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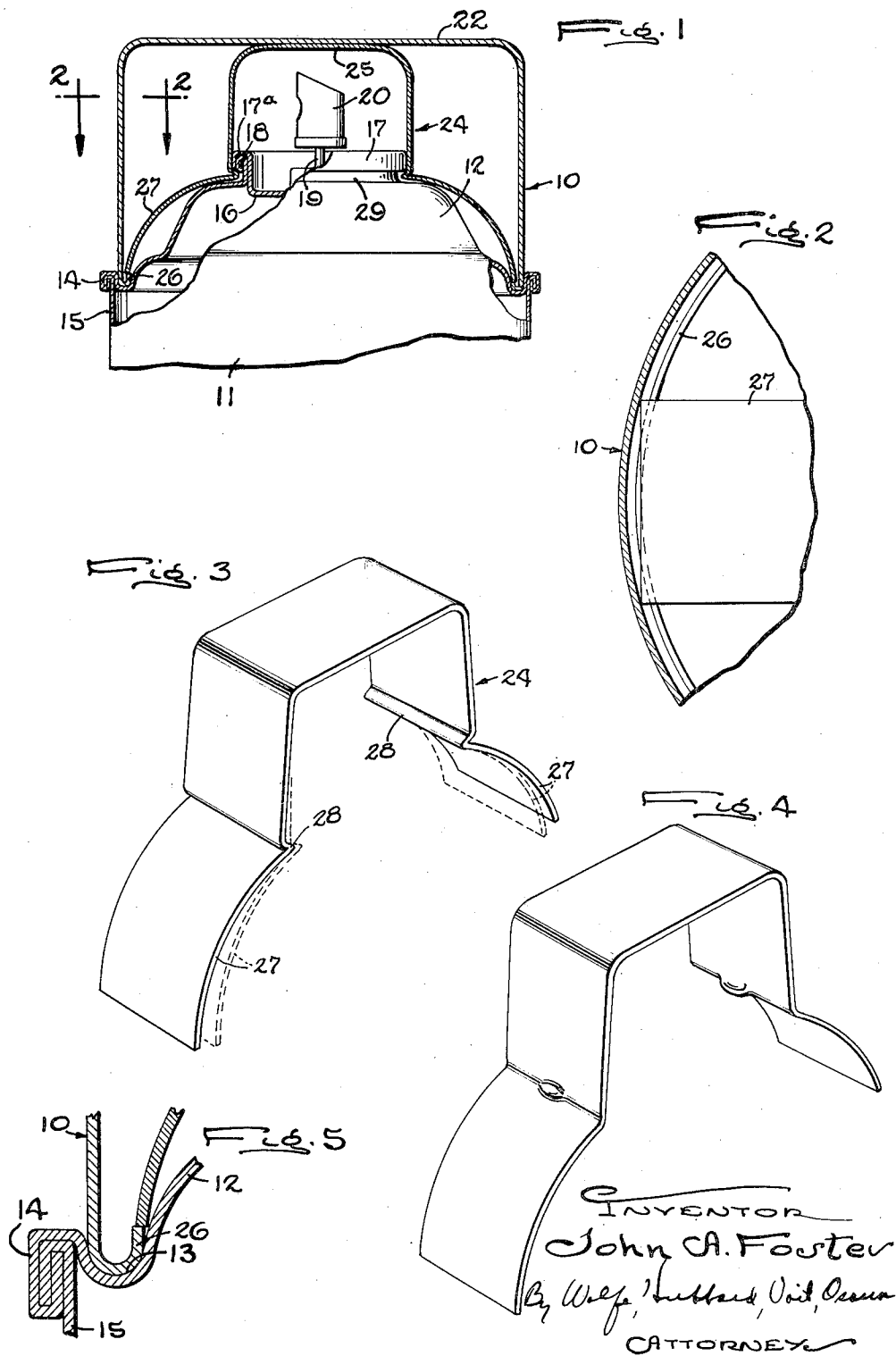
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PROTECTIVE COVER FOR DISPENSING CONTAINER

Filed June 15, 1959

2 Sheets-Sheet 1



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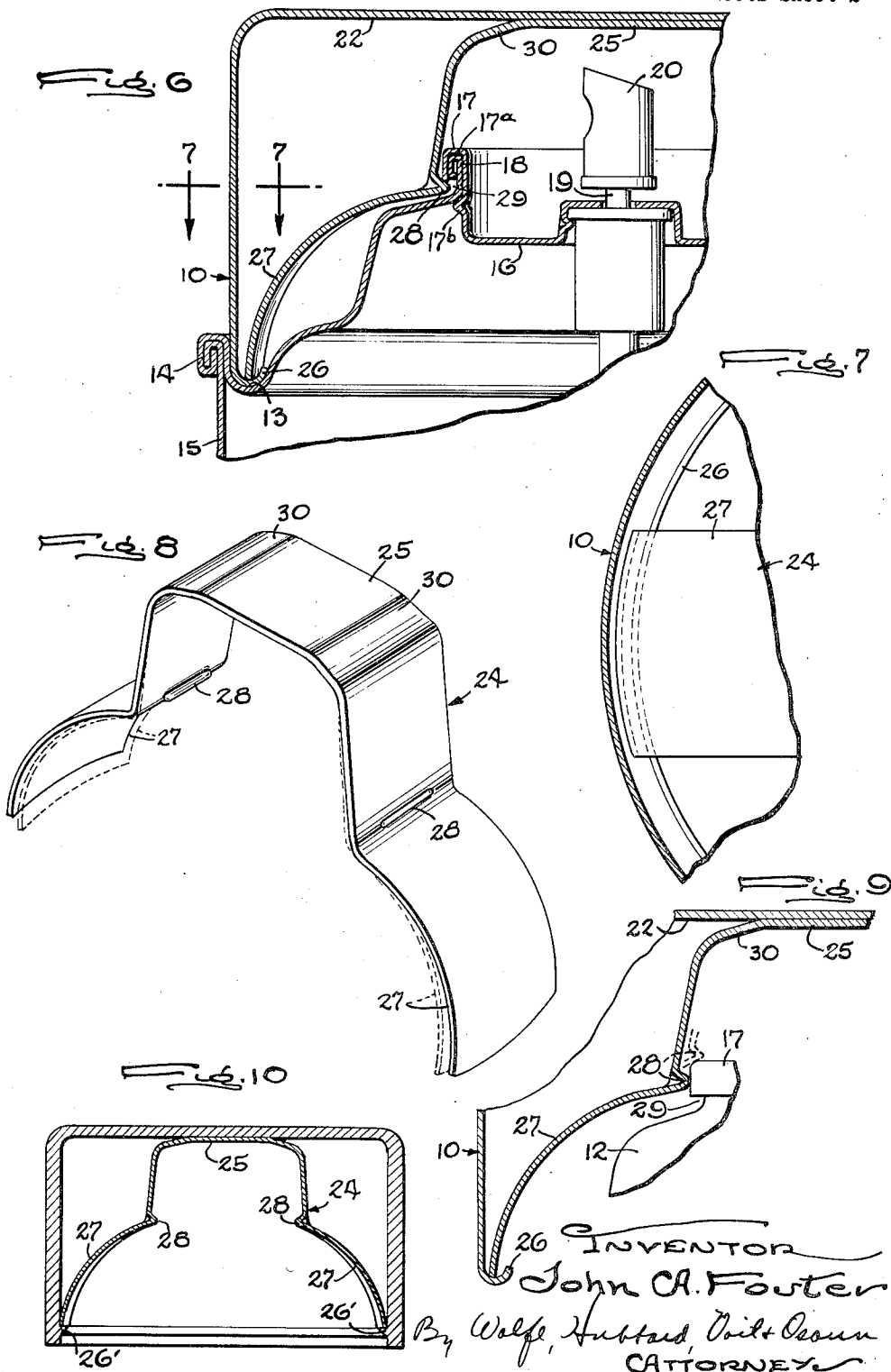
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PROTECTIVE COVER FOR DISPENSING
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IllinoisFiled June 15, 1959, Ser. No. 820,332
7 Claims. (Cl. 220—55)

This invention relates generally to a protective cover for a so-called aerosol pressurized container of the type having a dome closing one end and a dispensing spout projecting outwardly beyond the dome. More particularly, the invention relates to a protective cover which encloses the spout and is held releasably against an axially facing shoulder on the periphery of the dome by snap interengagement with a radially opening groove axially spaced outwardly from the shoulder.

The primary object of the present invention is to incorporate in a cover of the above character a novel snap acting fastener which does not detract from the external contour of the cover or mar the decorative coating thereon.

A more detailed object is to hold the cover on the dome by a separately formed fastening device which is adapted for snap interengagement in a novel manner with both the cover and the dome.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a fragmentary diametrical cross section of a container having a cover embodying the novel features of the present invention.

FIG. 2 is a fragmentary sectional view taken along the line 2—2 of FIG. 1.

FIG. 3 is a perspective view of one form of clip for retaining the cover on the container.

FIG. 4 is a fragmentary perspective view of a modified clip construction.

FIG. 5 is an enlargement of a part of FIG. 1.

FIGS. 6, 7 and 8 are views similar to FIGS. 1 to 3 showing a modified form of the invention.

FIG. 9 is a fragmentary section similar to FIG. 6 with the cover being placed on the can.

FIG. 10 is a vertical cross section of another form of the improved can cover.

The invention is shown in the drawings for purposes of illustration embodied in a cover 10 for a gas pressure dispensing can 11 which is closed at one end by a dome 12. The latter is secured around its outer periphery or base to the upper end of a cylindrical side wall 15 of the can by a seam 14 surrounding a groove whose bottom defines an axially and outwardly facing shoulder 13. The raised center portion of the dome is apertured to receive an annular center piece 16 having an outer peripheral curl 17 bent around and interlocking with a similar curl 18 on the dome when the piece 16 is pressed into the dome to compress sealing material 17^a against the curl. Such interlocked relation is maintained by outwardly projecting lugs 17^b underlying the inner edge of the dome. In the resulting assembly, the curl 17 forms a bead over-

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hanging the dome and cooperating with the top surface of the latter to define an outwardly opening groove 29. Mounted on and projecting upwardly through the center piece is a hollow stem 19 of the usual valve assembly for establishing communication between the interior of the can and a dispensing spout 20.

The cover 10 is an inverted generally cylindrical cup having a flat bottom wall 22 spaced outwardly beyond the spout 20 when the lip or free edge is seated against the shoulder 13 on the dome 12. Preferably, the cover is formed with a smooth outer surface which may be decorated attractively in advance when the cover is made from sheet metal as is preferred for low cost manufacture. To avoid an exposed raw edge of metal the side wall of the cup is curled inwardly and upwardly to form a lip flange 26 adapted to seat accurately in the groove defined by the shoulder 13 on the can. It will be observed that this curl provides an internal peripheral shoulder which faces upwardly toward the bottom of the cup and in the form shown in FIGS. 1 and 6 is a continuous flange of arcuate construction.

The present invention contemplates holding the cover releasably seated on top of the can by a fastening device 24 which is adapted for snap interengagement with the curl 17 of the can top and which is formed separately from the cover and adapted for attachment to the latter by engagement with the bottom 22 and the shoulder 26 or other intumed projections adjacent the cup lip. Herein, the fastening device 24 includes two elongated members 27 formed separately from but adapted for snap interengagement with the cover and insertable therein after formation and decoration of the outer surface of the cover. The members extend between the bottom wall 22 and the shoulder 26 on opposite sides of the cover and abut at one of their ends against the shoulder to secure the device to the cover. Intermediate the ends of the members are projections 28 which face inwardly toward each other and, when the lip of the cut is seated against the dome shoulder 13, extend into the outwardly opening groove 29 so as to interlock with the dome. The members are formed of resilient material such as mild steel and are laterally flexible intermediate their ends for snap-in assembly with the cover and, after such assembly, for movement of the projections 28 over the bead 17 and into and out of the groove as the cover is pressed onto and removed from the can 11.

To simplify their construction and handling the fastening members 27 preferably are formed as integral legs of a single piece clip of generally U-shape. The closed substantially flat end portion 25 of the U joining the legs is somewhat shorter than the cup diameter and lies against the bottom wall 22 of the cover 10 when the free ends of the legs abut the shoulder 26. While the legs may bend rather sharply away from the cover bottom as shown in FIG. 1, the bend is preferably more gradual as indicated at 30 (FIGS. 6 and 8) so as to increase the lateral flexibility of the legs. The length of the legs is correlated with the depth of the cover and the projections 28 are located along the legs so as to receive the dome bead 17 between them when the clip is seated in the cup.

At their free end portions, the legs 27 of the clip 24 flare outwardly away from each other, the lengths of

these end portions and their lateral spacing being such that the legs are flexed outwardly from the dotted to the full line position of FIG. 3 as the clip is inserted in the cup, the ends of the legs snapping in behind the shoulder 26 and remain urged outwardly. As shown in FIGS. 1 to 4, the free ends of the legs may be flat in which case they abut against the edge of the curved lip flange as shown in FIG. 2. Preferably, these ends are allowed to seat within the flange as shown in FIGS. 6 and 7 and to this end are curved in cross section to correspond to the curvature of the cover wall.

The projections 28 are located at the junctions of the parallel and outwardly flaring end portions of the clip legs and are disposed at the level of the groove 29 when the cover is seated on the can. When the cover is removed, the projections 28 are, as shown in FIG. 9, spaced apart a distance less than the diameter of the bead 17 so that, as an incident to pressing the cover on the can, the projections are cammed apart by the bead and, after passing down over the latter, snap into the groove 29 beneath the bead. By such interlocking, the cover is thus held securely on the dome of the can but may be removed when subjected to a lifting force of sufficient magnitude to cause the bead 17 to cam the projections out of the groove 29.

The projections 28 are preferably formed out of the material of the legs 27 of the clip and may take different configurations and comprise the U-shaped intersections of the opposite end portions of the clip legs 27. As shown in FIG. 3, these projections may extend across the full width of the metal strip forming the clip. Or as shown in FIGS. 4 and 8, the projections may be struck out of the metal and disposed intermediate the side edges of the clip. In each instance, the projection is shaped to fit snugly into the groove 29 and thereby hold the cover securely on the can.

The fastening device 24 above described may be used with equal effectiveness when the cover is formed of other material, for example, molded plastic as shown in FIG. 10. The internal shoulders 26' may take the form of arcuate lugs or a continuous rib preferably molded integral with the inner wall of the cup. The shoulders may be located at the edge of the cup lip as in the sheet metal cup above described or they may be spaced inwardly a short distance from the cup lip. As before, the free ends of the clip legs 27 snap in above the shoulder 26' as an incident to insertion of the clip into the cup. In all other respects, the clip is constructed and operates in the same manner as the clip used with the sheet metal cup first described.

It will be apparent that, due to the snap interengagement between the clip 24 and the cover 10, the latter may be formed of sheet metal or other desired material and the clip fastened thereto easily without damage to the cover or any decorative surface thereon. Such assembly is facilitated by the U-shape of the clip which is a low cost sheet metal stamping. The snap interengagement of the clip in the cover utilizes parts of the cover already available, that is, the shoulder 26 and the bottom wall 22 to effect attachment of the fastening device at low cost and by a simple assembly operation.

I claim as my invention:

1. The combination of, a can closed by an end dome providing an axially facing shoulder and a radially opening groove axially spaced outwardly from said shoulder, and a cover for said can comprising an inverted cup having an inturned lip flange seated against said shoulder, a strip of resilient material of U-shape received in said cup with the closed end of the U abutting against the cup bottom and the free ends of the legs of the U abutting against said flange to fasten the strip in the cup, and projections extending inwardly toward each other intermediate the ends of said legs and seated in said grooves by snap interengagement therewith.

2. The combination of, a can closed by an end dome providing an axially facing annular seat and a radially

opening groove axially spaced outwardly from the seat, an inverted cup having a lip adapted to fit into said seat, inturned arcuate shoulders projecting inwardly from the cup wall on diametrically opposite sides thereof and facing toward the cup bottom, two elongated members of resilient material extending between the bottom of said cup and said shoulders on opposite sides of said dome and respectively abutting against said shoulders at one of their ends whereby to secure the members in the cup, and projections intermediate the ends of said members and facing inwardly toward each other and seated in said groove, said projections being shaped for snap interengagement with said dome at said groove when the cup is pressed onto said can.

3. The combination of, a can closed by an end dome providing an axially facing annular seat and a radially opening groove axially spaced outwardly from the seat, an inverted cup having a lip adapted to fit into said seat, inturned arcuate shoulders projecting inwardly from the cup wall on diametrically opposite sides thereof and facing toward the cup bottom, two elongated members of resilient material respectively abutting against said shoulders at one of their ends and abutting in fixed positions against the cup bottom at their opposite ends, said members extending from the cup bottom downwardly and outwardly to said shoulders, and projections of generally U-shape disposed intermediate the ends of said members and extending inwardly toward each other and into said groove, said projections being shaped for snap interengagement with said dome at said groove when the cup is pressed onto said can.

4. For use with a can closed by an end dome providing an axially facing shoulder and an annular bead axially spaced outwardly from said shoulder, a cap comprising an inverted sheet metal cup having an inturned lip flange adapted to seat against said shoulder, said flange being of arcuate cross section and defining a groove facing axially toward the cup bottom, a strip of resilient material of U-shape received in said cup with the closed end of the U abutting against the cup bottom and the free ends of the legs of the U abutting against said flange and seated in said groove to fasten the strip in the cup, and lugs formed out of the metal of said strip intermediate the ends of said legs and projecting inwardly toward each other and beneath said bead, said lugs being adapted by outward bending of said legs as the cup is pressed onto said can to pass over said bead and snap in beneath the latter.

5. The combination of, a can closed by an end dome providing an axially facing annular seat and a smaller annular bead axially spaced outwardly from said seat and defining with said dome a radially opening groove, and a cap for said can comprising an inverted cup having a lip fitting in said seat, inwardly projecting shoulders formed on said cup adjacent said lip, a strip of resilient material of U-shape received in said cup with the closed end of the U abutting against the cup bottom and the free ends of the legs of the U abutting against said shoulders to fasten the strip in the cup, and projections on said legs disposed intermediate the ends thereof and extending inwardly and into snap interengagement with said bead, the upper end portions of said legs extending along the cup axis approximately at the diameter of said bead and the lower end portions curving outwardly from said projections and downwardly to said shoulders whereby to permit outward flexing of the legs as said projections encounter said bead when the cap is pressed onto said can.

6. The combination of, a can closed by an end dome providing an axially facing shoulder and a radially opening groove axially spaced outwardly from said shoulder, and a cap for said can comprising an inverted generally cylindrical sheet metal cup having a smooth flat bottom and a flange curled inwardly at the cup lip and seated against said shoulder, a resilient clip comprising a U-shaped strip received in said cup with the closed end of the U abutting against the cup bottom, the legs of the

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U extending downwardly and outwardly into abutment with said flange at their free ends whereby to fasten the strip in the cup, and projections extending inwardly toward each other intermediate the ends of said legs and urged into said groove with a snap action to fasten the clip releasably to said dome.

7. A protective cover for an aerosol can having a groove formed in the top wall of said body and opening outwardly, said cover comprising an inverted cup having a shoulder projecting inwardly from the lip thereof and a separately formed clip seated within said cup and fastened therein by snap interengagement with said

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shoulder, said clip having radially yieldable opposed lugs intermediate the ends of said cup disposed on opposite sides of the cup and spaced inwardly in the cup wall for spreading by said top wall and detachable seating in said groove when the cover is pressed onto the top of the can.

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