A. V. DICKEY.

SPRAYING APPARATUS.

APPLICATION FILED JULY 17, 1917.

1,300,823. Patented Apr. 15, 1919.

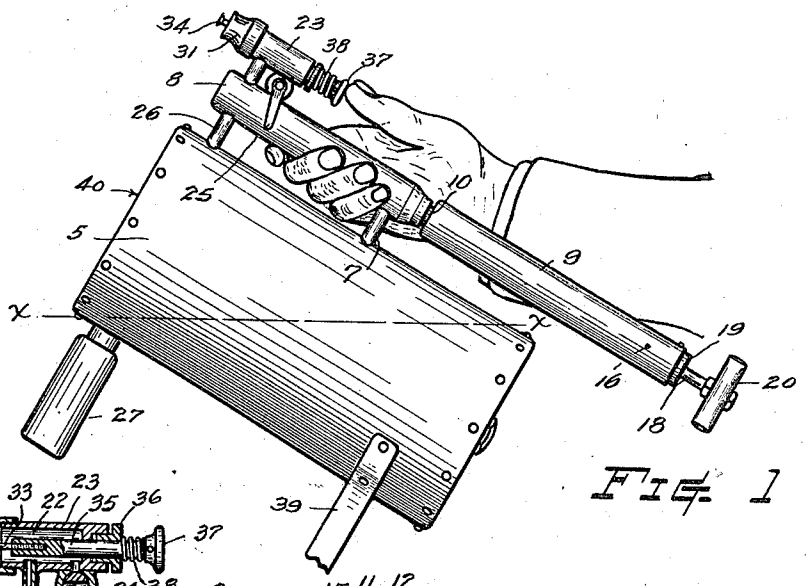


FIG. 1

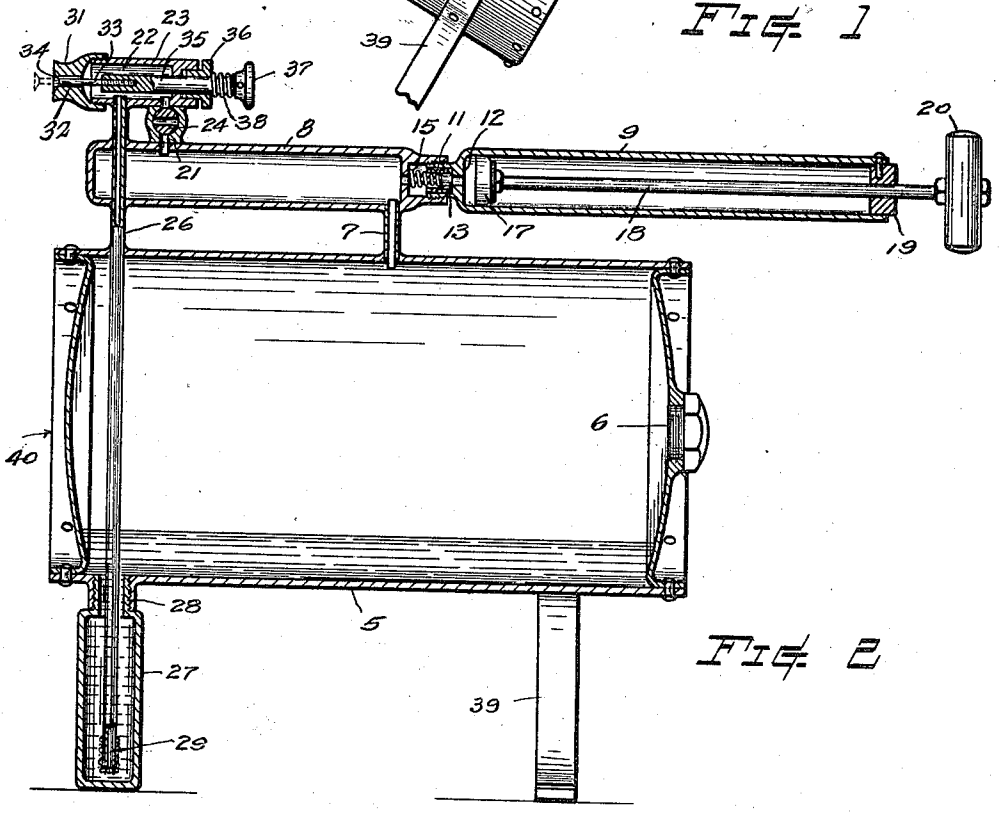


FIG. 2

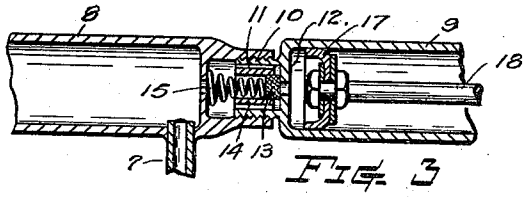


FIG. 3

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SPRAYING APPARATUS.

1,300,823. Specification of Letters Patent. Patented Apr. 15, 1919.

Application filed July 17, 1917. Serial No. 180,967.

To all whom it may concern:

Be it known that I, ARTHUR V. DICKEY, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Spraying Apparatus, of which the following is a specification.

This invention relates to apparatus employing compressed air to spray liquid, or a mixture of liquid and air for disinfecting purposes, destroying insects, or for applying washes, paints, etc.

The object of the invention is the provision of an inexpensively constructed sprayer, of light weight, which will be convenient to use and be peculiarly efficient in operation.

A further object is to provide a device of this character whereby liquid or solution may be utilized without waste.

A still further object is to arrange and combine the various parts so as to have them accessible for cleaning or for replacing the same when worn.

With these and other ends in view the invention consists in the novel construction, adaptation and combination of parts as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a view in side elevation of spraying apparatus embodying the present invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a detail sectional view to an enlarged scale of parts shown in Fig. 2.

Describing the invention by reference to said drawings, 5 designates a liquid and air receptacle or tank provided with a liquid supply opening which is closed by a plug 6. Communicating with said receptacle by a tube 7, and disposed in parallel relation thereto is a tubular reservoir 8 which communicates with the discharge end of a pump barrel 9. The latter, as best shown in Fig. 3 is separably connected with the reservoir 8 by the provision of a screw threaded nipple 10 on the barrel engaging in a threaded socket 11 of the reservoir. Said nipple is provided at one end with an apertured wall 12 which serves as a seat for a non-return valve comprising a piece of cork 13, or an equivalent material, tightly fitted in a metal ferrule 14 and urged against said seat by a spiral spring 15.

The pump barrel, as shown, is provided near its outer end with an air inlet 16. The pump piston is desirably provided with a cupped leather washer, denoted by 17, the piston rod 18 extends through the barrel end 19 and is provided with an operating handle 20.

Adjacent to its end remote from the pump, the reservoir 8 is communicatively connected by a duct 21 with the rear end of a chamber 22 within a cylinder 23, said duct being provided with a valve 24 which is controlled by a handle 25, Fig. 1.

Connected to the chamber 22 near its forward end is a straight pipe 26, which extends diametrically through both the reservoir and said receptacle and for a distance outside the latter into a cistern afforded by a vessel 27 which is detachably connected to the tank as by engaging its screw threaded neck 28 into a correspondingly threaded boss provided on the tank. 29 represents a foraminated cap fitted over the inlet end of the pipe, said cap being preferably made of wire gauze and serving as a strainer to exclude dirt, or coarse material from the pipe. The vessel 27 is located below and near the forward end of the receptacle and communicates therewith through the neck 28 and the annular space about said pipe. Detachably connected to the forward end of cylinder 23 is a nozzle 31, and constituting with such cylinder what will be hereinafter designated as the atomizer.

The nozzle 31 is provided with an orifice 32 through which extends the stem 33 of a valve 34 of a truncated conical shape which seats in a similarly shaped cavity in the nozzle end. Said valve stem is detachably connected to a rod 35 which extends through a stuffing box 36 of the atomizer and terminates in a thumb-engageable head 37. The diameter of the rod 35 is somewhat larger than the orifice 32 whereby the pressure obtaining within the atomizer chamber 22 tends to retain the valve 34 on its seat. In order, however, to afford quick closing movements to the valve a spring 38 is provided between said stuffing box 36 and the head 37, such spring by being positioned outside of the atomizer is not exposed to the destructive action of any liquid which may be utilized in the apparatus. 39 represents legs secured to the receptacle and coöperating with the vessel 29 to support the apparatus when in the position in which it is shown in Fig. 2.

The liquid which is to be sprayed is introduced through the inlet opening thereof while the receptacle is on its end 40. When thus supplied and after the stopper 6 is restored, compressed air is introduced through the office of the pump to be confined in the receptacle 5 and reservoir 8 by the aforesaid non-return valve 13.

To use the apparatus, the operator grasps it by the reservoir, which is used as a handle, as illustrated in Fig. 1, and holds it to have the nozzle directed at the object which is to be sprayed. The operator then presses with his thumb against the head 37 and overcoming the power of spring 38 dislodges the valve 34, whereupon is discharged a stream of liquid or of a mixture of air and liquid according to whether the valve 24 is closed or open. When this valve is closed, as represented in Fig. 2, the air pressure acting upon the liquid surface in the receptacle forces the liquid through pipe 26 into the atomizer chamber and thence through the nozzle orifice; but when the valve 24 is open it affords a bypass for the escape of air from the reservoir 8 into the atomizer to accompany the liquid in its delivery, the liquid being then comminuted to an extent which is regulated by the distance the valve 34 is held from its seat. By the provision of a cistern 27 into which the pipe 26 extends the intake end of the latter is or may be kept submerged until nearly all of the liquid has been ejected from the apparatus,—that is to say, the apparatus may be used in an inclined position such as shown, for example, in Fig. 1 until the liquid level is at least to a plane indicated by *x*—*x* in the view, after which the apparatus may be continued to be used at such, or greater inclinations, by intermittently tilting the front end of the apparatus downwardly to flood the cistern.

The operation of the invention will, it is thought, be understood from the foregoing description. The apparatus is, moreover, so constructed, and assembled that its various parts and, more particularly, the liquid passages are readily accessible for cleaning,—for instance, by removing vessel 27, the strainer 29 can be withdrawn to be itself cleaned and enable the operator to remove by means of a wire or the like any incrustations or deposits from the inside of pipe 26. The air valves 24 and 13 may be cleaned or repaired, the former by being withdrawn and the other by uncoupling the pump barrel from the reservoir.

What I claim, is:

In spraying apparatus, a closed liquid receptacle, an air reservoir communicatively connected therewith and serving as a handle whereby the operator carries and directs the apparatus, a pump communicating with said reservoir, a non-return valve provided in the connection between said pump and the reservoir, an atomizer having a discharge orifice at one end thereof, an air duct connecting the atomizer with the reservoir, a valve for controlling the effective opening of said duct, a liquid discharge pipe extending from the receptacle into said atomizer between the outlet of said air duct and said discharge orifice, and a valve adapted to seat in the outer end of said orifice for regulating the delivery of fluid from the atomizer.

Signed at Seattle, Wash., this 10th day of July, 1917.

ARTHUR V. DICKEY.

Witnesses:

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JANE MARTIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."