Oct. 31, 1939. A. L. MEROLLE 2,178,285

RECEPTACLE CLOSURE AND METHOD OF MAKING

Filed Dec. 7, 1934

FIG. 1

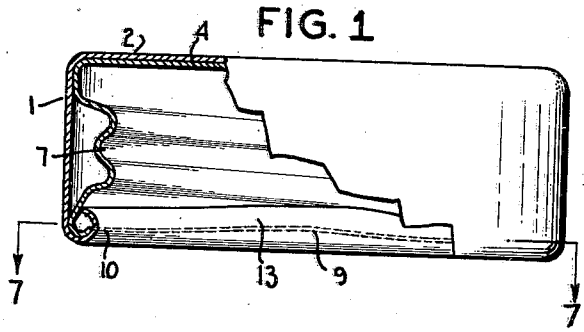


FIG. 2

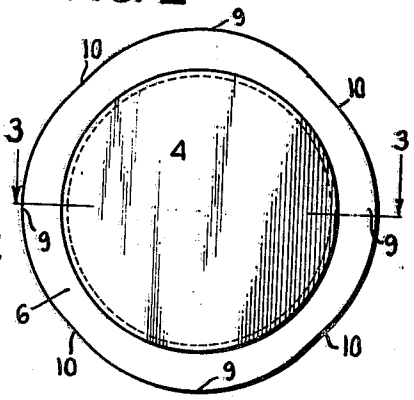
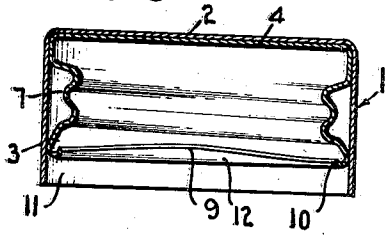


FIG. 5



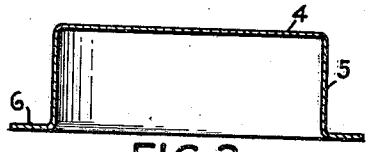


FIG. 3

FIG. 6

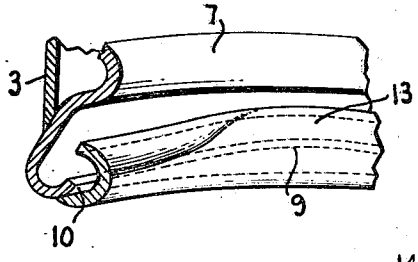
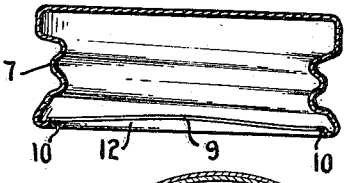


FIG. 4.



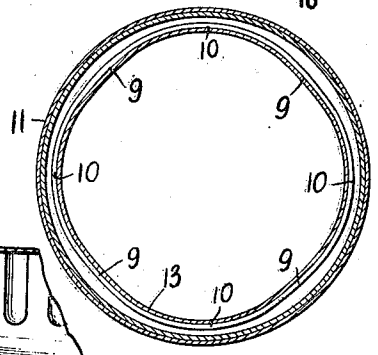


FIG. 7.

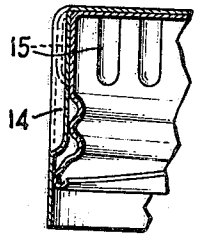


FIG 10

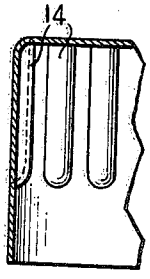


FIG. 8

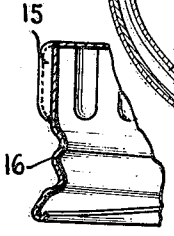


FIG. 9.

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2,178,285

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RECEPTACLE CLOSURE AND METHOD OF MAKING

Augustus L. Merolle, Brooklyn, N. Y.

Application December 7, 1934, Serial No. 756,381

3 Claims. (Cl. 215—43)

This invention relates to a receptacle closure of the two-piece type, that is one having an inner cap piece adapted to engage with the receptacle and an outer shell piece serving to provide a pleasing exterior and to protect and reinforce the inner cap member.

The main object of the invention is to provide an improved strong, durable and sightly cap of the character indicated.

A further and more specific object of the invention is to provide an improved means for uniting the parts of the closure and securing them against relative movement.

A further object of the invention is to provide a closure of the character indicated which, while strong, sightly and efficient, shall be simple and inexpensive to manufacture.

Other and ancillary objects of the invention will appear hereinafter.

In the accompanying drawing, which illustrates the invention:

Fig. 1 is a side elevation, partly broken away and partly in radial section, of a closure embodying the invention.

Fig. 2 is a top plan view of the blank from which the cap member is formed.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is an axial section of the cap member formed from the blank of Figs. 2 and 3.

Fig. 5 is a radial section showing the cap member nested within the blank from which the shell member is formed, the final relationship of the cap and shell members being as shown in Fig. 1.

Fig. 6 is an enlarged fragmentary view, partly in side elevation and partly in section, of the completed closure showing the relationship of the lower edges of the skirts of the cap and shell pieces.

Fig. 7 is a section on the line 7—7 of Fig. 1.

Fig. 8 is a view of the shell member before assembly with the cap member, of a modified form of closure, which is broken away, the view being partly in interior elevation and partly in radial section.

Fig. 9 is a similar view of a cap member adapted to co-operate with the shell member of Fig. 8.

Fig. 10 is a view partly broken away and partly in section and in interior elevation of the cap and shell members of Figs. 8 and 9 nested together, the margins of the skirts being rolled into the same relationship in the completed closure as shown in Fig. 1.

Referring to the drawing, and first to Figs. 1 to 7 inclusive, the closure of Fig. 1 is formed from the sheet metal cap piece of Fig. 2 and the sheet metal shell piece 1 of Fig. 5. The shell includes the circular top 2 and the marginal depending skirt 3 while the sheet metal cap (see Figs. 4 and 5) includes the circular top 4 with the marginal depending skirt 5 having the flange 6. The cap piece blank as shown in Figs. 2 and 3 is formed in one operation to have the threads 7 formed in the skirt 5 and also the flange 6 curled inwardly, the cap piece being then in the completed form as shown in Fig. 4. This cap piece is then nested within the shell piece 1 as shown in Fig. 5 and the lower marginal portion of the skirt 3 of the shell piece is curled inwardly about the curled marginal portion of the cap piece into the position as shown in Fig. 1. It will be observed that the flange 6 of the cap blank is not of uniform width but has different widths at a number of points circumferentially spaced about the cap whereby its edge is undulatory (see Fig. 2) the crests being at the widest points 9 and the depressions at the narrowest points 10 of the flange.

The cap having been formed as described and nested in the shell member as shown in Fig. 5, the lower marginal portion 11 is curled over about the curled over portion 12 of the cap piece to form the tubular wire edge 13 (see Figs. 1 and 6). It will be observed that the curled over portion 11 of the shell and the curled over portion 12 of the cap are snugly fitted together and that the curled over portion 12 of the cap does not extend, circumferentially of the wire edge, to as great a distance as does the curled over portion 11 of the shell. The edge of the curled over portion 12 of the cap is undulating having the crests 9 and the depressions 10 corresponding to the crests and depressions of the flange 6 from which it is formed. The marginal portion 11 of the shell is curled snugly about this undulatory edge of the cap and takes in between the undulations. It will be plain that the parts of the marginal portion 11 which are curled about the depressions will be of a less radius of curvature than those portions which are curled about the crests of the edge of the portion 12. Accordingly the tubular wire edge will be of different diameters at different points circumferentially spaced about the closure (see particularly Fig. 7) the curled over marginal portion 12 of the cap fitting snugly within the curled over portion 11 of the shell. It will be impossible to relatively rotate the shell and cap pieces as such attempted movement would be resisted by the impossibility of the wider portions of the curled over portion 12 passing through the narrower portions of the curled over portion 11 and the cap and shell pieces will

thus be locked against relative rotation and also will be held securely in proper relationship axially of the closure.

Figs. 8, 9 and 10 suggest a closure formed of shell and cap pieces similar to the structures of Figs. 1 to 7 inclusive. The shell and cap portions of Figs. 8 and 9 respectively are nested together and operated upon to form a closure as described in connection with Figs. 1 to 7 inclusive, except that in addition thereto there is adjacent to the top of the shell as shown in Fig. 8 a series of circumferentially spaced inwardly projecting lugs or corrugations 14 and corresponding grooves or recesses 15 are formed in the cap piece of Fig. 9 which are adapted to receive the lugs or corrugations 14 when the cap piece is nested within the shell as shown in Fig. 10. These interlocking lugs and recesses securely prevent any possible relative movement at the tops of the shell and cap pieces in case, on account of the give of the material, there should tend to be such relative movement of the tops although the bottom marginal portions of the skirts are securely held together. With the interlocked lugs and recesses, as described, at the top, the cap and shell pieces are securely interlocked together and held against relative movement at both the top and bottom of the skirts so that a firm and rigid structure is secured. It will be observed that the lugs 14 on the shell member are longer than the lugs and corresponding grooves 15 on the cap member. The lugs 14 extend down below the lugs on the cap member and at their lower portions bear against the threads 16, serving to reinforce and support the same in proper position.

While the invention has been illustrated in what are considered its best applications, the invention may be embodied in other structures without departing from its spirit, the invention is not therefore limited to the structures shown in the drawing.

What I claim is:

1. A closure for a container comprising an inner cap and an outer shell each having a top and a depending skirt, the skirt of the inner cap being provided with a spiral groove, the marginal portions of the skirts of said cap and shell being curled in intimate relation to form a tubular wire edge at the bottom of the closure, the curled marginal portions of both the skirt and cap being continuous about the circumference of the closure, and the lower portion of the cap extending to a less distance about the circumference of the cross section of the tubular wire edge than does the shell, the edge of the curled over portion of the cap being undulatory and portions of the curled over portion of the shell entering within the undulations and thereby interlocking the cap and shell against relative rotation, the curled over portion of the shell being curled about the edge of the curled over portion of the cap at all points about the circumference of the closure.

2. A closure comprising two members consisting of an inner cap and an exterior shell each having a top and a depending skirt, the skirt of the inner cap being provided with a spiral groove, the marginal portions of the skirts of said cap and shell being curled in intimate relationship to form a tubular wire edge at the bottom of the closure, the curled marginal portions of both the skirt and cap being continuous about the circumference of the closure and the lower portion of one of said members extending to a less distance about the circumference of the cross section of the tubular wire edge than does the other of said members, the edge of the curled over portion of the cap being undulatory and portions of the curled over portion of the shell entering within the undulations and thereby interlocking the cap and shell against relative rotation, the curled over portion of the shell being curled about the edge of the cap at all points about the circumference of the closure.

3. A closure for a container comprising an inner cap and an outer shell each having a top and a depending skirt, the skirt of the inner cap being provided with a spiral groove, the marginal portions of the skirts of said cap and shell being curled in intimate relationship to form a tubular wire edge at the bottom of the closure, the curled marginal portions of both the skirt and cap being continuous about the circumference of the closure and the curled over portion of the skirt of the cap being snugly enclosed by the curled over portion of the shell, the edge of the curled over portion of the cap being undulatory and curled over portions of the shell entering within the undulations whereby cross sections of the curled over portions of the shell are of different radii of curvature and the cross sections of the tubular wire edge are of different diameters at points circumferentially spaced about the closure, the cross sections of the curled over portions of the shell passing about the crests of the undulating edge being of greater radius of curvature, and the diameter of cross section of the tubular wire edge being greater, where the curled over shell portion passes over the crests of the undulations and of less radius of cross sectional curvature and the tubular wire edge being of less cross sectional diameter where the curled over portion of the shell passes over the depressions of the undulating edge, the curled over portion of the shell being curled about the edge of the cap at all points about the circumference of the closure.

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