Oct. 22, 1963 J. R. FOCHT 3,107,823

PROTECTOR FOR DISPENSER CAPS

Filed Nov. 3, 1958

Fig 1

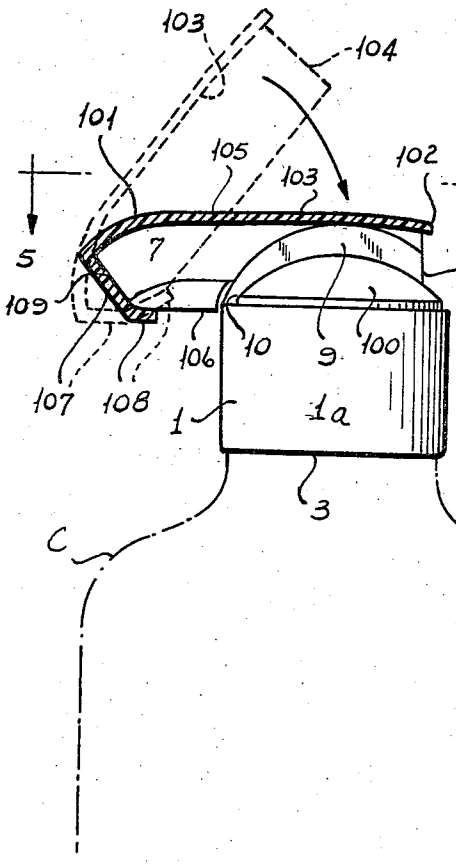


Fig 2

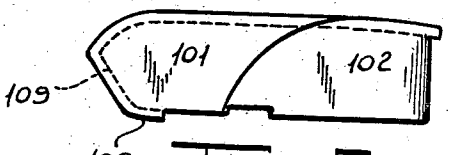
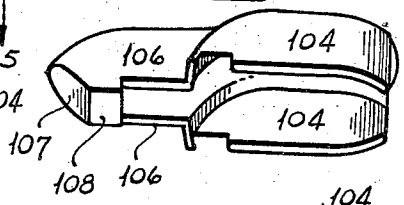


Fig 3



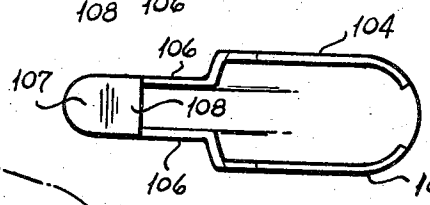


Fig 4

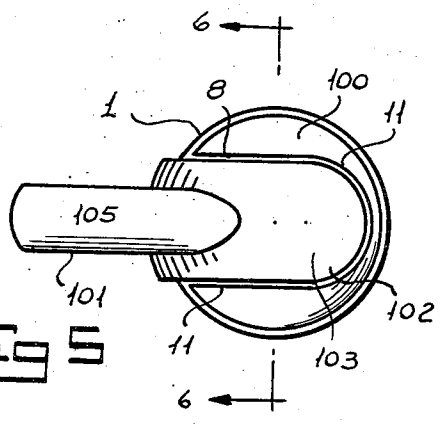


Fig 5

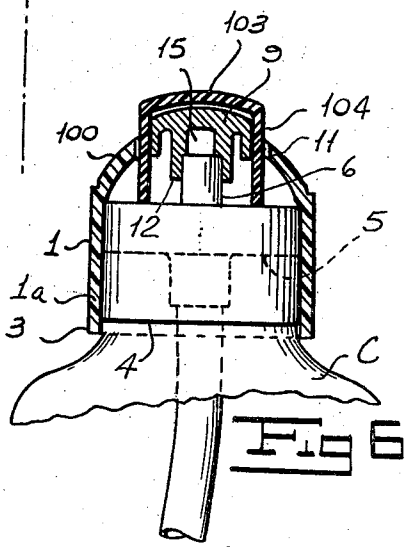


Fig 6

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PROTECTOR FOR DISPENSER CAPS

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2 Claims. (Cl. 222—182)

This invention is a protector for dispenser caps, such as are used for dispensing aerosol and other pressurized materials from a normally sealed container through a manually operable valve. The dispenser cap is mounted on the container to overlie the valve stem and, when manually manipulated, serves to depress said stem to open the valve and permit the material to flow from the container through the valve stem into the cap and be discharged therefrom through an open ended spout with which the cap is provided.

Dispenser caps of this general character are in extensive use for a wide variety of products. They are, however, open to the objection that the open end of the spout and the material therein lacks protection against contamination during periods when the dispenser is not in use, as when resting in a medicine cabinet or on a shelf, wash basin or the like. With many materials this is not of importance, but foods, medicaments and other materials for human consumption, inhalation or ingestion should be properly protected against such contamination.

The primary object of this invention is to provide a protector which will accomplish this result by covering and enclosing the open delivery end of a spout during periods when the dispenser is not in use.

A further object of the invention is to so constitute this protector that it will serve the additional function of a "stacking dome" in that it will preclude operation of the valve while the protector is in use.

Features of the invention, other than those adverted to, will be apparent from the hereinafter detailed description and appended claims, when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative only, and not as defining the limits of the invention.

FIG. 1 is a side elevation of a container and cap dispenser showing the protector of this invention associated with the cap. In this view the protector is shown in dotted lines in the process of attachment and in section in full lines as completely mounted on the cap.

FIG. 2 is a side elevation of the protector.

FIG. 3 is a perspective view of the protector as viewed from the under side thereof.

FIG. 4 is an underneath plan view of the protector.

FIG. 5 is a plan view of the cap of FIG. 1 with the protector in place thereon.

FIG. 6 is a section on the line 6—6 of FIG. 5.

The protector of this invention may be used on a wide variety of caps. In the present disclosure I have shown a domed form which is within the claims of Robert H. Abplanalp Patent No. 2,819,116, of January 7, 1958.

In the accompanying drawings C indicates a container on the neck of which is mounted an inverted cup 4 which corresponds to the cup of said patent. This cup supports a valve housing 5 permanently on the container and within the valve housing is the usual valve having a tubular valve stem 6 which projects upwardly above the cup and through which material within the container is dispensed when the valve stem is depressed.

The dispenser cap 1 of molded plastic material, such as polyethylene, nylon, or the like, has a side wall 1*a* and an integral top wall 100. The side wall fits snugly down over the cup 4 and is thereby mounted thereon. The top

wall 100 is provided therein with the opening 8 and the valve operating member, i.e., the tab 9, is positioned in this opening.

One end of the tab 9 has an integral flexible hinged connection 10 with the side wall. It is otherwise spaced from and free from attachment to either of the walls 1 or 100, so as to leave, between the edges of the opening 8 and the tab 9, the open slot 11, as shown best in FIG. 5. The under side of the tab 9 carries the chambered hub 12 to receive the valve stem 6 and the passage 15 leads from the chamber in the hub to the exterior of the cap and terminates in the spout 7.

The protector of this invention is an injection molding of plastic material and has two essential elements, namely, a spout guard 101 and a tab guard 102 for the valve operating tab of the cap. In the construction shown the tab guard 102 is a shell-like housing having an open bottom, a top wall 103 shaped to overlie the top of the tab 9 and provided with depending side walls 104 to overlie and frictionally grip the opposite sides of the tab and extend downwardly through the slot 11 to seat upon the upper surface of the inverted cup 4 when the tab is in normal closed-valve position. The tab guard 102 thus precludes the operation of the tab, inadvertent or otherwise, to open the valve while this guard is in place.

The spout guard 101 has a top wall 105 adapted to overlie and conform to the shape of the top of the spout. In the present instance the spout is shown as curved and its top wall is correspondingly shaped, although the spout may be straight throughout in which case the wall 105 will be of like shaping. The wall 105 forms a continuation of the wall 103 of the tab cover and is provided at its opposite sides with depending walls 106 which closely overlie the opposite sides of the spout. The outer end of the spout guard has an end wall 107 which overlies and is adapted to closely fit against the open discharge end of the spout and form a seal therewith and said end wall 107 is extended for a short distance below the spout as shown at 108. Both the end wall 107 and the extension 108 are molded integral with the side walls and form within the outer end portion of the spout guard a pocket 109 in which the outer end portion of the spout is enclosed when the guard is in place on the cap. The remaining portion of the under side of the spout guard is open so as to permit the ready attachment and detachment of the guard from the cap.

The method of attachment of the protector to the cap is graphically illustrated in FIG. 1. The protector is brought into the position shown in dotted lines wherein the end portion of the spout projects into the pocket 109 and the protector is then swung downwardly as indicated by the arrow into the full line position in this figure. As it is brought into this position the side walls 104 of the tab guard pass downwardly through the slot 11 until they engage with the upper surface of the inverted cup 4, as shown in FIG. 6 and, when thus engaged with this cup, a slight clearance is preferably left between the uppermost portion of the value operating tab 9 and the top wall 103 of the tab guard. With this arrangement the tab guard functions as a "stacking dome," whereby it is impossible to depress the tab and operate the valve while this guard is in place. The side walls 104 of the tab guard are preferably spaced apart a distance slightly less than the transverse thickness of the tab or slightly greater than the width of the opening 8, so as to frictionally grip the tab or edge of said opening to hold the protector in operative position. When it is desired to dispense material from the container, the protector may be removed by reversing its direction of movement indicated by the arrow, so that it may be tilted into the dotted line position and removed from engagement with the spout.

It will be apparent from the foregoing description that,

when the protector is in place, the discharge end portion of the spout will be housed within the pocket 109, with the end wall 107 firmly abutting the end of the spout to form therewith a seal which will protect the interior of the spout and its contents from dust or other extraneous matter which might tend to contaminate the material to be discharged through the spout. Inasmuch as the end wall 7 of the spout guard is integral with and tied into the top side walls and extension 103, said end wall will be reinforced and held in such position that it will make a good seal with the end of the spout. In fact that portion of the molding is substantially rigid and thus assures the good seal which is desirable.

The foregoing detailed description sets forth the invention in its preferred practical forms, but the invention is to be understood as fully commensurate with the appended claims.

Having thus fully described the invention, what I claim as new and desire to secure by Letter Patent is:

1. In an assembly of the character described, a pressurized container, a valve having a stem, a valve supporting member mounted on the container with the valve stem of the valve projecting exteriorly of said member, a cap enclosing said valve stem and having a discharge spout, and a pivoted valve operating tab on the cap overlying the valve stem and surrounded by a slot in said cap, in combination with a protective tab guard having a wall overlying the top of the tab and side walls extending downwardly through the slot and seating upon the valve supporting member to preclude operation of the tab while said tab guard is in place, and a spout guard integral with the tab guard and overlying the spout and provided at its free end with means for protecting the discharge end of said spout from contamination.

2. An assembly according to claim 1, wherein the means for protecting the discharge end of the spout comprises a pocket for housing that end of the spout.

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