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COVER MEMBER FOR DISPENSING VALVE STRUCTURE
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This invention relates to a cap or cover member for a valve and which may include a spout-cap for the dispensing valve structure of an aerosol container.

Aerosol containers have been widely used recently to dispense a great variety of products. Whipping cream for the family home may be conveniently packaged in an aerosol container and whipped upon dispensing without particular labor on the part of the housewife. Shaving cream, insecticides, paints and liquid plasticics are but a few of the other products which have been packaged for sale in aerosol containers.

The container used is ordinarily a commercially available can of convenient size to be held in a person's hand. The packaging manufacturer ordinarily fills the can with the product after which a dispensing valve structure is placed in the opening at one end of the can. After the valve has been so placed, the charging gas is admitted in the can and about the contents thereof, through the dispensing valve structure. A person who purchases this aerosol container may dispense a small amount or all of the contents by operating the dispensing valve which is usually one of a simple push and release type.

The valve structure itself is usually covered by a structure designed not only to protect the valve from accidental opening but also for the purpose of providing a spout or similar structure to direct the dispensed contents from the container. Ordinarily also, there is some space between the actual valve seat and the exit point from the valve body so that an amount of dispensed material remains within the cap after the valve is closed. This prevents a particularly important problem in instances where the dispensed material is edible such as in the case of whipping cream dispensing containers. Most previously known valve structures have provided no means whereby the material which remains within the valve structure may be cleaned out or removed. This permits of an unsanitary condition and in the case of such products as shaving cream, one contributing to the annoyance of the user.

The present invention is primarily concerned with the structure of a closure member for the dispensing valve structure which is readily removable without disturbing the sealing quality of the valve itself, for the purpose of permitting thorough cleansing of the cap itself and also the dispensing valve structure outside of the aerosol container.

A particular embodiment of the invention will be described in connection with the accompanying drawings, in which:

Figure 1 is a diagrammatic illustration of an aerosol container including a dispensing valve and the closure structure of this invention;

Figure 2 is a top plan view of the housing and valve illustrated in Figure 3;

Figure 3 is a greatly enlarged sectional view through the valve structure and closure of this invention; and

Figure 4 is a view similar to Figure 3 showing the closure member removed outwardly from the valve housing.

The aerosol container 11 is a commercially available "tin can" having a somewhat frustum shaped top portion 12 in which is positioned a dispensing valve structure 10 having thereon a cover member 13 of this invention. The valve structure itself is particularly described and claimed in my copending application Serial No. 296,539, filed June 30, 1952.

The valve structure itself includes a cupshaped housing 15 which has an outer peripheral rim 16 for attachment to the aerosol container 11. Centrally disposed within the housing 15 is a sleeve 17 having a central bore 18 and a conical surface 19 at its lower end forming a valve seat. A valve stem 20 reposes within the central bore 18 and has an integrally enlarged valve member or head 21 at the inner end for seating engagement with the conical surface 19 of the valve seat. Two species of the valve described and claimed in my above mentioned copending application are shown herein. In Figure 3, a spring 22 is shown as bearing against the housing 15 and a pin 23 which extends through the valve stem 20 to yieldingly urge the valve head 21 against the seat 19. In the species of Figure 4, there is no spring and the pressure within the aerosol container acting against the surface 24 of the valve head 21 forces this head against the valve seat.

A flattened portion 25 on the stem above the sleeve member 17 keeps the valve stem from dropping out of the central bore during charging of the container with gaseous contents. The sleeve member 17 is preferably made of rubber or a synthetic rubber-like material so as to provide some resiliency.

The cap or cover is preferably made of a resilient plastic material which can be deformed in some parts to operate the valve member and also to provide a convenient means for readily removing the cover from the valve housing. The cap is generally cylindrical and has a skirt portion 30 open at its lower end and closed at the other end by a flexible membrane-like cap portion 31 surrounding a protective rim 32. As noted in Figure 3, the membrane-like portion 31 is closely adjacent the end of the valve stem 20 so that it can be depressed manually against the valve stem to open the valve.

The cap is preferably resiliently held in the valve housing 15 by a peripheral bead 33 extending about the lower edge of the skirt 30 a short distance above the lower free edge 34 of the skirt. This bead is integrally formed with the skirt and extends outwardly so that it may be yieldingly caught in a recess 35 formed in the side wall of the valve housing 15. The plastic material of the cap will yield sufficiently to permit the bead to be forced into the valve housing and later removed therefrom at the will of the user.

The removable feature of the present cover or cap member permits the valve structure and the cover to be readily and thoroughly cleaned after use. The bead 33 is properly positioned with relation to the lower end 34 so as to properly seat the cover on the valve housing 15 so that the depressed membrane 31 may always be operated to open the valve.

It is usually desired that the contents be dispensed in an orderly fashion rather than broadcast generally upon opening of the valve. To this end, a spout 36 is preferably integrally formed in the side wall of the skirt near the closure member. This spout extends outwardly and is upwardly open so that the contents may be dispensed downwardly when the container is held in an inclined position with the top extending downwardly.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, for some modifications will be obvious to those skilled in the art.

I claim:

1. A spout-cap for the dispensing valve of an aerosol
container, comprising, a resilient plastic member having a cylindrical skirt portion with a free edge receivable within a portion of the valve structure, an external bead about the skirt to releasably lock the member to the valve structure when the bead is pressed into a portion of the valve structure, a closure membrane extending across the skirt opposite said free edge and adapted to be manually depressed to open an associated valve member, an integral upstanding wall about the closure membrane to prevent accidental depressing of the membrane against a valve member, and a spout in the side of the skirt portion adjacent the closure member for delivering dispensed product out of the spout-cap.

2. A resilient removable cover for an aerosol container having a valve housing and a valve therein, said cover having a cylindrical skirt portion engageable with said housing and being readily detachable therefrom independently of said valve, said cover having a deformable closure membrane adjacent said valve when said cover is in position to actuate the valve when said closure membrane is depressed, and an upstanding wall standing above the closure membrane for preventing accidental depression of the membrane against the valve, said closure membrane being capable of being depressed independently of said wall but only by selective pressure applied within the boundary of the wall.

3. A resilient removable cover as set forth in claim 2, wherein said cover has an outwardly extending open spout.

4. A resilient removable cover as set forth in claim 3 wherein said skirt portion has a bead projecting therefrom for frictionally engaging said valve housing.

5. In a resilient removable cover for an aerosol container; a valve housing and a valve therein, said cover having a cylindrical skirt portion engageable with said housing and being readily detachable therefrom independently of said valve, said cover having a deformable closure membrane adjacent said valve when said cover is in position to actuate the valve when said closure membrane is depressed, said cover having an integral upstanding wall extending above the closure membrane, said wall preventing accidental depression of the membrane against the valve, said closure membrane being capable of being depressed independently of said wall but only by selective pressure applied within the boundary of the wall.

6. A resilient removable cover as set forth in claim 5 wherein said cover has an outwardly extending open spout formed integrally therewith.

7. A resilient removable cover as set forth in claim 6 wherein said skirt portion has a bead projecting therefrom and formed integrally therewith for frictionally engaging said valve housing.

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