

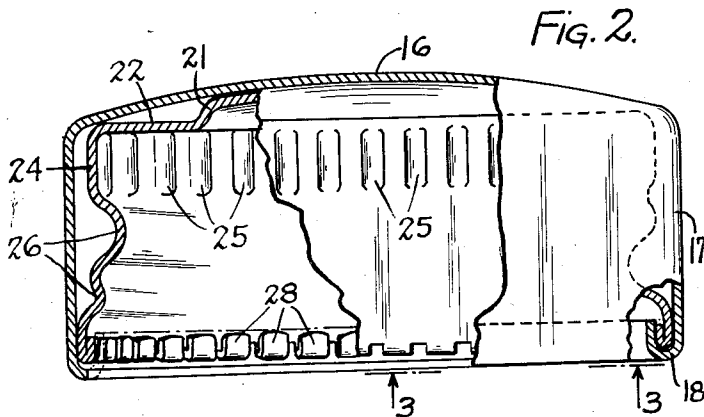
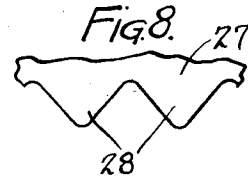
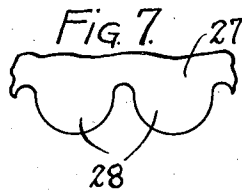
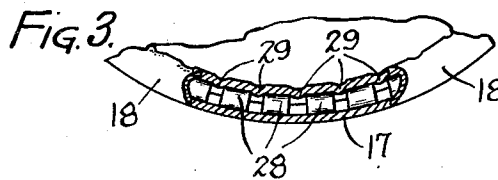
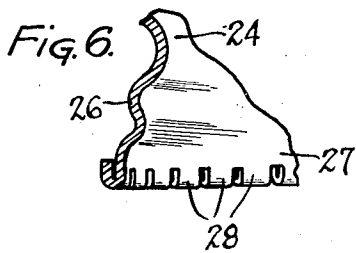
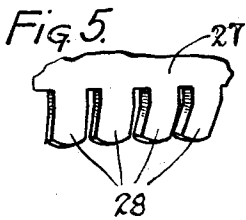
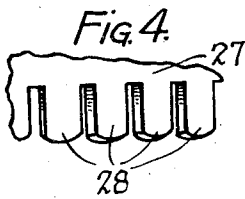
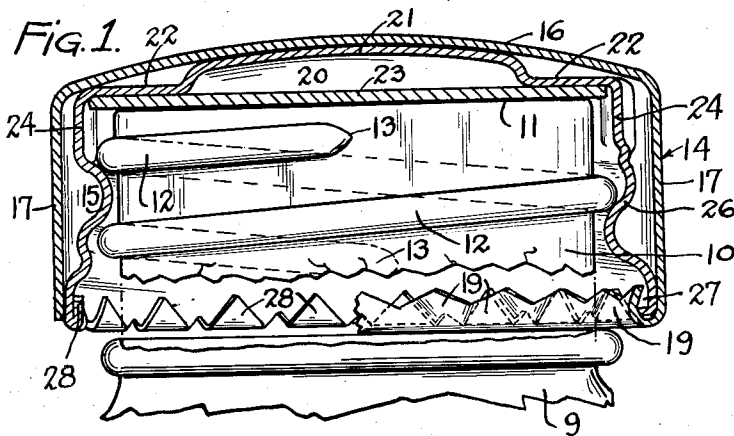
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CLOSURE

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CLOSURE

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12 Claims. (Cl. 215—43)

My invention relates to closures used for sealing the openings in containers, jars or bottles made chiefly of glass or other friable material, and the objects of my invention are, among other things, to form a closure which shall effectively seal and reseal such container openings by being pressed firmly down on the circular rim or mouth of such openings with a substantially uniform pressure.

A further object of my invention is to provide an improved two-piece closure cap which shall have a smooth finished exterior surface that may be lacquered or otherwise decorated for ornamental purposes combined with the screw-threaded inner cap that engages the lugs or threads on the neck of the bottle or jar for locking the closure in position which cap is concealed when the closure is in sealing position.

A further object of my invention is to provide improved means for securing and interlocking the outer shell and inner cap as a unit with ready and quick assembling of the two parts so that the screw cap may be rigidly fastened within the exterior shell having a smooth depending skirt.

With the above and other objects in view, my invention comprises the novel construction and arrangement of parts to be hereinafter specifically described and then pointed out in the claims.

In the accompanying drawing showing preferred embodiments of my invention—

Fig. 1 is a side elevation of a bottle neck with the closure in sealing position, the closure being shown in vertical section;

Fig. 2 is a side elevation of the closure partly broken away to show the inner cap, and also shown in vertical section on the left side;

Fig. 3 is a detail bottom view of the closure along the line 3—3 of Fig. 2, which is partly broken away to show the interlocking of the bottom edges of the inner cap and outer shell;

Fig. 4 is a detail side view of a portion of the lower margin of the inner cap showing the scalloped edge before rolling;

Fig. 5 is a view similar to Fig. 4, but showing the scalloped edge bent inwardly in the rolling operation;

Fig. 6 is a detail view of the inner cap with a vertical edge and showing the scalloped bottom edge bent outwardly and upwardly before assembling the inner cap and shell; and

Figs. 7 and 8 are detail views showing different forms of scallops or saw teeth that may be cut in the bottom edge of the inner cap.

Similar numerals refer to similar parts throughout the several figures.

Referring to Fig. 1, the container or bottle 9, preferably made of glass or other friable material, has the upwardly projecting neck 10 terminating in the mouth 11. Encircling the neck 9 are the screw-threads 12 which are preferably inclined

and integral with the neck 9, and also have rounded ends 13. Spaced-apart lugs or divided threads may be formed on the neck 9 in place of the inclined threads 12 if desired to conform to the variable forms of coating engaging means on the inner cap of the closure that may be used to affix the closure to the bottle 9.

The closure or seal itself is composed of the outer shell 14 and inner cap 15, both preferably stamped from sheet metal in cylindrical form. The outer shell 14 has the crown 16 which may have a rounded dome as shown in Figs. 1 and 2, or the crown 16 may be flat to engage the flat crown of the inner cap 15 in mutual parallelism as may be desired for different types of closures.

The outer shell 14 has the depending skirt 17 of smooth finish in cylindrical form for decorative purposes, and terminates at its lower edge in a plain bead 18 or in scallops or saw teeth 19 cut in such bottom edge 18 as shown in detail in Figs. 1 and 2.

The inner cap 15 has the crown 20 with a centrally-disposed dome 21 to bear against the crown 16 of the outer shell 14 as shown in Figs. 1 and 2 when the shell 14 and inner cap 15 are in assembled position, with the outer marginal periphery 22 of the crown 20 flat to which the usual liner 23 is secured in any suitable manner. Or the crown 20 may be entirely flat to bear against the correspondingly flat crown 16 of the outer shell 14 as hereinbefore described. The inner cap 15 also has the skirt 24 having vertical corrugations 25 (Fig. 2) to stiffen same, such skirt 24 being of smaller diameter than the skirt 17.

Below the corrugations 25 the skirt 24 is formed with inclined threads 26 which are adapted to engage and coat with the threads 12 on the bottle neck 9 as shown in Fig. 1. The lower rim edge of the shell skirt 17 (Figs. 1 and 2) has a diameter slightly greater than the diameter of the bottom rim of the inner cap skirt 24 so that the outer shell 14 will pass over the threads 26 and have the bottom rim 18 secured to the bottom edge of the inner cap skirt 24. The lower edge 27 of the skirt 24 is formed with scallops or saw teeth 28 as shown in detail in Figs. 4-8, which scallops may be bent inwardly or outwardly in the rolling operation in assembling the outer shell 14 and inner cap 15.

When the closure as a whole has been assembled and applied to the container or bottle 9, this two-piece closure will permit a freedom of rotation for the inner cap 15 in screwing same on or off the container 9.

The lower rim of the outer shell 14 may have a plain rounded edge 18 in the form of a bead, or such edge 18 may be cut with scallops or saw teeth 19 as shown in Fig. 1, such scallops 18 in the outer shell 14 preferably being of finer pitch than the inner scallops 28 of the inner cap which

facilitates the interlocking of the parts when the outer shell 14 and inner cap 15 are assembled as a unit as shown in Fig. 1. As shown in this figure, the lower rim of the outer shell 14 does not necessarily contact with the bent over scallops or saw teeth 28 of the inner cap 15 when in assembled position.

In assembling this two-piece closure, the inner cap 15 is fitted or telescoped within the outer shell 14 so that the crown 16 bears firmly against the inner cap crown 19. The scallops 28 are first bent inwardly (Fig. 5) in the rolling operation and then the lower edge 18 of the outer shell 14 is rolled over the scallops 28 which assume the approximate form shown in Figs. 2 and 6. Thereafter the bottom edge 18 of the outer shell 14 is crimped to force or bend the metal along the bottom edge of the outer shell 14 into the spaced-apart gaps between the series of scallops or saw teeth 28 as shown at 29 in Fig. 3, or the saw teeth 19 cut in the lower edge 18 (Fig. 1) may be forced or bent into the gaps between the saw teeth 18, so as to form a rigid interlocking of the bottom edges of the outer shell 14 and inner cap 15 (Fig. 3) to unite same as a closure unit in which all relative rotation between this outer shell and inner cap as well as any longitudinal movement are effectually prevented. Furthermore the presence of so many complementary cut edges in this interlocked union of the lower edges of the outer shell 14 and inner cap 15 increases the frictional resistance that also precludes any relative rotation of the outer shell 14 and inner cap 15.

The inner cap scallops 28 may also be folded outwardly in the rolling operation with the lower rim of the outer shell 14 which may be formed with the plain bead edge 18 or with the scallops 19 as respectively shown in Figs. 2 and 1.

My improved closure provides smooth surfaces of metal which are exposed to view throughout when applied to the container thereby enabling these surfaces to be painted or decorated in any way desired with the inner screw cap rigidly secured within the outer shell and also the screw threads concealed from view. Furthermore the rounded interlocking engagement along the lower rim of the closure forms a reinforcement for both outer shell and inner cap, and also provides a two-piece closure in which the lower edge is symmetrical and smooth throughout its lower rim.

Various changes or alterations may be made in the specific constructions shown without departing from the invention or sacrificing the advantages derived from its use.

I claim as my invention:—

1. A closure comprising an inner screw-cap and a therewith combined outer shell with their lower edges scalloped and rolled in interlocked union along the bottom rim of the closure.

2. A closure comprising an inner screw-cap and a therewith combined outer shell with their lower edges scalloped and rolled into successive coacting engagement to form an interlocked union along the bottom rim of the closure.

3. A closure comprising an inner screw cap and a therewith combined outer shell having a straight depending skirt fitted over the inner cap, said shell skirt having a rounded bead rolled inwardly over a scalloped edge formed in the cap to interlock both cap and shell as a closure unit.

4. A closure comprising an inner screw cap and

a therewith combined outer shell having a straight depending skirt fitted over the inner cap, said shell skirt having a rounded bead with a scalloped edge rolled inwardly over a scalloped edge formed in the cap to interlock both cap and shell as a closure unit.

5. A closure comprising an inner screw cap and a therewith combined outer shell having a straight depending skirt fitted over the inner cap, said shell skirt having a rounded bead rolled inwardly over an inwardly bent scalloped edge formed in the cap to interlock both cap and shell as a closure unit.

6. A closure comprising an inner screw cap and a therewith combined outer shell having a straight depending skirt fitted over the inner cap, said shell skirt having a rounded bead with a scalloped edge rolled inwardly over an inwardly bent scalloped edge formed in the cap to interlock both cap and shell as a closure unit.

7. A closure comprising an inner screw-cap having a threaded skirt and a therewith combined outer shell having a straight cylindrical skirt fitted over said inner cap, said shell skirt having a rounded bead along its lower edge rolled over inwardly and crimped with a scalloped lower edge in the cap skirt to interlock the cap and shell along the bottom rim of the closure.

8. A closure comprising an inner screw-cap having a threaded skirt and a therewith combined outer shell having a straight cylindrical skirt fitted over said inner cap, said shell skirt having a rounded bead with a scalloped edge along its lower edge rolled over inwardly and crimped with a scalloped lower edge in the cap skirt to interlock the cap and shell along the bottom rim of the closure.

9. A closure comprising an inner screw-cap having a threaded skirt and a therewith combined outer shell having a straight cylindrical skirt fitted over said inner cap, said shell skirt having a rounded bead along its lower edge rolled over inwardly and crimped with an inwardly bent scalloped lower edge in the cap skirt to interlock the cap and shell along the bottom rim of the closure.

10. A closure comprising an inner screw-cap having a threaded skirt and a therewith combined outer shell having a straight cylindrical skirt fitted over said inner cap, said shell skirt having a rounded bead with a scalloped edge along its lower edge rolled over inwardly and crimped with an inwardly bent scalloped lower edge in the cap skirt to interlock the cap and shell along the bottom rim of the closure.

11. In combination, a container having its neck exteriorly screw-threaded, an interiorly screw-threaded cap engaging said container neck, and an outer shell enclosing said cap having a straight cylindrical skirt, said cap and said shell having their lower circular edges scalloped and rolled in successive interlocked relation along the bottom rim of the closure.

12. In combination, a container having its neck exteriorly screw-threaded, an interiorly screw-threaded cap engaging said container neck, and an outer shell enclosing said cap having a straight cylindrical skirt, said shell skirt having a rounded bead rolled inwardly over and crimped with a scalloped lower edge in the cap to interlock both cap and shell as a closure unit.

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