

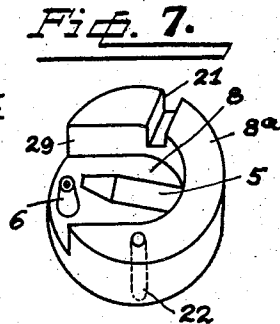
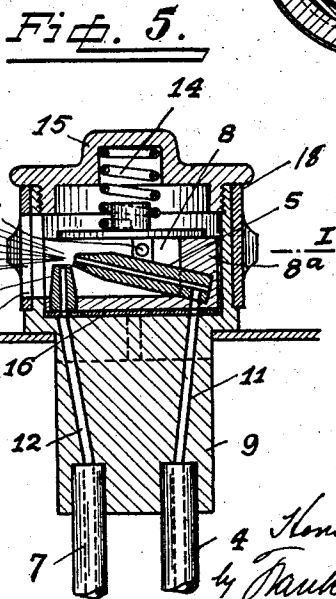
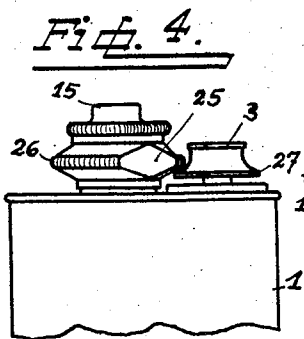
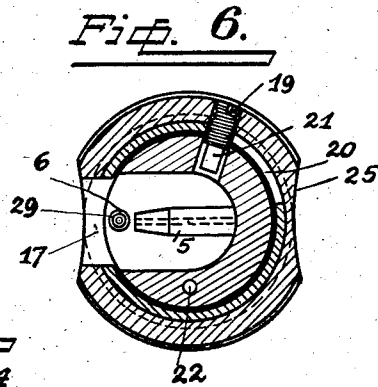
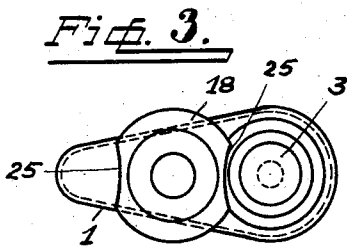
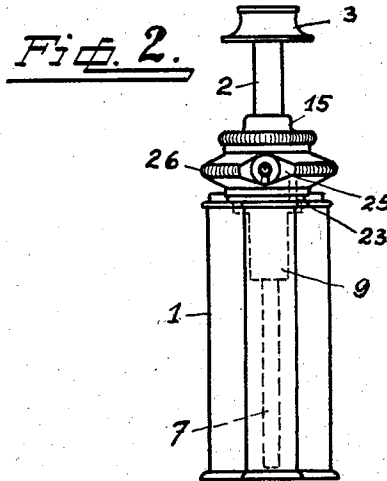
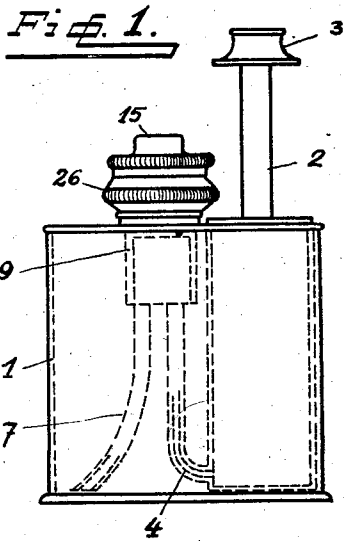
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LIQUID ATOMIZER

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# UNITED STATES PATENT OFFICE

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## LIQUID ATOMIZER

Hans Wettstein, Oerlikon, Switzerland

Application October 22, 1932, Serial No. 639,097  
In Switzerland October 28, 1931

4 Claims. (Cl. 299—88)

The present invention relates to improvements in atomizers for liquids, such as perfume and the like.

The principal object of my invention is to provide an atomizer with conduits for a liquid and for compressed air, the nozzles of the conduits being located in a chamber which can be closed by means of a rotatably mounted ring adjustable by hand.

To these and other objects, the nature of which will be readily understood as the invention is hereinafter disclosed, said invention consists in the improved construction of parts and their combination, hereinafter fully described, illustrated in the accompanying drawing, and particularly pointed out in the appended claims.

In the accompanying drawing Fig. 1 is a side elevation, Fig. 2 is a front elevation, Fig. 3 is a plan, Fig. 4 shows a securing device, Fig. 5 is an axial section of the nozzle chamber, Fig. 6 is a section according to the line I—I of Fig. 5, and Fig. 7 is a perspective view of the nozzle chamber.

The atomizer illustrated in the drawing is provided with a container or reservoir 1 for taking up the liquid to be atomized, which container, at the bottom is provided with a filling opening (not shown in the drawing). The reservoir also contains the cylinder of the air pump. The pump shows a piston and piston rod 2 with a handle 3.

By means of the pump air is forced through the tube 4 to a nozzle 5. Right underneath the mouth of the nozzle 5 is a nozzle 6 connected to a supply tube 7, which ends near the bottom of the container 1. The two nozzles 5 and 6 are secured in a nozzle chamber 8. The chamber 8 is formed in a rotatable member 8<sup>a</sup> mounted in the upstanding flange of the nozzle head 9 and a washer 13 of leather or the like is interposed between the nozzle head and the said rotatable member 8<sup>a</sup>. A spring 14 is located between the rotatable member 8<sup>a</sup> and a nut 15, which nut is threaded in the flange of the nozzle head, the spring tending to hold the rotatable member 8<sup>a</sup> in firm contact with the washer 13 and maintaining the parts in proper operative relations. The rotatable member 8<sup>a</sup> is provided with a slot 21 and a bore 22 which is intended to communicate with the interior of the reservoir 1 for supplying air thereto as the pump is operated, as will presently appear.

Opposite the positions of the nozzles 5 and 6 the wall of the rotatable member is provided with an opening 17 and the flange of the nozzle head is also provided with an aperture, and when the atomizer is in use, the aperture of the rotatable member and the aperture of the flange register.

A ring 18 turns on the outer surface of the flange and it has an aperture 18<sup>a</sup> which registers with the aforesaid apertures of the rotatable member and flange when the parts are in operative position. The ring is provided with a pin 19 which extends through a slot 20 of the flange and said pin has its inner end seated in the slot 21 of the rotatable member so that when the ring 18 is turned, the said pin 19 moves in the slot 20 of the flange and partially rotates the rotatable member and nozzles and at certain positions the nozzles are located as they are shown in Figure 6 of the drawing, whereas when the ring is turned the rotatable member is turned and the ports or ducts of the rotatable member are out of registry with the ports or ducts of the nozzle head and the opening through which material is atomized is closed by the ring.

The position of the parts in Figs. 5 and 6 shows the atomizer ready for use. The piston rod with the handle 3 can be moved up and down, whereby the handle 3 can pass through a recess 25 of the ring 18.

Since the nozzles 5 and 6 communicate with the passages 11 and 12, they also communicate with the air and liquid tubes. The bore 22 is also in communication with the interior of the container 1. Thus when pumping by moving the piston up and down, the liquid is atomized in the well known manner by the air.

In order to get the atomizer to rest the piston is pushed down into the position shown in Fig. 4. Then the ring 18 is turned, so as to allow the flange 26 of the ring 18 to extend over the flange 27 of the handle 3. The piston 2, 3 is thus locked in its lowest position.

When turning the ring 18 the nozzle chamber 8 is at the same time turned by the pin 19 so that the mouth 29 of the chamber 8 comes behind the flange of the nozzle head 9. The mouths of the nozzles are now in a closed position and therefore protected from dust and the like. When turning the chamber 8 by the pin 19, there are also closed the passages 11 and 12.

The nozzles are thus protected against being clogged by evaporated liquid, dust and the like. At the same time the container 1 is also tightly closed.

In order to clean the passages the chamber 8, after releasing the nut 15, can be removed, giving access to them.

What I claim is:

1. In an atomizer, a nozzle head having ports therein for air and liquid, a rotatable member bearing against said head above said ports having

ports adapted to aline with the ports of the nozzle head or to assume staggered positions with relation to the ports of the nozzle head in different positions of adjustment, the said rotatable member having a chamber with an open side wall, atomizing nozzles in the chamber, each of which communicates with a port in the rotatable member and is located to discharge through the opening in the wall of the chamber, a guiding member for the rotatable member on the nozzle head, the said guiding member having a circular portion with an aperture therein with which the opening in the side of the chamber registers, a ring rotatably applied to the exterior of said circular portion, the said circular portion having a circumferential slot, a pin anchored to the ring and projecting through the slot of the guiding member and engageable with the rotatable member for turning the rotatable member for changing the position of the ports thereof with relation to the ports of the nozzle head, and means for supplying air under pressure to one of the aforesaid nozzles.

2. An atomizer comprising a receptacle, a nozzle head having a portion extending therein, said nozzle head having ports for the passage of liquid and air, the said nozzle head also having a vent opening communicating with the interior of the receptacle and the atmosphere, a member rotatably seated on the nozzle head and having ports adapted to aline with the ports of the nozzle head or to assume positions in staggered relation therewith, nozzles carried by the said rotatable member, each of which is in communication with one of the ports of the rotatable member, the discharge ends of the nozzles being in such relation that air escaping from one creates a suction of air in the other nozzle for drawing liquid there-through, a ring having an opening through which liquid issuing from the nozzle is discharged, and

means carried by the ring for imparting rotary motion to the member.

3. In an atomizer, a chamber for liquid, a member having ports communicating with the interior of the chamber, said member having an annular flange provided with an aperture and a slot, a rotatable member embraced by the flange and having a recess forming a nozzle chamber, the said rotatable member having ports adjusted by the movement of the member into alinement with or out of alinement with the ports communicating with the interior of the chamber, nozzles in the nozzle chamber communicating with the second mentioned ports and operative to discharge through the opening of the flange, a ring rotatable on said flange, a pin carried by the ring, said pin projecting through the slot of the flange and connected to the rotatable member, the said ring having an aperture adapted to register with the opening in the flange when the rotatable member is in position for the operation of the atomizer.

4. In an atomizer, a liquid receptacle, a member thereon having atomizing nozzles, means of communication through said member to the liquid receptacle and one of the said nozzles, a pump carried by the liquid receptacle and operative for supplying air through said member to one of the nozzles of the atomizer, a ring rotatably mounted and having means for communicating its rotary motion to the member, means associated with the member for preventing the supply of liquid to the atomizing nozzle and air from the pump to one of the atomizing nozzles when said member is rotated to a given position, said pump having a handle and means on the ring engageable with the handle for holding the pump handle against movement when said member occupies said given position.

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