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MEANS FOR DISPENSING AEROSOLS AND THE LIKE

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Fig 1

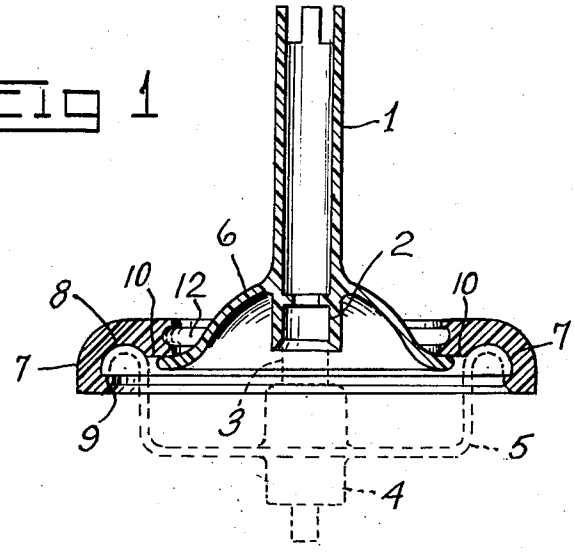
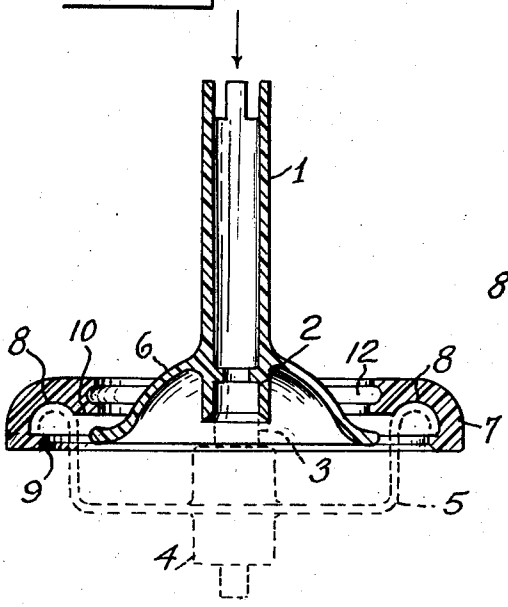


Fig 2



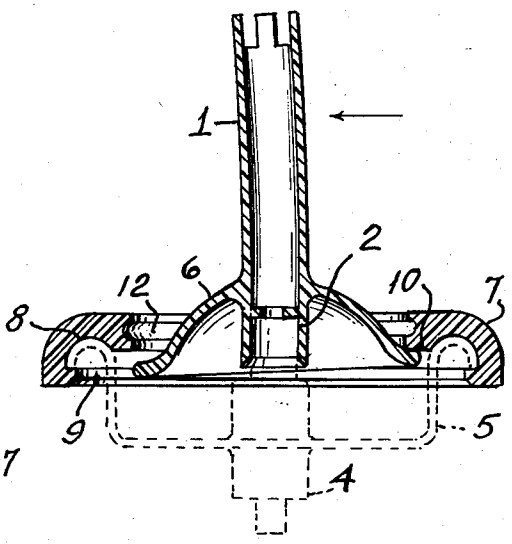


Fig 3

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MEANS FOR DISPENSING AEROSOLS AND THE LIKE

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6 Claims. (Cl. 222—394)

This invention is directed to means for dispensing aerosols and the like from a container having an outlet valve with a tubular valve stem and, while adapted for general uses in this connection, is particularly appropriate for the dispensing of creams, syrups, and other high viscosity liquids in the form of liquid or foam.

The object of the invention is to provide a relatively inexpensive and highly efficient means for controlling the operations of the outlet valve of the container and for directing the material from said valve to the point where it is to be deposited or discharged as, for example, a discharge of toothpaste onto a toothbrush.

In the dispensing of aerosols and the like, there are two well known and common types of valves. In one, the valve stem is tilted to tilt the sealing member of the valve from its seat and thus release material for discharge from the container. The other type of valve is that wherein the valve stem is mounted for rectilinear movement and must be so moved to open the valve for the discharge of the material. The present invention is particularly adapted for use with the latter type of valve. This latter type of valve requires pressure on the valve stem in the direction of the sealing member of the valve and this pressure is usually applied to a finger piece, diaphragm or tab which is manually operated to effect the rectilinear movement of the valve stem.

In contradistinction to this prior procedure, the present invention utilizes a tubular spout provided with a socket which snugly fits over the outer end of the tubular valve stem to mount and support the spout on said stem. Said spout is moreover provided with a radially extending flange which underlies an abutment formed on a ring mounted on the associated container. This abutment constitutes a fulcrum against which the flange is adapted to function in combination with the spout after the manner of a lever operable in any direction cross axially of the spout to cause the tilting of the spout with concurrent movement of its socket and the associated valve stem to bring about the aforesaid rectilinear opening movement of the valve. To permit this operation, at least a portion of the spout is made resilient, as by molding the same from polyethylene, nylon, or other plastic yieldable material, so that the spout and its socket may flex or bend sufficiently to effect the required rectilinear movement of the valve stem without tilting of the latter.

An important feature of the invention resides in the fact that the spout is mounted and supported by the valve stem and does not rely for support upon the ring attached to the container.

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 drawing.

The accompanying drawing illustrates 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 central vertical cross sectional view of the device of the present invention.

Fig. 2 is a view similar to Fig. 1, but showing one manner of operating the device to open the valve.

Fig. 3 is a like view showing the preferred way of operating the device to open the valve.

Referring to the drawings, 1 designates a tubular spout, provided at its base with a socket 2 adapted to snugly fit the upper end of the tubular valve stem 3 of any appropriate valve which requires rectilinear axial movement of the valve stem to unseal the valve. For the purpose of concrete illustration, I have indicated a valve, such as disclosed in Robert H. Abplanalp Patent No. 2,631,814. This valve has a stem 3 contained within a housing 4 mounted on a cup 5 adapted to be permanently secured in the mouth of a container in which is packaged material under pressure, such as shaving cream, cold cream or any one of a wide variety of other materials. The engagement of the socket 2 with the valve stem 3 serves as the sole support for the tubular spout on such a valved container.

The spout is provided near its lower end with a radial flange 6. This flange may extend entirely around the spout or at only partially about the same. However, I prefer to make the flange circular and it is so shown in the accompanying drawing. It may be of any desired cross section but the domed form illustrated is preferred.

Surrounding the spout 1 is a ring 7 adapted to be mounted permanently upon the container in any suitable manner. I prefer to support it on the cup 5 of said container and attach it to the cup by springing it downwardly over the bead of the cup, so that an annular channel 8, formed on the interior of the ring, will seat on said bead while an undercut lip 9 formed on the ring will underlie the free edge of the bead to lock the ring on the latter. The ring is provided with an inwardly extending annular shoulder 10 forming a fulcrum abutment which overlies the margin of the flange 6. This margin of the flange may contact at all times with the abutment, if desired, or it may be closely spaced with respect to the latter for the ring and flange are free from attachment to one another and are manufactured separately.

Both the ring and flange are in practice injection molded in any suitable resilient plastic material. The ring should have sufficient resiliency to permit it to be snapped over the bead of the cup when mounting the ring thereon. However, it is preferred that the spout and its flange be of resilient material for, when so constituted, the device is capable of different modes of operation.

Under normal conditions of non-use, the parts partake of the position shown in Fig. 1 and the spout may at that time be enclosed by an appropriate cover (not shown) provided at its lower edge with an external flange or bead adapted to be detachably engaged with an annular recess 12 in the inner edge of the ring. When it is desired to dispense material from the associated container, the cover is removed and the device may thereupon be operated in either of two ways shown in Figs. 2 or 3. To operate the device as in Fig. 2, the spout 1 or flange 2 are gripped and pressed in the direction of the valve to rectilinearly depress the valve stem and open the valve so that material will be dispensed through the valve and through the tubular spout.

In operating the device according to Fig. 3, pressure is exerted radially against any side of the spout, as indicated by the arrow, to deflect the spout in a lateral direction. When the spout is thus deflected, the side of the flange, corresponding to the point of applied force, fulcrums against the adjacent part of the abutment 10 and the spout and flange are bodily tilted, as to the left in Fig. 3, to function as a lever of the second class and force the valve

stem in the direction of the container to open the valve so that the material may be discharged through the spout. For operation in this manner the spout should be of resilient material, so that it may bend or yield sufficiently to permit rectilinear movement of the valve stem without tilting the latter. It should be understood in this connection that where both the abutment and the flange 6 are of circular form, the spout may be tilted in any radial direction to function in the manner described for the opening of the valve.

An important feature of this invention is that the ring which furnishes the abutment and the spout and its flange are entirely separate and free from attachment to one another. This makes possible the operation shown in Fig. 3 by the application of force in any radial direction of the spout.

Valves of the character described are customarily provided with springs, augmenting the pressure in the container to normally seal the valve when manually applied opening pressure ceases and, consequently, as soon as the operations illustrated in either Figs. 2 or 3 are completed and opening pressures relieved, the parts will return to the relation shown in Fig. 1 and the valve will close.

The device of this invention is economical and easy to manufacture for the parts are made separately and complicated injection dies are not required. In assembling the parts on a container, the socket part is first slipped over the valve stem to seat said stem in the socket 2. Thereafter the ring is snapped in place on the container and the assembly is complete.

The device of this invention may be operated with the container upright, inverted, or in any intermediate position and the spout may be of any desired shape according to the material which is to be dispensed or to the desire of the manufacturer or the wishes of the purchasing public.

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 Letters Patent is:

1. Means for dispensing aerosols and the like from a container having an outlet valve with a tubular valve stem, said means comprising: a tubular spout having a socket to snugly fit over the tubular valve stem and support the spout thereon, said spout having a radially projecting leverage flange, in combination with a ring adapted to be mounted on the container with which said valve stem is associated, said ring having a fulcrum abutment marginally overlying said leverage flange and free from attachment thereto.

2. Means according to claim 1, wherein both the abutment of the ring and the flange of the spout are circular.

3. Means according to claim 1, wherein the spout is made of resilient material.

4. Means according to claim 2, wherein the spout is made of resilient material.

5. Means according to claim 1, wherein the ring is provided with an interior annular channel to embrace the bead of a container and has an undercut lip to engage with the under side of the bead and lock the ring to the bead.

6. Means according to claim 1, wherein the ring is provided with an annular depression to detachably receive the bead of an appropriate cover.

References Cited in the file of this patent

UNITED STATES PATENTS

2,667,993	Ayres	Feb. 2, 1954
2,767,888	Soffer	Oct. 23, 1956