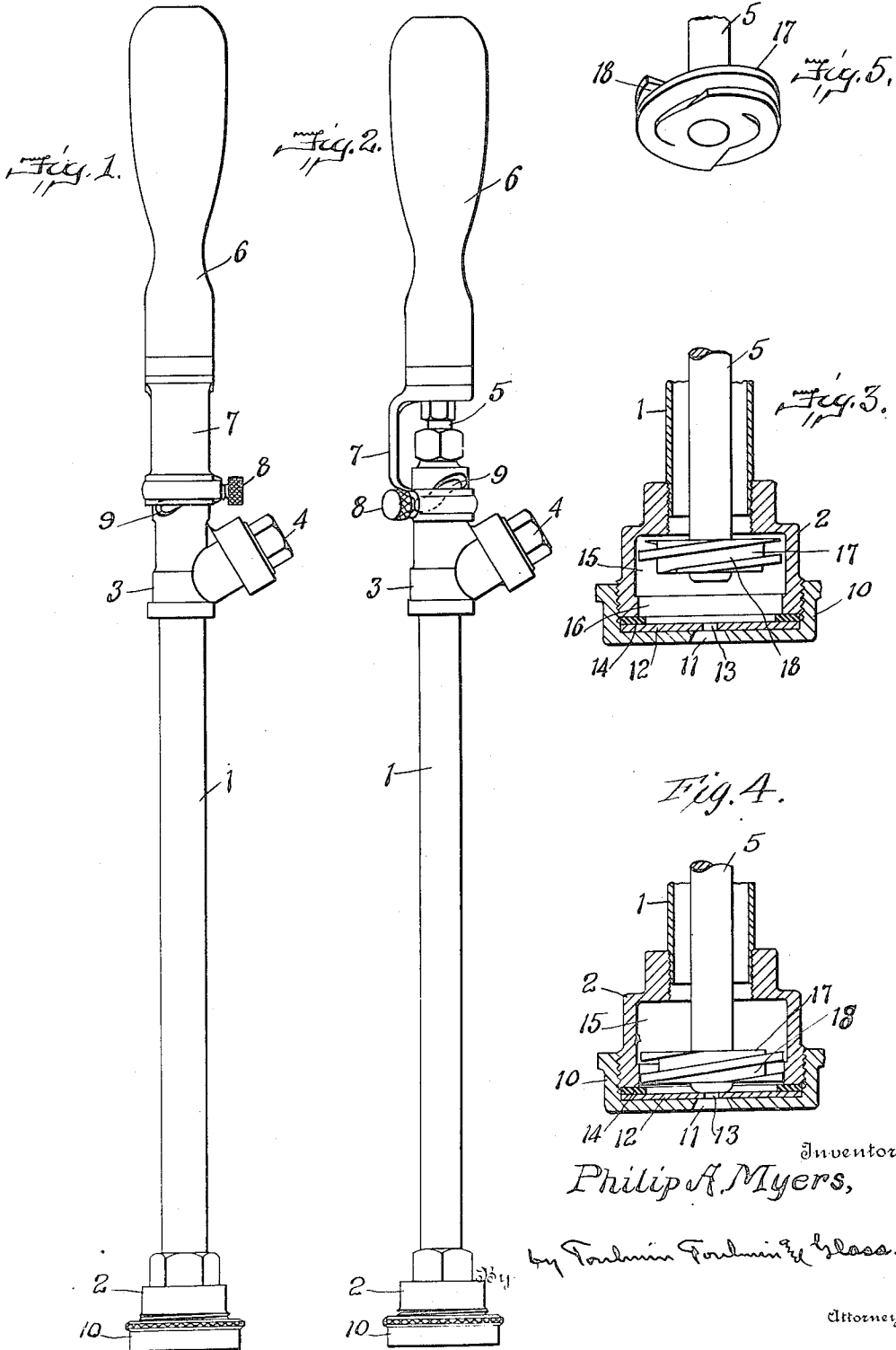


P. A. MYERS.
 SPRAY GUN.
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1,322,932.

Patented Nov. 25, 1919.



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UNITED STATES PATENT OFFICE.

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SPRAY-GUN.

1,322,932.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PHILIP A. MYERS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Spray-Guns, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to spray guns and has for its object to provide an improved device of this type having a spray nozzle which includes a disk adapted to cause whirling of the liquid and consequent formation of a fine mist or spray. This disk is arranged to move longitudinally through the nozzle to vary the type of spray or to cause a solid stream to be thrown. The movement of this disk throughout the nozzle is controlled by the handle of the spray gun whereby the operator may readily change the type of stream or spray produced.

In the drawings, Figures 1 and 2 are elevations of the complete device, Fig. 2 showing the handle rotated from its position in Fig. 1 so as to produce a different type of spray; Fig. 3 is a vertical central section of the nozzle showing the production of a solid stream, this corresponding to the position of the handle in Fig. 1; Fig. 4 is a vertical central section of the nozzle showing the position of the parts for causing a fine spray and corresponding to the handle position of Fig. 2; and Fig. 5 is a detail perspective view of the disk which causes whirling of the liquid and thereby produces the spray.

- In Figs. 1 and 2 there is shown a barrel 1 which is a hollow tube to one end of which is attached the nozzle 2. The other end of the barrel 1 is surrounded by a coupling 3 having an admission opening 4 for the liquid. Entirely through the barrel 1 passes a rod 5 fast at its upper end to a handle 6. The handle is connected to the coupling 3 by a handle supporting arm 7 fast to the handle 6 and provided at its lower end with a thumb screw 8 riding in an angle slot 9 in the coupling 3. Thus rotation of the handle 6 relative to the barrel 1 moves the rod 5 longitudinally through the barrel.

The lower end of the nozzle 2 is covered by a cap 10, this cap being adapted to be screwed to the nozzle, as shown in Figs. 3 and 4. It is provided with a central aperture 11 and inside the cap is a steel disk 12

having a small central aperture 13. This disk is held in its position by a washer 14 which may be of rubber and the steel disk 12 is in effect an integral portion of the cap 10. It is made separate in practice for the purpose of easy replacement.

The nozzle has two internal cylindrical passages 15 and 16, the passage 15 being nearer the barrel and having a somewhat greater diameter than that of the passage 16 which is adjacent the steel disk 12.

On the lower end of the rod 5 is carried fast a disk 17 having circular spiral passages 18 passing around it. The diameter of the disk is substantially equal to the diameter of the cylindrical passage 16 in the nozzle. Thus, as shown in Fig. 4 the disk very closely fits the passage 16 and liquid is compelled to travel through the circular spiral grooves 18 to pass the disk and be thrown from the nozzle. Thus, in the position of the parts in Fig. 4 the liquid entering the device at the coupling 3 and passing down the barrel 1 around the rod 5 is thrown into a very rapid rotation by passing through the spiral passages of the disk 17. This rapid rotation, together with the small size of the orifice 13 in the steel plate 12 causes a very fine mist or spray to be thrown from the device. Also, by slightly turning the handle the disk 17 may be gradually moved upwardly in the nozzle and thus the type of spray produced be changed under the ready control of the operator.

In the position of parts shown in Fig. 3 wherein the disk 17 is in the upper cylindrical passage 15 of the nozzle sufficient space is provided around the disk 17 so that the water is not thrown into the whirling condition. Thus, the orifice 13 acts as a simple orifice in a plate and the liquid is thrown from the device in a solid stream.

The degree of closeness of the disk 17 to the orifice 13 determines the type of spray to be produced. When the disk 17 is closely adjacent the orifice 13 the spray is very broadly diffused. As the disk 17 is gradually withdrawn from the orifice 13 the spray is gradually elongated and thus is thrown to a greater distance. Finally when a solid stream is thrown the liquid is forced to a great distance and may be used to spray tall trees or the like.

The provision of the control of the spray from the handle increases the efficiency and

speed of operation of the device thus rendering it possible for an operator to spray a considerably larger amount of trees or other vegetation.

- 5 While I have shown and described certain features as constituting my invention, it will be understood that parts have been shown for purposes of illustration only, and that I do not desire to be limited to such details, 10 as obvious modifications will occur to a person skilled in the art.

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

- 15 1. In a spray gun, the combination, with a barrel constituting a supply conduit and a solid rod extending therethrough, of a handle fast to one end of said rod, a nozzle on one end of said barrel, a cap on said nozzle having a central aperture, a disk 20 mounted on the other end of said rod and carried inside said nozzle, said disk secured to a solid rod and having circular spiral passages therein, and devices connecting said handle and said barrel including a coupling 25 having an inclined slot, whereby rotative movement of the handle will cause the disk gradually to approach or recede from said cap.

- 30 2. In a spray gun, the combination, with a barrel constituting a supply conduit and a nozzle fast to one end thereof, said nozzle being formed with a first cylindrical passage through the portion thereof nearer the 35 barrel, and a second cylindrical passage, having a diameter somewhat less than that of the first passage, and connecting with the first passage, a disk secured to a solid rod and mounted to move axially and rotatively through both said passages and hav- 40 ing circular spiral passages therein, the diameter of said disk being substantially equal to the diameter of the second cylindrical passage, and a cap over the end of said nozzle and having a central aperture over which 45 a portion of said disk is adapted to be moved.

3. In a spray gun, the combination, with a barrel constituting a supply conduit and a 50 nozzle fast to one end thereof, said nozzle being formed with two succeeding cylindrical passages of different diameters, the passage nearer the barrel being of somewhat greater diameter than the other passage, a 55 solid rod passing through said barrel, a disk on one end of said rod, said disk having substantially the same diameter as that of the cylindrical passage farther from the barrel, means for reciprocating said rod to move 60 the disk axially and rotatively through both cylindrical passages in the nozzle, and a cap covering the outer end of said nozzle and having a central aperture therein.

4. In a spray gun, a supply conduit and 65 a spray nozzle secured thereto having two

succeeding cylindrical passages therein, the passage nearer the inflow end of the nozzle having a diameter somewhat greater than that of the other passage, a solid rod and a disk mounted to move axially and rotatively 70 through both said passages and having a diameter substantially equal to that of the smaller cylindrical passage, said disk having circular spiral passages therein, and a cap over the outer end of said nozzle, said 75 cap having a central aperture therein, with means for moving said disk through both cylindrical passages and into contact with said cap.

5. In a spray gun, the combination, with 80 a barrel constituting a supply conduit, and a nozzle fast to one end thereof, said nozzle having two succeeding cylindrical passages therein, the passage nearer the barrel hav- 85 ing a diameter somewhat greater than the diameter of the other passage, a solid rod passing through said barrel, a handle on the rod at the end thereof distant from the nozzle, a disk on the other end of said rod, said disk being positioned inside said nozzle and 90 being of a diameter substantially equal to that of the smaller cylindrical passage, and having circular spiral passages therein, a cap over said nozzle having a central aperture, and connections whereby rotation of 95 said handle relative to said barrel may move the disk axially and rotatively through both cylindrical passages and into contact with said cap.

6. In a sprayer, the combination of a nozzle, a plunger adapted to reciprocate in said 100 nozzle, a portable pipe on one end of which said nozzle is mounted, a Y-shaped coupling member on the other end of said pipe having one arm alined with said pipe, a rod for 105 said plunger disposed longitudinally through said pipe and projecting through said alined arm, a handle on the projecting end of said rod and having a portion rotatable on said arm, said handle constituting a hand piece 110 for said pipe, said arm and handle having a slot and pin connection whereby said rod is actuated longitudinally by the rotation of said handle.

7. In a spray gun, the combination, with a 115 barrel constituting a supply conduit, and a solid rod extending therethrough, of a handle fast to one end of said rod, a nozzle on one end of said barrel, a cap on said nozzle having a central aperture, a disk mounted on 120 the other end of said rod and carried inside said nozzle, said disk being provided with means to direct the fluid in a spiral path, and devices connecting said handle and said barrel including a coupling having an inclined groove, whereby rotative movement 125 of the handle will cause the disk to approach and recede from said cap.

In testimony whereof, I affix my signature.
PHILIP A. MYERS.