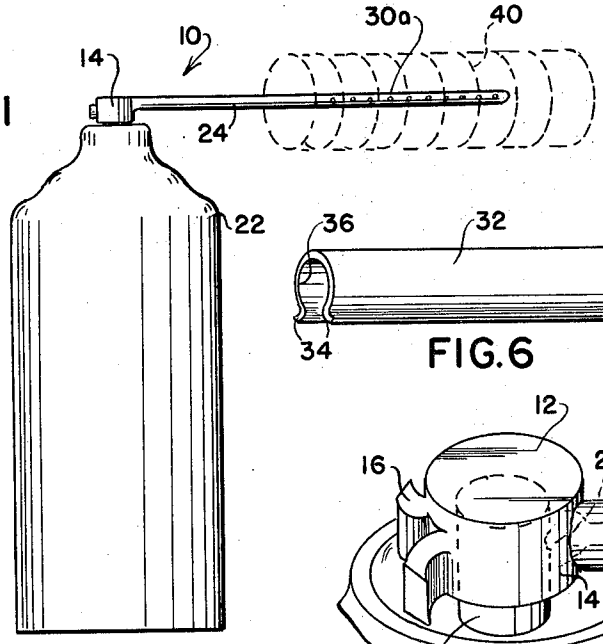
June 1, 1965 R. R. EBERLEIN 3,186,645

SPRAY NOZZLE FOR PRESSURIZED CONTAINERS

Filed Feb. 10, 1964

FIG. 1



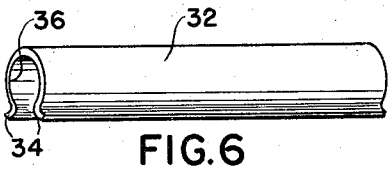


FIG. 6

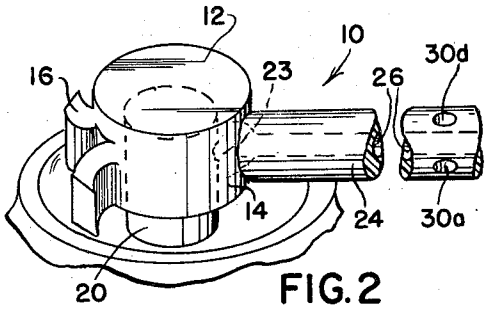
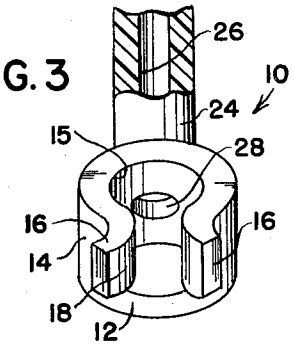


FIG. 2

FIG. 3



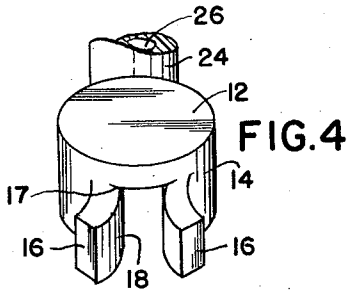


FIG. 4

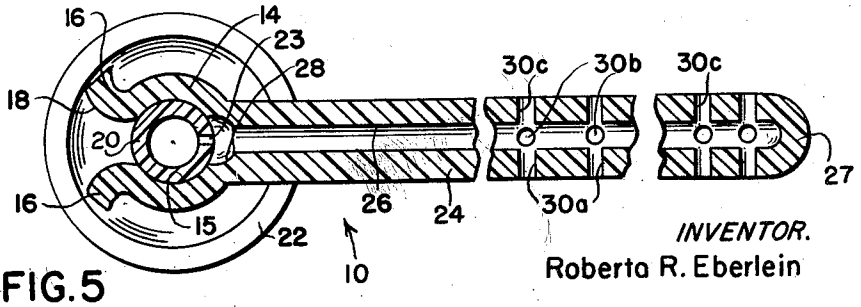


FIG. 5

INVENTOR.
Roberta R. Eberlein

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3,186,645

SPRAY NOZZLE FOR PRESSURIZED CONTAINERS

Roberta R. Eberlein, 225 E. 36th St., New York, N.Y.

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3 Claims. (Cl. 239—567)

This invention relates to nozzles and, more particularly, to a spray tube or stem for use with pressurized dispensing containers of all types.

It is an object of the present invention to provide a spray nozzle for pressurized containers which can be conveniently mounted upon the discharge stem of various types of pressurized vessels, such as upon the dispensing valve stem of pressurized dispensing containers, such as "aerosols."

Another object of the present invention is to provide a spray nozzle for pressurized containers of the above type which will provide for the effective distribution of the sprayed compound in a simple and convenient manner.

Another object of the present invention is to provide a directional spray nozzle for pressurized containers in which the material being dispensed can be selectively sprayed laterally outwardly from the stem in one or more directions.

A more specific object of the present invention is to provide a spray nozzle for pressurized containers of the aforementioned type which is especially useful for applying various waving lotions to the inside of hair curlers, to facilitate the waving and setting of the hair.

All of the foregoing and still further objects and advantages of this invention will become apparent from a study of the following specification, taken in connection with the accompanying drawing, wherein:

FIGURE 1 is a side elevational view of a spray nozzle for pressurized containers made in accordance with the present invention, in actual use;

FIGURE 2 is an enlarged fragmentary perspective view of certain portions of the spray nozzle shown in FIGURE 1;

FIGURE 3 is a fragmentary bottom perspective view, with parts broken away, of the nozzle shown in FIGURE 2;

FIGURE 4 is a fragmentary top perspective view of the nozzle shown in FIGURE 3;

FIGURE 5 is a longitudinal cross sectional view of FIGURE 1; and

FIGURE 6 is a perspective view of a directional control sleeve forming another part of the present invention.

Referring now to the drawing, a spray nozzle **10** for pressurized containers made in accordance with the present invention is shown to include a mounting cap **12** having a downwardly extending side wall **14** defining a receptacle **15** for receiving a dispensing valve stem **20**, such as those associated with an "aerosol" container **22** therewithin.

One portion of the side wall **14** has a pair of radially outwardly extending and spread apart tabs **16** which define a side opening slot **18** for laterally receiving the discharge stem **20** therewithin. The tabs **16** are sufficiently flexible, along the length of the severance line **17** to spread apart sufficiently to allow the entry of the valve stem **20** therebetween, and to enable the side wall **14** to firmly engage around the periphery of the valve stem **20** after insertion, as shown in FIGURE 5.

Another portion of the side wall **14** includes a radially outwardly extending discharge stem **24** having a longitudinal bore **26** closed at its outermost end **27** and communicating with an enlarged orifice which extends through the side wall **14** and is flared outwardly from the longitudinal bore **26** toward the interior of the receptacle **15**, to define a circumferentially enlarged port **28** for receiving fluid flow from the discharge aperture **23** of the dispensing valve stem **20**. The circumferentially enlarged port **28** ensures proper delivery of fluid from the aperture **23** to the interior of the longitudinal bore **26** even though the stem **24** may not be axially aligned with the aperture **23**.

The discharge stem **24** includes laterally outwardly opening apertures for dispensing fluid therethrough. These apertures comprise a plurality of circumferentially spaced apart, longitudinally aligned rows of longitudinally spaced apart apertures **30***a*, **30***b*, **30***c*, **30***d* which open radially outwardly of the stem between the opposite ends thereof. Thus, fluid dispensed into the longitudinal bore **26** is dispensed radially outwardly throughout the length of the stem **24**.

A longitudinal sleeve **32**, having a longitudinally extending receptacle **36**, and a pair of radially outwardly directed and spread apart tabs **34**, for receiving the discharging valve stem **24** laterally therewithin, is snugly mountable upon the stem **24** to control the direction of flow of pressurized fluid through the rows of apertures in the stem **24**. Thus, by rotating the sleeve **32**, to expose the selected row of apertures through the space between the tabs **34**, the fluid may be dispensed therethrough, while blocking flow through the remaining rows of apertures of the stem **24**.

In actual use, the spray nozzle is readily applied to the stem **20** of the dispensing container **22**, by directing the tabs **26** radially against the stem **20**, thus avoiding the necessity of having to depress the cap onto the stem with a resulting loss of pressure and contents from the container **22**. Once applied, the stem may be used to dispense the contents of the container **22** for various special purposes, such as for dispensing hair setting lotion to the interior of a hair curler or roller **40**, upon which a lock of hair has been wound. Thus, the lotion may be applied uniformly to the interior of the roller **40**, providing a more uniform application. Where directional control is required, the sleeve **32** is readily mountable upon the stem **24** and rotatable to direct the contents in the preferred direction.

It will also be recognized that this device can be readily constructed from a variety of materials, in a variety of colors, and may be adapted for use with various types of other fluid pressurized containers.

While this invention has been described with particular reference to the construction shown in the drawing, it is to be understood that such is not to be construed as imparting limitations upon the invention, which is best defined by the claims appended hereto.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A spray nozzle for pressurized containers comprising, in combination, a mounting cap for receiving a dispensing valve stem of a pressurized container, a discharge stem integral at one end with said cap having a longitudinal bore closed at one end and having port means at the opposite end communicating with the interior of said cap, said stem having a plurality of laterally outwardly opening apertures for dispensing fluid therethrough, said mounting cap comprising a hollow cylindrical member having a downwardly extending side wall defining a socket for receiving a dispensing valve stem therewithin, one side of said side wall having said port means communicating with said longitudinal bore, another portion of said side wall having a pair of radially outwardly extending resilient tabs defining a restricted passageway for receiving the dispensing valve stem laterally therethrough, and said port means comprising an orifice

extending through said side wall and flared outwardly from said longitudinal bore toward the interior of said socket.

2. A spray nozzle for pressurized containers as set forth in claim 1, wherein said apertures comprise a plurality of circumferentially spaced apart, longitudinally aligned rows of longitudinally spaced apart apertures opening radially outwardly of said stem between the opposite ends thereof.

3. A spray nozzle for pressurized containers as set forth in claim 2, further comprising a longitudinal sleeve having a longitudinally extending opening receiving said stem therewithin, said sleeve being rotatable upon said stem to align said opening thereof with a selected row of said apertures to accommodate flow therethrough and blocking flow through other ones of said apertures.

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EVERETT W. KIRBY, *Primary Examiner.*