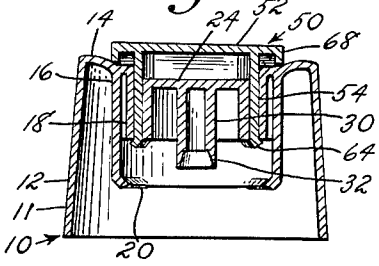
June 14, 1966 R. P. McGHIE ETAL 3,255,931

ACTUATOR CAP AND GUARD FOR A PRESSURIZED CAN

Filed June 22, 1964

Fig.4



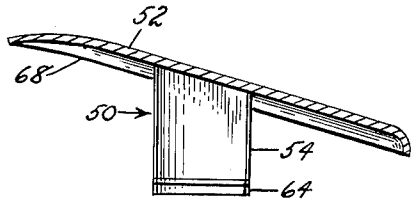
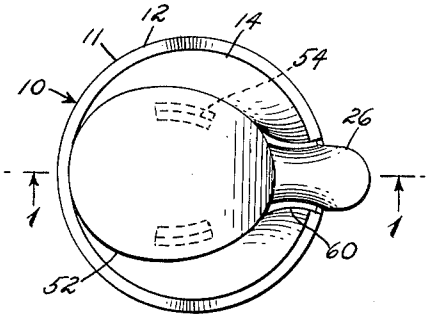


Fig.5



Fig.6

Fig.3



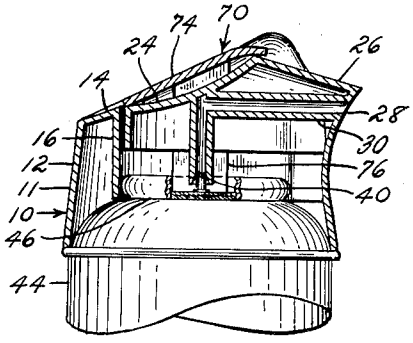
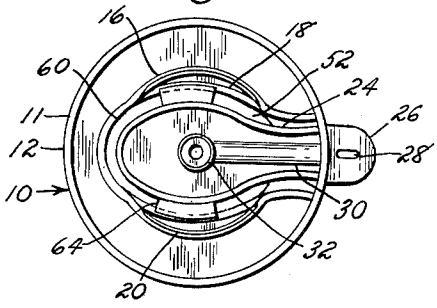


Fig.7

Fig.2



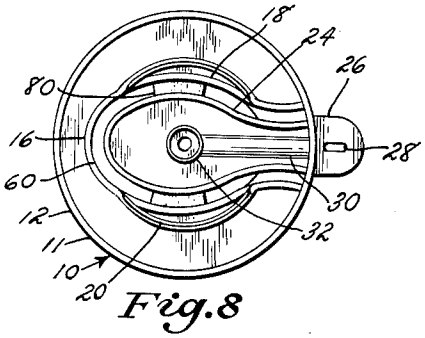


Fig.8

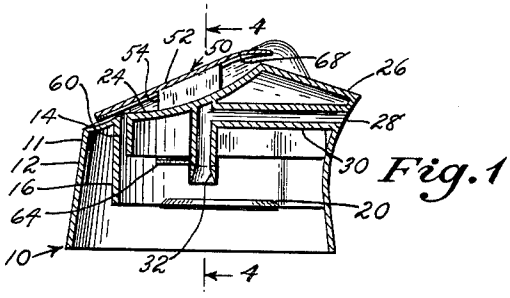


Fig.1

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ACTUATOR CAP AND GUARD FOR A PRESSURIZED CAN

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12 Claims. (Cl. 222—182)

This invention relates to an actuator cap and guard for a pressurized can. More particularly, this invention relates to a cap for a pressurized can wherein the cap has an actuator which is protected by the guard from untimely actuation.

Some pressurized dispensing cans have actuators which are merely small buttons placed over the protruding valve stem of the can. These actuator buttons are easily protected from untimely actuation, such as may occur from rough handling or during shipping, by an outside cap which completely envelops the button and is attached to the can itself. These actuator buttons contribute little to the aesthetic features of the pressurized dispensing unit, and the cover caps are a nuisance during use of the units.

Recently, a new class of caps for pressurized cans was developed. These caps were intended to add to the aesthetic features of the pressurized dispensing units by their design. This was accomplished by providing an aesthetic cap which surrounded wholly or partially, and did not enclose, an aesthetically pleasing actuator button so that the entire cap, including the button, was visible to the consumer. Additionally, the cap was wholly or partially spaced from the actuator button.

Although this latter type of cap rapidly gained wide consumer acceptance, it was found that during rough handling and/or shipping, the unprotected actuator was all too frequently actuated with a resultant waste of contents and loss to the ultimate consumer who did not receive the full amount of product originally packaged. Additionally, it was found that during display of the units the aesthetic appearance of the new caps attracted consumers who tended to depress the actuator button manually to assure themselves that such pressurized units operated satisfactorily. This, of sourse, also discharged the contents and caused a loss to the ultimate consumer.

Broadly, this invention contemplates a guard and the combination thereof with a cap for a pressurized dispensing can comprising a body, a manually depressible actuator or button at least partially surrounded by and at least partially spaced from said body, and means for holding said button in position relative to said body. The guard comprises cover means removably disposed over at least said actuator or button thereby preventing its operation, and latch means on said cover means disposed between said actuator and said body removably to hold said cover means in place as a guard thereon.

In the accompanying drawing:

FIG. 1 is a vertical cross-sectional view of a cap embodying the present invention along the line 1—1 of FIG. 3.

FIG. 2 is a bottom view thereof and illustrates one means for keeping the actuator guard in place on the cap body.

FIG. 3 is a top view of the cap showing the actuator guard in place over the actuator and a portion of the cap body.

FIG. 4 is a front cross-sectional view along the line 4—4 of FIG. 1 of the actuator guard.

FIG. 5 is a vertical cross-sectional view of the actuator guard on an enlarged scale.

FIG. 6 is a rear elevational view of the guard on the larger scale.

FIG. 7 is a vertical cross-sectional view of another embodiment of the present invention.

FIG. 8 is a bottom view of an additional embodiment of this invention.

Referring now to FIGURE 1, the body 11 of the cap 10 comprises an endless outer side wall 12, a top wall 14, and an inner side wall 16 defining a cavity in said cap 10. The inner side wall 16 includes a skirt 18 depending from the top wall 14.

A manually depressible actuator button 24 is disposed in the said cavity and is of such size relative thereto that a channel 60 is defined between said inner wall 16 and said button 24 to permit the free downward movement of the button 24 when manually depressed.

In FIG. 1. the actuator button 24 includes a spout 26 which passes through a partial break in the endless side wall 12 and is integral with the side wall 12 just below the spout orifice 28. The connection of the button with the portion of the endless side wall 12 just below the spout 26 serves as a means to hold the actuator 24 in position relative to the cap body 11 as well as a resilient means to return the actuator 24 to its original position after it has been manually depressed and the downward pressure released.

Other means for holding the actuator in position relative to the cap body may also be used. For example, the endless side wall need not be partially broken and the actuator may be hinged to the inner wall of the cap, in which event, the spout could be omitted and the discharge passage could terminate in a suitable orifice.

Additionally, the actuator need not be connected to, or integral with the cap body. This is easily accomplished, for example, by attaching the actuator to the valve stem of a pressurized dispenser in a suitable manner.

As seen in FIG. 1, the actuator 24 includes an L-shaped tubular member 30 which defines a passage for the discharge of fluent contents from a pressurized dispenser. As seen in FIG. 2, the tubular member 30 includes a shoulder 32 to receive and seat the protruding valve stem 40 (FIG. 7) of the pressurized can 44.

As seen in FIGS. 5 and 6, the guard 50 is composed of a substantially flat rigid area or cover 52 which overlies the actuator 24 and legs 54 depending therefrom which are secured to and preferably integral with the cover 52. The guard 50 may advantageously be molded from an elastomeric plastic, for example, polyethylene, so that the legs are somewhat resilient.

If desired, the regid area or cover need not be flat. It may be of any shape or configuration as long as it preferably covers at least the actuator and in certain instances, as will be discussed, a portion of the cap body.

When protecting the actuator 24, the legs 54 of the guard 50 are inserted through the channel 60 between the actuator 24 and the inner wall 16. Means are provided for removably latching the legs 54 to the cap and for assuring that the guard 50 will not be inadvertently displaced from the cap. Any suitable means may be used for latching the legs in place. This may take the form, as shown in FIG. 6, of outwardly flaring flanged portions 64 at the free end of the legs.

The distance from the outer periphery of the flanged portion 64 of one of the legs 54 to the outer periphery of the flanged portion of the other leg is slightly more than the distance between one skirt 18 to the other skirt 18, so that when the legs are inserted in the channel 60 they are slightly biased toward one another. After the flanged portion 64 has passed through the channel 60 it will spring back and hook or latch under the depending skirt 18 of the inner wall 16.

Generally, the upper surface of the flanged portion will

be at an angle of preferably 90° or more to the outer surface of the leg. If an angle less than 90° is provided, difficulty may be encountered by the consumer in removing the guard from the cap when it is desired to use the pressurized dispenser to which the cap is affixed. Generally, it has been found that when the flanged area is at an angle of about 135° as aforesaid, the guard remains affixed to the cap until the consumer applies the proper amount of upward pressure to remove it. The cap is designed so that the guard is not easily removed but is responsive to upward pressure exerted by a consumer.

An alternative means for removably securing the guard to a cap is shown in FIG. 8, in which the legs **80** have a a force or frictional fit in the channel **60** between the actuator **24** and the inner wall **16**. In this embodiment, the outwardly flaring flanged portions need not be present but may be provided as an additional safeguard against inadvertent removal of the guard from the cap.

Furthermore, as seen in FIG. 7, the legs **76** may be of such length as to rest on the top of the pressurized dispensing can **44** after having been inserted through the channel. When this is done, the flanged areas of the legs need not be present. However, it is considered desirable to provide for a force fit of that portion of the legs which are disposed in the channel so that after the legs have contacted the top of the dispensing can, the guard will not be accidentally displaced from its position.

If the embodiment, as shown in FIG. 7, is used, the cover **74** of the guard **70** need be disposed only over the actuator **24**. However, if any of the embodiments shown in FIGS. 1 through 4 and 8 are used, the cover area of the guard should be disposed not only over the actuator **24** but also over a portion of the top wall **14** of the cap body **11** as seen in FIG. 3. This is done to prevent the downward movement of the guard **50**. For example, if the guard **50** were disposed only over the actuator **24** and the legs **54** did not rest on the top of the can, then one could easily press the guard down and force the actuator down so that the shoulder of the L-shaped tube would force the protruding valve stem of a pressurized dispenser down, thus opening the valve and prematurely discharging the contents of the pressurized can.

In yet another embodiment (not shown), the inner wall **16** of the cap may be grooved and the flanged portions **64** of the legs **54** may then be inserted into the channel of the cap. Because the legs are slightly biased toward one another when being inserted in the channel, the flanged portions **64** will snap into the grooves provided in the inner wall of the cap thus latching the legs **54** in place on the cap.

Another embodiment (not shown) of this invention comprises a guard wherein the legs are inwardly flanged and are adapted to be latched in place on the actuator **24**. In this embodiment, the cover of the guard need not be disposed over the actuator **24**. Instead a cover having a cavity therein or a U-shaped cover or the like may be used which rests on the top wall **14** of the cap **10**. In this embodiment, the actuator **24** is prevented from moving downward by the inwardly flanged portions of the legs secured to the cover which rests on the immovable top wall **14**.

Because valve stems emanating from pressurized dispensing cans will vary in length, the height of the actuator **24** relative to the cap body **11** will vary as a result of a longer valve stem of a pressurized dispenser being seated by the shoulder **32** and thus forcing the actuator **24** upward. For this reason, it is preferred that any of the embodiments of this invention and particularly those in which the cover **52** of the guard **50** rests on the top wall **14**, utilize a guard whose cover includes a depending flange **68** adjacent the periphery of the cover **52**.

In FIGURES 1 and 6, this flange is indicated as **68** and extends completely around the periphery of the cover **52** although it may, if desired, extend partially about the periphery or only at points or sections along the periphery. The depending flange **68** functions to raise the cover **52** relative to the cap body **11** and thus provide free space to allow for variations in the height of the actuator **24** relative to said cap body **11**.

When the legs **52** are latched in place on the cap **10**, they are latched to the skirt **18**. However, the skirt **18** need not be present and the legs **54** may be latched to the inner wall **16** or otherwise suitably latched on the cap **10**.

The skirt **18** functions to strengthen the cap **10** structure, prevent the passage of foreign matter through the cap **10** cavity, extend the width of the top wall **14** for aesthetic purposes, and to provide a structure on which the legs **54** latch.

The inner wall **16** serves as the means for attaching the cap **10** to a pressurized dispensing can. The inner wall **16** has an inwardly extending rim **20** directly below and coextensive with each skirt **18**. Each rim **20** serves to allow the cap **10** to be snapped past the mounting cup **46** of the pressurized dispenser **44** and held there.

The cap **10**, however, may be attached to a pressurized dispensing can by any suitable means, such as, for example, by providing an inner or outer rim on an outer wall of the cap and snapping the cap past a rim on the top of the can, or by a force fit past an inner rim on the top of the can or by any other suitable means well known in the art.

If the cap is to be attached to the can by a means which does not utilize an inner wall, then the inner wall of a cap may perform all the functions of the skirt **18** which may then be eliminated.

Additionally, even when an inner wall of a cap is attached to a mounting cup of a pressurized dispenser thus holding a cap in place on the can, the skirt may be eliminated and the legs **54** of the guard **50** may be latched in place by providing grooves in the inner wall into which each flanged portion **64** would snap and hold the guard in place.

While this invention has been described in terms of a preferred embodiment, the invention is not to be construed as limited except as set forth in the following claims.

What we claim and desire to secure by Letters Patent is:

1. A guard adapted to prevent operation of an actuator of a cap on a pressurized dispensing can comprising an actuator cover for preventing access to said actuator, a pair of depending legs secured to said cover and adapted to be inserted through a channel in said cap defined by said actuator and the surrounding cap, said legs having outwardly flaring flanged portions at the free end thereof for removably latching the legs in place on the cap, whereby said cover is rigidly held in place by said legs and said flanged portions thus preventing access to said actuator until upward pressure is applied on said guard to unlatch said legs and remove said guard.

2. A guard adapted to prevent operation of an actuator of a cap on a pressurized dispensing can comprising an actuator cover for preventing access to said actuator, a depending flange adjacent the periphery of said cover to rest on the cap surrounding said actuator thereby providing for variations in the height of said actuator relative to said surrounding cap and caused by variations in the length of valve stems emanating from pressurized dispensing cans, a plurality of depending legs secured to said cover and adapted to be inserted through a channel defined by said actuator and said surrounding cap, said legs having outwardly flaring flanged portions at the free end thereof for removably latching the legs in place on said surrounding cap, whereby said cover is rigidly held in place by said legs and said flaring flanged portions thus preventing access to said actuator until upward pressure is applied on said guard to unlatch said legs and remove said guard.

3. A cap for a pressurized dispensing can comprising a body, a manually depressible actuator at least partially

surrounded by said body and at least partially spaced therefrom, means for holding said button in position relative to said body, rigid cover means disposed over at least said actuator thereby preventing the operation of said actuator, a pair of depending legs secured to said rigid cover means and disposed between said actuator and said body, each of said legs having an outwardly flanged flaring portion at the free end thereof for removably latching said legs in place on said body, whereby when it is desired to manually depress said actuator upward pressure on said rigid cover means causes the removal of said flanged portions from said body and the removal of said rigid cover means whereby said actuator may then be manually depressed.

4. A cap for a pressurized dispensing can comprising a body, a manually depressible actuator at least partially surrounded by said body and at least partially spaced therefrom, means for holding said actuator in position relative to said body, rigid cover means removably disposed over said actuator and partially over said body thereby preventing the operation of said actuator, a depending flange adjacent the periphery of said cover means to rest on said body thereby elevating said cover means and providing for variations in the height of said actuator relative to said body and caused by variations in the length of valve stems emanating from pressurized dispensing cans, a pair of depending legs secured to said rigid cover means and disposed between said actuator and said body, each of said legs having an outwardly flanged flaring portion at the free end thereof for removably latching said legs in place on said body, whereby when it is desired to manually depress said actuator, an upward pressure on said rigid cover means causes the removal of said flanged flaring portions from said body and the removal of said rigid cover means whereby said actuator may then be manually depressed.

5. A cap comprising a body, a manually depressible actuator connected to said body and at least partially surrounded by and at least partially spaced from said body, cover means disposed over said actuator button and partially over said body thereby preventing the operation of said actuator, a dependent flange adjacent the periphery of said cover means to rest on said body thereby elevating said cover means and providing for variations in the height of said actuator relative to said body and caused by variations in the length of valve stems emanating from pressurized dispensing cans, and means secured to said cover means removably disposed between said actuator and said body to hold said cover means in place.

6. A cap comprising a body, a manually depressible actuator connected to said body and at least partially surrounded by and at least partially spaced from said body, cover means disposed over said actuator to prevent operation thereof, a dependent flange adjacent the periphery of said cover means to rest on said body thereby elevating said cover means and providing for variations in height of said actuator relative to said body and caused by variations in the length of valve stems emanating from pressurized dispensing cans, a pair of depending legs integral with said rigid means and disposed between said actuator button and said body, and means integral with said legs to hold said legs in place on said body.

7. A cap comprising a body, a manually depressible actuator connected to said body and at least partially surrounded by and at least partially spaced from said body, cover means disposed over said actuator thereby preventing operation of said actuator, a dependent flange adjacent the periphery of said cover means to rest over said body thereby elevating said cover means and providing for variations in the height of said actuator relative to said body and caused by variations in the length of valve stems emanating from pressurized dispensing cans, a pair of depending legs secured to said cover means and disposed between said actuator and said body, each of said legs having an outwardly flanged flaring portion at the free end thereof removably latching said legs in place on said body, whereby when it is desired to manually depress said actuator, an upward pressure on said rigid cover means causes the removal of said flaring flanged portions from said body and the removal of said cover means whereby said actuator may then be manually depressed.

8. A cap comprising a body, a manually depressible actuator connected to said body and at least surrounded by and at least partially spaced from said body, rigid cover means disposed over said actuator and partially over said body thereby preventing the operation of said actuator, a dependent flange adjacent the periphery of said rigid cover means to rest on said body thereby elevating said rigid cover means and providing for variations in the height of said actuator relative to said body and caused by variations in the length of valve stems emanating from pressurized dispensing cans, a pair of depending legs integral with said rigid cover means and disposed between said actuator and said body, each of said legs having an outwardly flanged flaring portion at the free end thereof for removably latching said legs in place on said body, whereby when it is desired to manually depress said actuator, an upward pressure on said rigid cover means causes the removal of said flanged flaring portion from said body and the removal of said rigid cover means whereby said actuator may then be manually depressed.

9. A pressurized dispensing unit comprising a can having fluent material under pressure therein and a cap comprising a body, a manually depressible actuator integral with said body and at least partially surrounded by and at least partially spaced from said body, cover means disposed over the top of at least said actuator thereby preventing the operation of said actuator, a pair of depending legs secured to said cover means and disposed between said actuator and said body, and means integral with said legs to hold said legs in place on said body.

10. A pressurized dispensing unit comprising a can having fluent material under pressure therein and a cap comprising a body, a manually depressible actuator integral with said body and at least partially surrounded by and at least partially spaced from said body, rigid cover means disposed over the top of at least said actuator thereby preventing the operation of said actuator, a plurality of depending legs secured to said rigid cover means and disposed between said actuator and said body, each of said legs having an outwardly flanged flaring portion at the free end thereof for removably latching said legs in place on said body, whereby when it is desired to manually depress said actuator, an upward pressure on said rigid cover means causes the removal of said flanged portions from said body and the removal of said rigid cover means whereby said actuator may then be manually depressed.

11. A pressurized dispensing unit comprising a can having fluent material under pressure therein and a cap comprising a body, a manually depressible actuator integral with said body and at least partially surrounded by and at least partially spaced from said body, rigid cover means disposed over the top of said actuator and at least partially over the top of said body to prevent the operation thereof, a dependent flange adjacent the periphery of said rigid cover means to rest on said body thereby elevating said rigid cover means and providing for variations in the height of said actuator relative to said body and caused by variations in the length of valve stems emanating from pressurized dispensing cans, a plurality of depending legs secured to said rigid cover means and disposed between said actuator and said body, each of said legs having an outwardly flanged flaring portion at the free end thereof for removably latching said legs in place on said body, whereby when it is desired to manually depress said actuator, an upward pressure on said rigid cover means causes the removal of said flanged flaring portions from said body and the removal of said rigid cover means whereby said actuator may then be manually depressed.

12. A cap for a pressurized dispensing can comprising a body portion having an endless side wall, a top wall defining a cavity in said cap, an inner side wall also defin-

ing said cavity and including a skirt depending from said top wall, a manually depressible actuator integral with said endless side wall and disposed within said cavity, said actuator having a tubular member adapted to contact and depress a valve stem on a pressurized can and to discharge fluent material therethrough, the periphery of said actuator and the periphery of said inner wall defining a channel therebetwen, and an actuator guard comprising rigid cover means disposed over said actuator and at least part of said top wall, a dependent flange adjacent the periphery of said rigid cover means to rest on said top wall thereby elevating said rigid cover means and providing for variations in the height of said actuator relative to said body and caused by variations in the length of valve stems emanating from pressurized dispenser cans, said cover means having legs secured thereto and depending therefrom and passing through said channel, said legs having an outwardly flaring flanged portion at the free end thereof for removably latching said legs in place on said inner wall, said flanged portion being at an angle of not less than 90° axially to said legs, whereby downward movement of said guard is prevented by connecting it to an immovable portion of said dispensing can thereby preventing depression of said actuator and discharge of the contents of a pressurized can to which said cap is affixed by covering said actuator portion with said removable guard.

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