R. P. WILLIAMS.

SPRAY NOZZLE,

APPLICATION FILED APR. 14, 1915.

1,213,563. Patented Jan. 23, 1917.

Fig. 1.

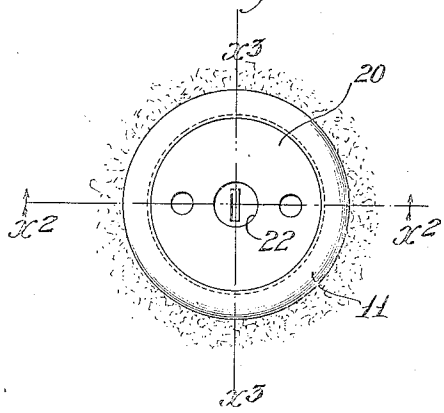


Fig. 2.

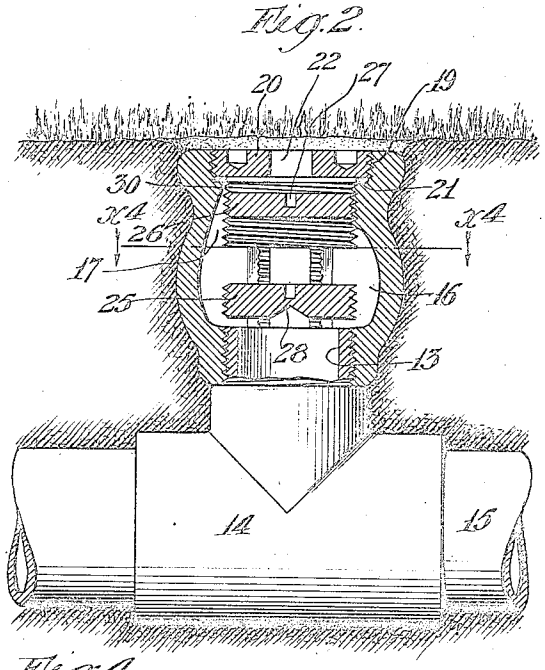


Fig. 3.

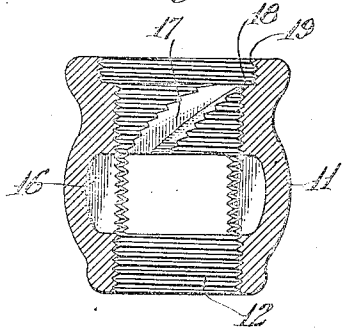
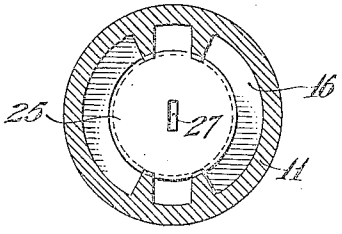


Fig. 4.



Witness:-
Louis W. Gratz.

Inventor
Roy P. Williams
by Townsend, Graham & Kenin
His Attorneys

UNITED STATES PATENT OFFICE.

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SPRAY-NOZZLE.

1,213,563. Specification of Letters Patent. Patented Jan. 23, 1917.

Application filed April 14, 1915. Serial No. 21,463.

To all whom it may concern:

Be it known that I, ROY P. WILLIAMS, a citizen of the United States, residing at Santa Barbara, in the county of Santa Barbara, State of California, have invented a new and useful Spray-Nozzle, of which the following is a specification.

My invention relates to spray nozzles and the principal object of my invention is to provide a spray nozzle in which both the area sprayed and the fineness of the spray are absolutely and separately regulated.

A further object of the invention is to provide a spray nozzle which may be readily cleaned if it becomes clogged.

A further object of the invention is to provide a spray nozzle capable of an even distribution of fluid to the area to be sprayed.

Further objects and advantages will be made evident hereinafter.

The invention is illustrated as applied to a spray nozzle which is sunk in the ground, being permanently placed on a lawn or among shrubbery, several of these spray nozzles being used and all of them being controlled by one valve and being thrown into action whenever it is desired to irrigate the lawn or shrubbery to which they are applied.

In the drawings which are for illustrative purposes only: Figure 1 is a plan view of a spray nozzle as placed on a lawn. Fig. 2 is a section on the plane x^2—x^2 of Fig. 1. Fig. 3 is a section through the body of the spray nozzle on the plane x^3—x^3 of Fig. 1 looking in the direction of the arrows. Fig. 4 is a section on the plane x^4—x^4 of Fig. 2.

The embodiment of my invention illustrated in these drawings consists of a body 11 having a cylindrical threaded opening 12 extending therethrough. When installed as shown in the drawings a close nipple 13 is secured in the lower end of the opening 12, this nipple connecting to a T 14 which is connected in a water supply pipe 15 which is embedded in the ground. Formed in the walls of the body 11 are a series of cavities 16, two of these cavities being connected to spiral fluid channels 17, the spiral fluid channels being tapered both in depth and width as they ascend and terminating at a shoulder 18 of a threaded opening 19 in which a cap 20 is secured, a leather washer 21 being provided between the shoulder 18 and the cap 20 so as to form a tight closure between the edges of the cap 20 and the body 11. A central hole 22 is drilled through the cap 20, this hole communicating with the upper portion of the cylindrical opening 12. Threaded in the cylindrical opening 12 is a primary plug 25 and a secondary plug 26, these plugs having slots 27 into which a screw driver may be inserted. The primary plug 25 has a series of grooves 28 formed in the lower edge thereof.

The method of operation of the invention is as follows: The parts being in the relation shown in Fig. 2, water enters the opening 12 through the nipple 13 and passes through the grooves 28 into the cavity 16, passing upwardly from these cavities through the spiral fluid channels 17. The secondary plug 26 is adjusted up or down to regulate the size of opening shown at 30 through which the fluid emerges into the upper part of the opening 12 beneath the cap 20. By raising or lowering the primary plug 25 the amount of fluid admitted to the cavity 16 may be regulated and by raising or lowering the secondary plug 26, thereby changing the outlet openings in the spiral fluid channels, the fineness of the spray produced may be regulated. In practice, the plug 25 is utilized to regulate the diameter of the area sprayed and the plug 26 is utilized to regulate the fineness of the spray. It is, of course, necessary to remove the cap 20 and the primary plug 26 when the plug 25 is to be adjusted, but an adjustment of the plug 25 is rarely necessary, the principal adjustments taking place on the plug 26. When the plug 26 is turned to its extreme upper position the upper surface of the plug 26 bears against the bottom of the cap 20 thereby entirely shutting off the flow of water through the hole 22. By inclining the fluid channels 17 the water is given a rotary motion being finely broken up in spray as it leaves the hole 22.

When the secondary plug 26 is screwed down to a point below the lower end of the spiral fluid channels water can pass freely through the recesses 16 and this water emerges from the hole 22 in a solid stream not being cut up into spray.

While I have described my invention as applied to a particular form of water spray nozzle it is obvious that it may be applied to other uses and that it may handle other fluids than water. My invention should

therefore be limited only to the terms of the following claim.

I claim as my invention:

A spray nozzle comprising a body having a cylindrical threaded opening therethrough and spiral fluid channels formed in the body adjacent to said opening, a cap having a central hole therethrough, said cap being so shaped that it forms a tight closure with the top of said threaded opening, a primary plug threaded in said opening and adapted to be screwed up or down to regulate the flow of water to said channels, and a secondary plug threaded in said opening and adapted to be moved up or down to regulate the flow of fluid through said channels thereby regulating the fineness of the spray into which the fluid is divided.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 8th day of April, 1915.

ROY P. WILLIAMS.