June 4, 1968 P. M. KOTUBY 3,386,631

ACTUATOR-OVERCAP WITH SLIDABLY RETRACTING SIDE-PROJECTING NOZZLE

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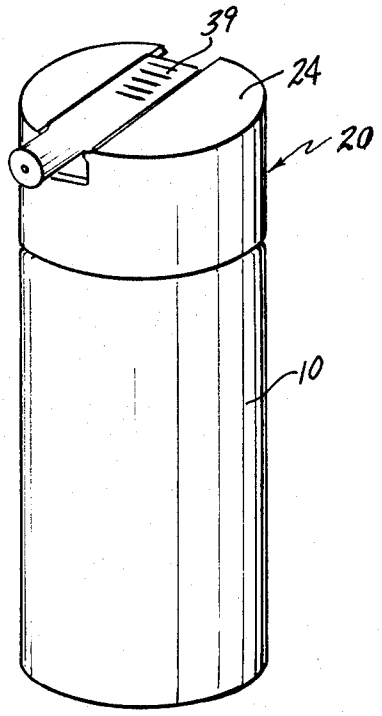


FIG-1

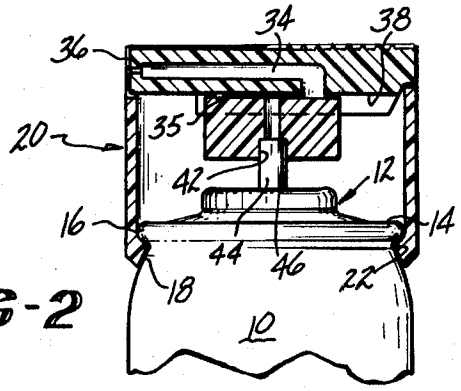


FIG-2

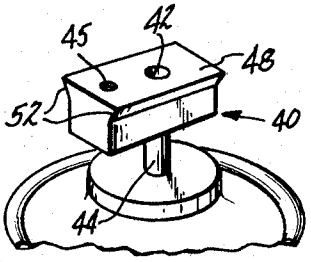


FIG-4

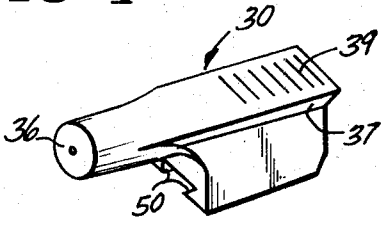


FIG-5

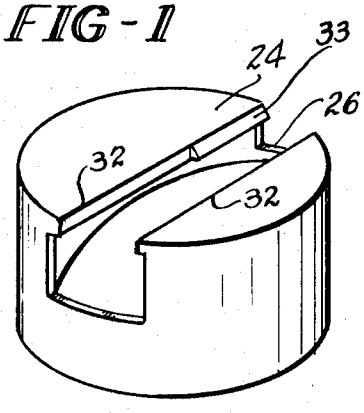


FIG-3

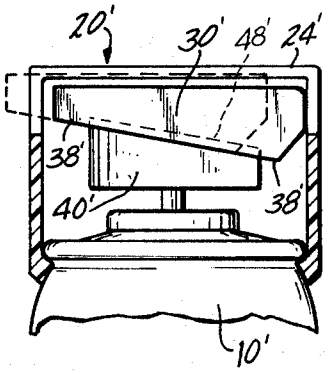


FIG-6

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ACTUATOR-OVERCAP WITH SLIDABLY RETRACTING SIDE-PROJECTING NOZZLE

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ABSTRACT OF THE DISCLOSURE

An actuator-overcap combination for dispensing containers, more especially self-pressurized or aerosol type containers, incorporating means for sliding an actuating member of the combination from a centered, nondispensing position in the overcap to a position eccentric of the cap to allow the actuator to be manually operated to release product from the container.

This invention pertains to a cap for a dispensing container, and it pertains more particularly to an overcap-actuator assembly especially suited for use in conjunction with a pressurized or aerosol type of dispensing container, although applicable to other type of containers as well.

It is a principal purpose of the invention to provide a closure cap for covering that end of a dispensing container incorporating a valve or other means for controlling the release of the product. The particular cap of the invention is of the type which is adapted to be more-or-less permanently secured to the valved end of the container in enclosing relation thereto and which has provision incorporated in it for permitting manual actuation of the container valve and for directionally controlling the release of product without requiring the removal of the overcap.

The invention provides an overcap-actuator assembly which is both utilitarian and aesthetically pleasing. The utilitarian aspects of assembly include that of providing a flat upper surface allowing the nesting of superimposed containers in stable, stacked formation for convenient storage and effective shelf display. The design and arrangement of components afford minimum exposed crevices, depressions and the like which commonly cause an accumulation of soot about the valve stem and mounting at the end of the container. The invention also incorporates means in the actuator-overcap assembly to prevent inadvertent dispensing of product when contact is made unintentionally with the valve stem or other valve operating member of the dispensing container.

Still further, the invention affords means for enchancing the aesthetic appearance of the container, whereby to make it more attractive to the customer and increase its sales appeal.

Finally it is an important aspect of the invention to provide an actuator-overcap assembly which, concomitantly with satisfaction of the foregoing objectives, still meets the practical commercial requirements of design simplicity, ease of manufacture and low cost.

The invention is illustrated by the specific embodiments which are illustrated in the accompanying drawings and described in detail hereinafter of certain presently preferred forms of actuator-overcap assemblies. It is understood of course that such illustration and description are exemplary and that various changes can be made to provide similar units embodying the concept as disclosed herein and defined in the appended claims.

In the drawings,

FIG. 1 is a perspective view in side elevation of a typical cylindrical aerosol type dispensing container incorporating an actuator-overcap assembly of the invention;

FIG. 2 is a fragmentary view, partly in cross section of the actuator-overcap seen in FIG. 1, but with the actuator in a different position relative to the cap;

FIG. 3 is a perspective view in side elevation, on a slightly enlarged scale, of a cap portion of the actuator-overcap seen in FIG. 1;

FIG. 4 is a perspective view from above of a portion of dispensing container from which the overcap has been removed and showing a coupling member forming a part of a valve actuator;

FIG. 5 is a perspective view of a spout portion of the actuator which complements the coupling member seen in FIG. 4; and

FIG. 6 is a fragmentary view in side elevation, certain parts being shown in cross section, of a modification of the assembly shown in FIG. 2.

Dispensing container **10** comprises the usual cylindrical metal can which closed at its bottom end and provided at its upper end with a valved outlet. As seen more particularly in FIG. 2, the valve assembly **12** comprises a conventional cupped or dished valve mounting ferrule **14** whose periphery is rolled over the lip **16** of the upper edge of container **10** to close the upper end of the can and support the valve therein. Container **10** has a reduced neck section **18** immediately below lip **16**, and hollow overcap **20** of molded plastic is seated on the top of the container, gripping the latter by forcing an internal bead **22** of the cap over lip **16** into engagement with the reduced neck section **18**. Cap **20** thus encloses the valve assembly **12** and upper end of container **10** and is ordinarily not intended to be removed from the container by the user.

As best seen in FIGS. 1 and 3, cap **20** has a substantially flat transverse top wall **24** which is interrupted by a slot **26** extending diametrically across and partially down opposite the sides of the cap. The slot provides access to the interior of the cap and is normally completely occupied by a discharge spout member **30** of generally elongated rectangular shape and configuration suitable to be received in and to conform closely wtih the opposite margins **32** of slot **26**.

Spout member **30** may conveniently be formed of molded plastic and is provided in its body portion with a discharge passage **34** opening at one end upon an end to face **35** of the spout member, and opening at its other end on the undersurface **38** of the member.

Spout member **30** is superimposed within the overcap **20** upon a coupling member **40** contained entirely within cap **20** and having a socket **42** for the reception of the conventional tubular valve stem **44** of the valve assembly **12**. Socket **42** is desirably stepped to provide a shoulder **46** which serves as an abutment for limiting insertion of the stem **44** into member **40**. The reduced end of socket **42** opens unto the upper surface **48** of member **40** and, in certain positions of spout member **30** as will be more fully described herein, registers with the inner end of passage **34** in that member.

Both the coupling member **40** and the spout member **30** are formed adjacent their abutting surfaces **48**, **38**, respectively, with spaced, parallel, generally diametrically extending, complementary overhanging wall portions. In member **30** these take the form specifically of the side walls **50** of a dovetail slot extending across the under surface **38** of the member. In member **40**, the complementary overhanging walls are formed by the outwardly sloping surfaces **52** extending along opposite sides of the member adjacent its upper surface **48**. Thus in the assembled actuator the respective overhanging wall portions constitute an interfitted mortise and tenon extending diametrically of the cap. This prevents separation of the members **30**, **40**, axially of the cap while permitting

relative sliding movement of such members diametrically thereof.

In the position of the parts illustrated in FIG. 2, wherein spout member 30 is positioned concentrically of the cap so as to completely fill slot 26 therein, the inner end of passage 34 in member 30 and the reduced outlet of socket 42 in member 40 are out of registry. In such position, the outlet from the tubular valve stem 44 is blocked so that product cannot be discharged through the stem. However, when spout member 30 is slid diametrically of the cap to the position illustrated in FIG. 1, so that it is positioned eccentrically of the cap with the spout projecting laterally therefrom, then in that position registry occurs between the inner end of passage 34 and the reduced outlet of socket 42. Product from the container may then be discharged through tubular valve stem 44 and is directed by spout member 30 to the outlet of passage 34 on end face 36 of the spout. Release of the product from the container is of course obtained by manually pressing the valve stem 44, either in an axial direction or by tilting it, both of which arrangements are conventional with aerosol valves. This manual depression of the valve stem is of course accomplished indirectly in this instance through finger pressure applied to the serrated upper surface 39 of spout member 30.

In the form of the invention illustrated here, means is incorporated for resiliently restricting sliding movement of the spout member on coupling member 40. This is obtained by providing a suitable friction bump or protuberance 35 on the undersurface of spout member 30, and a corresponding detent or depression 45 in the upper surface of member 40, whereby the detent arrangement is effective in the nondispensing position of the spout member. This tends to keep the spout member in its non-dispensing position and prevent accidental discharge of product.

A further provision is also incorporated in the device as here shown for more positively locking the valve actuator assembly 30, 40, in cap 20 so as to prevent manual depression of the valve stem 44. This is effected by a mortise and tenon coaction between spout member 30 and cap 20 when the spout member is centered in the slot 32 of the cap, but which engagement is interrupted when the spout member 30 is moved laterally of the cap, whereby to free the member for manual depression.

With reference to FIG. 5 it will be noted that spout member 30 is expanded or outwardly flared, as at 37, adjacent its upper surface 39 and extending substantially along the length of that member. As seen best in FIG. 3, the rear margin 33 of slot 26 is sloped inwardly to provide an inward projection or overhang along a short portion of the margin of the slot. So long as spout member 30 is in its centered position in the cap, the enlarged or flared surfaces 37 of that member abut the inwardly sloping overhanging surfaces 33 in the margin of slot 26. It is not then possible to depress spout member 30 relative to cap 20. However as soon as spout member 30 is slid laterally of the cap to a point where the back edge of member 30 passes beyond the flared surfaces 33 in the margin of the slot, there is no further restriction to axial motion between the cap and spout.

In FIG. 6, an arrangement is shown which is basically the same as that already described, except that the abutting surfaces 38' of spout member 30' and 48' of coupling 40' are disposed in a plane which slopes upwardly in the direction of movement of the spout member from its concentric to its eccentric positions in the cap. Members 30', 40' are provided with interfitting mortise and tenon as before permitting the members to be moved laterally, i.e. diametrically, of the cap but preventing axial separation of them. In the centered or concentric position of spout member 30', its upper surface 39 is depressed somewhat below the upper surface 24' of cap 20', which thus affords added protection against inadvertent or accidental actuation of the member. However, upon sliding spout member 30' to its eccentric or dispensing position, by reason of the inclined plane of abutment between that member and a coupling member 40', the spout assumes an elevated position in which its upper surface is at least substantially flush with the surface 24' of the cap so that actuation of the valve is facilitated.

What is claimed is:

1. In a dispensing unit comprising a generally cylindrical container for holding fluent product to be dispensed, said container having at one end a discharge opening substantially axially thereof for release of product from the container, the improvement which comprises:

a hollow cap for enclosing the discharge end of said container, said cap having a cylindrical shape conforming to that of the container, and a transverse wall at one end, the opposite end of said cap being open and provided with means for resiliently gripping the end of said container to retain said cap thereon;

said transverse wall in said cap having a slot extending diametrically across and partially down the opposite sides thereof;

dispensing control means enclosed by said cap comprising a coupling member and a discharge spout member;

said coupling member adapted to be secured about the discharge opening in said container entirely within said cap and having a passage therethrough communicating with the discharge opening of the container and leading to an opening on the upper face of said coupling member;

said coupling member formed with spaced, parallel, generally diametrically extending overhanging wall portions adjacent said upper face;

said discharge spout member being of generally elongated shape and configuration adapted to be received in and to conform closely with the margins of the slot in said cap,

said spout member being superimposed on said coupling member and being formed on its under surface with spaced, parallel, diametrically extending overhanging wall portions complementary to the corresponding wall portions of said coupling member and mating therewith to prevent separation of the members axially of the cap while permitting relative sliding movement diametrically thereof;

said spout member having a discharge passage therethrough opening on an end face of said spout member at one terminus of the passage and on the under face of said spout member at the other,

said opening on the under face being out of registry with the corresponding opening in said coupling member when said spout member is centered in said cap, and said opening being brought into registry with the opening of the coupling member upon sliding said spout member diametrically of the cap to a position eccentric thereof.

2. The improvement in a dispensing container cap as defined in claim 1, wherein said complementary overhanging wall portions of said coupling and spout members constitute an interfitted mortise and tenon extending diametrically of the cap.

3. The improvement as defined in claim 2, wherein said interfitted mortise and tenon form a dovetail.

4. The improvement in a dispensing container cap as defined in claim 1, wherein said coupling and spout members are provided on their abutting surfaces, respectively, with friction bump and detent means which are normally engaged when said spout member is positioned concentrically of said cap, resiliently resisting movement of the spout member to its eccentric position on said cap.

5. The improvement in a dispensing container cap as defined in claim 1, wherein the transverse wall of said cap and the upper surface of said spout member are substantially coplanar both in the concentric and eccentric positions of said spout member.

6. The improvement in a dispensing container as defined in claim 1, wherein the abutting surfaces of said coupling and spout members are disposed in a plane which slopes upwardly in the direction of movement of said spout member from its concentric to its eccentric position in said cap, whereby the upper surface of said member is recessed below the plane of said transverse wall when the spout is located concentrically of the cap, and said upper surface of said spout is at least flush with said transverse wall when the spout is in its eccentric position.

7. The improvement in a dispensing container cap as defined in claim 1, wherein the cap is adapted for use on a valved aerosol container having an axially projecting tubular stem manually actuable to open the valve for product release, wherein opposite sides of said spout member and correspondingly adjacent margins of said slot in said transverse wall are formed to provide a mortise and tenon permitting relative movement of the spout and

cap in the direction of said slot but preventing relative movement between said members axially of said cap, said mortise and tenon being discontinued in the location assumed by the respective members when said spout member is in its eccentric position on said cap to free said spout member for axial movement relative to said cap.

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