

- [54] **DISPENSING CAP FOR VALVED, PRESSURIZED CONTAINER**
- [75] Inventor: **Bruno Morane**, Paris, France
- [73] Assignee: **Societe Anonyme dite: L'Oreal**, Paris, France
- [22] Filed: **Feb. 7, 1972**
- [21] Appl. No.: **223,940**

3,373,908	3/1968	Crowell.....	222/402.13
3,388,840	6/1968	Hug	222/402.13
3,469,746	9/1969	Melacchi	222/402.13 X
3,474,939	10/1969	O'Donnell et al.	222/402.13 X
3,534,889	10/1970	O'Donnell.....	222/402.13

Primary Examiner—Stanley H. Tollberg
Assistant Examiner—Norman L. Stack, Jr.
Attorney, Agent, or Firm—Brisebois & Kruger

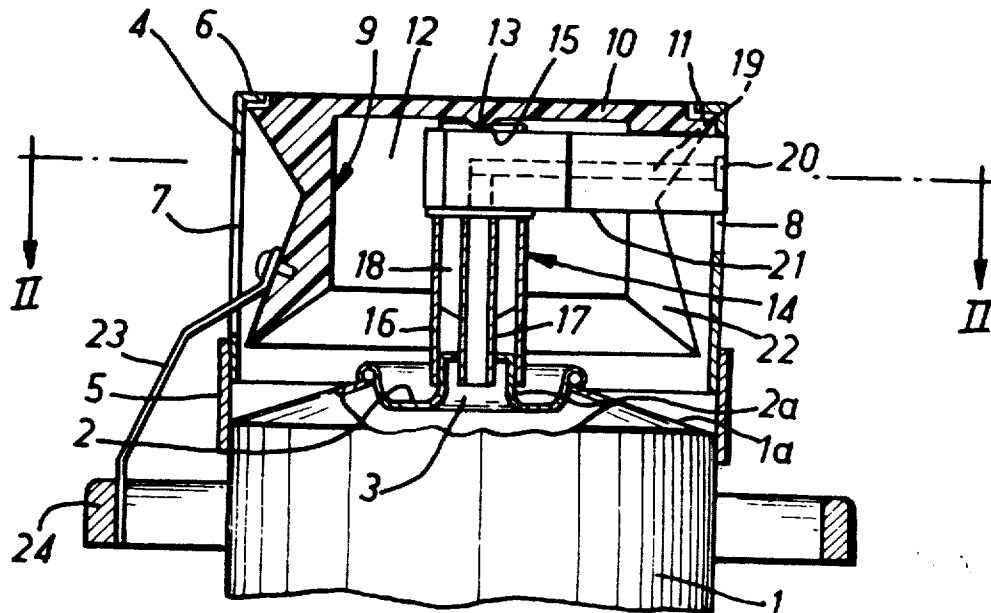
- [30] **Foreign Application Priority Data**
 Mar. 12, 1971 France 71.08656
- [52] U.S. Cl. 222/402.13
- [51] Int. Cl. B65d 83/14
- [58] Field of Search .. 222/402.13, 394, 507, 402.15

- [56] **References Cited**
UNITED STATES PATENTS
- | | | | |
|-----------|---------|---------------|--------------|
| 3,006,510 | 10/1961 | Sagarin | 222/402.13 |
| 3,223,287 | 12/1965 | Sagarin | 222/402.13 X |

[57] ABSTRACT

Cap for aerosol container having vertically actuated valve comprising an L-shaped tube having a vertical arm for engaging the outlet of said valve and a horizontal dispensing arm, and a cover the peripheral edge of which is constrained against upward movement and the center of which is pivotally mounted on said L-shaped tube, so that depression of any peripheral point on the cover depresses the L-shaped member to actuate the valve.

10 Claims, 3 Drawing Figures



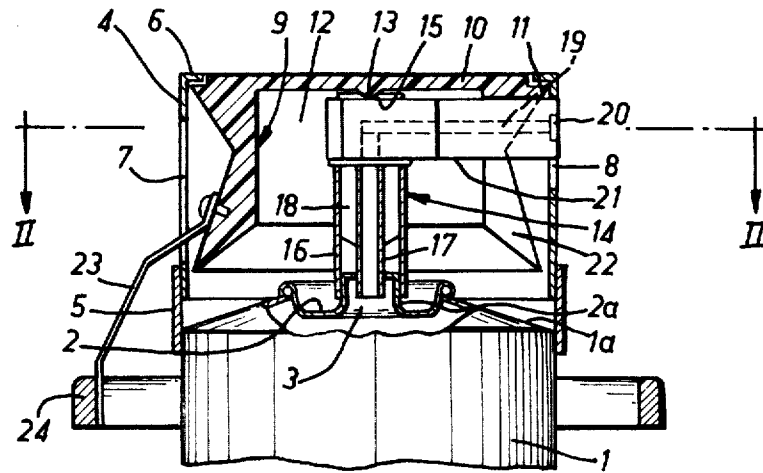


FIG. 1

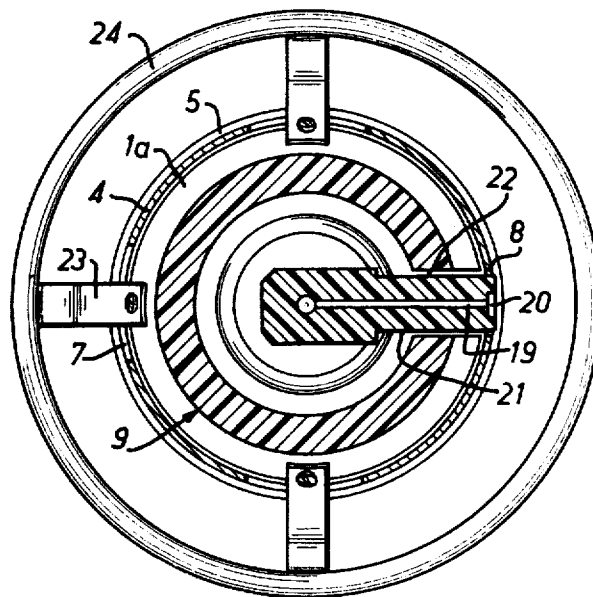
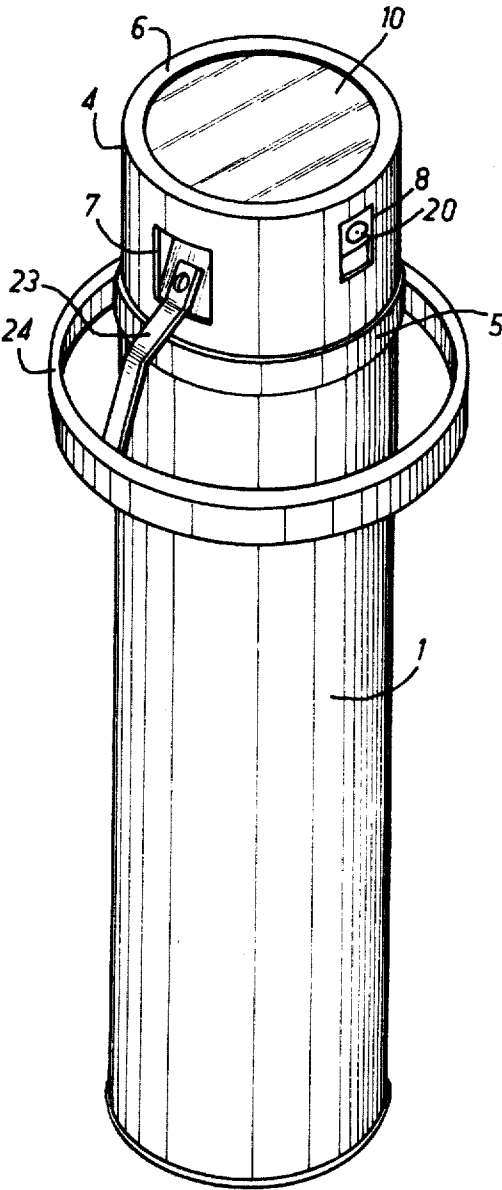


FIG. 2

FIG.3



DISPENSING CAP FOR VALVED, PRESSURIZED CONTAINER

When products stored in valved pressurized containers are to be dispensed it is conventional to utilize push-buttons for opening the container valve. These push-buttons, when directly actuated by the user, are capable of applying forces to the valve member at an angle to the axis in which the valve member slides, so that deterioration of the valve may result. Moreover such push-buttons generally have an unattractive appearance.

It has already been suggested that dispensing caps be associated with the push-buttons of containers of the aerosol bomb type. These caps cover the top of the container and ensure that the push button is actuated in the desired direction regardless of the direction in which the finger of the user presses on the movable part of the cap. These caps have, for some people at least, a satisfactory aesthetic appearance, but their movable part can only be actuated by pressing it in a single direction and, in any case, no pressure by the user on portions of the cap other than the movable part can have the effect of opening the dispensing valve. This implies that the receptacle must first be properly oriented in the hand of the user in order to enable him to dispense the product.

It is the purpose of the present invention to provide a dispensing cap acting as a pressure member which may be actuated without any previous orientation of the container with respect to the hand of the user.

It is accordingly an object of the present invention to provide as a new article of manufacture a dispensing cap for a pressurized container of the aerosol bomb type, which container comprises a dispensing valve positioned at its upper end. The cap is essentially characterized by the fact that it comprises, in the first place, a peripheral member fixed to the upper part of the wall of the container, said member being provided with at least one window in its side; in the second place, a cap positioned inside said peripheral member, with the entire periphery of the top of said cap engaging a flange on the peripheral member and being provided with a lateral window in alignment with the window in the peripheral member; and, in the third place, an L-shaped dispensing member, one arm of which is substantially vertical and cooperates at its lower end with the dispensing valve of the container while its other arm is substantially horizontal and positioned opposite the opening defined by the windows in the cap and in the peripheral member. An abutment is provided between the central part of the cap and the upper part of the dispensing means, said dispensing means being positioned inside said cap.

In a preferred embodiment of the invention, the abutment between the cap and the dispensing means consists of a projection which cooperates with a mating seat carried by the one of these members which does not carry the projection, with said seat defining a space sufficiently large to permit the cap to swing with respect to the dispensing means through a limited angle in all directions. The peripheral member comprises, in addition to the window, which is opposite the end of the dispensing member, other openings spaced about its lateral wall. At least one connecting arm is adapted to actuate the cap of the device and passes through these openings. The peripheral member has a generally

cylindrical shape and is connected to the lateral surface of the container by a mounting ring. The peripheral member has an annular flange at its top which is seated in a circular groove in the cap, which cap is symmetrical about its axis and has an upper part the maximum outer diameter of which is substantially equal to the inner diameter of the peripheral member. The upper part of the cap is a disc, the surface of which facing the dispensing member carries a projecting cone which cooperates with a conical seat in the upper part of the dispensing member. The horizontal arm of the dispensing member carries at one end a diaphragm through which the product stored in the container is ejected in the desired form, to wit as a spray or liquid jet. The vertical arm of the dispensing member comprises a cylindrical sleeve which is a sliding fit onto the cylindrical outer wall of the dispensing valve and is guided by said cylindrical surface. A duct is axially positioned in said sleeve and cooperates with the movable part of the dispensing valve. It will be seen that the cap according to the invention presents an attractive appearance because the dispensing valve is hidden by the cylindrical peripheral portion of the cap.

The essential characteristic of the cap according to the invention is that the dispensing valve of the container may be opened regardless of the point at which the finger of the user exerts force on the top of the cap. In effect, if the user presses at one part of the cap he creates, in the axial diametral plane including the point of application of the force, a second class lever, the fulcrum of which is the point at which the upper part of the cap rests on the upper edge of the peripheral member. The point at which the resultant force is applied to the dispensing member is the projection in the center of the upper disc of the cap, and the effect of this resultant force is to depress the dispensing member and consequently open the container valve. It will be noted that, regardless of the point at which the force exerted by the user is applied, there is created, at the moment at which this force is applied to the cap, a fulcrum diametrically opposite the point of application with respect to the central point at which the cap bears on the dispensing member. The user may thus press on any point on the cap, so that it is unnecessary to orient the container in the hand of the user.

Moreover it should be noted that if the vertical arm of the dispensing member is a slidable sleeve, the movement which opens the dispensing valve is perfectly guided, which prevents any deterioration of this valve.

It is a further object of the present invention to provide as a new article of manufacture a pressurized container of the aerosol bomb type essentially characterized by the fact that it carries, at its upper end, a dispensing cap of the type which has just been described.

In order that the invention may be better understood a preferred embodiment thereof will now be described, purely by way of illustration and example, with reference to the accompanying drawings in which:

FIG. 1 is an axial sectional view taken through the cap according to the invention, showing it mounted on a container of the aerosol bomb type;

FIG. 2 is a transverse section view taken along the line II—II of FIG. 2; and

FIG. 3 is a perspective view of the cap according to the invention.

Referring now to the drawings, it will be seen that reference numeral 1 indicates a container of the aerosol

bomb type, which carries a cap according to the invention. The container 1 has a cylindrical lateral wall the upper part of which forms a conical shoulder 1a. At the top of the conical part 1a is a cap 2 supporting the dispensing valve 3. The valve 3 is attached to the cap 2 by a cylindrical outer wall 2a, which is part of the cap 2.

The cap according to the invention comprises a peripheral outer member 4 having a thin cylindrical wall of molded plastic material with a diameter slightly greater than the diameter of the container 1. The peripheral member 4 is attached to the wall of the container 1 by a mounting collar 5 force-fitted around the wall 1. The peripheral member 4 and the collar 5 may be attached to each other by any suitable means, for example, a plurality of radial keys made of plastic material. The peripheral member 4 has at its upper end a horizontal flange 6. Its lateral wall is provided with three rectangular openings 7 spaced at 90° from each other, and a rectangular window 8.

Inside the peripheral member 4 is a cover 9. The cover 9 is symmetrical about an axis of revolution and its upper part consists of a disc 10 provided with a peripheral groove 11. The cover 9 covers an inner cylindrical space 12. In the middle of the lower surface of the disc 10 is a conical projection 13. The cover 9 is supported on a dispensing member 14 by the tip of the projection 13 which cooperates with a conical seat 15 in the upper part of the dispensing member 14. The height of the cover is such that the lower peripheral edge of the cover does not rest on the container 1. The cover 9 has a radial opening 22 in its lateral wall, which opening extends the full height of the cover 9.

The dispensing member 14 is L-shaped with one arm substantially vertical and the other substantially horizontal.

The vertical arm of the dispensing member 14 consists of a cylindrical sleeve 16 having an axial duct 17 adapted to penetrate into the cylindrical jacket 2a to cooperate with the movable parts of the valve 3. The position of the duct 17 with respect to the sleeve 16 is maintained by radial vanes 18. The horizontal arm 21 of the dispensing member 14 has an internal duct 19, the end of which is partially closed by a dispensing diaphragm 20. The duct 19 communicates with the duct 17. The conical seat 15 is carried by the upper part of the arm 21 and this conical seat is positioned axially of the valve 3 when sleeve 16 is introduced into the cylindrical part 2a of the valve 3. The arm 21 of the dispensing member 14 passes through the opening 22 in the cover 9 opposite the window 8 in the lateral wall of the peripheral member 4.

Three arms 23 are fastened to the cover 9 and extend through the recesses 7. The lower ends of said arms are connected to a ring 24.

When the user exerts pressure at any point on the ring 24 he creates a fulcrum between the groove 11 in the cap 9 and the flange 6 of the peripheral member 4, which fulcrum is positioned in the diametral plane of the cap which contains the point on which the user is pressing. The force exerted by the resulting second class lever is applied at the pressure point 13 and exerted on the dispensing member 14 which is depressed as the sleeve 16 slides on the cylindrical part 2a. This movement of the duct 17 opens the valve 3 and the product held under pressure in the container 1 escapes through the duct 17, the duct 19 and the diaphragm 20.

Dispensing ceases when the user stops pressing on the ring 24, at which time the assembly reverts to its initial position in response to the force exerted by a resilient member in the valve 3.

It will be seen that the action of the duct 17 on the valve 3 necessarily takes place along the axis of this valve because the sleeve 16 is guided on the cylindrical member 2a. It will also be seen that dispensing results, regardless of the point at which the user presses on the ring 24, because there is always created, at some point on the groove 11, a fulcrum due to engagement between the cover 9 and the edge 6 of the peripheral outer member 4.

It will of course be appreciated that the embodiment which has just been described has been given purely by way of illustration and example, and may be modified as to detail without thereby departing from the basic principles of the invention.

What is claimed is:

1. A cap for use with a pressurized container of the type equipped at its upper end with a dispensing valve actuated by the axial depression of an outlet tube against the resistance of resilient means, said cap comprising
 - a stationary cylindrical guide cylinder attached to the upper end of said container coaxially of said outlet tube,
 - an L-shaped dispensing member having a vertical arm comprising an outer sleeve vertically slidable on and guided by said guide cylinder and an inner duct slidable with said sleeve and positioned to engage said outlet tube to receive a product emitted therethrough, said dispensing member comprising a horizontal arm defining a horizontal duct in communication with the duct in said vertical arm,
 - an annular member encircling said dispensing member and attached to said container, said annular member being provided with inwardly projecting flange means, a depending lateral wall and an opening in said wall aligned with said horizontal arm,
 - and a cover member having peripheral portions spaced in all directions from its center which are engaged beneath said inwardly projecting flange means, said cover having its center pivotally mounted on a point on said dispensing member in alignment with the axis of said outlet tube for swinging movement about said flange means as a fulcrum toward and away from said container,
 - whereby depression of said cover member at any point remote from its center causes depression of the center of said cover and the vertical dispensing member arm and outlet tube therebeneath, to open said valve and dispense the contents of said container.
2. Dispensing cap for a pressurized container having a dispensing valve at its upper end which valve is adapted to be actuated by depression thereof, said cap comprising an annular peripheral member having an inwardly projecting peripheral flange at its upper end and adapted to be attached at its lower end to the upper part of the wall of the container, said peripheral member being provided with a depending lateral side and a window in said side, a cover member positioned inside said peripheral member with its periphery abutting beneath said flange, said cover member being provided with a lateral window positioned in alignment with the

5

window in the peripheral member, and a dispensing member defining an L-shaped duct, said dispensing member being encircled by said annular peripheral member and having a substantially vertical arm, the lower end of which is adapted to engage the dispensing valve of the container, and a substantially horizontal arm positioned in alignment with the opening defined by the windows in the cover member and the peripheral member, and abutment means pivotally supporting the central part of the cover member on the upper part of the dispensing member, for swinging movement about said flange as a fulcrum toward and away from said container, whereby downward pressure on any part of said cover will result in depression of said dispensing member and actuation of said valve.

3. Cap as claimed in claim 2 in which the abutment means supporting the cover and dispensing member consists of a projection from one of said cover and dispensing members which projection cooperates with a mating seat carried by the other of said cover and dispensing members, which seat permits the cover member to swing through a limited angle with respect to the dispensing member in all directions, when downward pressure is exerted on any part of said cover other than its center.

4. Cap as claimed in claim 2 in which the periphery member comprises, in addition to said window, a plurality of additional circumferentially spaced openings in its lateral wall and said cap comprises arms projecting through said openings which are connected to actu-

6

ate said cover member.

5. Cap as claimed in claim 2 in which the peripheral member is generally cylindrical and is connected to the side of the container by a mounting ring.

6. Cap as claimed in claim 2 in which the horizontal arm of the dispensing member carries at its free end a diaphragm having an opening through which the product stored in the container is ejected.

7. Cap as claimed in claim 2 in which the vertical arm of the dispensing member comprises a cylindrical sleeve adapted to slide on and be guided by the cylindrical outer jacket of a dispensing valve, said sleeve defining a central duct and being adapted to cooperate with the movable parts of a dispensing valve.

8. Pressurized container which comprises a dispensing valve and a cap as claimed in claim 2 attached to its upper end.

9. Cap as claimed in claim 2 in which the flange on said peripheral member is seated in a circular groove in said cover, said cover having an upper part the maximum outer diameter of which is substantially equal to the inner diameter of the peripheral member.

10. Cap as claimed in claim 9 in which the upper part of the cover member is a disc, the surface of the disc facing the dispensing member having a projecting cone constituting said abutment means which cooperates with a conical recess in the upper part of the dispensing member.

* * * * *

35

40

45

50

55

60

65