

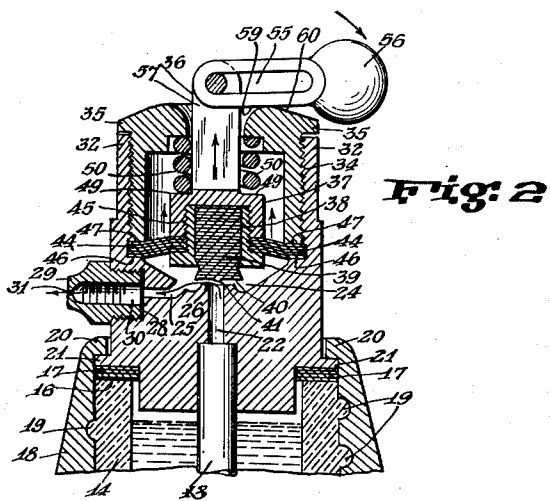
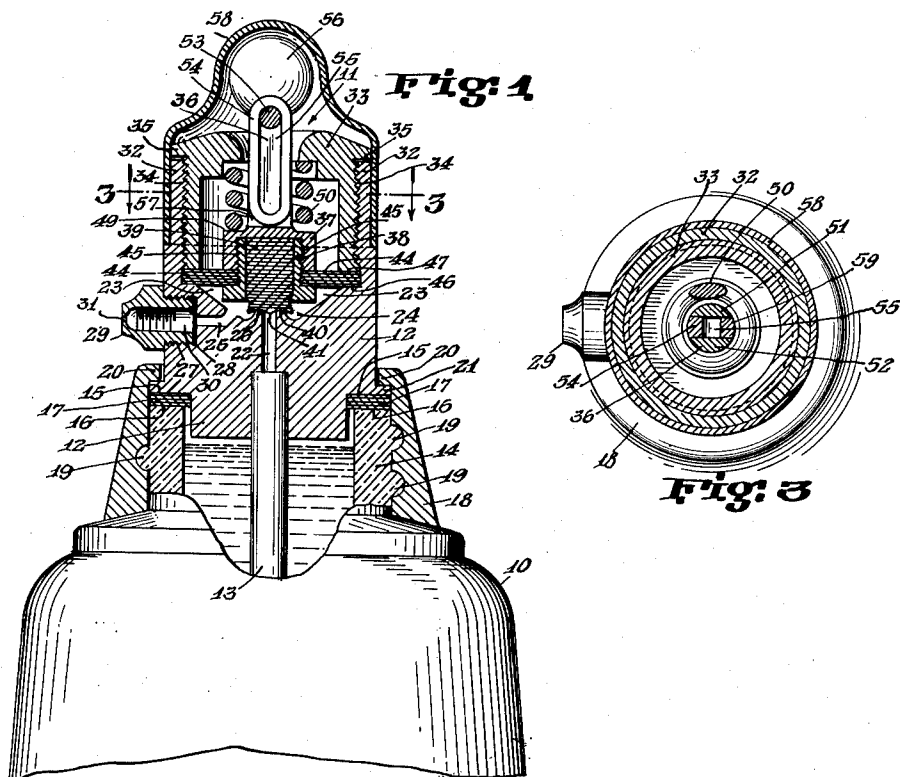
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A. EHBRECHT

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ATOMIZER

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INVENTOR.

Adolf Ehbrecht

BY

Attorney

ATTORNEY.

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ATOMIZER

Adolf Ehbrecht, New York, N. Y., assignor to The Aromel Corporation, New York, N. Y., a corporation of New York

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1 Claim. (Cl. 299—95)

This invention relates to improvements in atomizers, particularly those applicable for use with perfumes or toilet waters.

Broadly, it is an object of this invention to provide an atomizer in which the liquid, be it perfume, toilet water, or other medium to be atomized, is under gas pressure, so that the discharge of the medium in atomized form is brought about through valve control.

Specifically, it is an object of this invention to provide a valve control for an atomizer, of the character described, wherein the valve is normally maintained in seated position with respect to the supply port through spring and diaphragm media; the port being opened upon displacement of the valve to permit pressure discharge in atomized form of the liquid, the spring and diaphragm media being adapted to return the valve to initial position for sealing the port upon release of the valve displacing mechanism.

Still further, it is an object of this invention to provide, in an atomizer of the character described, spring and diaphragm elements for maintaining the valve of the atomizer in seated condition with respect to a supply port, the diaphragm complementing the spring for returning the valve to seated condition, while at the same time serving as a seal for the chamber leading from the port to the discharge aperture of the atomizer.

These and other advantages, capabilities, and features of the invention will appear from the subjoined detailed description of one specific embodiment thereof illustrated in the accompanying drawing, in which

Figure 1 is a front elevation, partly in section, of the atomizer control in closed position.

Figure 2 is a front elevation, partly in section, of the open control.

Figure 3 is a plane view in section, taken along lines 3—3 of Figure 1.

Referring to the reference characters in the drawing, numeral 10 represents the base of the atomizer in the form of a container, herein shown of glass, though the same may be of metallic or non-metallic substance. The control mechanism 11 is carried on plug 12 from which extends syphon tube 13, leading interiorly of the base, the said plug 12 being carried on the wall 14 forming the neck of the base, there being disposed between the shoulder 15 of the plug and 16 of the base, gasket 17, of rubber or like material, the plug being locked to the base by means of cap 18, interiorly threaded to act on the exterior threads of the neck of the base, as at 19, said cap 18 hav-

ing an inwardly extending rim 20 pressing against the annular rim 21 of the plug to form a firm lock between the plug and the base.

Within the plug 12 is formed a reduced bore or port 22 leading to delivery chamber 23, in which there is formed cup formation 24, leading to bore or discharge port 25, directed substantially at right angles to bore 23. A seat 26, of substantially annular form and projecting slightly above the base of chamber 23 surrounding the bore 22.

Within the side wall of plug 12 there is formed a threaded aperture 27, in which is disposed screen of fine mesh 28 and nipple 29, the screen being maintained in aperture 27 against the wall of the bore 25, by contact with the inner peripheral edge of the nipple thereagainst. The nipple 29 has bore 30 of gradually decreasing diameter leading to a substantial pin point 31 at its extremity, to provide the necessary atomizing nozzle.

Within wall 32 of the plug 12 there is carried the valve control mechanism 11 for the atomizer; said valve control mechanism comprising a head 33 having an exterior threading cooperating with the interior threading of the plug 12 as at 34, and having an annular rim 35 resting on the upper shoulder of wall 32 of the plug 12 to seal the same.

Within the head there is positioned a valve stem 36, the base of which comprises two interlocking sections, 37 and 38, the latter of which has firmly fixed therein valve 39 formed of rubber or like material, and having a flat base 40 resting against seat 26 surrounding bore or port 22, and having a teat 41 of diameter substantially to rest in bore or port 22. This flat formation 40 resting against the seat 26 and the teat 41 resting within bore 22, due to the resilient nature of the valve 39, forms a double seal for the supply outlet at port 22.

Between interlocking sections 37 and 38 there is disposed an annular diaphragm 44 formed, in this instance, of rubber, said annular diaphragm being locked between said sections at its inner periphery, and being maintained rigidly therebetween upon intermeshing of the threaded formation 45 of these members. The outer periphery of the diaphragm rests between rim 46 of the plug and shoulder 47 of the head, and is rigidly maintained in such position insofar as its outer periphery is concerned, through intermeshing of the threaded sections of said head and plug.

Mounted on valve stem 36 between the shoulder 48 of interlocking section 37, and inwardly ex-

tending annular groove 40 of the head 33, there is disposed compression spring 50, normally maintaining the valve stem and the valve structure carried thereby in position on seat 26 of the plug, for sealing the port 22. The valve stem 36, as shown in Figure 3, is bifurcated to provide arms 51 and 52, between which passes pivot pin 53, on which is mounted lever 54, having interior slot 55 and ball gripping portion 56, the lever 54 being of thickness equal to the width of the slot 57 between the furcations of the valve stem, so that it may be slid down therein when not in use. A cap 58, shown in Figures 1 and 3, is provided for sealing the device when not in use.

As shown in Figure 2, to operate the device the lever 54 is lifted upwardly, so that its end contacts with the pivot pin 53 of the valve stem, and so that one of its surfaces 59 presses against surface 60 of the head. When the ball 56 at the end of the lever is displaced in the direction of the arrow in Figure 2, with surface 60 of the head serving as the fulcrum valve stem 36 is moved upwardly in the direction of the arrow against the compression of spring 50 and against the resistance of diaphragm 44, causing a compression of spring 50 and annular displacement and distortion of the body portion of the diaphragm 44 in the direction of the arrow, thus placing the same under tension. By this action the valve 30 is displaced from its seat 26 and the teat 41 displaced from bore 22, permitting liquid medium contained within the base 10 to pass, by virtue of the gaseous pressure therein, through port 22, into chamber 23, to bore 25, through screen 28, into bore

30 of the nipple, and through the fine aperture 31 at the extremity thereof; the liquid under gas pressure, at the time it reaches the aperture 31, being, by virtue of its tortuous path, through reduced apertures, brought to a condition of fine atomization, as it strikes the air. When pressure against lever 54 is released, diaphragm 44 and spring 50 collectively tend to return to their original position, bringing valve 30 back onto seat 26, to seal the bore or port 22.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claim.

I claim:

In an atomizer, a container for liquids to be sprayed, a conduit in the head of the container leading from the interior to an outlet thereof, a valve for sealing said conduit between the interior and the outlet, a coil spring acting axially, and a diaphragm acting peripherally of said valve to maintain the same in sealing position, and a lever attachable to one end of the said valve and adapted to be fulcrumed on the head of said container for displacing said valve against the action of said spring and diaphragm, said valve having a chamber in which said lever rests when not in use, the said lever having a slot and said valve a pin, whereby said lever may be displaced from the valve chamber for fulcruming action on the head of said container at right angles to said valve.

ADOLF EHBRECHT.