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3,471,092

AEROSOL DISPENSING HEAD

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Fig. 1.

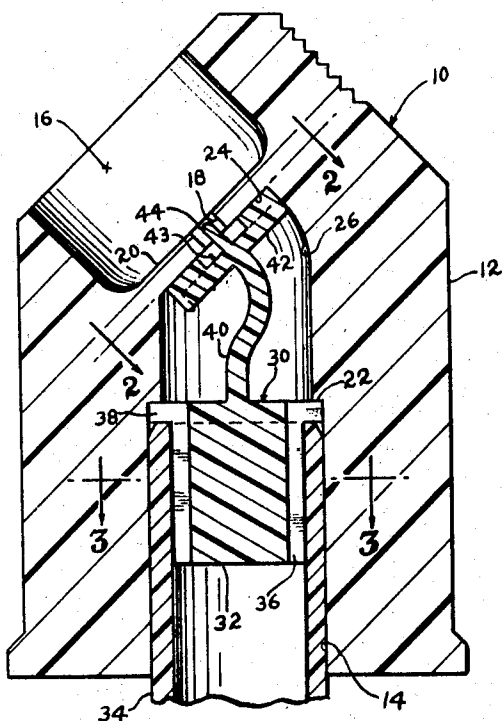


Fig. 2.

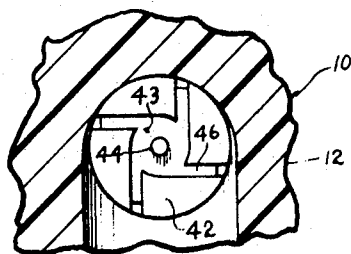


Fig. 3

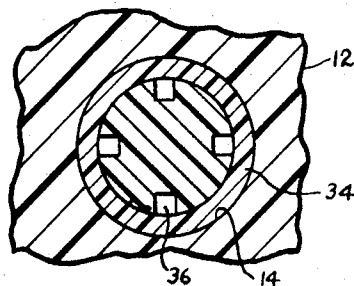


Fig. 4.

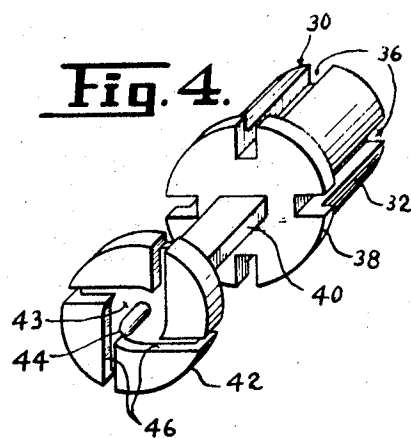
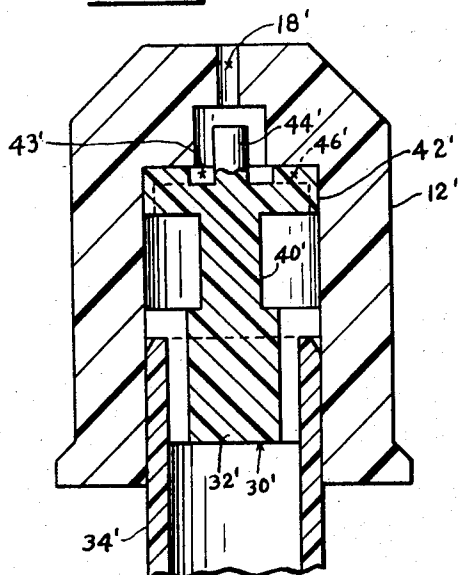


Fig. 5.



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3,471,092

AEROSOL DISPENSING HEAD

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5 Claims

ABSTRACT OF THE DISCLOSURE

A two-piece aerosol dispensing head in which mounting means engages the valve stem and supports a breakup plate inside the actuating button adjacent the discharge orifice. Assembly may easily be taken apart, cleaned and reassembled. In one version, plate is flexibly held by support means to permit canting of plate for angling orifices.

This invention relates to an aerosol dispensing head. More specifically, this invention relates to a two-piece dispensing head adapted to be easily disassembled for cleaning.

While the prior art presents several disassemblable two-piece actuating heads for aerosol containers, the prior devices for the most part involve modifications to the conventional aerosol valve stem. Others, while not requiring such modification to the stem, are drastically different in construction from the conventional actuating heads, and do not have the simple silhouette which the public has come to accept in aerosol button shapes.

The present invention therefore has for an object to provide a simple two-piece aerosol actuating head adapted to be taken apart for cleaning and not involving the modification of any of the parts of the aerosol valve.

Another object of the invention is to provide an actuating head as described which presents a silhouette comparable to that of the aerosol head which has been accepted by the public and which does not involve extensive mold changes to molds for conventional heads.

Further objects of the invention will be apparent from an examination of the following specification including the drawings wherein:

FIG. 1 is a sectional view of an assembled head embodying the invention;

FIG. 2 is a sectional view taken on the line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken on the line 3—3 of FIG. 1;

FIG. 4 is a perspective view of the baffle unit of the version shown in FIG. 1; and

FIG. 5 is a sectional view of a modified form of dispensing head in accordance with the invention.

Referring more specifically to the drawings, a dispensing head embodying the invention and mounted on an aerosol valve stem is generally designated 10 in FIG. 1. The head assembly comprises a molded button element 12 having a socket or bore 14. Near its upper end the wall is provided with a recess 16 having a central dispensing orifice 18. The surface 20 surrounding the orifice 18 is canted upward, for instance 45°, as is the orifice itself.

Well above the bottom of the button, the bore is reduced to form a stem stop shoulder 22. A flat surface 24 surrounds the orifice 18, and a curved rear surface 26 also characterizes the bore.

The dispensing head assembly also includes the baffle unit 30. In the version shown, the baffle unit 30 comprises a mounting base 32 of plug shape adapted to snugly fit into the upper end of the aerosol discharge conduit or valve stem 34. The plug 32 is provided with passage means 36 which are simply longitudinal slots (see FIG. 3) along

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the side of the plug. As stop means, the top of the plug may be provided with an outward flange 38 which abuts the top of the valve stem 34.

Extending upwardly from the mounting base or plug 32 is the support element 40 which, in the version shown in FIG. 1, is rectangular in cross section and particularly easy to flex in the direction of the lesser dimension. Element 40 is molded integral with the base 32 and is also integral with the baffle plate 42 disposed at its upper end.

The plate, as shown in FIG. 2, may be circular and will rest against the surface 24 of the head wall adjacent to the orifice. The plate is formed in the version shown with a central circular recess defining, in combination with the wall, a central chamber 43, the chamber having a central upright dispersion nib or shaft 44. When the plate is in position against the wall, the shaft 44 extends into the orifice 18 and assists in the further breakup of aerosol product.

As shown in FIG. 2, the devious channel means, along which the aerosol product is conducted on the way to the chamber, may include channels 46 which extend from the periphery of the plate and are roughly tangent to the circular central chamber 43. As a result of this configuration, the aerosol product moving inwardly along the channels enters the periphery of the chamber and swirls about the shaft 44 to create a vortex of high shear which additionally assists the breakup of aerosol product particles.

The curvature of the wall of the bore in the button at the curved region 26 is such that it permits the pivot of the plate 42 about the first-engaged portion on the wall 24 as the button element 12 is brought down in assembly over the baffle unit 30. It is desirable, of course, that a broader face of the rectangular cross section of the element 40 face the opening 18 to facilitate the flexing.

It will be understood that when the orifice 18 becomes clogged with aerosol product, such as paint, the cup-shaped element 12 may be simply removed from its snug fit on the valve stem 34 and is thereby separated from the baffle unit 30. The passages 46, the chamber 43 and the orifice 18 are thereby all exposed for cleaning.

A modified version of the dispensing head is shown in FIG. 5. In this figure, the primed form of the same reference numeral is used to indicate corresponding parts to parts of the version of FIGS. 1, 2 and 3. It should be noted that in the version of FIG. 5, the aerosol orifice 18' is directed upwardly. The support element 40' is relatively rigid; and the plate 42' is in a horizontal plane. It should be noted that the baffle unit 30' has a mounting base 32' which fits snugly into the valve stem 34'. Also, the shaft 44' extends into the orifice 18'.

In the version shown in FIG. 5, the orifice 18' may be enlarged adjacent to the chamber 43' formed by the central recess, and may be reduced adjacent to the top of the dispensing head, as shown. Such reduction forces the vortex formed by tangential entry of the devious channels 46' to reduce in size as the product exits, thus increasing its angular velocity and hence its shear to further disperse the aerosol product.

It should be clear from the above description that the dispensing head of the present invention, while having the same silhouette generally as other dispensing heads or actuating buttons and usable with conventional valve stems, is extremely easy to disassemble, clean, and reassemble. The present construction is simple and inexpensive.

I claim:

1. An aerosol actuating head assembly adapted to be used with an upstanding discharge conduit on an aerosol container, the head comprising

(a) a button element having a socket having a cup-shape at its upper end, adapted to be connected to

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the conduit, the element having a spray orifice in one of the walls thereof, and

(b) a baffle unit including: a mounting base having passage means therein and adapted to engage and be supported by the discharge conduit; a baffle plate having a face adapted to engage the inside of the cup-shaped element adjacent to the orifice and to provide devious channel means and a chamber between the plate and the button element to disperse aerosol product into a spray for its passage through the orifice; and a support element connected at one end to the base and at the other to the plate to support the plate in position against the element, whereby said button element and said baffle unit are separable for cleaning.

2. A head assembly as described in claim 1 wherein the plate has a central nib, smaller than the orifice and which fits into the orifice to assist in the breakup of the aerosol product.

3. A dispensing head as described in claim 1 wherein

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the support element is flexible and the orifice is directed non-vertical.

4. A dispensing head as described in claim 1 wherein the devious channel means includes a plurality of channels extending from the periphery of the plate and tangent to the chamber.

5. A dispensing head as described in claim 1 wherein the base is a plug snugly received into the end of the charge conduit.

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222—402.1; 239—337, 573