

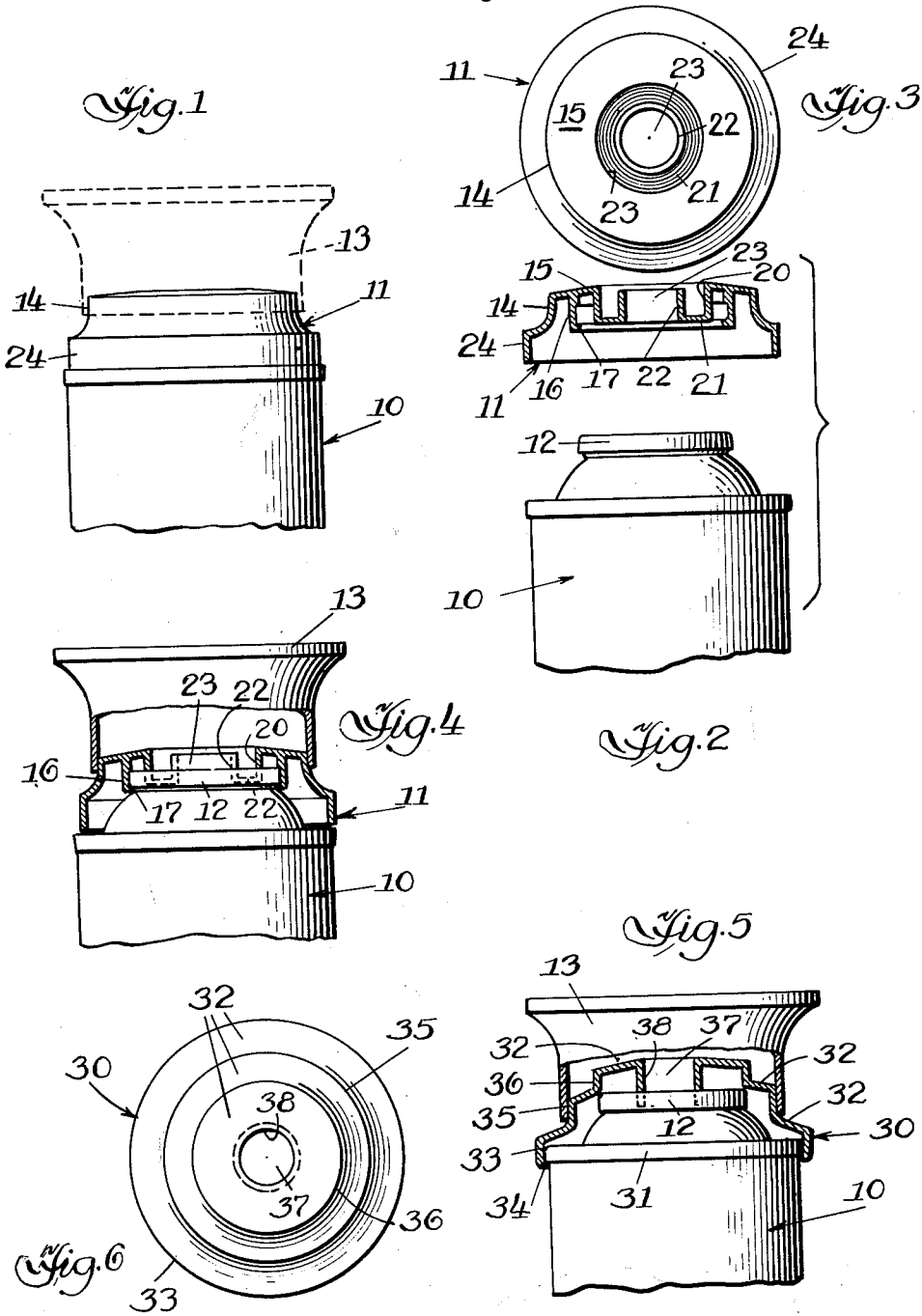
Nov. 10, 1964

J. N. MICHELL

3,156,382

AEROSOL CONTAINER ADAPTER COLLAR

Filed Aug. 17, 1962



Inventor,
Jerome N. Michell,
By: Schneider, Dressler, Goldsmith & Clement, Attys.

1

3,156,382

AEROSOL CONTAINER ADAPTER COLLAR

Jerome N. Michell, Highland Park, Ill., assignor to W. R. Frank Packaging Engineers, Inc., a corporation of Illinois

Filed Aug. 17, 1962, Ser. No. 217,616

4 Claims. (Cl. 222-182)

This invention relates to an aerosol container adapter collar or fitment, and more particularly to such an adapter or fitment that can be attached by a snap fit to an aerosol container and is provided on its upper surface with at least one step to which an aerosol container overcap may be secured.

Present aerosol container caps are customarily attached to their containers by a snap fit either with (1) the inner or outer rim of the center mounting cup of the container, (2) the inner or outer rim of the top of the metal container can, or (3) a continuous ring or series of "dimples" on the breast of the container. Aerosol container overcaps are usually formed of various types of plastics (for example, polystyrene, polyethylene, linear polyethylene, polypropylene) or metal. The large majority of aerosol containers are of metal and the breasts and mounting cups are also usually formed of metal.

Because there is no elasticity or "give" in a metal rim, breast, or mounting cup and because necessary tolerance variations always affect the engaged diameter, it has not been feasible to use the least expensive rigid plastic materials (such as general purpose styrene) in the manufacture of the container cap because the rigid plastic is unable to stretch over the metal rim or metal mounting cup and therefore the cap may crack when applied to the container.

The present invention overcomes the difficulties just mentioned by permitting the introduction of a softer, more elastic material (as, for example, a suitable plastic) between the container and the overcap, thus making possible the use of less expensive plastics in the production of the cap.

In addition, where heretofore the aerosol overcap has been restricted in size to one that will fit the fixed dimensions of the outer rim of the metal can, the breast or the mounting cup, the adapter collar of this invention may be designed to fit any desired size of overcap without regard to the previously fixed dimensions of the container parts just mentioned. This flexibility of design is important in the aerosol container industry because oftentimes the containers and overcaps are made by entirely different manufacturers, and in all cases is important because it provides a desirable variety of choice in size and appearance of the overcap.

The adapter collar of this invention includes an annular ring which has a downwardly extending flange that snaps either onto the mounting cup rim or the outer rim of the container top. The inner diameter of the annular ring is larger than the diameter of the aerosol valve, which can therefore rise above the mounting cup. The adapter collar is provided with at least one step around its top surface which has dimensions such that it will receive and hold a container cap, either by a friction fit or by a snap fit, as desired.

The invention will be better understood by reference to the accompanying drawing in which:

FIGURE 1 is a fragmentary side elevation of an aerosol container with the adapter collar of this invention in place thereon and the container cap shown in phantom;

FIGURE 2 is an exploded side elevation showing the adapter collar of this invention above the aerosol container;

FIGURE 3 is a top plan view of the adapter collar of FIGURE 2;

2

FIGURE 4 is a fragmentary side elevation of the adapter collar of FIGURE 2 in place upon an aerosol container, with the container cap in turn secured to the adapter collar, both the cap and adapter collar being broken away;

FIGURE 5 is a view similar to FIGURE 4, except that it shows a different embodiment of the adapter collar of this invention; and

FIGURE 6 is a top plan view of the adapter collar of FIGURE 5.

Aerosol container 10 in FIGURE 1 is a conventional container, with the aerosol valve omitted for clarity. Adapter collar 11 is secured to the outer rim of mounting cup 12 of the container 10 (best seen in FIGURES 2 and 4). Container cap 13 is shown in phantom in this figure, secured to step 14 of adapter collar 11 by a friction fit.

Adapter collar 11 may be formed of any suitable, relatively soft material. It may, for example, be formed by injection molding of a thermoplastic material. The adapter collar may, if desired, be of a color contrasting with the color of the side walls of aerosol container 10, or it may be of the same color as those side walls. The color selected may be that of the formed plastic itself, or the color may be obtained by spraying or otherwise applying paint to the member.

As is seen in FIGURE 2, adapter collar 11 includes annular ring 15 from which downwardly extending flange 16 depends. Flange 16 carries an internally projecting bead or flange 17, which is adapted to form a snap fit with the rim of mounting cup 12 of container 10. As shown, the snap fit here is with the outer portion of the mounting cup rim.

In the embodiment shown, downwardly extending flange 20 also depends from annular ring 15. Flange 20 helps grip mounting cup 12, to produce a more secure attachment of adapter collar 11 to container 10. If desired, bead 17 may be omitted from downwardly extending flange 16, and a bead may be provided on downwardly extending flange 20 to provide a snap fit with the inner rim instead of the outer rim of mounting cup 12.

The inner portion of annular ring 15 is completed by horizontal wall 21 and vertical wall 22. Opening 23, defined by the interior diameter of annular ring 15, is larger than the diameter of the aerosol valve which is to be positioned at the center of container 10 to rise above mounting cup 12.

As will be seen in both FIGURES 1 and 2, step 14 terminates in downwardly extending curtain flange 24. With the embodiment of collar adapter 11 shown in FIGURES 1 and 2 being secured to aerosol container 10 at mounting cup 12, curtain flange 24 is provided solely for the sake of appearance.

FIGURE 3 gives a top plan view of collar adapter 11. Annular ring 15 carries step 14 on its upper surface, the latter terminating in curtain flange 24. Opening 23 at the center of the collar adapter is defined by elements 21 and 22 of the inner portion of the adapter.

FIGURE 4 shows collar adapter 11 in place on container 10, secured to mounting cup 12 of the container by the snap fit produced by bead 17 carried by downwardly extending flange 16. Cap 13 is in place upon collar adapter 11, secured thereto by a friction fit.

FIGURE 5 shows another embodiment 30 of the adapter collar of this invention in place upon container 10. As shown, adapter 30 is secured to container 10 by a snap fit with outer rim 31 of the container top rather than with the rim of mounting cup 12 as with adapter 11 described above.

Collar adapter 30 includes annular ring 32, which car-

3

ries at its outer periphery downwardly extending flange 33. Flange 33 terminates in inwardly extending bead or flange 34, adapted to form a snap fit with rim 31 of the container top. In the embodiment shown, the snap fit is with the outer portion of rim 31, but if desired flange 33 and bead 34 may be constructed to produce a snap fit with the inner portion of the rim.

The adapter carries on its upper surface steps 35 and 36. In the embodiment shown, container cap 13 is adapted to form a friction fit with step 35. It is seen, however, that a container cap of a different size could form a friction fit with step 36. Collar adapter 30 is thus seen to provide additional flexibility in use, for it may be constructed to fit a plurality of container caps.

Opening 37 at the center of collar adapter 30 is formed by downwardly extending flange 38 which depends from annular ring 32. The aerosol valve is again omitted for clarity.

FIGURE 6 gives a top plan view of collar adapter 30. It shows annular ring 32, with steps 35 and 36 on its upper surface, and downwardly extending flange 33 at the outer periphery of the adapter. Downwardly extending flange 38 at the center of the adapter defines opening 37 through which the aerosol valve may extend above the mounting cup of the container with which the adapter is used.

If desired, container cap 13 and steps 14, 35 and 36 may be constructed so that the cap fits upon the collar adapter of this invention with a snap fit rather than a friction fit. In either event, the flexibility in choice of material for the collar adapter produces the several advantages referred to above.

The above detailed discussion of this invention has been given for clarity of understanding only. No unnecessary limitations should be understood therefrom, as modifications will be obvious to those skilled in the art.

I claim:

1. An adapter collar for an aerosol container having a container top outer rim, a mounting cup rim and an aerosol

4

sol valve positioned above said rim which comprises: an annular ring having inner and outer diameters and a downwardly extending flange, said flange being adapted to secure the ring to one of the outer rim of the container top and the mounting cup rim, the inner diameter of the annular ring being larger than the diameter of the aerosol valve button positioned above the rim, said annular ring having a plurality of steps on its upper surface portion, each step having a part which is disposed in a vertical direction, the vertical parts of said steps being located at different distances from the center of the adapter collar, and each of said vertical parts being adapted to receive and coact with a container cap to hold the same, so that the adapter collar may be used with various sizes of container caps.

2. The adapter collar of claim 1 in which said downwardly extending flange is positioned at the outer diameter of said ring to secure said annular ring to the outer rim of the aerosol container top.

3. The adapter collar of claim 1 in which said downwardly extending flange is positioned inwardly of the outer diameter of said ring to secure said annular ring to the mounting cup rim of the aerosol container.

4. The adapter collar of claim 1 in which each of said vertical parts of the plurality of steps is of a diameter to form a friction fit with a container cap of a given size to hold the cap to the vertical part.

References Cited by the Examiner

UNITED STATES PATENTS

2,767,888	10/56	Soffer	-----	222—182
2,831,613	4/58	Soffer	-----	222—182
3,013,700	12/61	Steinkamp	-----	222—562 X
3,075,673	1/63	Fredette	-----	222—394 X
3,112,048	11/63	Finkenzeller	-----	222—182 X

LOUIS J. DEMBO, *Primary Examiner.*

RAPHAEL M. LUPO, *Examiner.*