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R. A. SLIWINSKI

3,133,680

PROTECTION MEANS FOR PRESSURIZED DISPENSERS

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FIG. 1

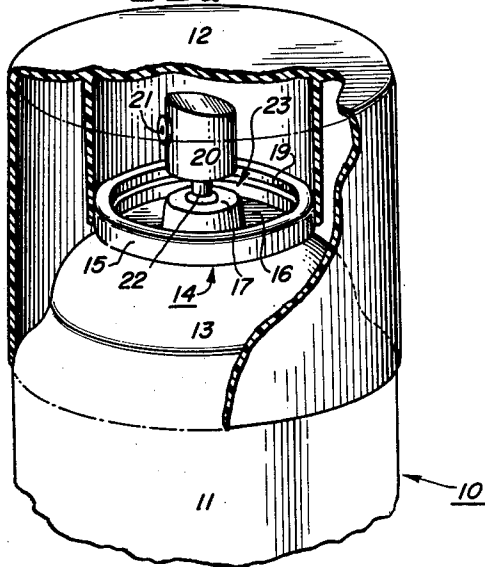


FIG. 2

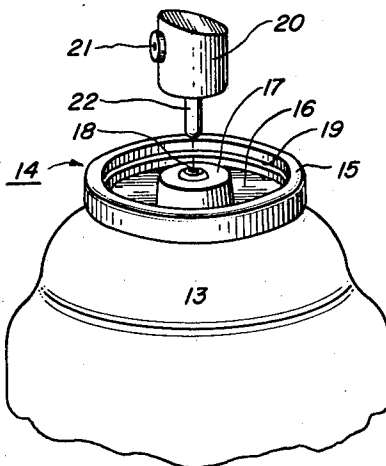


FIG. 4

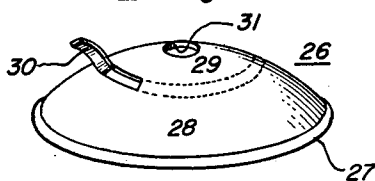


FIG. 7

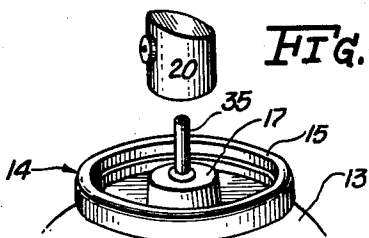


FIG. 3

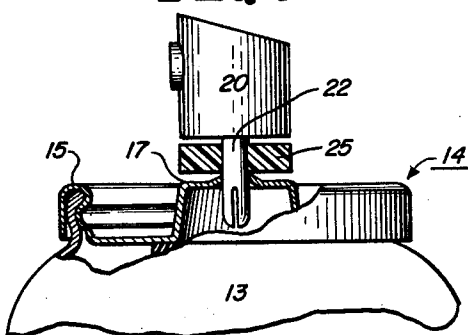


FIG. 5

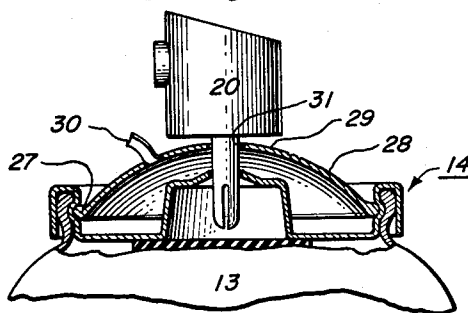
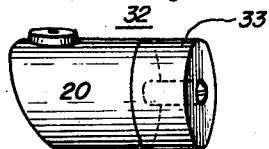


FIG. 6



INVENTOR
Robert A. Sliwinski

BY *Arson, Jelen, Krotter & Deiner*

ATTORNEYS

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PROTECTION MEANS FOR PRESSURIZED DISPENSERS

Robert A. Sliwinski, 4451 182nd St.,
Country Club Hills, Ill.

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This invention is directed to a structure for preventing normal operation of the elements of a pressurized dispenser, thereby to prevent premature discharge of the contents.

In the last two decades the use of pressurized dispensers has increased enormously. Such dispensers frequently include a container for storing two fluids, one a concentrate and the other a propellant. The contents build up a pressure within the dispenser sufficient to force a portion of the contents out as a suitable discharge channel is provided. A valve arrangement is provided for the dispenser, including an actuator accessible to the user. The actuator is operable to complete a discharge channel between the interior of the dispenser and the atmosphere, thus venting a portion of the dispenser's contents to the atmosphere. The propellant vaporizes almost instantly as it leaves the discharge channel, and only the concentrate remains in the discharge stream.

One well-known type of pressurized dispenser is colloquially identified as an "aerosol" can. Aerosol dispensers have been filled with many products, from perfumes to paints, for subsequent discharge as used by the purchaser. When a product such as paint is placed in an aerosol container for subsequent sale, it is highly desirable, if not absolutely necessary, to protect the can and its contents from premature discharge by persons "sampling" the merchandise. The proclivity of small children to test such packages by spraying the paint on the adjacent merchandise is well known. When paint is sprayed on the labels of adjacent cans, the information regarding the cans' contents cannot be read, thus rendering such cans unsaleable. Accordingly it is necessary to prevent or at least delay the operation of an ordinary aerosol can to provide protection not only for the contents of the can before sale, but of the adjacent merchandise.

Several attempts have been made to prevent premature discharge of the contents of the aerosol can but such attempts have generally proved unsatisfactory, both from a standpoint of undue expense, and because such efforts have endeavored only to deny access to the actuator. More specifically, a strip of special tape has been affixed to the dispenser where the top abuts the can body, thus to secure the top to the body while the can remains on the store shelf. A second approach utilizes slots or keyways formed in the removable top of the dispenser, through which a key or similar implement must be inserted to displace a locking unit and permit removal of the top from the body of the dispenser. Still a third method utilizes a plastic, dome-shaped protection unit which is positioned to cover the actuator and deny access thereto. Not only is the fabrication of such dome-shaped unit expensive, but it requires precise gripping and insertion with equal forces around the periphery of the base to avoid breaking the unit as it is inserted. Such devices only serve to pinpoint the line of defense for anyone who intends to remove the top and displace the actuator to sample the contents of the can. Once the access-prevention unit has been removed, the can actuator may be freely displaced to discharge the contents.

It is therefore a primary object of the present invention to provide a simple and inexpensive protection unit for a pressurized dispenser.

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A more specific object of the invention is the provision of means for preventing displacement of the actuator after the top of an aerosol can is removed, rather than attempting to deny access to the actuator.

Still another object of the invention is the incorporation of the novel protective unit as a portion of a decorative member of the can assembly, with the protective portion thereof being removable to permit manipulation of the actuator.

The foregoing and other objects of the invention are achieved in a preferred embodiment of the invention by the provision of spacer means which occupies at least a portion of the clearance space between the actuator and the top of the dispenser. Normally a stem element extends through the clearance space to support the actuator, which can either be pushed downwardly toward the dispenser, or displaced transversely through an arcuate path, to actuate a valve and complete the discharge channel for the propellant and the concentrate. By blocking at least a portion of the clearance space to prevent movement of the actuator, the premature discharge of the contents is prevented in a simple, economical, and expeditious manner.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The invention itself, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings, in the several figures of which like reference numerals identify like elements, and in which:

FIGURE 1 is a perspective view of a conventional aerosol can, with the top partly broken away to facilitate explanation of the invention;

FIGURE 2 is a partial perspective view similar to the arrangement of FIGURE 1 with the actuator removed;

FIGURE 3 is a side view, partly in section, of a preferred embodiment of the invention;

FIGURES 4 and 5 are perspective and sectional views, respectively, illustrating another embodiment of the invention;

FIGURE 6 is a perspective illustration of still another embodiment of the invention; and

FIGURE 7 is a partial perspective view, similar to FIGURE 2, depicting another conventional construction.

As shown in FIGURE 1, a conventional aerosol dispenser or can 10 includes a main body portion 11 and a removable top or upper portion 12, a part of which has been broken away to illustrate the upper body portion of the can. As shown in FIGURES 1 and 2, the upper portion 13 of the can body is dome-shaped, and this upper part of the can is sealed by a closure member 14, which includes an outer rolled-over element or collar 15 sized for mating engagement with the lip or upper portion of the can body (see FIGURES 3 and 5). A channel 19 is provided in the inner wall of collar 15. The closure member further comprises a central depressed area 16, and a boss or bent-up portion 17 is provided at the center of the closure member, with an aperture 18 at the center of the boss.

An actuator member 20 is provided for the unit, which includes an orifice 21 through which the aerosol suspension emerges. Although not visible in the drawing, the orifice 21 is connected interiorly of actuator 20 through a channel which extends through stem 22, which is inserted in aperture 18 of boss 17, into the interior of the aerosol can. Assuming the valve construction is of one conventional type which completes the discharge channel responsive to vertical displacement of the actuator, as the stem is depressed by displacing actuator 20 downwardly, the propellant and concentrate are vented through the discharge channel. It is noted that a clearance space 23

is normally defined adjacent stem 22 between the lower surface of actuator 20 and the upper surface of boss 17, and the actuator is displaced downwardly through this clearance space as stem 22 is inserted into the can interior to complete the discharge channel for the contents. In certain of the appended claims, "actuator" refers to a composite unit including both an actuator button and the stem to which the button is attached.

In accordance with the inventive teaching, and as particularly illustrated in FIGURE 3, a spacer means 25 is provided to block at least a portion of the clearance space adjacent the stem between actuator 20 and boss 17, and thus prevent a given displacement of the actuator which is required to discharge the contents. The spacer means can be a simple washer-type element, as indicated in section in FIGURE 3. The simplicity of such an element and its consequent economic advantage is apparent. The washer may be a solid unit, or it can be cut or of the C-washer type to permit simple removal of the washer when it is desired to depress the actuator and dispense the contents of the can. It is a simple matter to remove the actuator and stem as shown in FIGURE 2 and removed the washer or spacer means, and then reinsert the stem and actuator to permit normal operation of the aerosol dispenser.

In another construction, as shown in FIGURE 7, a stem 35 is attached to and extends from the body portion of the can, and the actuator is inserted downwardly over the stem. In such an arrangement the actuator is simply removed from the stem and the spacer means is removed, and then the actuator is reinserted on the stem to provide for normal operation.

The novel spacer means may be incorporated as a portion of a decorative unit, as illustrated in FIGURES 4 and 5. As there shown, the dome-shaped decorative unit 26 comprises a lower annular base 27 sized for mating engagement with channel 19 within closure member 14, a lower portion 28 and an upper portion 29 separated by a tear strip 30, and the upper portion 29 defines an aperture 31 therein to permit the stem to pass therethrough. The unit 26 can be simply fabricated of an opaque plastic material and colored the same as the main body portion of the can, thus to provide a pleasing appearance of the entire unit. When positioned as shown in FIGURE 5, the upper portion 29 of the unit prevents the downward displacement of actuator 20 sufficiently to cause any discharge of the contents from the can. However, when tear strip 30 is pulled to separate upper portion 29 from the remainder of unit 26, actuator 20 can be removed to permit removal of the spacer element or portion 29 as previously explained in connection with FIGURE 3. Thus the invention contributes to the decor of the complete assembly without the loss of any of its utility.

The novel spacer means 26 also finds utility in pressurized dispensers having a valve construction which operates to complete the discharge channel as the actuator is displaced transversely of the stem direction, rather than being displaced in the same direction as the stem. Such transversely-displaced actuators are frequently used with the valve mechanisms employed in dispensers for shaving lather, etc. Because spacer means 26 restrains actuator movement in two directions, preventing both vertical and horizontal displacement of the actuator relative to the top of the dispenser, spacer 26 can be used to safeguard dispensers employing different valve constructions.

For those constructions in which the stem is affixed to the can body and only the actuator 20 is removable, as shown in FIGURE 7, an actuator assembly 32 can be formed with a removable spacer element 33 as illustrated

in FIGURE 6. That is, the composite actuator-and-spacer assembly 32 can be fabricated and weakened along the junction between actuator portion 20 and spacer portion 33, so that a simple rotation of the spacer element relative to the actuator portion will separate the spacer from the actuator and permit the return of actuator 20 to the stem for normal operation of the aerosol dispenser.

Each of the illustrated embodiments is simple and economical to manufacture and can readily be incorporated with existing pressurized dispensers, including aerosol cans. The invention fulfills a definite need in this art, considered both from the standpoint of economy in manufacturing and inserting the preventive means, and the efficiency of providing the safety structure in a position to prevent displacement of the actuator, rather than attempting to prevent access to the actuator.

While only particular embodiments of the invention have been shown and described, it is evident that modifications and alterations may be made therein, and it is intended in the appended claims to cover all such modifications and alterations as may fall within the true spirit and scope of the invention.

What is claimed is:

1. For use with a pressurized dispenser having a body portion enclosing the dispenser's contents, a top closure member affixed to said body portion and defining an annular channel therein, and an actuator extending from said top closure member through a clearance space, said actuator including a first portion of given diameter, said first portion having a smooth cylindrical outer surface along its entire extent, and a second portion of a diameter larger than said given diameter, a given movement of said actuator being effective to complete a discharge channel for the contents, the improvement which comprises: spacer means comprising a lower portion disposed for mating engagement with said annular channel in the top closure member, and a separable upper portion connected to said lower portion and defining an aperture for said first portion at the actuator therein, said upper portion normally restraining said actuator against said given movement and only permitting said given movement of the actuator responsive to separation of the upper and lower portions of said spacer means.

2. For use with a pressurized dispenser having a body portion enclosing the dispenser's contents, a stem extending from said body portion through a clearance space, said stem having a smooth cylindrical outer surface along its entire extent, and an actuator affixed to said stem, a given movement of said actuator and stem being effective to complete a discharge channel for the contents, the improvement which comprises: dome-shaped spacer means comprising a lower portion disposed for mating engagement with said body portion, a tear strip affixed to said lower portion, and an upper portion affixed to said tear strip and defining an aperture for said stem therein, said upper portion restraining said actuator and stem against movement in two directions and only permitting said given movement of the actuator and stem responsive to separation of the upper and lower portions of said spacer means by removal of said tear strip.

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