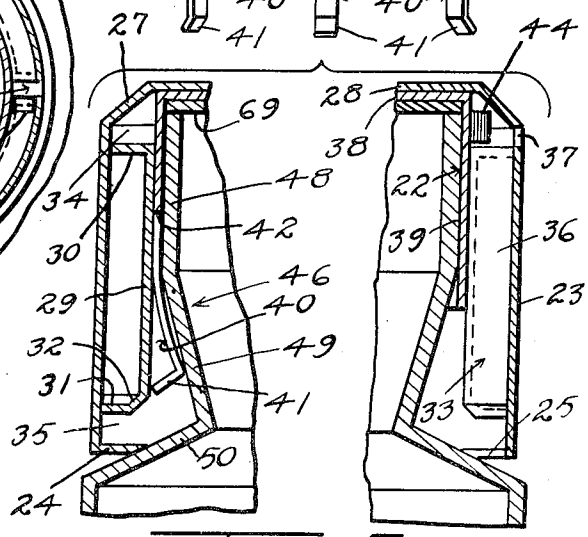


Fig. 9.

INVENTOR

Lawrence S. Bell

BY John H. Randolph

ATTORNEY

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Fig. 3.

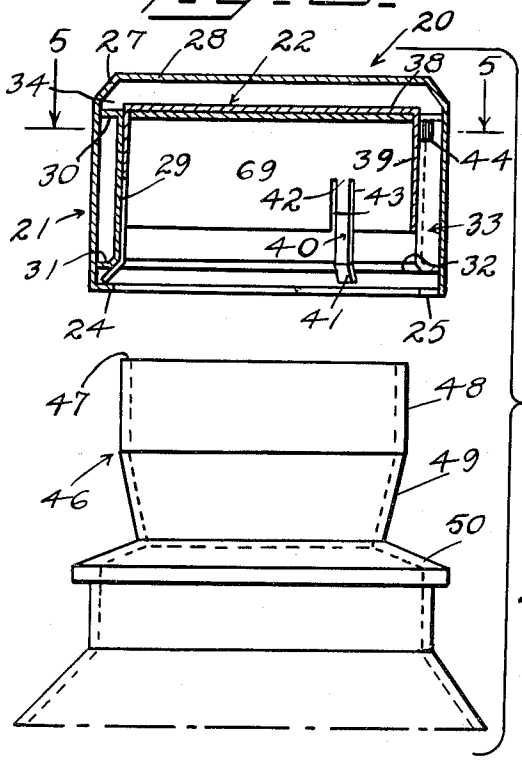


Fig. 2.

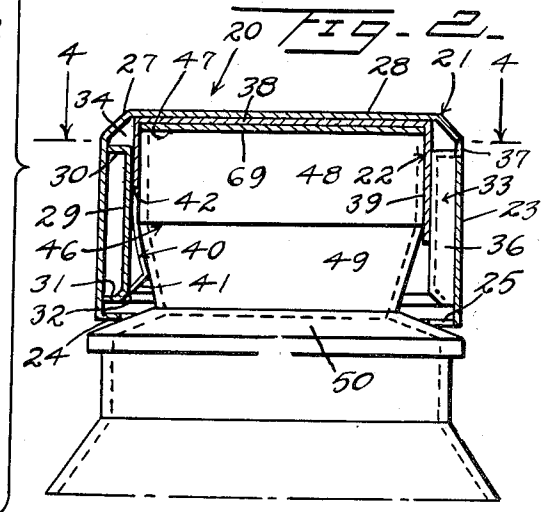


Fig. 4.

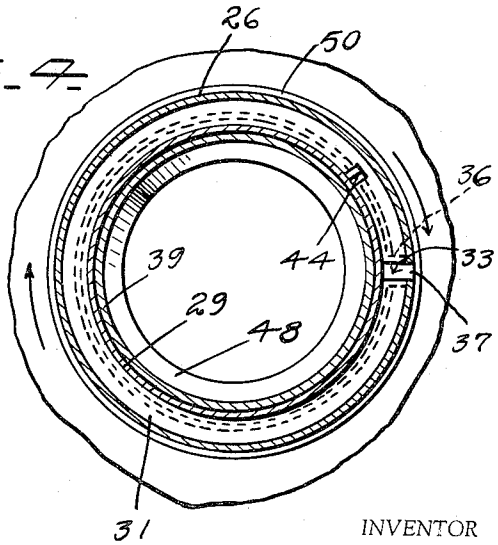
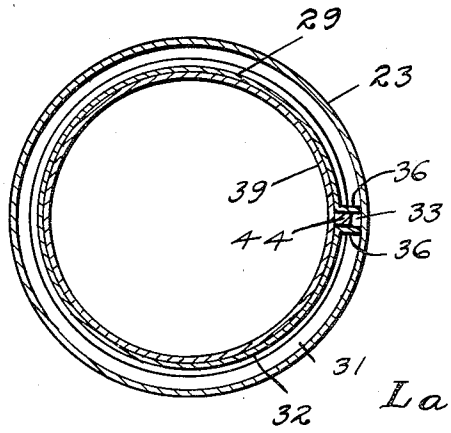


Fig. 5.



INVENTOR

Lawrence S. Bell

BY John N. Randolph

ATTORNEY

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SAFETY LOCKING CAP

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Fig. 10.

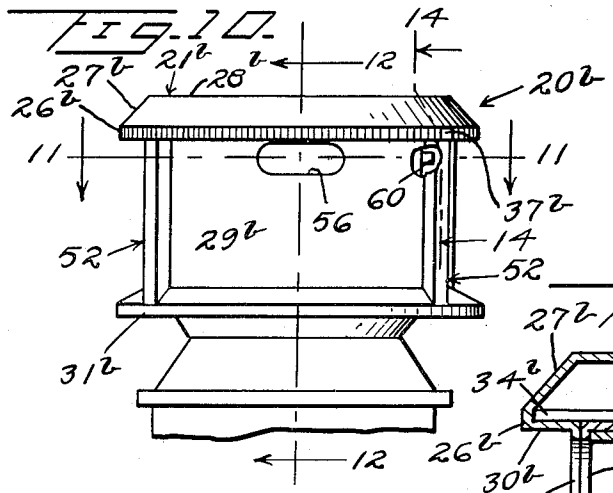
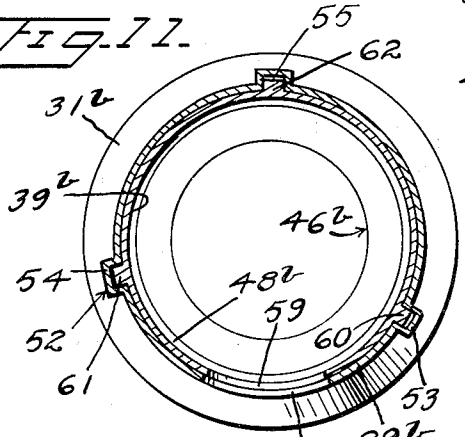


Fig. 11.



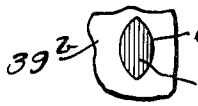


Fig. 12.

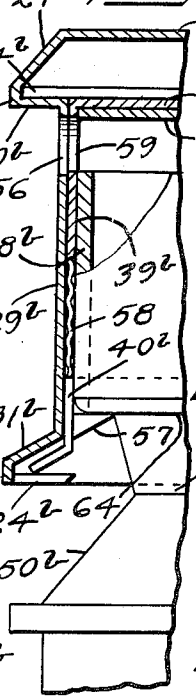


Fig. 13.

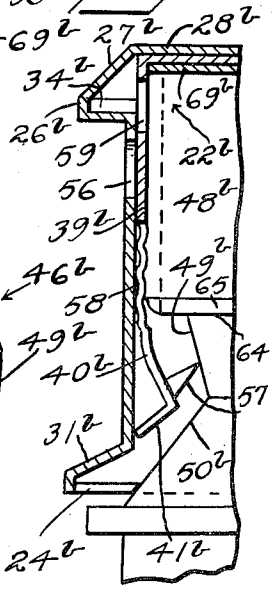


Fig. 17.

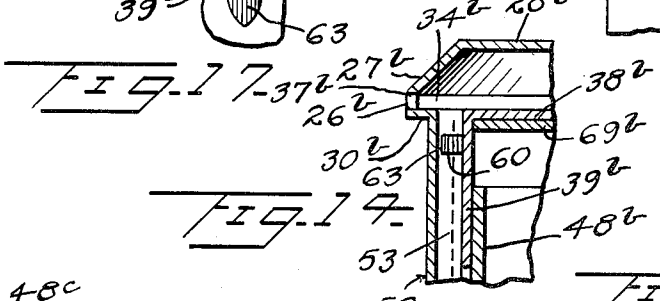


Fig. 14.

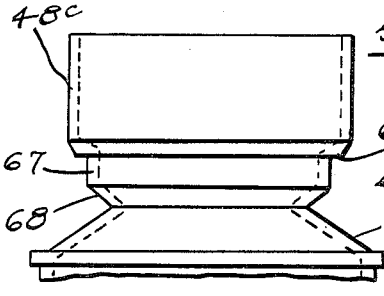
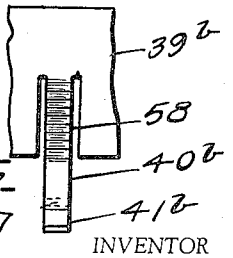


Fig. 16.

Fig. 15.



INVENTOR

Lawrence S. Bell

BY John N. Randolph

ATTORNEY

United States Patent Office 2,722,328 Patented Nov. 1, 1955

2,722,328

SAFETY LOCKING CAP

Lawrence S. Bell, Owings Mills, Md.

Application February 11, 1955, Serial No. 487,601

12 Claims. (Cl. 215—98)

This invention relates to a safety locking cap for application to the dispensing neck of a container and which will effectively seal the container to prevent dispensing of the contents therefrom without manipulation of a part of the cap in a particular manner, to thus effectively seal a container so that the contents thereof may not be readily dispensed by a child, and so that the contents of the container will not be dispensed by others through inadvertency or mistake.

Accordingly, it is a primary object of the present invention to provide a locking closure for container necks which is especially adapted for use on containers the contents of which are poisonous or may be harmful, to exclude the contents of such containers from children and to prevent others from consuming the contents through inadvertency.

A further object of the invention is to provide such a locking closure of relatively simple construction which may be economically manufactured and sold yet which will be extremely efficient in accomplishing its intended result.

A further object of the invention is to provide such a closure which may be made in various sizes to accommodate container necks of different diameters.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating presently preferred embodiments thereof, and wherein:

Figure 1 is a fragmentary elevational view, partly broken away, showing the upper portion of a container with one form of the safety locking cap in a locked position on the neck thereof;

Figure 2 is a sectional view, partly in elevation, taken substantially along a plane as indicated by the line 2—2 of Figure 1;

Figure 3 is an exploded view showing the container neck in elevation and the locking cap in section removed from the container neck;

Figure 4 is a horizontal sectional view through the locking cap, taken substantially along a plane as indicated by the line 4—4 of Figure 2;

Figure 5 is a horizontal sectional view of the locking cap, taken substantially along a plane as indicated by the line 5—5 of Figure 3;

Figure 6 is a side elevational view of the inner section of the locking cap;

Figure 7 is a view similar to Figure 4 of a slightly modified form of the locking cap;

Figure 8 is a fragmentary elevational view of a portion of the modified form of locking cap as shown in Figure 7;

Figure 9 is an enlarged fragmentary vertical sectional view of the locking cap as shown in Figures 1 to 6 in an applied and locked position;

Figure 10 is an elevational view, partly broken away, illustrating another form of the locking cap applied to a container neck and disposed in a dispensing position;

Figure 11 is a horizontal sectional view taken substantially along a plane as indicated by the line 11—11 of Figure 10;

Figure 12 is an enlarged fragmentary vertical sectional view, partly in elevation, taken substantially along a plane as indicated by the line 12—12 of Figure 10;

Figure 13 is a view similar to Figure 12 but showing the cap in a closed position;

Figure 14 is an enlarged fragmentary vertical sectional view, taken substantially along a plane as indicated by the line 14—14 of Figure 10;

Figure 15 is a fragmentary side elevational view of a portion of the inner section of the cap;

Figure 16 is a fragmentary elevational view of a slightly modified form of the container neck, and

Figure 17 is an enlarged elevational view of a part of the inner section of the cap.

Referring more specifically to the drawings and first with reference to the form of the safety locking cap as illustrated in Figures 1 to 6 and 9, said locking cap in its entirety is designated generally **20** and includes an outer section or shell, designated generally **21**, and an inner section or neck engaging part, designated generally **22**. The outer section or shell **21** includes a cylindrical flange **23** having a lower end provided with an inturned annular lip **24** which, as seen in Figures 2 and 3 is provided with a notch **25**. The annular flange **23** has a knurled portion or band **26** at its upper end, the upper edge of which merges integrally with an upwardly tapered or frusto-conical portion **27**. Said outer section or shell **21** has a substantially flat top **28** formed integral with the upper edge of the frusto-conical portion **27**, as seen in Figure 3.

The outer section or shell **21** also includes an inner annular wall **29** having at its upper end an outturned substantially annular flange **30**, the outer edge of wihch is secured in any suitable manner to the inner side of the cylindrical flange **23** adjacent the upper knurled band **26** thereof. Said inner wall **29** is also provided with an outturned substantially annular bottom flange **31** which is likewise suitably secured to the inner side of the cylindrical flange **23** above and spaced from but adjacent the inturned lip **24**. Said bottom flange **31** has an upwardly and inwardly inclined inner portion **32**, as clearly illustrated in Figures 2, 3 and 9. The inner wall **29** and its flanges **30** and **31** are provided with a gap **33** forming an inwardly opening channel which extends vertically of the outer section **21** between an annular upper space **34** and an annular lower space **35**. The space **34** is disposed between the upper flange or shoulder **30** and the inclined portion **27** and the space **35** is disposed between the lower flange **31** and the lip **24**. The split ends of the inner wall **29** and its flanges **30** and **31**, forming the gap **33**, may be provided with walls **36** which extend inwardly from the flange **23** and which form side walls of the groove or channel **33**. The notch **25** of the lip **24** aligns with the groove or channel **33**, as seen in Figure 9. The outer section or shell **21** is provided with an opening or window **37** formed in a part of the knurled band **26** and in alignment with the channel **33** and notch **25**.

The inner cap or closure section **22** constitutes a substantially cap shaped member having a substantially flat top wall **38** and a depending annular skirt **39** as best seen in Figures 3 and 9. A disk shaped gasket **69** is disposed within the skirt **39** and against the underside of the top wall **38**. As best seen in Figures 3 and 6, the skirt **39** is provided with a plurality, preferably three, integral extensions forming locking prongs **40** which extend downwardly from the bottom edge of the skirt **39** and which have outwardly flared lower free ends **41**. The prongs **40** are anchored to the skirt **39** only at the upper ends thereof, as seen at **42**, substantially above the level of the bottom edge of the skirt. The skirt **39** is provided with

a pair of slots 43 straddling each prong and extending from the bottom edge thereof upwardly to the secured upper end 42 of the prong. The prongs 40 are preferably formed of a resilient material and normally form straight extensions of the skirt portion to which they are secured but are capable of being flexed inwardly or outwardly. The skirt 39 is also provided with an external projection 44 disposed near to but spaced from its upper edge, as seen in Figure 6, forming a key. The key 44 has an outer end 45 which is preferably distinctively colored, as for example red.

The inner cap section 22 is of a diameter to fit relatively snug but slidably and turnably in the outer cap section 21, the skirt 39 fitting turnably and slidably within the inner wall 29. The key 44 is passed upwardly through the notch 25 and into the inwardly opening channel 33, as the inner section 22 is inserted upwardly into the outer cap section 21 through the open lower end thereof. As the inner section 22 approaches its nested position of Figure 3 within the outer section 21, the outwardly flared prong ends 41 will strike the inturned lip 24 and by a camming action, the prongs 40 will be flexed inwardly to permit the prong ends 41 to clear the lip 24. Said prong ends 41 will then spring outwardly into the space 35 between the lip 24 and the bottom flange 31, with portions of the prong ends 41 bearing substantially flush against the inclined flange portion 32, as illustrated in Figure 3. The prongs 40 will then have assumed normal positions and the inner cap section 22 will then be nested in the outer cap section 21 and with the key 44 disposed in the channel 33, near the upper end thereof. The cap 20 as thus assembled is ready to be applied to a container neck 46, as best illustrated in Figures 2, 3 and 9. The container neck 46 which is hollow or tubular and has an open upper end 47 includes a cylindrical upper portion 48 of a proper diameter to slidably engage in the skirt 39 and therebeneath is provided with an annular downwardly tapered portion 49, the restricted lower end of which merges integrally with a downwardly flared collar portion 50, constituting the lower end of the neck.

The safety locking cap 20, from a position disposed above the neck 46, as seen in Figure 3, is advanced downwardly onto said neck 46. The upper neck portion 48 will enter the cap through its open bottom and will be advanced upwardly into the skirt 39 until the upper end 47 of the neck contacts the gasket 69, at which time the inner cap section 22 will be disposed as seen in Figures 2 and 9 and with the outer cap section 21 still disposed relative to the inner cap section, as seen in Figure 3. By exerting a further downward pressure on the outer section 21, said outer section will be caused to slide downwardly relative to the inner section to assume the position as seen in Figures 2 and 9 with the annular lip 24 disposed adjacent a part of the collar 50. During this movement of the section 21 relative to the section 22, the key 44 will move past the upper end of the channel 33 into the annular space 34. At the same time, the tapered flange portion 32 will be moving downwardly relative to the prongs 40 and by a camming engagement with the flared prong ends 41, will deflect the lower portions of the prongs 40 inwardly into substantially flush engagement with parts of the downwardly tapered neck portion 49. The distal ends of the flared prong portions 41 will have moved into engagement with the inner wall 29 when the top wall 28 has reached a position in contact with the top wall 38 to prevent further downward displacement of the outer section 21 relative to the inner section 22. Accordingly, the prong portions 41 by engagement with the inner wall 29 will maintain portions of the prongs 40 in tight engagement with parts of the tapered neck portion 49 to prevent upward displacement of the inner cap section 22 relative to the neck 46 while said prongs 40 are so disposed, as seen in Figures 2 and 9. With the cap sections 21 and 22 disposed in lowermost positions on the neck 46, the outer cap section 21 is rotated relative to the inner cap section 22 to cause the key 44 to move in the annular space 34 to a position out of alignment with the groove or channel 33, as seen in Figures 2 and 4. When thus disposed, the key 44 engages on the upper flange or shoulder 30 to prevent upward displacement of the outer section 21 relative to the inner section 22 and since the inner section is locked by the prongs 40 in engagement with the neck portion 49, it will be apparent that the cap 20 is locked in a position for closing and sealing the open upper end of the neck 46.

In order to remove the cap 20, it is necessary to turn the outer section 21 relative to the inner section 22 until the end 45 of the key 44 is visible through the opening or window 37 to indicate that the key is then in alignment with the groove or channel 33. The outer cap section 21 can then be displaced upwardly relative to the inner cap section 22 and in so moving, the inner wall 29 will move upwardly relative to the prong ends 41 until said prong ends can spring outwardly into the space 35 between the lip 24 and bottom flange 31, as seen in Figure 3. The inner section will thus be latched to the outer section by engagement of the prong ends 41 on the lip 24, so that the cap 20 can be removed as a unit from the neck 46. The cap sections remain assembled as seen in Figure 3 so that the cap 20 can be readily replaced and locked on the neck 46, as previously described.

It will be obvious that the cap 20 cannot be removed from a locked position on the neck 46 by a young child and could not readily be removed in the dark. Thus, the cap is very effective for use on the necks of containers for poison or other contents which might be harmful to humans, since care must be taken in removing the cap and which will serve as a warning as to the contents of the container and which will prevent removal of the cap in the dark through inadvertency or mistake.

Figures 7 and 8 illustrate a slightly modified form of the cap, designated generally 20*a*, and which may be used in connection with the same container neck 46 but where the container does not contain a substance which is poisonous or dangerous to humans. The cap 20*a* differs from the cap 20 only in that the window 37 is omitted and the key 44*a* does not need to be provided with a colored end 45. In lieu of the window 37, the outer cap section 21*a* is provided with a raised portion 37*a* which extends upwardly from the upper flange or shoulder 30*a* on one side only of the groove or channel 33*a*. Said raised portion 37*a* forms an abutment so that when the inner cap section 22*a* is in a fully nested position in the outer cap section 21*a* and the key 44*a* is disposed above the upper end of the channel 33*a*, the outer section 21*a* can only be turned in one direction relative to the inner section 22*a*, for moving the abutment 37*a* away from the key 44*a*. To remove the cap from the neck 46*a*, which corresponds to the neck 46, the outer cap section 21*a* is merely rotated in the opposite direction or counterclockwise as seen in Figure 7 until the abutment 37*a* strikes the key 44*a*. At such time, the key will be in alignment with the groove 33*a* so that the outer cap section 21*a* can be raised to an unlocked position after which the cap 20*a* can be removed as a unit.

Figures 10 to 15 illustrate a slightly different form of the locking cap, designated generally 20*b*, and which is also composed of an outer cap section 21*b* and an inner cap section 22*b*. The cap section 21*b* includes a knurled portion 26*b*, an upwardly tapered portion 27*b* and a top wall 28*b*, which parts correspond to the parts 26, 27 and 28, respectively. However, the cap section 21*b* does not include a part corresponding to the cylindrical wall portion 23. The cap section 21*b* has a substantially cylindrical wall 29*b*, similar to the wall 29, having an outturned upper flange 30*b* which merges integrally with the bottom edge of the knurled portion 26*b* and which combines with said portion and the part

27*b* to form an annular inwardly opening recess or chamber 34*b*. The lower end of the wall 29*b* is provided with an annular flared flange 31*b* in lieu of the bottom flange 31 and which is provided with circumferentially spaced inwardly projecting lug portions 24*b* which replace the lip 24. The cap section 21*b* is provided with three channel shape portions 52 which are formed integral therewith and which open inwardly through the wall 29*b*. The upper ends of the channel shape portions 52 open through the flange 30*b* and the lower ends thereof open through the bottom flange 31*b*. Said channel members 52 form three inwardly opening channels 53, 54 and 55 which are spaced different distances apart, as seen in Figure 11. The knurled portion 26*b* is provided with an opening or window 37*b* which is disposed in alignment with the channel 53. The wall 29*b* beneath and adjacent the flange 30*b* is provided with a dispensing opening 56 which is disposed between the channels 53 and 54 and which is preferably elongated circumferentially.

The inner cap section 22*b* includes a top wall 38*b* having a depending annular skirt 39*b*. A gasket 69*b* is disposed in the skirt 39*b* against the inner side of the top wall 38*b*. The skirt 39*b* is provided with three circumferentially spaced prongs 40*b* which are formed integral with and depend from the skirt 39*b*, in the same manner that the prongs 40 depend from the skirt 39. The prongs 40*b* have outwardly flared lower ends 41*b*, corresponding to the prong ends 41. The prongs 40*b* are also provided adjacent their lower ends with inwardly projecting spurs 57. Additionally, the prongs 40*b* have undulated or wavy upper portions 58 for increasing the resiliency thereof. The skirt 39*b*, near a portion of its upper end and below the gasket 69*b* is provided with a dispensing opening 59 which substantially correspond in size and shape with the opening 56. In lieu of the single key 44, the cap section 22*b* is provided with three keys 60, 61 and 62 which project from the skirt 39*b* near its upper end and which are circumferentially spaced relative to one another in a manner corresponding to the spacing between the channels 53, 54 and 55. The outer face 63 of the key 60 is distinctively colored, preferably red, as seen in Figure 17.

The cap 20*b* is adapted for use with a container neck 46*b*, which differs from the container neck 46 and which is illustrated in Figures 10 to 14. The container neck 46*b* includes an upper annular portion 48*b*, a downwardly tapered portion 49*b* and a downwardly flared annular neck 50*b*, the upper restricted end of which merges with the restricted lower end of the tapered neck portion 49*b*. However, the enlarged upper end of the neck portion 49*b* is substantially smaller in diameter than the exterior diameter of the annular neck portion 48*b* and is connected thereto by an annular downwardly facing shoulder 64 which is preferably provided with a beveled or rounded outer edge 65.

The cap 20*b* is applied to the neck 46*b* with the cap sections 21*b* and 22*b* separated. The inner cap section 22*b* is first applied downwardly over the neck by springing the prongs 40*b* outwardly so that the spurs 57 will clear the neck portion 48*b*. The apron 39*b* is sized to fit relatively snug but slidably on the neck portion 48*b* and is advanced downwardly until the gasket 69*b* abuts the upper open end of the neck 46*b* which, like the neck 46 is hollow. When the inner section is thus disposed, as seen in Figure 13, the spurs 57 are located substantially below the level of the shoulder 64. The outer cap section 21*b* is then applied over the inner cap section 22*b*. In applying the outer cap section 21*b*, said section is initially turned so that the lugs 24*b* will clear the keys 60, 61 and 62. The outer section 21*b* is then turned to align the keys 60, 61 and 62 with the channels 53, 54 and 55, respectively, since said channels can only be simultaneously aligned with these respective keys. As the cap section 21*b* is thereafter moved downwardly relative to the cap section 22*b*, the lugs 24*b* will pass the prong portions 41*b*, after which said prong portions will engage the bottom flange 31*b*. The prong portions 41*b* by a camming engagement with the flange 31*b* will cause the lower portions or prongs to be sprung inwardly to the position as shown in Figure 13, after which the prong portions 41*b* will move into engagement with the inner side of the wall 29*b* and the top wall 28*b* will seat on the top wall 38*b*, as seen in Figure 13. When the parts are thus disposed, the keys 60, 61 and 62 will have assumed positions in the recess 34*b* and above the upper ends of the channels 53, 54 and 55. The outer section 21*b* can then be turned in either direction relative to the inner section 22*b* to complete the locking of the cap 20*b* in a fully closed position, as seen in Figure 13.

When it is desired to dispense a part or all of the contents of the container of which the neck 46*b* forms a part, the outer cap section 21*b* is turned relative to the inner cap section 22*b* until the colored key end 63 is visible through the window 37*b*, indicating that the keys 60, 61 and 62 are then in registration with the channels 53, 54 and 55, respectively, this being the only position of the outer section relative to the inner section in which all three keys will align with the three channels. When thus disposed, the lugs 24*b* are in longitudinal alignment with the prongs 40*b*. The outer section 21*b* is then pulled upwardly and slides relative to the inner section until the dispensing openings 56 and 59 are in registration. At this time, the flange 31*b* is disposed so that the prong portions 41*b* may snap outwardly therebeneath and into engagement on the lugs 24*b*. The prongs 40*b* will then be disposed against the wall 29*b*. As the lugs 24*b* are engaging under the prong portions 41*b*, the inner section 22*b* will thereafter move upwardly with the outer section 21*b* until the spurs 57 contact the downwardly facing shoulder 64, at which time the bottom edges of the dispensing openings 59 and 56 will be at approximately the level of the upper end of the neck 46*b*. The contents of the container of which the neck forms a part may then be dispensed through the registering openings 59 and 56.

To reseal the cap 20*b*, it is only necessary to displace the outer cap section 21*b* downwardly for causing the cap sections to move as a unit until the inner cap section 22*b* is in its position of Figure 13, after which the outer cap section 21*b* can be displaced downwardly relative thereto and back to its position as previously described and as illustrated in Figure 13. Thereafter, as previously described, the outer cap section 21*b* can be turned in either direction for relocking the cap in a fully closed position to seal the upper open end of the neck 46*b*. It will be noted that the cap 20*b*, once applied to the neck 46*b* is not removable.

Figure 16 shows a slightly different construction of container neck, designated generally 46*c* which may be used with the cap 20*b*, in lieu of the neck 46*b*. The neck 46*c* differs from the neck 46*b* only in that in lieu of the tapered portion 49*b*, the neck 46*c* has an annular portion 67 extending downwardly from the shoulder 64*c*, which corresponds to the shoulder 64 and which annular portion 67 is of smaller external diameter than the upper annular portion 48*c* of the neck. The neck 46*c* has a relatively short downwardly and inwardly tapered portion 68 which extends downwardly from the lower end of the annular portion 67 and which merges with the upper restricted end of the bottom neck portion 50*c*. The spurs 57 extend into the annular groove formed by the parts 50*c* and 68 when the cap 20*b* is in a fully closed position as illustrated in Figure 13.

Various other modifications and changes are contemplated and may obviously be resorted to, without departing from the function or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. The combination with a container neck having an

upper or outer portion and a recessed portion disposed beneath or inwardly of said upper portion and of reduced size relatively to said upper portion; a safety locking cap comprising an outer section and an inner section, said inner section including a top wall and a depending annular apron sized to slidably engage over the upper portion of said neck, said apron having a plurality of resilient prongs extending downwardly therefrom and having outwardly flared terminal portions; said outer cap section including a substantially cylindrical wall sized to fit turnably and slidably around said apron and provided with an outwardly offset inwardly opening channel having open ends, said outer section including a top wall having a depending annular portion, said cylindrical wall having an outturned flange at the upper end thereof connecting with said depending annular portion of the top wall and defining an annular inwardly opening chamber disposed above said cylindrical wall and in communication with the upper end of said inwardly opening channel, and said apron having a projection disposed adjacent a portion of the upper edge thereof and which is slidably receivable in said inwardly opening channel for positioning the inner cap section in a partially nested position within said outer cap section with the outwardly flared ends of the prongs disposed beneath the cylindrical wall of the outer section, for application of the assembled cap to the container neck, said outer cap section being displaceable downwardly relative to the inner cap section, when the inner section is disposed in a fully applied position on the container neck to cause said cylindrical wall to engage the outwardly flared prong ends to displace the lower portions of the prongs inwardly and into engagement with the recessed neck portion and for causing said projection or key to be displaced through the upper end of said channel into the annular inwardly opening space disposed thereabove to permit rotation of the outer section relative to the inner section to move the key out of alignment with said channel and into a position above said outturned flange for locking the cap in a fully closed position on the container neck.

2. A structure as in claim 1, said outer cap section having means through which said key is visible only when the key is in alignment with said channel to facilitate removing the cap from the container neck.

3. A structure as in claim 1, said outer cap section having means disposed beneath and spaced from the bottom edge of said cylindrical wall for engagement beneath the flared lower ends of said prongs when the outer cap section is displaced upwardly relative to the inner cap section for disengaging said cylindrical wall from said outwardly flared prong ends and whereby the inner section is latched to the outer section in a partially raised position of said outer section relative to the inner section for removal of the cap from the container neck as a unit.

4. A structure as in claim 3, said means comprising an annular flange outwardly offset relative to said cylindrical wall and disposed substantially parallel to said first mentioned flange of the cylindrical wall, said last mentioned flange having a notch aligning with said inwardly opening channel through which the key is movable into and out of engagement with the channel.

5. A structure as in claim 1, said outer cap section having an outer annular wall forming a depending extension of a bottom edge of said annular depending portion and which is spaced outwardly from said cylindrical wall, said cylindrical wall having a gap combining with a portion of said outer wall to define said inwardly opening channel.

6. A structure as in claim 1, said prongs forming integral extensions of said apron and being secured to the apron at the upper ends only of said prongs and substantially above the level of the bottom edge of said apron.

7. A structure as in claim 1, said annular flange having a raised portion disposed on one side of the upper end of said inwardly opening channel and extending upwardly into said annular inwardly opening space, said raised portion forming an abutment whereby said outer cap section can be turned in only one direction for moving the key out of registration with the channel and to facilitate repositioning the key in alignment with the channel when said outer cap section is rotated in the opposite direction to move said abutment into engagement with the key.

8. A structure as in claim 1, said neck having a shoulder disposed between the upper portion thereof and said recessed portion and facing toward the recessed portion, said prongs having inwardly extending spurs adjacent the lower ends thereof receivable in said recessed portion for engagement with said shoulder to limit upward displacement of said inner section relative to the neck, said apron having a dispensing opening disposed above the upper end of said neck when said spurs are in engagement with the shoulder, and said cylindrical wall having a dispensing opening movable into registration with the dispensing opening of the apron when the apron dispensing opening is positioned above the dispensing neck.

9. A structure as in claim 8, and means carried by said cylindrical wall for engaging under the flared terminals of said prongs for displacing the inner cap section upwardly relative to the neck with said outer cap section to locate said openings in dispensing positions.

10. A structure as in claim 9, said recessed portion of the neck including an annular portion of reduced diameter relative to the upper portion of the neck and a downwardly tapered portion disposed therebeneath and into which said spurs are displaceable when the inner section is displaced downwardly relative to the neck to a fully closed position.

11. A structure as in claim 10, said prongs being of substantial length and having undulating portions disposed above said spurs for increasing the resiliency and flexibility of the prongs.

12. A structure as in claim 1, said outer cap section having at least one additional inwardly opening channel, and said apron having at least one additional key, said keys and channels being circumferentially spaced in a manner whereby the keys can be disposed to engage in said channels only when the first mentioned key is in alignment with said first mentioned channel.

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