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[54] **CAP FOR AEROSOL CONTAINER**
3 Claims, 4 Drawing Figs.

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[51] Int. Cl. **B65d 83/00**

[50] Field of Search **222/402.13,**
402.1

[56] **References Cited**

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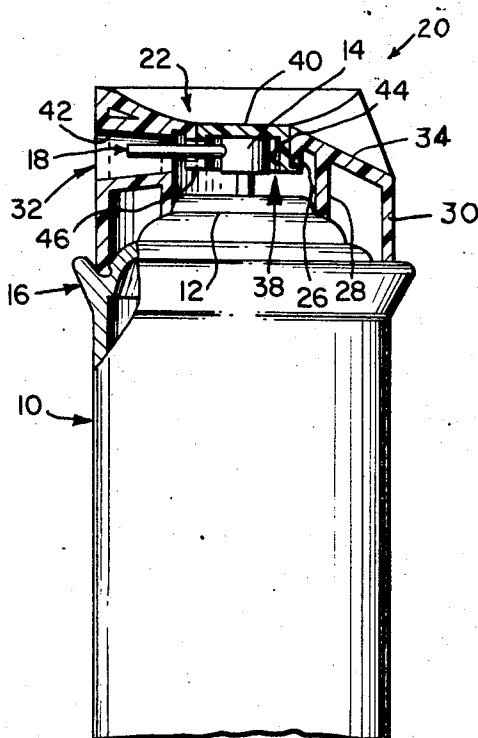
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ABSTRACT: A cap for an aerosol container which has a valve button extending upwardly from the center thereof having a nozzle extending outwardly from the valve button and a head portion and a sealing rim on the upper part of the container, the cap having a concave upper surface with a center guiding well defining a central opening in which an inner lid slides above and in contact with the valve button, depending inner and outer cylindrical walls adapted to engage the head portion and sealing rim respectively of the container, a longitudinal opening extending through the inner and outer cylindrical walls and the guiding wall communicating with the central opening, and a finger slot in the upper surface extending from the outer cylindrical wall to the central opening and located on the opposite side of the cap from the longitudinal opening.



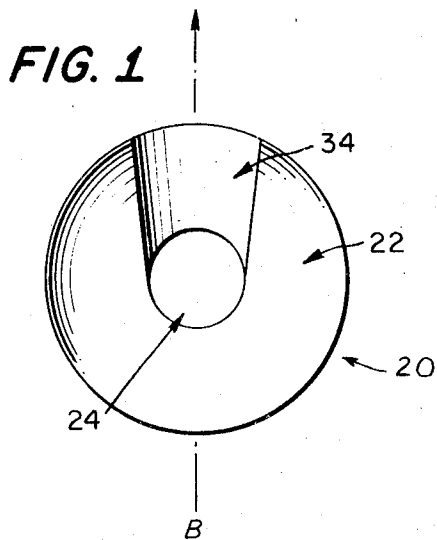
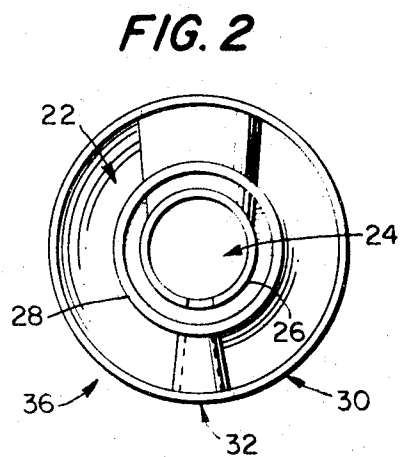
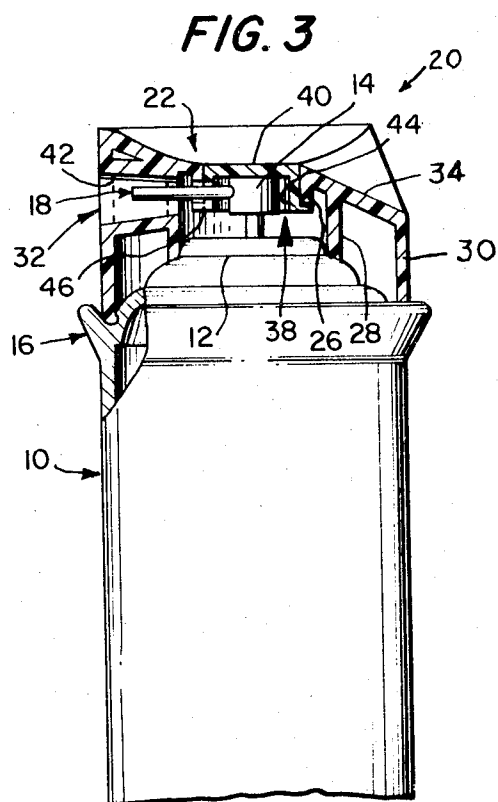
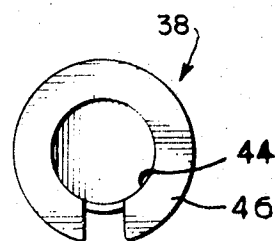


FIG. 2A

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CAP FOR AEROSOL CONTAINER

This application is a continuation-in-part of applicant's pending application Ser. No. 677,256 filed Oct. 23, 1967 now U.S. Pat. No. 3,454,200.

The present invention relates to a cap for an aerosol container and more particularly to an improved cap for an aerosol container which permits opening and closing of the dispensing valve by means of a single finger action.

Heretofore various types of aerosol container caps have been proposed and used which require removal of the cap when the aerosol is used. Further, in using the previous caps and containers it is not readily apparent in which direction the spray will go when the valve is depressed. Other caps are permanent in the sense that the container cannot be used without the cap.

It is accordingly an object of the present invention to provide an improved cap for an aerosol container that is doubly secured thereon and does not require its removal for use of the aerosol, but in which the cap may be removed and the container used without the cap if desired.

It is a further object of the present invention to provide an improved two-part cap for an aerosol container which permits the valve to be operated by means of a single finger without contact between the valve button and the finger, and yet when dropped the valve cannot open.

These and other objects of the invention are apparent from the following detailed description, taken in conjunction with the drawing wherein:

FIG. 1 is a top plan view of the outer cap;

FIG. 2 is a bottom plan view thereof;

FIG. 2A is a bottom plan view of the inner lid; and

FIG. 3 is a view in sectional elevation of the device embodying the present invention, taken as indicated by the line which appears in FIG. 1.

In the preferred embodiment of the invention as shown in the drawings, the numeral 10 designates the body of the aerosol container having an upper surface with a head portion 12 thereon surrounding the valve button 14 which extends upwardly from the container, the head portion being spaced outwardly and downwardly from the valve button. A sealing rim 16 is located on the shoulder portion of the container below and outwardly from the head portion 12. The valve button 14 has a nozzle 18 protruding outwardly therefrom at one side thereof. The numeral 20 refers to the cap for the container, the cap being provided as two portions, i.e. the outer cap 36 and the inner lid 38.

The outer cap 36 may be molded from a plastic composition or the like (as may the inner lid 38), and is constructed with a concave upper surface 22 having a centrally located guide opening 24 therethrough adapted to receive the upper end of the inner lid 38 within which lies the valve button 14 so that the top surface 40 of the inner lid 38 and the surface 22 of the cap are at approximately the same level. Extending downwardly from the guide opening 24 is a guide wall 26. Concentric to the guide wall 26 and outwardly therefrom is an inner cylindrical wall 28 and an outer cylindrical wall 30 which constitutes the sidewall of the cap. The inner cylindrical wall 28 is of a diameter adapted to engage the circumferential edge of the head portion 12 of the container lightly. The outer cylindrical wall 30 is adapted to fit securely within the sealing rim 16 on the shoulder portion of the container.

A longitudinal or radial opening 32 is located on one portion of the sidewall and extends through the guiding wall 26, the inner cylindrical wall 28 and the outer cylindrical wall 30, and communicates with the guiding opening 24. The radial opening 32 is defined by an annular frustoconical wall 42. A finger slot 34 is formed in a concave shape in the upper surface 22 of the cap, extending from the upper part of the outer cylindrical wall 30 located at the opposite side thereof from the longitudinal opening 32 to the guiding wall 26.

The inner lid 38 has an inverted cup-shape and comprises, besides the top wall 40, an annular downwardly projecting wall 44 and an outwardly projecting annular flange 46. A portion of the wall 44 and flange 46 are cut away adjacent the

radial opening 32 to permit the nozzle 18 of the valve button 14 to project beyond the inner lid 38 into the radial opening 32. As will be clearly seen in FIG. 3, the inner lid 38 fits within the guiding opening 24 of the outer cap against the guiding wall 26.

In using the cap of the present invention, the cap is pressed downwardly onto the container 10, inserting the valve button 14 into the hollow portion of the inner lid 38 in such a manner that the nozzle 18 is positioned within the opening 32. The circumferential edge of the head portion 12 fits within the inner cylindrical wall 28 and the outer cylindrical wall 30 fits within the sealing rim 16 on the shoulder of the container. Thus, the cap is secured in two places with the top wall 40 of the inner lid 38 exposed within the finger slot 34, being at the same level as that of the concave top 22 of the cap.

After the cap 20 has been installed, a finger can be placed in the finger slot 34 and over the inner lid 38. When pressure is applied to the valve button 14 via the inner lid 38, it is pushed down along with the nozzle 18 which is adapted to move freely up and down within the longitudinal opening 32. Downward movement of the valve button 14 opens the valve thereby releasing a spray of the contents of the can through the nozzle 18. When the finger pressure is removed, the valve button 14 will move upwardly due to the pressure of a spring positioned within the valve, thereby returning the valve button 14 and inner lid 38 to their original positions and closing the valve, the peripheral flange 46 limiting upward movement of the inner lid 38 beyond the position shown in FIG. 3.

As described above, this device is different from the conventional type of aerosol container, in that it does not require removal of the cap when in use, and the direction of spray is readily understood by placing a finger within the finger slot. Thus, it can be actuated by means of a single-finger action. On the other hand, the cap may be removed if desired and the aerosol can may still be used; in this regard it is seen that the cap may be used with standard aerosol cans and there need be no specially constructed interrelationship between the can (e.g. the valve button) and the cap.

Its installation onto the container is double secured by means of the inner and outer cylindrical walls. Therefore, there is no danger whatsoever of the cap coming off when the container is tipped over, etc. Furthermore, even in the case of the container being dropped and unexpectedly being turned upside down, there is no danger of the valve opening, because the top is concave. The device is simple in construction and suitable for mass production and has many practical advantages.

The use of a separate outer cap and inner lid insures that the user's finger is protected from soiling; this is particularly important where the material sprayed is dangerous, such as corrosive oven-cleaner or dangerous insecticides or other chemicals. Where the user's finger directly contacts the valve button 18, such soiling is inevitable. Also, the inner lid usefully provides, at the upper surface 40, an area for the printing of advertising or other useful indicia.

It will be understood that the descriptive designations "upper" and "lower" and similar terms used herein refer to the drawings and not to the orientation of the cap for the aerosol container itself, since the cap for the container may be used in any position.

It will be obvious to those skilled in the art that various changes may be made without departing from the scope of the invention and the invention is not to be considered limited to what is shown in the drawings and described in the specification.

What is claimed is:

1. A cylindrical cap for an aerosol container, said container having an upper surface provided with a valve button extending upwardly therefrom having a nozzle extending outwardly from said valve button, and said container upper surface having a head portion spaced outwardly and downwardly from the valve button and a sealing rim below and outwardly from said head portion said cap comprising:
an outer cap and an inner lid,

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said outer cap including an upper surface, a centrally located guide wall extending downwardly from the upper surface of the cap and defining a central axial opening in the outer cap, an inner cylindrical wall concentric and spaced outwardly from said guide wall and of a diameter capable of tightly engaging said head portion of the container, an outer cylindrical wall concentric and outwardly spaced from said inner cylindrical wall and of a diameter capable of fitting within the sealing rim of the container, said inner and outer cylindrical walls extending downwardly from the upper surface of said cap, an annular wall defining a radial opening extending through said inner and outer cylindrical walls and said guide wall and communicating with said central opening, said radial opening being adapted to receive said nozzle, and a finger

slot in said upper surface extending from the outer cylindrical wall to said central opening, said slot being located at the side of said cap opposite to said radial opening; and said inner lid having an inverted cap-shape and including an annular wall for sliding in said central axial opening against said inner cylindrical wall, said inner lid receiving said valve button therein, and a peripheral flange extending outwardly from said annular wall beneath said inner cylindrical wall to limit upward movement.

2. A cap in accordance with claim 1 wherein said upper surface is concave.

3. A cap in accordance with claim 1 wherein said radial opening is generally frustoconical.

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