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AEROSOL VALVE

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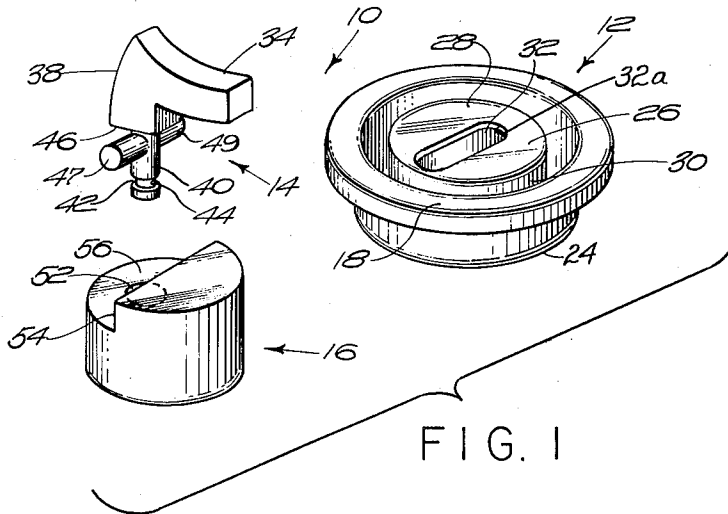


FIG. 1

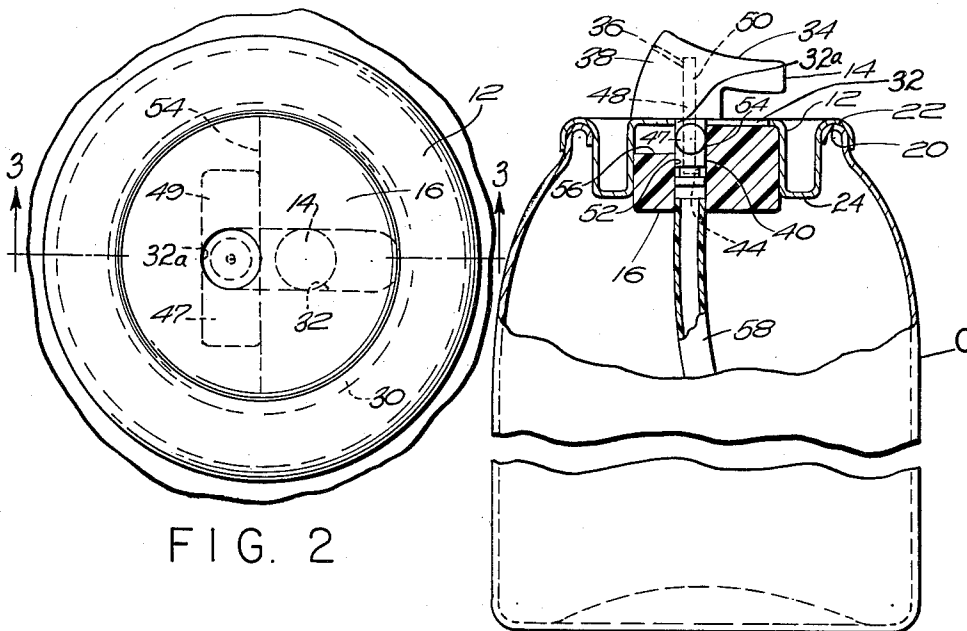


FIG. 2

FIG. 3

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AEROSOL VALVE

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3 Claims. (Cl. 222-394)

The present invention relates to improvements in aerosol valves and constitutes an improvement over my co-pending application Serial No. 557,716, filed January 6, 1956, for a "Dispensing Valve Assembly," now abandoned.

An object of the present invention is to provide an improved aerosol valve for containers which valve requires a minimum of parts greatly reducing overall cost of manufacture and assembly.

Another object of the present invention is to provide an improved aerosol valve for containers in which the one piece valve member has a finger engageable operating portion and can be engaged through the top of a valve cup for assembly.

Still another object of the present invention is to provide an improved aerosol valve for containers in which the valve member has integral therewith an enlarged valve operating portion, but wherein the valve member can be engaged through the valve cup and non-removably retained therein when the assembly is completed.

A further object of the present invention is to provide an improved aerosol valve for containers wherein the valve member and valve cup are cooperatively formed with lateral projections and a slot, respectively, so that the valve member can have its projections passed through the slot and rotated to retain the valve member in the valve cup, there being further means cooperative with the valve member to normally close the valve and hold it from rotation to a valve removing position.

Still another object of the present invention is to provide an improved aerosol valve for containers wherein the valve member and valve cup are cooperatively formed with lateral pin-like projections and a slot, respectively, so that the valve member can be inserted through the valve cup until the projections are below the valve cup, at which time the valve member can be rotated out of alignment with the slot, there being a valve closure member cooperative with the valve member to normally close and retain vertically disposed the valve member, the valve member lateral projections partially functioning to fulcrum the valve member.

Various other objects and advantages will become apparent from the detailed description to follow:

In the drawings:

FIGURE 1 is a perspective exploded view showing the valve components,

FIGURE 2 is a bottom plan view showing an assembled valve, and

FIGURE 3 is a vertical sectional view taken substantially on the plane of line 3-3 in FIGURE 2.

Referring more particularly to the drawings wherein like numerals apply to like parts throughout, it will be seen that I have provided an improved aerosol valve 10 comprised of a valve cup 12 and a valve member 14 cooperative with the rubber-like body 16.

The metal valve cup may be of conventional exterior dimensions with the peripheral rim 18 recessed at 20, also as is conventional, to be engaged on the open mouth end 22 of a container or can C, as shown best in FIGURE 3. The usual seal can be provided between the rim 18 and the end 22 of the container C.

The valve cup has a central wall 24 formed with an outwardly offset cylindrical, valve receiving portion 26 including a top wall 28 and a peripheral side wall 30. The top wall 28 is formed with an elongate slot 32 ex-

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tending radially from the center of the valve cup and terminating adjacent the periphery of the top wall 28.

The valve member 14 is preferably molded of plastic and has a finger-engageable portion 34 formed with a discharge aperture 36 adjacent the inclined face 38. The member 14 has a depending post portion 40 with an annular recess 42 having an entry aperture at 44. The post portion 40 joins the finger-engageable portion at the annular shoulder 46. Also, the post portion 40 has two oppositely extending lateral projections 47, 49, of pin-like form below the shoulder 46 and transversely of the portion 34. The entry and discharge apertures 36 and 44 are in communication by means of the passageway 48 with an expansion chamber at 50.

The rubber-like body 16 is preferably molded to shape of neoprene or other suitable chemically-imperious rubber-like material. The body 16 is of cylindrical shape corresponding to tightly fit the internal dimension of the cylindrical portion 26 of the valve cup 12. The body 16 is provided with an eccentrically located opening 52 adapted to sealingly receive the post portion 40 of the valve member therein. Immediately adjacent the opening 52, the body 16 is formed with a shoulder 54 and the body is cut away at right angles thereto at 56.

To assemble the valve, the valve member 14 is engaged into the valve cup 12 by passing the post portion 40 through the slot 32 with the projections 47, 49 aligned with the slot 32 to pass therethrough. Next, the shoulder 46 abuts the top wall 28 and the valve member is rotated through 90° and slid to the outer end of the slot 32. FIGURE 2 shows the valve member in dotted lines as it is inserted while in alignment with the slot 32, and in full lines when fully inserted, rotated through 90° and moved out to the end 32a of the slot. Next, the rubber-like body 16 is inserted into the cylindrical recess of the portion 26 so as to receive the post portion 40 in the opening 52 as shown in FIGURE 3. The shoulder 54 thus abuts the projections 47, 49 and the member 14 therefore cannot be again rotated into alignment with the slot 32. The entry aperture 44 is closed off by the member 16.

The usual stand pipe 58 can be inserted into the lower end of the member 16.

The valve cup assembly can then be mounted on the container C containing the desired product to be sprayed, there being the usual gas forming propellant contained therein to operate, one merely depresses the outer end of the portion 34 to pivot the valve member slightly, thereby deforming the rubber-like body 16 to provide communication between the entry aperture 44 and the standpipe 58. The product is thereby atomized and discharged through the aperture 36. Upon release, the valve is closed by the body 16.

It is to be especially noted that the eccentric location of the valve member permits a longer valve operating portion 34, as limited by the dimensions of the rim 18 of the valve cup. In this respect, it will be recognized that in order to mount the valve cup on a container, a "crimper" is employed which must be free to engage the entire rim. Thus increased valve opening leverage is provided by this arrangement. Also only two main parts are required in addition to the usually required valve cup and stand pipe.

In view of the foregoing it is believed that I have provided an improved aerosol valve which fulfills the objects hereinbefore enumerated.

As this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the present embodiment is therefore illustrative and not restrictive, since the scope of the invention is defined by the appended claims rather than by the description preceding them, and all changes that fall within the metes and bounds of the claims or that form their

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functional as well as conjointly cooperative equivalents, are therefore intended to be embraced by these claims.

I claim:

1. An aerosol valve for containers in which the container is formed with an open mouth, said valve comprising a valve cup adapted to be sealingly received on the mouth of the container, said valve cup having a central wall formed with an outwardly offset cylindrical valve-receiving portion said cylindrical portion having a cavity and a flat end wall formed with an elongate radial slot, a rubber-like body received in and substantially filling the cavity of said cylindrical portion, said body having an opening radially offset from the axis thereof adapted to be aligned with the outer end of said slot, said body being formed with a longitudinal shoulder at one side of said offset opening, a valve member comprising a finger-engageable portion with a discharge aperture, a post portion extending from said finger-engageable portion and received in said opening of said body, said post being provided with an entry aperture communicating with said opening but normally covered by said body, said post portion having a bore providing communication between said entry and discharge apertures, and said post having at least one laterally extending projection, said slot affording entry of the projection, said projection being disposed parallel to and non-removably held to one side by said shoulder.

2. An aerosol valve for containers in which the container is formed with an open mouth, said valve comprising a valve cup adapted to be sealingly received on the mouth of the container, said valve cup having a central wall formed with an outwardly offset cylindrical valve-receiving portion, said cylindrical portion having a cavity and a flat end wall formed with an elongate radial slot, a rubber-like body received in and substantially filling the cavity of said cylindrical portion, said body having an opening offset from its axis extending longitudinally thereof, said body being formed with a longitudinal shoulder at one side of said offset opening, a one-piece valve member comprising a finger-engageable portion with a discharge aperture, a post portion extending from said finger-engageable portion and received in said offset opening of said body, said post being provided with an entry

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aperture communicating with said offset opening but normally covered by said body, said post portion having a bore providing communication between said entry and discharge apertures, and said post having oppositely extending projections engageable through said elongate slot and rotatable 90° so as to be non-removably held to one side by said shoulder.

3. An aerosol valve for containers in which the container is formed with an open mouth, said valve comprising a valve cup adapted to be sealingly received on the mouth of the container, said valve cup having a central wall formed with an outwardly offset cylindrical valve-receiving portion, said cylindrical portion having a cavity and a flat end wall formed with an radial slot extending from the center toward the periphery thereof, a rubber-like body received in and substantially filling the cavity of said cylindrical portion, said body having an opening radially offset from the axis thereof adapted to be aligned with the outer end of said slot, said body being formed with a longitudinally extending shoulder at one side of said offset opening a positioned substantially perpendicularly with respect to the length of the radial slot, a valve member comprising a finger-engageable portion with a discharge aperture, a post portion extending from said finger-engageable portion and received in said opening of said body, said post being provided with an entry aperture communicating with said opening but normally covered by said body, said post portion having a bore providing communication between said entry and discharge apertures, and said post having at least one laterally extending projection disposed against said shoulder, said radial slot affording entry of the projections into the cavity below the end wall so that they can be turned 90° relative thereto and moved against the shoulder.

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