

(No Model.)

H. F. NEUMEYER.  
SPRAY NOZZLE.

No. 525,507.

Patented Sept. 4, 1894.

Fig. 1.

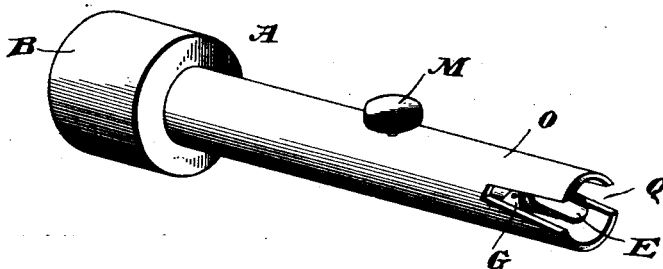


Fig. 2.

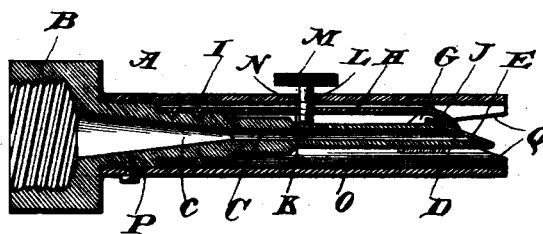


Fig. 3.

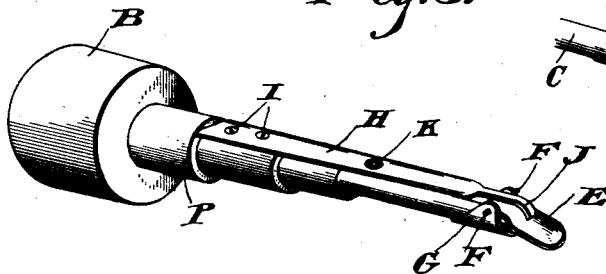
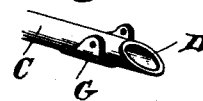


Fig. 4.



Inventor

Horace F. Neumeyer,

By his Attorneys.

Witnesses

B. S. Ober  
D. P. H. Hauptner.

C. A. Snow & Co.,

# UNITED STATES PATENT OFFICE.

HORACE F. NEUMEYER, OF MACUNGIE, PENNSYLVANIA.

## SPRAY-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 525,507, dated September 4, 1894.

Application filed January 9, 1894. Serial No. 496,286. (No model.)

### *To all whom it may concern:*

Be it known that I, HORACE F. NEUMEYER, a citizen of the United States, residing at Macungie, in the county of Lehigh and State of Pennsylvania, have invented a new and useful Spray-Nozzle, of which the following is a specification.

This invention relates to spray nozzles; and it has for its object to provide a nozzle of that character especially adapted for use in spraying fruit-trees, plants, shrubbery, &c.

To this end the main and primary object of the present invention is to construct an improved spray nozzle having simple and efficient means whereby the size of the spray can be easily and quickly regulated, while at the same time means are provided for delivering a solid stream, as the character of the work may demand.

With these and other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the drawings:—Figure 1 is a perspective view of a spray nozzle constructed in accordance with this invention. Fig. 2 is a central longitudinal sectional view thereof. Fig. 3 is a perspective view of the nozzle with the outer nozzle tube removed. Fig. 4 is a detail in perspective of one end of the nozzle spout.

Referring to the accompanying drawings:—A represents the body of the nozzle having a threaded socket B at one end adapted to be coupled onto the hose leading from a pump or hydrant, and beyond the threaded attaching socket B, at one end, the body of the nozzle is extended into a reduced nozzle spout C, the orifice of which is tapered at its inner end at c, while the extreme outer end of the spout of the nozzle is cut at an angle to form an inclined valve seat D, onto which is adapted to work the self adjusting valve plate E. The self adjusting valve plate E, is of an oval shape and somewhat wider than the outer end of the spout of the nozzle, so as to completely cover the spray orifice or opening at such outer end of the spout, and said oval-shaped valve plate is provided at its inner end with the short pivot studs F, mounted in the projecting extremities of the U-shaped bearing plate G,

fitted onto and extending around the nozzle spout C, near its outer inclined end.

The self-adjusting valve plate E, which works onto the inclined valve seat D, at the outer end of the nozzle spout, is normally held closed by means of the leaf spring H. The leaf spring H, is made fast at one end as at I, to the body of the nozzle adjacent to the threaded attaching socket thereof, and at its other free end is provided with an inturned tongue extremity J, engaging on top of the oval-shaped valve plate at a central point, to normally hold the same closed onto its seat. The said valve closing spring H, is provided at a point intermediate of its ends with a threaded opening K, to receive the adjusting screw L, working through said opening and impinging on the spout of the nozzle whereby the turning of said screw in either direction will adjust the spring H, up or down, and this adjusting screw is provided with a milled head M, which is easily grasped by the fingers in adjusting such screw. The adjusting screw L, is also adapted to work through an opening N, in the outer removable nozzle tube O. The outer tube O, is of a length and diameter slightly greater than the main tube or spout of the nozzle, and is adapted to have the inner end thereof detachably screwed onto the enlarged base portion P, of the nozzle spout C, in front of the threaded attaching socket B. The outer tube O, serves as a shield or covering for the working parts of the nozzle, and in opposite sides at the outer end thereof is also provided with the oblique spray slots Q, which agree with the angle of the inclined valve seat D, at the outer end of the nozzle spout, and are sufficiently wide to freely accommodate the spray which is deflected from the self adjusting valve plate and which issues laterally as well as forwardly from between said valve plate and the outer end of the nozzle or spray spout C.

In operation, when the adjusting screw L, is relieved from the body of the nozzle, the valve spring H, is free to exert the entire tension thereof on the valve plate, so as to hold it firmly closed over the outer inclined end of the nozzle tube C, and in this adjustment the valve plate will not open unless the pressure of the liquid being sprayed is sufficient,

and if this is the case a very thin spray must necessarily issue from the nozzle. By turning the adjusting screw to impinge the same on the nozzle tube C, the spring H, will be  
 5 lifted and thereby relieved from the valve plate, which will open sufficiently to allow the water to be formed into a spray by striking this plate and in issuing through the opening formed between the same and the  
 10 inclined valve seat D. By adjusting the screw L, still further, the density of the spray may be increased, and the spring H, may even be lifted away from the valve plate sufficiently far to permit the same to freely adjust itself  
 15 to the water and thereby allow a solid stream to be jetted from the nozzle.

With the spring H, set for any desired density of spray it will be apparent that in case any sediment should find its way into the  
 20 nozzle, the pressure will naturally increase sufficiently to overcome the tension of the spring to allow the obstruction to pass out of the nozzle, after which the valve plate, under the tension of the spring, will resume its normal position, and it will also be apparent that  
 25 by varying the pressure of the liquid forced through the nozzle a greater or less density of spray may be formed, inasmuch as the valve plate is self-adjusting.

30 The many adaptations and advantages of the herein-described spray nozzle will be apparent to those skilled in the art, and I will have it understood that changes in the form, proportion and the minor details of construction may be resorted to without departing  
 35 from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—  
 40

1. In a spray nozzle, the nozzle spout having an inclined outer discharge end, a self-adjusting valve plate pivotally mounted on said inclined end of the spout, an adjustable spring  
 45 secured to the spout and bearing on said valve plate, and an outer nozzle tube fitted over said spout, substantially as set forth.

2. In a spray nozzle, the reduced nozzle spout having an inclined outer discharge end,

a spring closed self-adjusting valve plate arranged to work over the inclined outer end of the spout, and an outer nozzle tube arranged over said nozzle spout and having oblique slots at its outer end agreeing with the angle of inclination of the outer spout end, substantially as set forth. 50 55

3. In a spray nozzle, the body having a reduced spout provided with an inclined outer discharge end, a plate arranged to work over said inclined end of the spout to receive the pressure of liquid there-against, and an outer nozzle tube removably fitted onto the nozzle body over said spout and having oblique spray slots at its outer end agreeing with the angle of the outer discharge end of the nozzle spout, substantially as set forth. 60 65

4. In a spray nozzle, the body having a reduced spout provided with an inclined outer discharge end, an oval-shaped self-adjusting valve plate pivotally mounted on the spout and adapted to work over the outer inclined end thereof, a spring made fast at one end to said spout and having its other free end engaging on top of said valve plate, said spring having a threaded opening, and an adjusting screw working through the threaded opening of said spring and impinging against the nozzle spout, substantially as set forth. 70 75

5. In a spray nozzle, the combination of the spout having an inclined valve seat at its outer end, a self-adjusting valve plate pivotally mounted and working onto said valve seat, a leaf spring arranged to bear at one end on said valve plate and having a threaded opening, a set screw engaging the threaded opening of said spring to adjust the same, and an outer nozzle tube detachably fitted onto said spout and having oblique spray slots at its outer end disposed at the same angle as said inclined valve seat, substantially as set forth. 80 85 90

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HORACE F. NEUMEYER.

Witnesses:

REUBEN J. BUTZ,  
 FRANK JACOBS.