

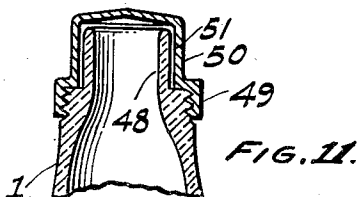
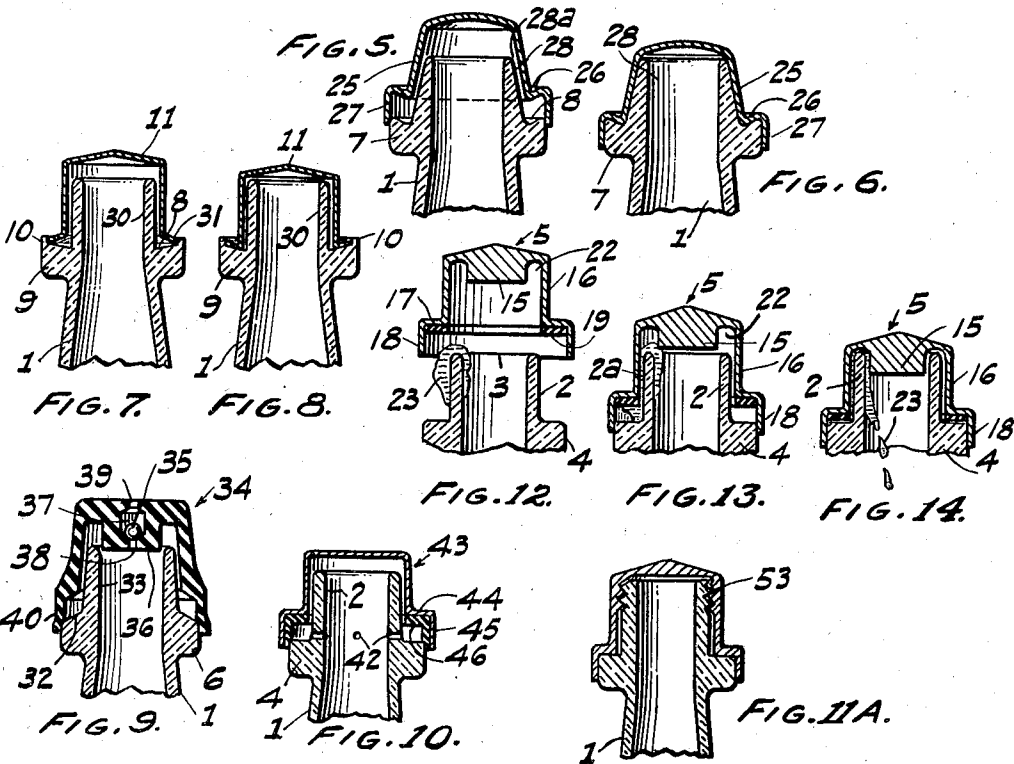
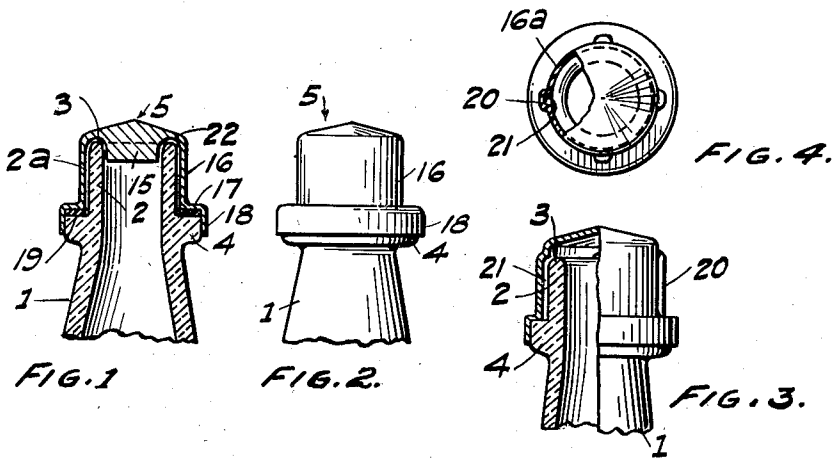
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SANITARY CLOSURE FOR RECEPTACLES CONTAINING POURABLE SUBSTANCES

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SANITARY CLOSURE FOR RECEPTACLES CONTAINING POURABLE SUBSTANCES

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15 Claims. (Cl. 215—31)

The present invention relates to improvements in sanitary closures for receptacles containing fluid and semi-fluid substances, of the character set forth in my co-pending application, Serial Number 1,886, filed January 15, 1935. In addition to carrying forth the objects enumerated in said application, still further objects of the present invention comprehend:

The provision of an improved one piece cap which may be sealed to the top of a full container to assure the purchaser that he is receiving the original contents of said container; the provision of a container having a neck so shaped that it may be fitted with a one piece cap that, as it is being applied, will direct back into the container residue adhering to the neck of the container after pouring and will form an airtight seal once it is in place; the provision of a cap which after removal from a used container does not have moisture on any part of its outside surface; the provision of a cap which upon its application to a container having a cooperative cap-engaging part integralized therewith will more effectively revert to the container residue tending to cling to the neck of the container after pouring; and the provision of an improved article of manufacture both as a container and as a cap.

More specifically the invention pertains to the provision of a container provided with a neck, a barrier for temporarily obstructing drip occurring at the mouth of the neck after pouring, and a cap fittable over the barrier and having clearance between the inside wall of the cap and the walls of the neck whereby as the cap is manually applied to the barrier the drip will be entrapped and ultimately directed backwardly into the container.

Referring now to the drawing wherein are shown preferred and modified embodiments of the device—

Fig. 1 is a vertical mid-sectional view through the cap and upper end or neck of the container.

Fig. 2 is a side elevation of the structure shown in Fig. 1.

Fig. 3 is a part vertical section and part side elevation thru the cap and upper end of the container showing a modification of the cap.

Fig. 4 is a plan view of the structure shown in Fig. 3, a portion of the cap's structure being broken away to show the relation of the walls of the container and cap.

Fig. 5 is a vertical mid-section thru the cap and upper end of the container showing the cap in a partly removed relation to the container and both

somewhat additionally modified in their construction.

Fig. 6 is a section similar to that shown in Fig. 5 except that the cap is shown fully seated.

Figs. 7 and 8 are vertical mid-sections thru the cap and upper end of the container showing a snap-in-place type of cap.

Fig. 9 is a vertical mid-section thru the cap and upper end of the container showing a modified form of an all rubber cap including a check valve.

Figs. 10, 11 and 11a are still further vertical mid-sectional modified showings of my invention, and

Figs. 12, 13 and 14 show in vertical mid-section different steps in the application of the cap in actual practice when constructed as illustrated in Figs. 1 and 2.

My invention comprises a conventional form of container 1 having a tubular part or discharge neck 2, including a mouth 3, provided with a shoulder forming a barrier 4 circumscribing said neck in a more or less spaced relation to said mouth.

The barrier 4 is adapted to temporarily obstruct any drippage adhering to the mouth 3 after pouring, from flowing down the sides of the container 1 until the cap 5, presently to be described, is applied whereupon such drippage is entrapped and ultimately directed backwardly into the container.

The barrier 4 and tubular part 2 form with each other a right angle joint in Fig. 1. However, this barrier may be modified to include a ring 6 forming an obtuse angle with the neck as shown in Fig. 9 or, a ring 7 forming an acute angle with the neck, as shown in Figs. 5 and 6.

The barrier 4 may be still further modified to include a ring 9 forming with the neck an acute angle as shown in Figs. 7 and 8 and providing the ring 9 with an upstanding annular flange 10.

Describing in detail the cap 5 shown in Figs. 1 and 2, said cap comprises a dome and crown portion having a stopper part 15 which fits within the mouth portion of the neck 2 of the bottle, and an outer skirt portion 16 having an outwardly directed annular flange 17 and terminating in a diametrically enlarged part or flange 18. In this form of the cap the parts 16 and 18 are true cylinders and the flange 17 which unites them extends at a right angle to them both; there being an annular clearance 2a between the outside surface of said neck and the inside surface of said skirt. A gasket 19 may be fitted within the flange 18 to rest upon the barrier 4 when the stopper is applied.

In Figs. 3 and 4 the tubular cap portion 16a has a plurality of longitudinal outwardly directed ribs 20 formed thereon which overlie drainage passages 21 thru which the residue adhering to the neck is directed backwardly into the container while the cap is being replaced after a pouring operation. When the cap 5 is fully applied, as shown in Fig. 1, the annular clearance 2a is continued over the edge and down into the mouth of the bottle neck by reason of the annular groove 22 being rounded throughout its deeper portion as viewed in cross section, to correspond with the curved lip of the mouth of the bottle.

In Figs. 12, 13 and 14 are illustrated three advancing steps in the application of the cap 5 to the neck of the bottle, Fig. 14 showing the final step wherein liquid drippage pulvaceous material 23 is being forced back into the neck of the bottle. Owing to the fact that the skirt flange 18 fits with a working fit around the exterior of the annular barrier 4, as soon as the lower edge of said flange reaches said barrier it entraps any liquid film which may overlie the bottle neck after a pouring operation, and as the cap is pushed farther on such liquid is forced back into the bottle neck as illustrated at 23 in Fig. 14. A similar action upon the liquid residue takes place when the cap shown in Figs. 3 and 4 is applied.

In Figs. 5 and 6 an exteriorly tapered bottle neck 28 is furnished with a circumferential external barrier 7 having along the upper surface thereof an annular trough or sump 8. The cooperating cap 25 is frusto-conical and has along its lower edge the outwardly directed intermediate flange 26 and downwardly directed terminal flange 27, these flanges cooperating to form a cap portion which fits snugly over and around the barrier 7 when the cap is completely applied. The taper of this cap is the same as the external taper of the bottle neck 28 to which it is applied. This form provides a relatively large passageway 28a for the liquid to pass thru, which, however, decreases in size as the cap moves down until it is practically nil when the cap is fully seated. Hence the complete seating of the cap will produce an efficient cleaning of the exterior surface of the bottle neck.

In Figs. 7 and 8 the bottle neck 30 is furnished with an additionally modified annular barrier 9 having an upstanding peripheral lip 10. Said lip surrounds the upper surface of said barrier which is so inclined as to deepen towards the axis of the bottle neck. The cooperating cap 11 has around its open end an inclined outwardly directed flange 31 which when the cap is forced into the fully applied position will snap from the position shown in Fig. 7 to the reversely inclined position of Fig. 8. In assuming the latter position said flange will force liquid residue out of the sump or trough 8 and cause it to be directed upwardly within the loosely fitting cap and thence around the bottle neck into the bottle. In this case the cap will preferably be made of waxed paper or thin celluloid. The natural position which the resilient flange 31 always takes when released is shown in Fig. 7. The troughs or sumps shown in Figs. 5 to 8, being inclined transversely and deepest next to the bottle's neck, will find their greatest utility in dispensing thin liquids such as hair oil which would tend to run off from a horizontal shoulder.

Fig. 9 differs from Fig. 1 in that an all rubber cap is shown and the barrier 6 is provided with a downwardly directed bevel 32 which forms with the neck 33 of the bottle an obtuse angle as

already mentioned. The cap 34 is also modified to include a check valve 35 which is mounted in the stopper portion 36. A valve chamber 37 is provided for the valve, said chamber having an inner vent 38 and an outer vent 39. The latter vent is sufficiently large to admit the ball valve 35 when expanded to an extent readily possible owing to the elastic character of the cap. This valve controlled vent means may be desirable owing to the fact that in this form of the device there is an air tight fit between the barrier 6 and the skirt portion 40 of the cap. The stopper portion 36 serves the same purpose as the corresponding part shown in Fig. 1. The cap of Fig. 9 is slightly tapered toward its closed end.

In Fig. 10 the bottle neck and the barrier therearound are the same in form as in Fig. 1 and are therefore lettered in the same way. However, lateral vents 42 are shown in Fig. 10 just above the barrier 4. The cap 43 of this form is shown made of sheet material having at its open end the outwardly directed annular flange 44 and the tubular terminal flange 45. An elastic gasket 46, angular in cross section, fits within these flanges.

In Fig. 11 a bottle neck structure 48 is shown having an externally screw threaded barrier 49 whereon screws a cap 50 similar in shape to that shown in Fig. 10. A distinct annular clearance 51 is shown within the applied cap.

In Fig. 11a the structure is substantially the same as that shown in Fig. 11 except that the screw threaded connection 53 is located between the deepest portion of the cap and the exterior of the outer end portion of the bottle neck and the threaded connection is sufficiently loose to permit the residual liquid to ooze back into the mouth of the container.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the subject matter claimed.

What is claimed is:

1. In a device of the kind described, in combination, a bottle neck having a barrier therearound in a spaced relation to its mouth, a cap to form a closure for said bottle neck, said cap having a skirt which terminates in an outwardly and downwardly directed part closely fittable over said barrier, and a body portion which when in place provides a clearance thereunder extending from said barrier into the mouth of said bottle neck.

2. A container having a neck portion provided with a mouth, a flange circumscribing said neck in a spaced relation to said mouth, a cap having a closed crown overlying said mouth, said crown having a depending tubular body portion enclosing said neck with an annular clearance therearound, and a skirt depending from said tubular portion in an offset relation thereto and applied to said flange, said clearance communicating with the container's interior after said cap is fully applied.

3. A container having a neck portion provided with a mouth, a flange circumscribing said neck in a spaced relation to said mouth and a cap having a crown overlying said mouth, said crown having a body portion depending from said crown, and a downwardly depending skirt joining said body portion in an offset relation thereto, said skirt engaging said flange in such a manner as to entrap residue clinging to said mouth and neck after pouring, there being clearance between the inside surface of said body portion and

the exterior surface of said neck whereby to direct said residue ultimately down into the container as said skirt is applied to said flange.

4. A container having a neck provided with a mouth, a shoulder forming a barrier joining said neck in a spaced relation to said mouth, and a cap for enclosing the mouth of said container and directing any residual liquid clinging to said mouth and neck after pouring back into said container, said cap comprising a crown overlying said mouth, a body portion depending from said crown, and a skirt depending from said body portion in an offset relation thereto, said skirt upon application of the cap to the container engaging the rim of said shoulder thereby to entrap said residual liquid within the confines of said cap, and there being clearance between the adjacent walls of the container's neck and the dome of said cap whereby to direct said residual liquid back into the container as said skirt is affixed to said barrier.

5. In a device of the kind described, a bottle neck having a barrier therearound in a spaced relation to its mouth, said barrier having a circular depression therealong which deepens towards the axis of the bottle neck, and a closed cap having a skirt portion shaped to conform internally to said depression and to the other exterior portions of said bottle neck and barrier.

6. In a device of the kind described, a bottle neck having a barrier therearound in a spaced relation to its mouth, said barrier having a circular depression therealong for obstructing residual overflow after pouring, and a closed cap having a skirt portion shaped to conform internally to said depression and to the other exterior portions of said bottle neck and barrier.

7. In a device of the kind described, in combination, a bottle neck having a screw threaded barrier therearound in a spaced relation to its mouth, and a cap to form a closure for said bottle neck, said cap having a skirt which terminates in an outwardly and downwardly directed part which is internally screw threaded to screw on to external threads provided on said barrier, said cap having a body portion which when in place provides a clearance thereunder extending from said barrier to the mouth of said bottle neck.

8. A container having a neck portion provided with a mouth, and a lateral flange circumscribing said neck in spaced relation to said mouth, and a cap for enclosing the mouth of said container, said cap having a body portion provided with a recess the inside diameter of which is greater than the outside diameter of said neck, a skirt depending from said body portion in an offset relation thereto and engaging the rim of said flange with a working fit, and a part depending from the crown of the cap and extending into said neck, there being clearance between said part and said neck.

9. The combination with a container having a neck portion provided with a mouth, and a barrier mounted on said container in a spaced relation to said mouth; of a cap for enclosing the mouth of said container, said cap having a crown portion overlying said mouth, a body portion depending from said crown and having a recess for enclosing said neck, and a flange providing a lateral extension for said body portion, said extension being provided with a downwardly depending skirt for enclosing said barrier.

10. The combination with a container having a neck portion provided with a mouth, and a barrier mounted on said container in a spaced rela-

tion to said mouth; of a cap for enclosing the mouth of said container, said cap having a crown portion overlying said mouth, a body portion depending from said crown and having a recess for enclosing said neck, and a flange providing a lateral extension for said body portion, said extension being provided with a downwardly depending skirt for enclosing said barrier, there being clearance provided between the outside wall of the container's neck and the inside wall of said cap which lies adjacent thereto.

11. A container having a neck portion provided with a mouth, a barrier mounted on said container in a spaced relation to said mouth, a cap having a body portion provided with a recess into which said neck is extendible, a skirt depending from said body portion into which said barrier is extendible with a working fit, there being a clearance between the outside wall of said neck and the adjacent wall of said cap, said clearance communicating with the interior of said container after full application of said cap thereto.

12. In a device for use in connection with a container for containing liquids and semi-liquids, said container having a barrier in spaced relation to its mouth for obstructing the downflow of residue remaining thereat after pouring, a cap operable to close the mouth of the container, said cap and the structures engaged thereby being so shaped as to provide communicating space between the barrier and the interior of the container so that the application of that portion of the cap which engages said barrier directs back into the container thru said communicating space liquid residue entrapped by said barrier.

13. In combination, a bottle having a barrier extending around its neck in a spaced relation to its mouth, and a cap having a body portion provided with a dome overlying said neck, there being a passageway between the body portion of said cap and the adjacent wall of said neck, a skirt depending from said body portion and engaging said barrier with a working fit, said cap having a groove in said dome communicating with said passageway which affords thereunder a clearance to conduct residual liquid back into the bottle as said cap approaches a fully applied position.

14. A container having a neck portion provided with a mouth, a flange circumscribing said neck in a spaced relation to said mouth and a cap having a crown overlying said mouth, said crown having a body portion depending from said crown, and a downwardly depending skirt joining said body portion, said skirt engaging said flange in such a manner as to entrap residue clinging to said mouth and neck after pouring, there being a passageway extending from said flange to the interior of the container whereby to direct said residue ultimately down into the container as said skirt is applied to said flange.

15. A container having a neck portion provided with a mouth, a lateral flange circumscribing said neck in a spaced relation to said mouth, a cap for enclosing said mouth, said cap having a body portion provided with a recess the inside proportions of which are greater than the outside proportions of said neck, a skirt depending from said body portion and engaging said flange with a working fit, and a part depending from the crown of said cap and extending into said neck, there being clearance between said part and said neck.