

[54] **AEROSOL DISPENSER WITH ACTUATOR LATCHING MEANS**

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[56] **References Cited**

UNITED STATES PATENTS

2,686,652 8/1954 Carlson et al. 222/153 X
3,272,390 9/1966 Horwitt 222/182 X

FOREIGN PATENTS OR APPLICATIONS

452,896 9/1936 Great Britain 222/543

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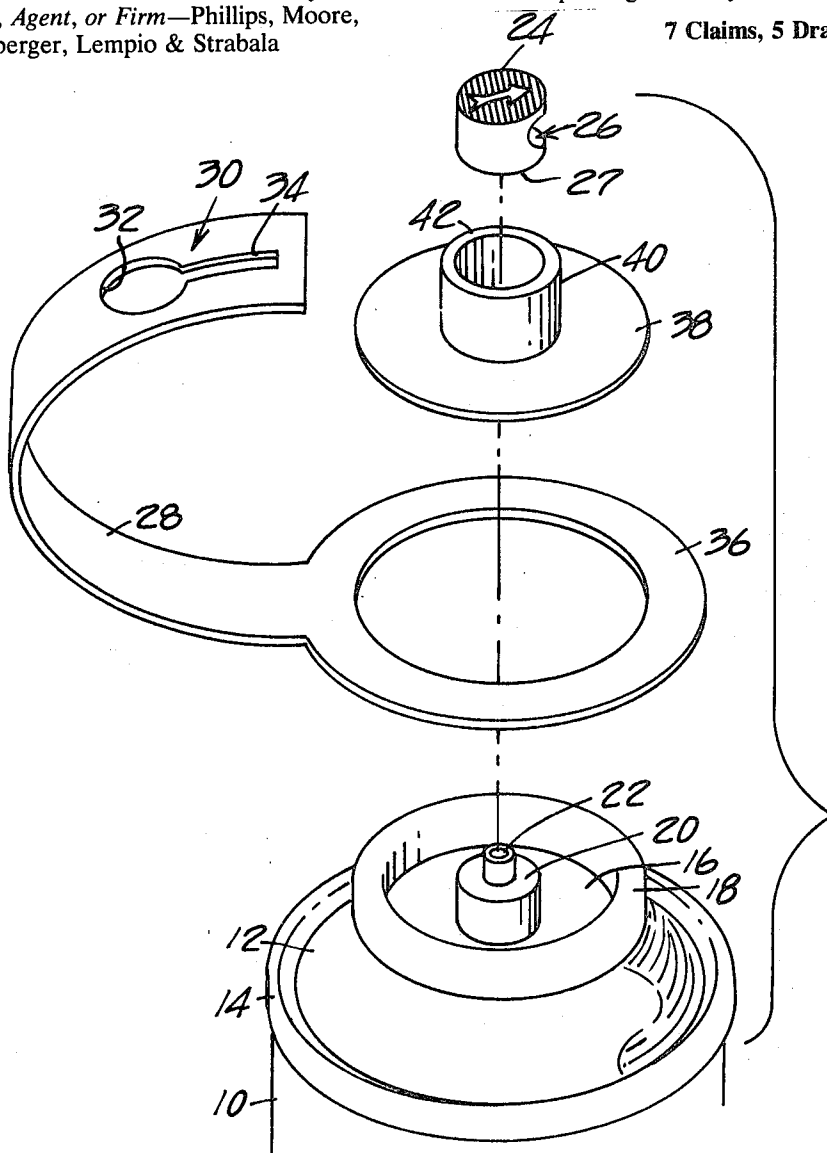
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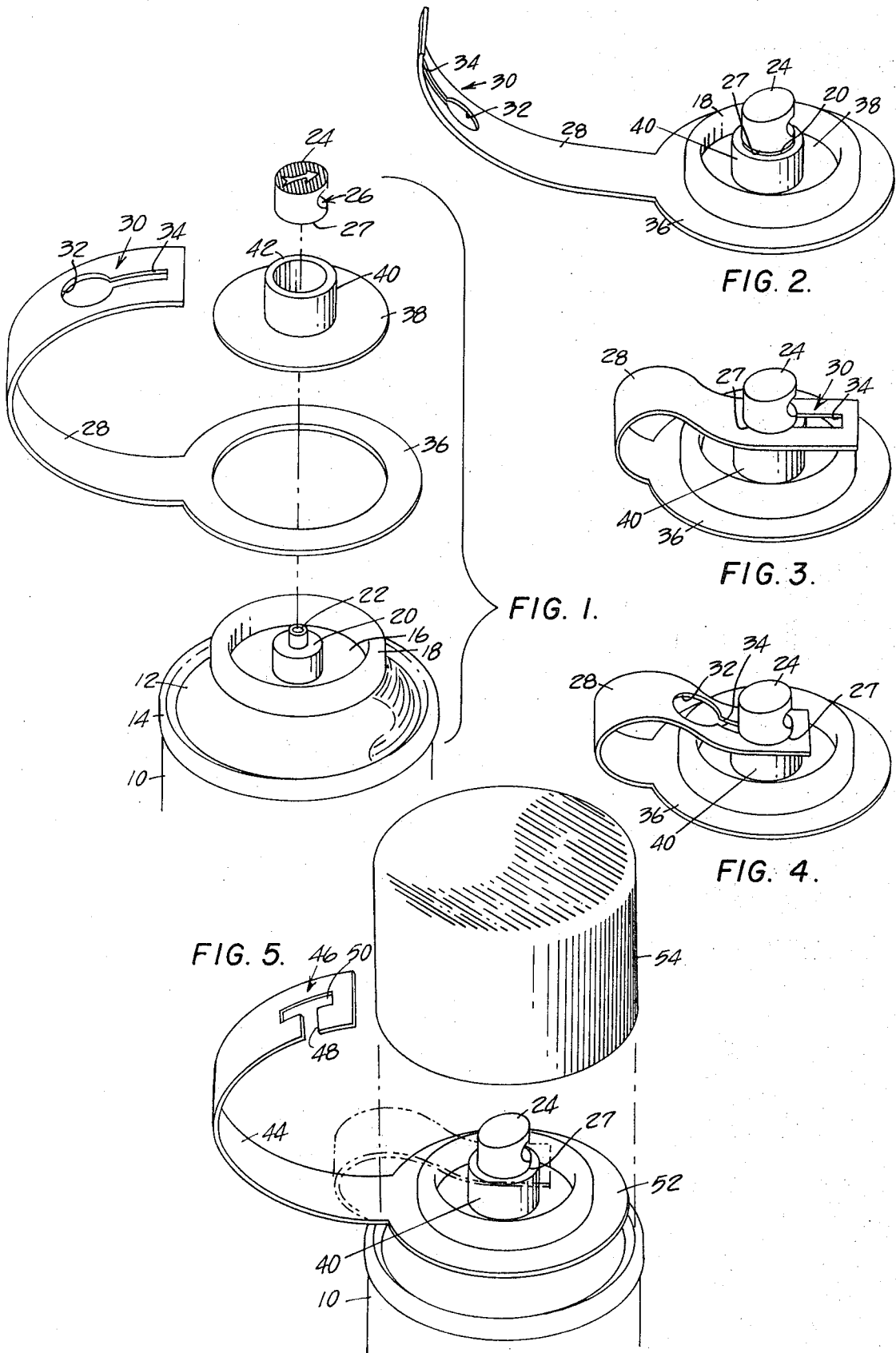
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ABSTRACT

There is disclosed latching means for an aerosol dispenser of the type having a container with a vertically extending axially movable dispensing and valve actuating tube. An actuating button is mounted on the outer end of the tube and includes a dispensing orifice or nozzle in communication with the dispensing tube. An insert comprises a sleeve engaging the top of the container and extending upward along and surrounding the dispensing tube terminating just short of a lower ledge of the actuating button and defining by the upper edge a shoulder in opposition to a shoulder defined by the lower edge of the actuating button. These shoulders are spaced a distance slightly exceeding the thickness of an elongated strap secured to the container and includes a slot for receiving the dispensing tube so as to dispose portions of the strap adjacent to slot in blocking position between the opposed shoulders defined by the lower edge of the actuating button and the upper edge of the insert sleeve. The insert is of a resilient material and, when not in latch positions, extends beyond the outer edge of the container to block the placement of a cap normally fitted over the dispensing assembly on the rim of said container.

7 Claims, 5 Drawing Figures





AEROSOL DISPENSER WITH ACTUATOR LATCHING MEANS

BACKGROUND OF THE INVENTION

Aerosol dispensers of the hand-held type are widely used for a great variety of products because of the convenience afforded by such dispensers.

Such products are usually packaged under pressure or are placed in containers having some means for creating a gaseous pressure within the walls thereof so that upon actuation of a valve quantities of the material may be discharged by way of a suitable conduit and nozzle arrangement. The general arrangement of such dispensing devices is such that simple depression of an actuator button activates a valve to permit a discharge of the material in the container.

One drawback to such devices is that they are subject to accidental actuation during shipping and during storing. Numerous arrangements have been proposed to overcome this objection. One type of arrangement to prevent such accidental actuation of the button comprises means to block or prevent actuation of the button upon rotation either of the button itself or some member associated therewith to a blocking position. While such arrangements are generally effective to prevent accidental actuation of the dispensing button during shipment, they do have other drawbacks. One such drawback is most such arrangements are quite complicated and expensive to manufacture. Such expensive arrangements in effect eliminate the use of such devices except in the most extreme cases.

Another major drawback to such arrangements is that the activating position can be quickly and easily selected by a child. Such arrangements then are particularly hazardous to children, especially when such containers are filled with dangerous or poisonous substances.

While some of the prior art devices do provide latching means to prevent accidental actuation of the dispenser, the arrangement is such that the activating position becomes readily obvious to a curious child. Thus, such arrangements become ineffective in discouraging actuation by children.

The prior art is exemplified, for example, by following U.S. Patents:

No. 2,559,815 issued July 10, 1951 to Woodward;
No. 2,686,652 issued Aug. 7, 1954 to Carlson et al.;

No. 2,735,590 issued February 21, 1956 to Ayres;
and,

No. 3,593,926 issued July 20, 1971 to Kozub.

The above patents illustrate the above discussed problems as well as prior art approaches to solutions to such problems.

SUMMARY OF THE INVENTION

It is the primary object of the present invention to provide an aerosol actuating button assembly that overcomes the above problems of the prior art.

Another object of the present invention is to provide a simple and inexpensive latching means for an aerosol actuating assembly that is effective to prevent accidental actuation and to resist actuation by children.

A further object of the present invention is to provide a simple attachment that is operative in conjunction with existing aerosol actuator to provide actuator

blocking means that is effective to prevent accidental actuation and is resistant to actuation by children.

In accordance with the present invention, secured to an aerosol can, a strap is provided with a slot to permit the strap to be inserted under the actuating button of the aerosol dispenser. The strap is engageable with shoulders on the actuating button and fixed shoulders below the button to prevent actuation of the dispenser when the strap is in place.

BACKGROUND OF THE INVENTION

The above and other objects and advantages of the present invention will become apparent from the following specification when read in conjunction with the accompanying drawings wherein;

FIG. 1 is an exploded view of preferred embodiment of the present invention;

FIG. 2 is a perspective view of an aerosol latching assembly of FIG. 1 shown in the unlatched position;

FIG. 3 is a perspective view like FIG. 2 showing a latching element in position preparatory to be latched;

FIG. 4 is a perspective view of the latching element shown in the latched position;

FIG. 5 is a perspective view of an alternate embodiment of the present invention shown generally in the unlatched position with a phantom showing of the latching element in the latched position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawing and particularly to FIG. 1, there is illustrated a hand-held aerosol dispensing assembly of conventional design comprising a container or canister having a top closure member 12 secured as by a seam 14 to the cylindrical body of the container. The top closure means includes a valve mounting cup 16 secured as by means of a seam 18 defining a neck-like structure secured to member 12. The valve assembly retaining cup includes a valve assembly 20 of conventional design and includes an upwardly extending elongated hollow stem defining a valve actuating and dispensing stem 22.

The valve actuating dispensing stem 22 is operatively connected in the usual manner to actuate a conventional dispensing valve and to convey fluid from the interior of the container to the exterior thereof. The dispensing stem is moved axially to actuate a dispensing valve. An actuating button, again of conventional design, identified by the numeral 24 is of a simplified functional construction and of generally a cylindrical shape. The actuating button 24 is formed with a bore to receive the valve actuating stem 22 and communicate this stem with a dispensing nozzle or orifice not clearly shown but generally indicated at 26.

The actuating button 24 is as illustrated greater in diameter than the stem 22 and thus the lower end thereof indicated at 27 defines an annular shoulder surrounding the stem 22.

The aerosol latching mechanism in accordance with the present invention comprises generally an elongated strap 28 having a generally keyhole shape slot 30 defined by a semi-circular portion 32 defining an entry portion and an elongated rectangular slot 34 defining a blocking portion. The semi-cylindrical or circular portion 32 is of a diameter slightly in excess of that of the actuating button 24 and the rectangular slot 32 is

of a width slightly in excess of the diameter of dispensing stem 22.

The opposite end of the strap 28 is provided with a loop 36 which, as best seen in FIGS. 2-5, snaps snugly over neck 18 of the dispensing cannister to secure the strap to the container.

An insert member having a radially extending annular flange 38 of a diameter to fit snugly within the inside diameter of the valve retaining cup 16, and an upwardly extending collar or tubular portion 40 terminating at an upper end in an annular shoulder 42 which surrounds stem 22 and is in direct opposition to shoulder 28 on actuating button 24.

The strap member 28 and the insert member 38, 40 are preferably constructed of a suitable elastic or resilient material so that annular member 38 will have some resilience to expand or engage and be retained in cup 16, and strap member 28 should have such elasticity as to tend to extend outward when in the unlatched position as shown in FIG. 2.

The operation of the assembly in FIGS. 1-4 is such that when securely held in place, as shown in FIG. 2, with the strap 28 in a relaxed position as shown the button may be readily depressed to actuate the dispensing valve to dispense fluid from container 10 by way of nozzle 26. When it is desired to latch the dispensing assembly against accidental actuation, strap 28 is bent over as shown in FIG. 3 with the semi-circular opening 32 slipped over actuating button 24 as shown in FIG. 3 until strap 28 engages the upper surface 42 on the insert collar 40. A strap is then simply pulled to the left as shown in FIG. 4 so that the slot 34 slides along stem 22 to a position as shown in FIG. 4 wherein the portion of the strap adjacent slot 34 is positioned between opposing shoulders 27 and 42. In this position as shown in FIG. 4 depression of 24 is prevented by the engagement by the lower end of the button, or shoulder 28, with the strap resting against shoulder 42 of the insert collar 40.

With reference now to FIG. 5, there is disclosed an alternate embodiment of the invention wherein identical elements are identified by the same numerals as in the previous embodiments. In this embodiment the distinction lies primarily in the provision of a locking strap 44 having a slot of substantially T-figuration designated by the numeral 46 and comprising a first slot 48 open to the edge of the strap 44 and communicating with an elongated slot 50 running substantially length-wise at the end of the strap 44. This embodiment also preferably includes a loop 52 to secure the strap 44 around the neck 18 of cup 16.

This embodiment functions substantially as the previous embodiment except that it is slipped directly under button 24 rather than over it as in the previous embodiment.

Another feature of this invention is that the strap 28 and 44 extend outward across the rim 14 of the can 10 to prevent the application of closure lid 54 without the latched strap or mechanism being in its latched position. This becomes a reminder to the housewife et al to latch the actuating mechanism prior to replacing the cap.

The present invention may be termed a child resistant closure arrangement because, when it is latched, the average child will have some difficulty in actuating the dispenser. The latching means, while simple in con-

struction, is sufficiently complicated in operation that it will not be immediately perceptible to the average child. Specific and deliberate movement of the strap must occur before the dispensing button may be depressed.

While the present invention has been illustrated with specific embodiments, numerous modifications are possible within the spirit and scope of the present invention.

I claim:

1. An aerosol dispensing assembly comprising a pressurized cannister having an outlet, a valve for controlling outlet of fluid from said cannister, an elongated hollow stem defining a valve actuating and dispensing stem, said stem operatively connected at one end to actuate said valve and to convey fluid from said cannister upon axial movement of said stem, an actuator button including a dispensing nozzle operatively connected to the other end of said stem; a locking assembly comprising an elongated flexible strap secured to said cannister at one end and including a slot formed near the other end thereof, said strap being of a predetermined thickness at the slot end, said slot defining an entry portion and a communicating blocking portion, said blocking portion having a width dimension substantially equal to that of the stem extending toward and being closed remote from said other end; means defining an upstanding annular shoulder surrounding said stem; a shoulder formed on said actuating button and positioned opposite said annular shoulder and defining a space therebetween, said space being of a dimension substantially equal to said predetermined thickness of said strap, and said slot being operative to receive said stem at said entry portion and slide therealong so that sides adjacent said blocking portion are positioned between said shoulders and substantially fills said space whereby movement of said actuator button is restrained to prevent actuation of said valve.

2. The dispensing assembly of claim 1 wherein said slot is keyhole-shaped having a semi-circular portion defining said entry portion and an adjacent rectangular portion defining said blocking portion.

3. The dispensing assembly of claim 2 wherein said semi-circular portion has a diameter exceeding that of said actuator button.

4. The dispensing assembly of claim 1 wherein said slot is of a T-configuration with one branch thereof opening to an edge of said strap to define said entry portion and another branch thereof extending toward and being closed remote from said other end to define said closed blocking portion.

5. The dispensing assembly of claim 1 wherein said strap is biased across the top of said container to block a cover to be fitted over said top.

6. The dispensing assembly of claim 1 wherein said container includes a cap receiving rim surrounding said stem; and,

said strap is composed of an elastic material is secured to said container and biased so that it extends across said rim when not in the actuator blocking position.

7. The assembly of claim 6 wherein said elastic strap includes a loop at one end operative to encircle and engage a neck formed on said container.

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