United States Patent

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Continuation-in-part of application Ser. No. 680,937, Nov. 6, 1967, now Patent No. 3,462,045.

[54] SAFETY AEROSOL COVER CAP

5 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **220/39,** 215/97, 220/60, 222/182
[51] **Int. Cl.** **B65d 41/08,** B65d 45/30
[50] **Field of Search** ..... 220/39, 60, 85 P; 222/182; 215/9, 43, 97

[56] **References Cited**

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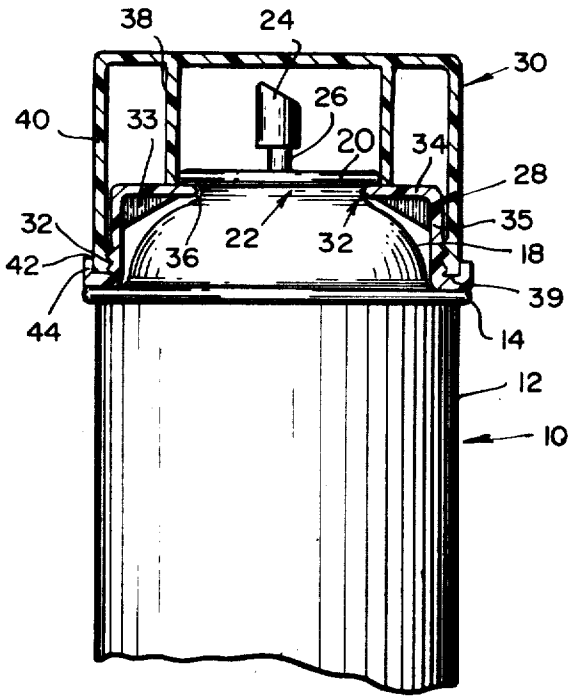
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ABSTRACT: A safety aerosol cover cap of two-piece construction with threadable means securing same together so that rotation of either or both of the cap elements will not disengage the cover cap from the aerosol container, and method of assembling same as an integral unit to said container.



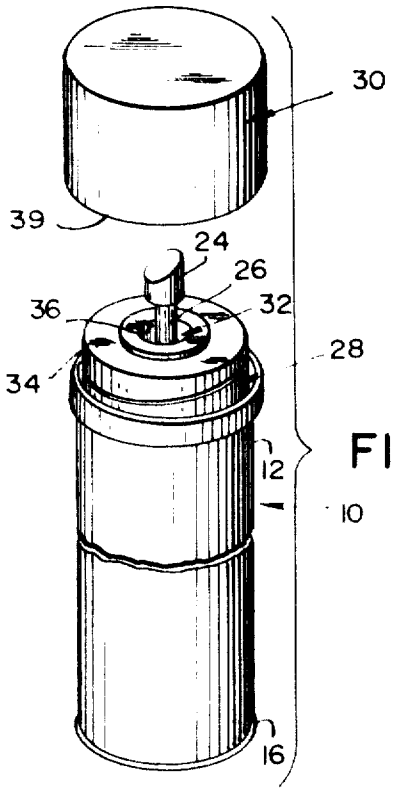


FIG. 1

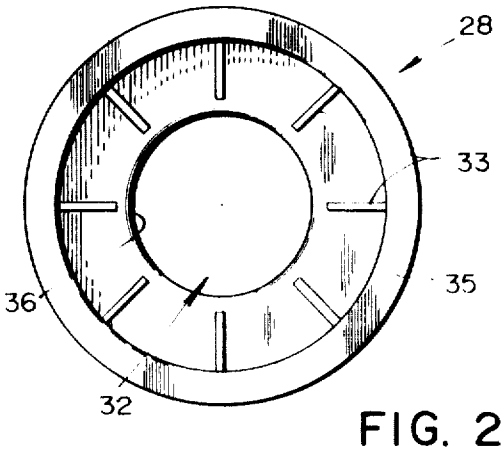


FIG. 2

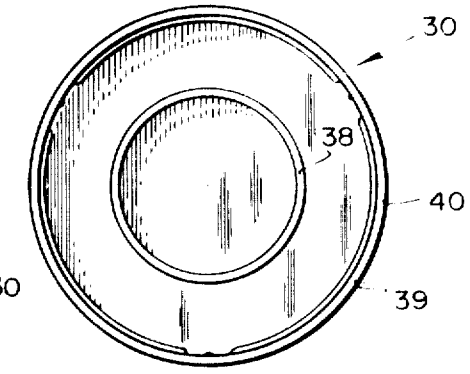


FIG. 3

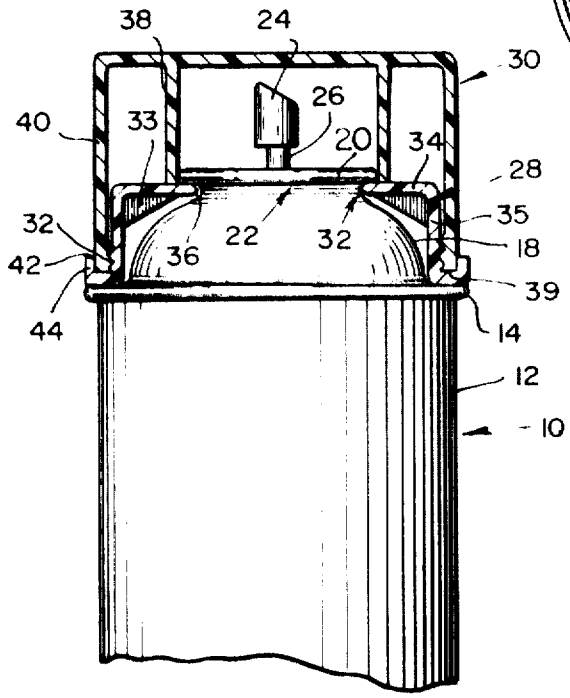


FIG. 4

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SAFETY AEROSOL COVER CAP

The present invention is a continuation-in-part of my copending application, Ser. No. 680,937, filed Nov. 6, 1967, now U.S. Pat. No. 3,462,045, and entitled "Safety Aerosol Cover Cap."

BACKGROUND OF THE INVENTION

This invention relates to aerosol and pressurized containers of the type which are used for packaging and dispensing various products and to a method of assembling a safety two-piece cover cap as a unitary one-piece assembly to the container. In my copending application identified hereinabove, there is disclosed a novel safety cover cap construction for use specifically with aerosol containers. One of the disadvantages of said structure is its two-piece construction which of necessity requires two or more separate operations for assembling the cover cap to an aerosol container. Such multiple assembly steps comprise at least a separate assembly step for each of the cap elements which clearly increases the overall cost of providing a safety aerosol cover cap device. It is therefore, a purpose of the present invention to overcome this disadvantage and to provide a unique two-piece safety cover cap assembly which can be assembled to an aerosol container in a relatively simple operation.

Accordingly, it is a primary object of the invention to provide a safety aerosol cover cap which can be assembled to an aerosol container in one simple step.

A further object of the present invention is to provide a safety aerosol cap, of the above character, which can be economically manufactured and assembled, which is relatively simple in constructure, and easy to use.

Other object and advantages will appear hereinafter.

In the drawings accompanying this specification, similar characters of reference are used to designate like components throughout the several views, wherein:

FIG. 1 is an exploded perspective view, partly from above, of the elements of the present invention, together with a dispensing aerosol container of the type described.

FIGS. 2 and 3 are bottom views of both the upper and lower safety cover cap elements; and

FIG. 4. is an assembled sectional view taken along line 4–4 of FIG. 1, further showing the details of the cover cap elements.

Referring now to the drawings, the aerosol or pressurized container 10 is generally of the size adapted to be held by the hand of a user. Such container is invariably of metal and has a cylindrical sidewall 12 terminating in annular beads 14 and 16. The top portion of the aerosol container 10 generally comprises a conical neck portion 18 which is closed by both the annular bead 14 and another upper annular bead 20 formed about the valve assembly opening 22. A valve-actuating button 24 extends upwardly from a valve stem 26 which is connected to a suitable valve assembly (not shown) and associated dip tube (also not shown) residing within the container 10 and being supported from the valve assembly opening 22.

The unique cover cap structure of the present invention is shown as comprising a lower cap element 28 and an upper cap element 30. The lower cap element 28 is rotatively secured in a loosely fitting manner about a suitable annular bead at the top of the container, such as the upper annular bead 20. An upper cap element 30 is securely fastened to the lower cap element 28 by means of suitable fasteners, such as threads, bayonet joints, etc. In the preferred example shown herein, a threaded connection 32 is provided between the upper and lower cap elements 28 and 30. This two-piece safety cover cap structure appears on the whole to the user as a one-piece assembly which is just like any other ordinary cover cap structure. The main difference is, of course, in its function and operability.

Since the cover cap assembly rotates freely as a unitary assembly about the annular bead 20, it is readily apparent that in order to open same for use, one must first recognize the secret for revealing or showing the aerosol button. As shown in said copending application, in order to open the container, one must first hold the container 10 and the lower cap element 28 in a fixed position with one hand and rotate the upper element cap element 30 with the other hand so as to unthread the cap elements from each other. The lower cap 28 element will remain on the bead 20 inasmuch as the aperture 32 in the radially inwardly extending flanged portion 34 is snapped about or forced over the bead 20 in such a manner that it still rotates freely thereabout although being fixedly retained in an axial position.

As best shown in FIG. 2, the lower cap element 28 is provided with ribs 33 beneath the flanged portion 34 and adjacent the sidewall 35 for reinforcing the structural rigidity of same. The aperture 32 is provided with suitable edge means 36 which facilitates snapping the lower cap element 28 about the bead 20. Within the upper cap element 30 is a downwardly extending cylindrical hollow tubelike member 38. This member 38 bears against the flanged portion 34 about the aperture 32 when the cap elements 28 and 30 are together as a unitary one-piece unit.

In the method of assembling the novel safety aerosol cover cap to a container, the upper and lower cap elements 28 and 30 are assembled to the container in one step as a unitary assembly. The tubelike member 38 reinforces and backs up the flanged portion 34 as the aperture 32 and edge means 36 of the flanged portion 34 is pressed about the bead 20. This tubelike member 38 is a critical feature of the upper cap element 30 without which the safety cover cap unit could not be assembled in a speedy, economical manner. The ribs 33 further reinforce and strengthen the flange portion 34 of the lower cap element 28.

The bottom edge 39 of the outer wall 40 of the upper cap element 30 resides and is seated within a small channellike groove 42 formed at the bottom outer periphery of the lower cap element 28. Am upwardly turned edge 44 of the lower cap element 28 facilitates concealing the separate nature of the two cap elements and further aids in retaining the wall 40 of the upper cap element 30 from being snapped off the lower cap element 28 should the threads be forced and broken apart by the twisting and bending of the upper cap element by a child who is determined to open the device.

It will be appreciated that the safety aerosol cover cap shown and described herein is only a preferred example of the invention and that various modifications and changes in the size, shape and arrangement of parts may be resorted to without departing from the scope of the appendant claims.

I claim:

1. A safety cover cap for an aerosol container having a conical neck portion terminating in a small upper annular bead and a larger lower annular bead and an upwardly extending valve-actuating button communicating with the inside of said aerosol container, comprising a lower cap element having a cylindrical sidewall provided with fastening means and a radially inwardly extending annular flange, said flange, having an aperture, the diameter being of a size which is capable of being snapped about said upper annular bead so as to fixedly retain said lower cap element in an axial direction but free to rotate same about said upper annular bead, an upper cap element having a cylindrical sidewall cooperatively associated with the fastening means on the cylindrical sidewall of said lower cap element, a hollow tubelike element extending downwardly from the inside top of said upper cap element, said hollow tubelike element reinforcing and backing up said radially inwardly extending annular flange of said lower cap element so as to minimize deflection thereof when said aperture is pressed about said upper annular bead thereby permitting the joint assembly of said upper and lower cap elements of said safety cover cap to said aerosol container as a combined one-piece unit.

2. The safety cover cap according to claim 1, wherein the end of the cylindrical sidewall of said lower cap element is

provided with a U-shaped channel for receiving the end of the cylindrical sidewall of said upper cap element whereby the two-piece constructional features are rendered less discernable, said U-shaped channel maintaining said cylindrical sidewall from being snapped and pried off said lower cap element by seating the bottom edge within the groove formed by said U-shaped channel.

3. The safety cover cap according to claim 1, wherein reinforcing ribs are provided between said flange and the inner sidewall of said lower cap element.

4. The safety cover cap according to claim 2, wherein said fastening means comprising at least one thread means on said sidewall of said lower cap element and on said sidewall of said upper cap element.

5. In combination with an aerosol container having an annular valve bead near a valve button, a safety cover cap of two-piece construction which when assembled together appears on the whole as a combined one-piece assembly, said cover cap comprising upper and lower cylindrical cup-shaped cap element secured to each other by fastener means, the bottom portion of said lower cup-shaped cap element having an aperture fitted about said annular bead in such a manner that the two-piece safety cover cap is fixedly restrained in an axial direction but free to rotate as a unitary device about said annular valve bead, and the end peripheral edge of said lower cup-shaped cap element having a U-shaped channel for receiving the end peripheral edge of said upper cup-shaped cap element, said U-shaped channel retaining said upper cylindrical cup-shaped cap element in place about said lower cylindrical cup-shaped cap element by seating the bottom end peripheral edge within the groove formed by said U-shaped channel whereby snapping and prying off said upper cap element is precluded.