Nov. 10, 1936. C. C. DAGGETT 2,060,285

ATOMIZER

Filed Oct. 1, 1934

FIG. 1.

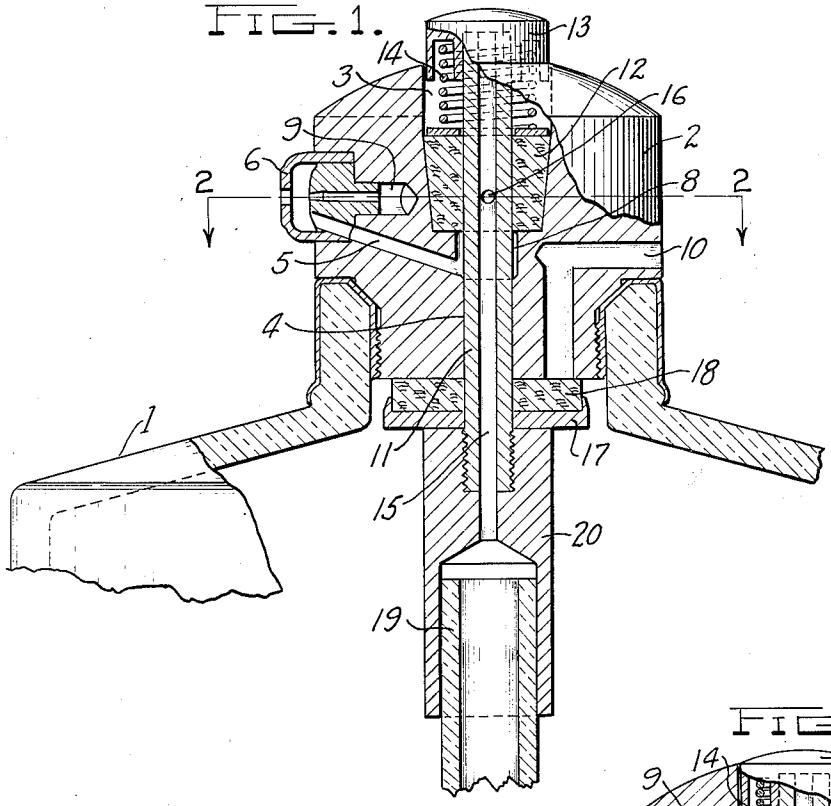


FIG. 2.

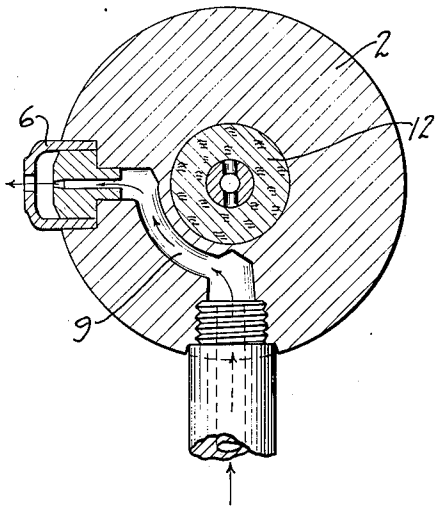
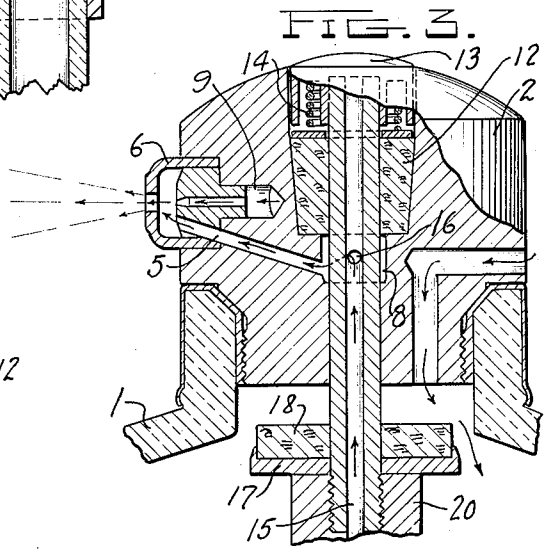


FIG. 3.



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ATOMIZER

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6 Claims. (Cl. 299—88)

This invention relates to atomizers of the type commonly employed for spraying perfumes, or the like, and has for its object the provision in such an atomizer of a simple and novel form of manually controlled non-leak feature which enables the atomizer to be carried in traveling bags, trunks, or the like, without necessitating the removal of the liquid contents and without liability of leakage of such contents should the atomizer be inverted or placed on its side.

The invention is fully described in the following specification, and while in its broader aspect it is capable of embodiment in numerous forms, one embodiment thereof is illustrated in the accompanying drawing, in which—

Figure 1 is an enlarged fragmentary side elevation of an atomizer embodying the invention, with parts in central vertical section and with the valve parts in normal closed position; Fig. 2 is a cross-section on the line 2—2 in Fig. 1, and Fig. 3 is a view similar to Fig. 1, with the valve parts in open position.

Referring to the drawing, 1 designates a receptacle for containing a liquid to be sprayed, the neck opening of which is closed by a spray-head 2 in the customary or any suitable manner.

The head 2 is provided centrally at its top with a cavity 3, and extending centrally from the bottom of this cavity to the bottom of the head is a bore 4. A liquid discharge passage 5 extends laterally from the upper portion of the bore 4 to the mixing chamber of a spray discharge nozzle 6 mounted in a side of the head, and the portion of said bore from which said passage leads is enlarged as at 8.

The head is also provided with an air passage 9 having one end in restricted communication with the interior of the nozzle 6 and its other end in communication with any suitable source of air pressure supply, as well understood in the art. An air vent passage 10 provides communication between the atmosphere and the interior of the receptacle 1, the inner end of such passage opening through the bottom surface of the head at one side of the bore 4.

A valve-stem 11 is mounted in the bore 4 for axial reciprocatory movements therein and has its upper end mounted through and extending above a packing material 12 mounted in the bottom of the cavity 3. A thumb-piece 13 is carried by said stem at its upper end in spaced relation to the packing 12 and a coiled expansion spring 14 is interposed therebetween to act normally to retain the stem in its uppermost position, as shown in Fig. 1. The stem is preferably of tubular form to provide a passage 15 lengthwise therethrough and this passage has communication with the bore enlargement 8 and head passage 5 through a side opening 16 when the stem is depressed from normal position, as shown in Fig. 3. When the stem is in its raised or normal position, the opening 16 is disposed within and closed by the packing 12, thus effectively sealing the communication between the passages 6 and 15. The packing may be of cork, which, when forced into the cavity 3, has sealing engagement with the stem.

The stem 11 below the head 2 carries a disk-valve 17, the gasket-face 18 of which seats flat against the bottom of the head and closes the vent passage 10 in any position of rotation of the stem or valve when the stem is in its normal raised position. A tube 19 is attached to the lower end of the stem 11 in any suitable manner, as by a coupling 20, and provides communication between the stem passage and the bottom interior portion of the receptacle, so that when the valve-stem is depressed liquid may be conveyed to the nozzle for spraying purposes through the communicating passages.

It is apparent that both of the head passages 5 and 10, which are the only passages adapted to have communication with the interior of the receptacle, are closed to the receptacle when the valve-stem is in its normal raised position, and that a depression of the stem, which may be accomplished by a pressure of the thumb of a hand holding the atomizer, moves the stem opening 16 into communication with the passage 5 and lowers the valve 17 to uncover the vent passage 10. This provides a very simple form of atomizer head with control valves for the passages leading from the receptacle, which head is effectively prevented from leaking when not in use and is easily rendered operable when desired.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent, is:

1. In an atomizer, a receptacle, a spray-head therefor having a spray nozzle and a liquid discharge passage in communication therewith and also having a cavity in its top with a bore leading therefrom through the bottom of said head into the receptacle, a valve-stem extending through said bore and cavity having a passage in com-

munication with the bottom interior portion of the receptacle and having a lateral outlet opening within the head, a packing means mounted around the stem within the lower portion of said cavity, means acting on the upper end of the stem without said packing to normally retain the stem in one position with said lateral outlet opening sealed by said packing, said stem being depressible to move said outlet opening into communication with said first-mentioned passage, said head also having a passage for supplying air under pressure to said nozzle.

2. In an atomizer, a receptacle having an opening in its top, a spray-head closing said opening and having a part forming a spray nozzle, said head also having liquid and air passages leading to said nozzle and a vent passage opening communication between the interior of the receptacle and the outside atmosphere, a valve-stem reciprocally mounted in said head and having a passage in communication with the interior bottom portion of the receptacle with an outlet opening near its top, a valve carried by the stem within the receptacle and adapted to seat against the bottom of the spray-head to close said vent passage, means acting on the stem to normally retain it in valve seating position with said opening out of communication with the liquid passage in said head and permitting movement of the stem to place said opening in communication with said liquid passage, and means carried by the head for preventing leakage from the receptacle around the stem and for sealing said outlet opening when the stem is in normal position.

3. In an atomizer of the class described, a spray-head having a fluid discharge passage and an air vent passage, a yielding packing in said head, an axially reciprocable stem extending through said head in coaction with said packing and having a passage forming a portion of said discharge passage in one position of the stem and sealed by said packing from communication with the remainder of said discharge passage in another position of the stem, means normally holding the stem in said latter position, and gasket means carried by the stem and forming a valve for closing said vent passage when the stem is in normal position.

4. In an atomizer of the class described, a spray-head having a fluid discharge passage and an air vent passage, a yielding packing in said head, an axially reciprocable stem extending through said head in coaction with said packing and having a passage forming a portion of said discharge passage in one position of the stem and sealed by said packing from communication with the remainder of said discharge passage in another position of the stem, means normally holding the stem in said latter position and coacting with said packing to tend to compress it against the stem, and means carried by the stem forming a valve for closing said vent passage when the stem is in normal position.

5. In an atomizer of the class described, a liquid receptacle, a spray-head mounted on the receptacle and having an air vent passage opening at its inner end into the receptacle and having a fluid discharge passage, a yielding packing in said head, an axially reciprocable stem extending through said packing and head and having a passage extending from near the interior bottom portion of the receptacle and forming a portion of said discharge passage in one position of the stem and sealed by said packing from communication with the remainder of said discharge passage in another position of the stem, yielding means acting on the stem to normally retain it in said latter position, and yielding gasket means carried by the stem and forming a valve for seating against the inner end of the head and closing said vent passage when the stem is in normal position.

6. In an atomizer of the class described, a spray-head having a substantially flat bottom, a fluid discharge passage and an air vent passage, the latter opening through said bottom, an axially reciprocable valve extending through said head and its bottom in offset relation to said vent passage, said valve having a passage therethrough forming a part of said discharge passage in one position of the valve and sealed from communication with the remainder of the discharge passage in the other position of the valve, and a gasket faced flange portion carried by said valve to seat against the head bottom and seal said vent passage opening in the latter valve position.

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