(No Model.)

L. D. GREENE, J. CROFTON & G. B. GREENE.

SPRAY NOZZLE.

No. 390,474. Patented Oct. 2, 1888.

Fig. 1.

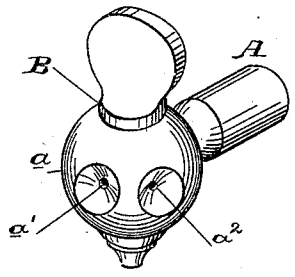


Fig. 2.

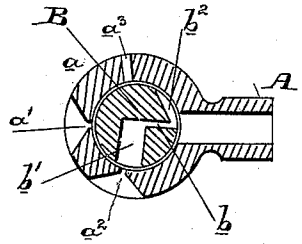


Fig. 3.

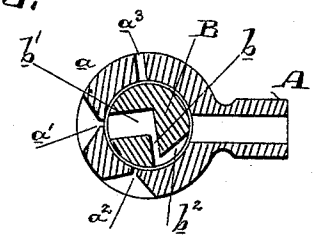
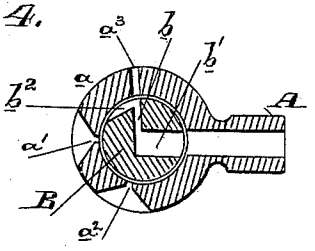


Fig. 4.



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UNITED STATES PATENT OFFICE.

LESTER D. GREENE AND JOHN CROFTON, OF WALNUT GROVE, AND GEORGE B. GREENE, OF COURTLAND, CALIFORNIA; SAID LESTER D. GREENE AND JOHN CROFTON ASSIGNORS TO SAID GEORGE B. GREENE.

SPRAY-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 390,474, dated October 2, 1888.

Application filed April 11, 1888. Serial No. 270,353. (No model.)

To all whom it may concern:

Be it known that we, LESTER D. GREENE and JOHN CROFTON, of Walnut Grove, Sacramento county, State of California, and GEORGE B. GREENE, of Courtland, Sacramento county, State of California, have invented an Improvement in Spray-Nozzles; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to that class of nozzles or tips which are used for forming and ejecting a spray, and which are usually employed in the treatment of infected fruit-trees, vines, and shrubs.

Our invention consists in the hereinafter-described novel arrangement of ports in the plug or valve and in the plug or valve seat, whereby the spray is formed and may be directed from either the side or end of the nozzle and the ports cleared by blowing out.

The general object of our invention is to provide a perfect spray-nozzle, in which the spray shall be ejected in the most serviceable shape and from the most convenient point, and one in which the ports may be readily and effectively cleared out when they become obstructed.

Referring to the accompanying drawings for a more complete explanation of our invention, Figure 1 is a perspective view of our spray-nozzle. Fig. 2 is a horizontal section of same, showing the ports in position to spray from the side. Fig. 3 shows them arranged to spray from the front. Fig. 4 shows them in position to be cleaned out by blowing off.

A is the pipe of the nozzle or tip, having at its outer end a bulbous-shaped portion, *a*, vertically perforated, and forming the plug or valve-seat. This seat communicates at the back with the bore of the pipe, and at the front it communicates with a small spray-port, *a'*, the exterior portion of which is made with the usual concavity. The valve-seat communicates at one side with another and similar spray-port, a^2, and at the other side with a larger aperture, a^3, which is the blow-off hole.

B is the plug or valve fitted within seat *a* in the usual manner of faucets. In this plug or valve is made the entrance-port *b*, of small diameter, and the exit-port *b'*, of much larger diameter, so as to form a chamber in the plug. The two ports are set at about right angles and communicate. A groove, b^2, is made in the surface of the plug and communicating with the entrance-port *b*, which is located on the lower side edge of the groove. The plug or valve is adapted to be rotated or oscillated in its seat, and its ports are on a level with those in the pipe, so that they may be brought into successive communication therewith.

The operation is as follows: When the plug is turned to bring its entrance-port *b* into communication with the bore of the pipe, the liquid passes from the pipe into and through the port *b* into the chambered port *b'*, and said last-named port being then in communication with the side spray-port, a^2, it passes through said port as spray. Then, by giving less than a quarter-turn to the plug, the entrance-port *b* is still in communication (not directly, but indirectly, through the groove b^2) with the bore of the pipe A; but the chambered or exit port *b'* is then in communication with the front spray-port, *a'*, of the pipe, and the spray is ejected from the end of the nozzle. This turn of the plug is not sufficient to bring the entrance-port into communication with the side spray-port, though enough to open communication with the end or front spray-port, for the exit-port of the plug is of large diameter, and the two spray-ports of the pipe may be a little closer together than ninety degrees. Therefore, when operating through the front spray-port the side spray-port is fully cut off. To clear out the ports the plug is turned so as to bring its chambered port *b'* into communication with the bore of the pipe, so that its entrance-port *b* will then be in communication with the blow-off hole a^3, and obstructions will be blown out through it. On account of the large discharge-port, *b'*, in the plug, supplied by the small entrance-port, *b*, and exhausted by the small spray-ports of the pipe, a confined chamber is formed in the port, in which the liquid acquires a kind of spiral or rotary motion and is ejected in the shape of a broad cone or funnel, instead of in a flat fan shape,

as is usual; and the angular location of the chambered port with respect to the entrance-port *b* insures this spiral or rotary motion.

The adaptability of this nozzle to spray from either the side or the end at will renders it most convenient in reaching all parts of the tree without much change in the position of the operator.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a spray-nozzle, a pipe having a spray-port in its side and a spray-port in its end, in combination with a plug or valve having an entrance-port in communication with the bore of the pipe, an exit-port at right angles to the entrance-port and communicating with said port and with the spray-ports of the pipe successively, and a groove in the plug for maintaining the communication of the entrance-port with the bore of the pipe when the exit-port is turned into communication with either of the spray-ports of said pipe, substantially as herein described.

2. In a spray-nozzle, a pipe having a spray-port in its side and a spray-port in its end, in combination with a plug or valve having an entrance-port in communication with the bore of the pipe, an exit-port at right angles thereto and communicating with the entrance-port and with the spray-port successively, said exit-port having a diameter greater than the entrance-port and the spray-ports, and a groove in the plug for maintaining the communication of the entrance port with the bore of the pipe when the exit-port is turned into communication with either of the spray-ports of said pipe, substantially as herein described.

In witness whereof we have hereunto set our hands.

LESTER D. GREENE.
JOHN CROFTON.
GEORGE B. GREENE.

Witnesses:
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