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F. A. VUILLEMENOT

1,887,383

ATOMIZER

Filed April 7, 1930

Fig. 1

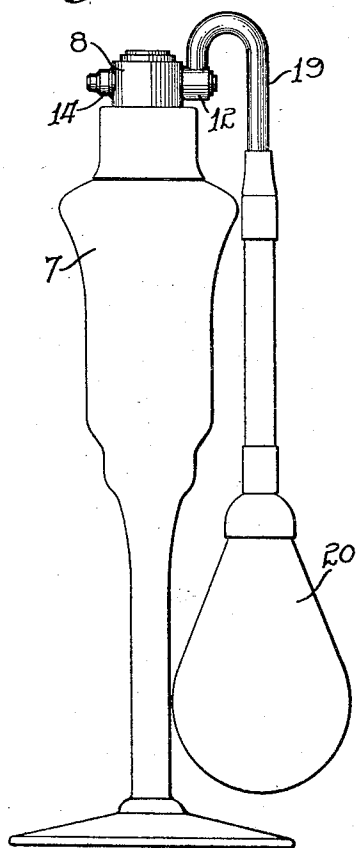


Fig. 2

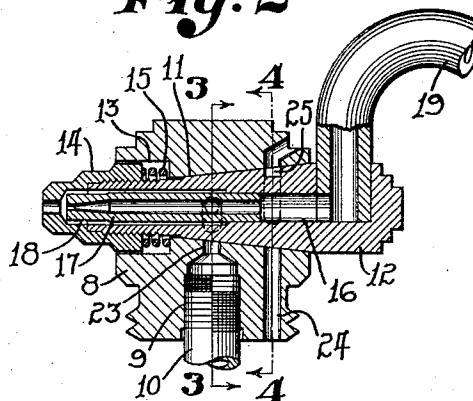


Fig. 3

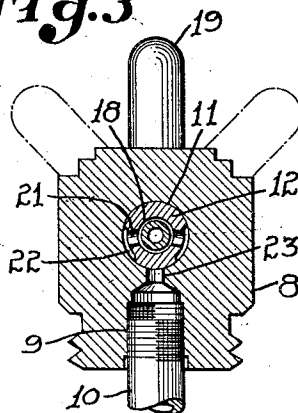


Fig. 4

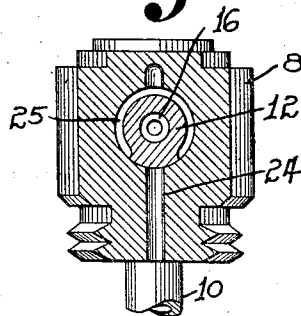
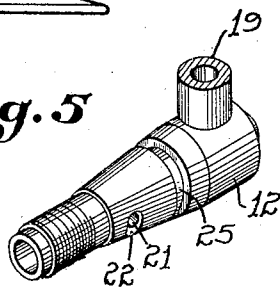


Fig. 5



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UNITED STATES PATENT OFFICE

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ATOMIZER

Application filed April 7, 1930. Serial No. 442,047.

This invention relates to an atomizer intended primarily for spraying perfume, medicinal preparations or the like.

The object of the invention is to provide a device of the character stated which is of simple and inexpensive construction but attractive in appearance and which normally constitutes a stopper for the receptacle containing the liquid to be sprayed. Associated with the stopper is a valve which may be turned through a predetermined arc to open the liquid outlet passageway and also a vent to the atmosphere. The specific construction of the invention and the advantages resulting therefrom will be explained in connection with the accompanying drawing, in which

Figure 1 is a side elevation of the invention.

Figure 2 is a central longitudinal section thereof.

Figure 3 is a section taken on the line 3—3 of Figure 2.

Figure 4 is a section taken on the line 4—4 of Figure 2.

Figure 5 is a detail perspective view of the valve.

The invention is illustrated in connection with a container 7 which may be of any suitable design and provided with a stopper 8. The inner end of the stopper is provided with a threaded bore 9 adapted to receive a liquid tube 10 which extends approximately to the bottom of the container 7. The stopper is also formed with a tapered bore 11 disposed transversely to the bore 9 and adapted to receive an elongated rotary valve 12. The smaller end of the tapered bore 11 terminates in a chamber 13 adapted to receive the base of a nozzle 14 which has a threaded connection to the smaller end of the valve 12. A coil spring 15 is seated within the chamber 13 and bears against the base of the nozzle 14 to hold the valve 12 in close contact with the bore 11.

The valve 12 is formed with a central air passageway 16 leading through an air tube 17 to the nozzle and about the tube 17 is a concentric liquid duct 18 also leading to the nozzle and adapted to be placed in communication with the tube 10 when the valve 12 is in a certain position. A tube 19 is secured to the valve 12 in communication with the air

passageway 16 and has a bulb 20 connected therewith for supplying air under pressure to the nozzle. The tube 19 may be of any suitable design, the present embodiment being in the form of a gooseneck so disposed with relation to the valve that when the tube and bulb are in a natural symmetrical position, that is, when the tube is in a vertical plane and the bulb hanging straight down, the valve 12 is in closed position. The weight of the bulb also has a tendency to hold the valve in this position.

The valve 12 is formed with ports 21 connecting the liquid duct 18 with recesses 22 formed circumferentially of the valve so that when the valve and tube 19 are rotated to either of the positions shown by broken lines in Figure 3, the liquid tube 10 is in communication through a passageway 23, recess 22, port 21 and duct 18, with the spray nozzle 14, but when the valve is returned to normal position this communication is cut off.

The stopper 8 is also formed with an air vent 24 extending through the stopper and intersecting the bore 11. In the plane of this air vent the valve 12 is formed with a circumferential groove or recess 25 which is adapted to open the air vent whenever the liquid tube 10 is placed in communication with the nozzle but closes such vent whenever the valve is returned to its normal or closed position.

From the foregoing description it will be understood that the tapered valve 12 will normally be held in close contact with the bore 11 by the spring 15 and that when the atomizer is not in use the bulb 20 will hang down alongside the container 7 so that both the liquid passageway and the air vent will be closed and the volatile contents of the container 7 will be retained without any loss by evaporation. Whenever the bulb 20 and tube 19 are swung to one side, however, the atomizer is ready for operation.

While I have shown and described in detail the preferred form of the invention, it is to be understood that the same may be modified within the scope of the appended claims without departing from the spirit of the invention.

What I claim is:

1. In an atomizer, a stopper having a liquid passageway terminating in a nozzle, a rotary valve having an air duct operatively associated with said liquid passageway and rotatable to open or close the liquid passageway, a tube and an air-compressing bulb connected with said air duct and so disposed that the weight thereof tends to rotate the valve to closed position, and means for rigidly supporting the stopper in such a position that the bulb may swing freely to its lowermost position. 70
 2. In an atomizer, a stopper having a liquid passageway and an air vent, a tapered bore transverse thereto, a rotary valve fitting said bore, a spring tending to retain said valve in the bore, said valve having an air duct operatively associated with said liquid passageway and rotatable to open or close the liquid passageway and air vent, a tube and an air-compressing bulb connected to said air duct and so disposed that the weight thereof tends to rotate the valve to closed position, and means for rigidly supporting the stopper in such a position that the bulb may swing freely to its lowermost position. 75
 3. In an atomizer, a stopper having a liquid passageway and an air vent, a valve for said passageway, a spray nozzle carried at one end of the valve, said valve being rotatable to place the liquid passageway in communication with the nozzle and to open the air vent, an air tube and an air-compressing bulb connected with the valve and in communication with the nozzle and so disposed that the weight thereof tends to rotate the valve to closed position, and means for rigidly supporting the stopper in such a position that the bulb may swing freely to its lowermost position. 80
 4. In an atomizer, a stopper having a liquid passageway and an air vent, a rotary valve having an air duct operatively associated with said liquid passageway and rotatable to open or close the liquid passageway and air vent, a tube and an air-compressing bulb connected with said air duct, said tube and bulb being so disposed with relation to the valve that they are in a vertical axial plane with reference to the stopper and nozzle with the bulb in its lowermost position when the valve is closed and in an inclined plane when the valve is open, and means for rigidly supporting the stopper in such a position that the bulb may swing freely to its lowermost position. 85
 5. In an atomizer, a stopper having a liquid passageway and an air vent, a rotary valve having an air duct operatively associated with said liquid passageway and rotatable about a substantially horizontal axis to open or close the liquid passageway and air vent, a tube connected at an angle to the valve and communicating with said air duct, and an air-compressing bulb connected with the end of the tube remote from the valve, said tube and bulb being so disposed with relation to the valve that they are in a vertical plane and symmetrical with relation to the stopper only when the valve is closed. 90
- In testimony whereof I have hereunto signed my name to this specification.
- FRÉDÉRIC A. VUILLEMENOT. 95
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