Jan. 23, 1968 D. B. GREEN 3,365,138

ACTUATOR BUTTON AND DISPENSING NOZZLE FOR AEROSOL VALVE

Filed July 18, 1966

Fig. 1.

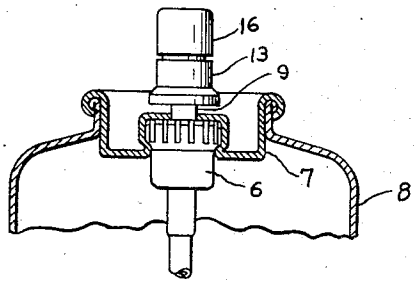


Fig. 4.

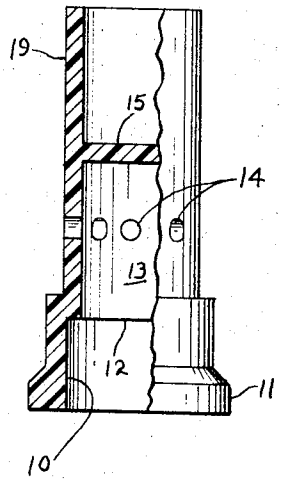


Fig. 2.

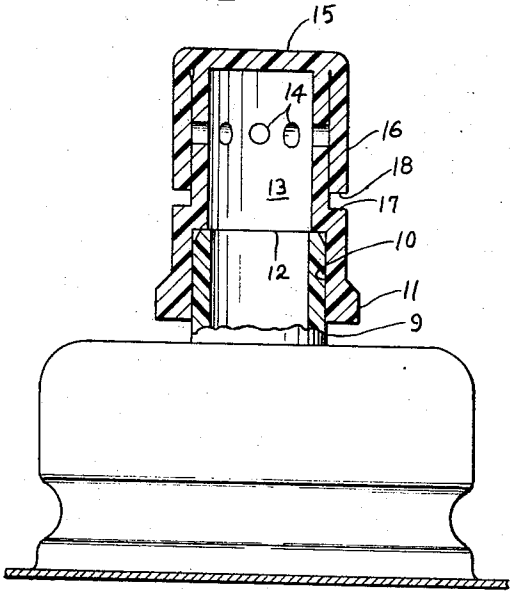


Fig. 3.

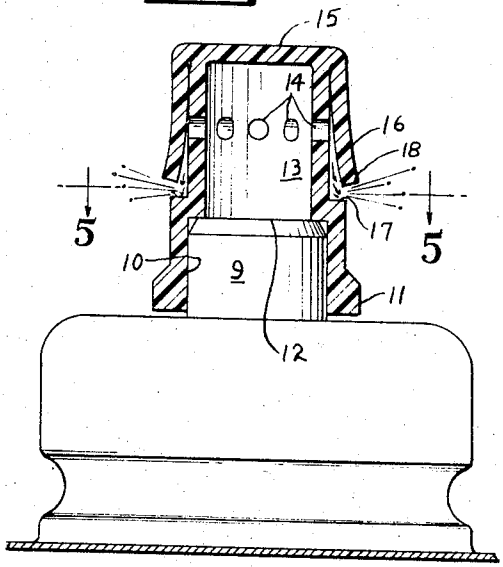
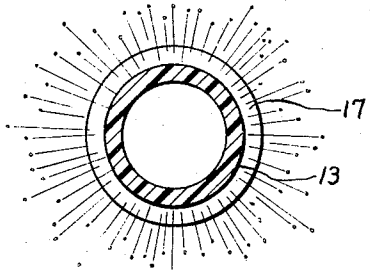


Fig. 5.



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ACTUATOR BUTTON AND DISPENSING NOZZLE FOR AEROSOL VALVE

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This invention relates to aerosol type valves and particularly to a combined actuator button and dispensing nozzle capable of discharging a spray over a wide angle, preferably 360° around the stem.

The object of the invention is to provide a simple and economical device of this nature which can be molded as one piece from flexible plastic material, such as rubber or polyethylene.

Other objects and advantages will hereinafter more fully appear.

In the accompanying drawing, I have shown for purposes of illustration, one embodiment which the invention may assume in practice.

In the drawing:

FIG. 1 shows how the improved actuator button is applied to a common form of aerosol container;

FIG. 2 is a central vertical section through the actuator button and valve stem with the parts in their normal at-rest position;

FIG. 3 is a view similar to FIG. 2 showing the position of the parts when the valve is open for use;

FIG. 4 is a view partly in vertical section, showing the actuator button as it is initially molded; and

FIG. 5 is a transverse sectional view taken along the line 5—5 of FIG. 4.

The valve itself forms no part of the invention and will only be briefly described. It has a valve body **6** attached to a cap **7** which is in turn sealed to the aerosol container **8**. The valve has a movable tubular stem **9** which is best seen in FIG. 2.

The button has a cylindrical socket portion **10** which fits snugly around the top portion of the valve stem **6** and a rim **11** may be provided to give the socket extra strength as well as to facilitate its application to the stem. An internal shoulder serves as a stop to locate the button on the stem.

Extending upwardly from the socket is a cylindrical chamber **13** having a plurality of apertures **14** through its cylindrical wall. There are preferably four or more such apertures, equally spaced circumferentially around the chamber wall. The top of the chamber is closed by an end wall **15**.

A flexible skirt **16** depends from the outer edge of this top wall and embraces the cylindrical chamber **13** so as normally to cover and close off the apertures **14**. It will

be noted that there is also an external shoulder **17** a short distance below the bottom edge **18** of the flexible skirt.

The piece is first molded by the use of comparatively simple mold parts into the shape shown in FIG. 4. Here the skirt is seen as a tubular extension **19** in axial alignment with the chamber **13** and socket **10**. After removal from the mold, this tubular extension can be folded or rolled down over the wall of the chamber, it being understood that the material is of such nature that it has the required flexibility and resilience to permit this operation.

When the valve is open by lateral or endwise pressure on the top wall **15**, the fluid pressure acts on the inner surface of the skirt **16** through the apertures **14**. The skirt will flex outwardly as indicated in FIG. 3 on a somewhat exaggerated scale, allowing the fluid to flow downwardly against the shoulder **17** which further breaks up the spray so that it will effectively cover 360° as indicated in FIG. 5.

What I claim is:

1. A one-piece combined actuator button and dispensing nozzle for an aerosol valve having a movable tubular valve stem, said actuator button having

(a) a socket portion adapted to fit around the upper end portion of said valve stem;

(b) a cylindrical chamber extending upwardly from said socket and having a plurality of apertures through the cylindrical wall thereof;

(c) an end wall closing the top of said chamber; and

(d) a flexible skirt portion depending from said top wall, said skirt portion normally embracing said cylindrical chamber and covering said apertures, but being capable of flexing radially outwardly under fluid pressure in said chamber to discharge fluid around the bottom edge of said skirt portion.

2. The combination defined in claim **1** further characterized by an external upwardly facing shoulder located a short distance below said bottom edge of the skirt portion.

3. The combination defined in claim **2** wherein there are at least four of said apertures equally spaced circumferentially around said chamber.

4. The combination defined in claim **1** wherein the material of said one-piece button has the required degree of resilience and flexibility to permit said skirt portion initially to be molded as an upward hollow cylndrical extension in axial alignment with said socket and chamber, and then folded or rolled down around said chamber.

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