No. 626,596.

Patented June 6, 1899.

B. C. CRANE.

FIRE HOSE NOZZLE.

(Application filed July 14, 1898.)

(No Model.)

2 Sheets—Sheet 1.

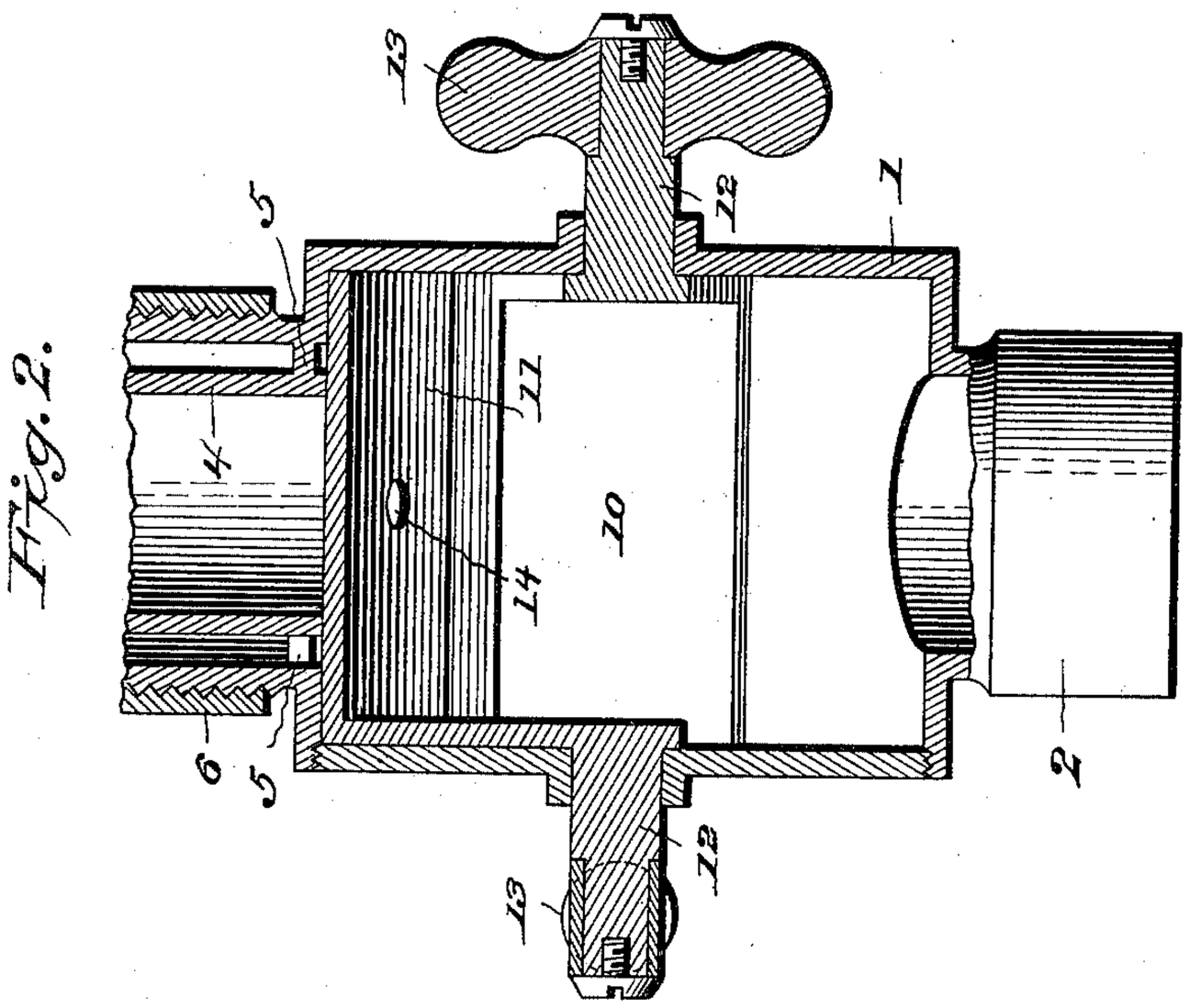

Fig. 2.

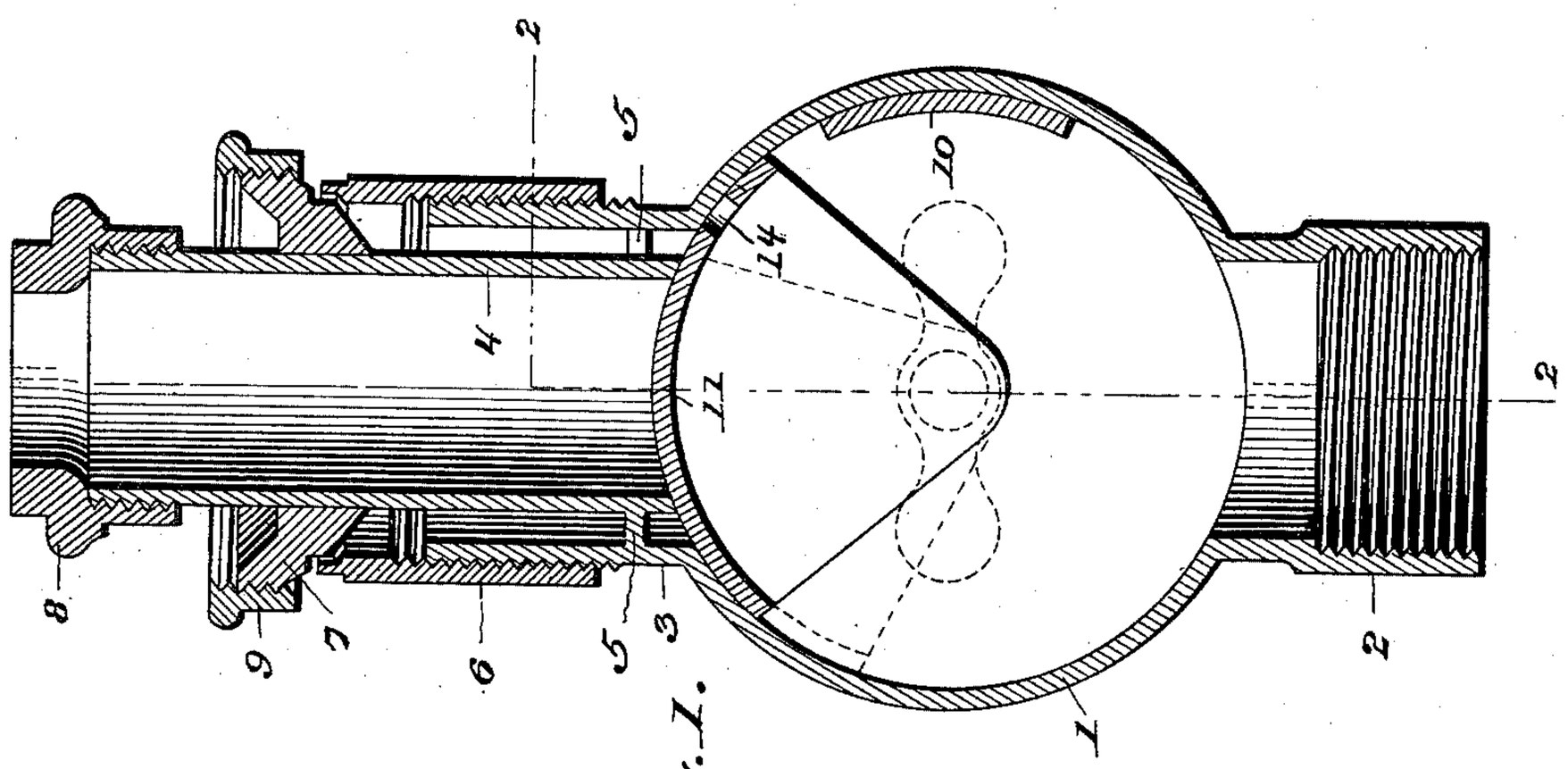

Fig. 1.

WITNESSES

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Fig. 4.

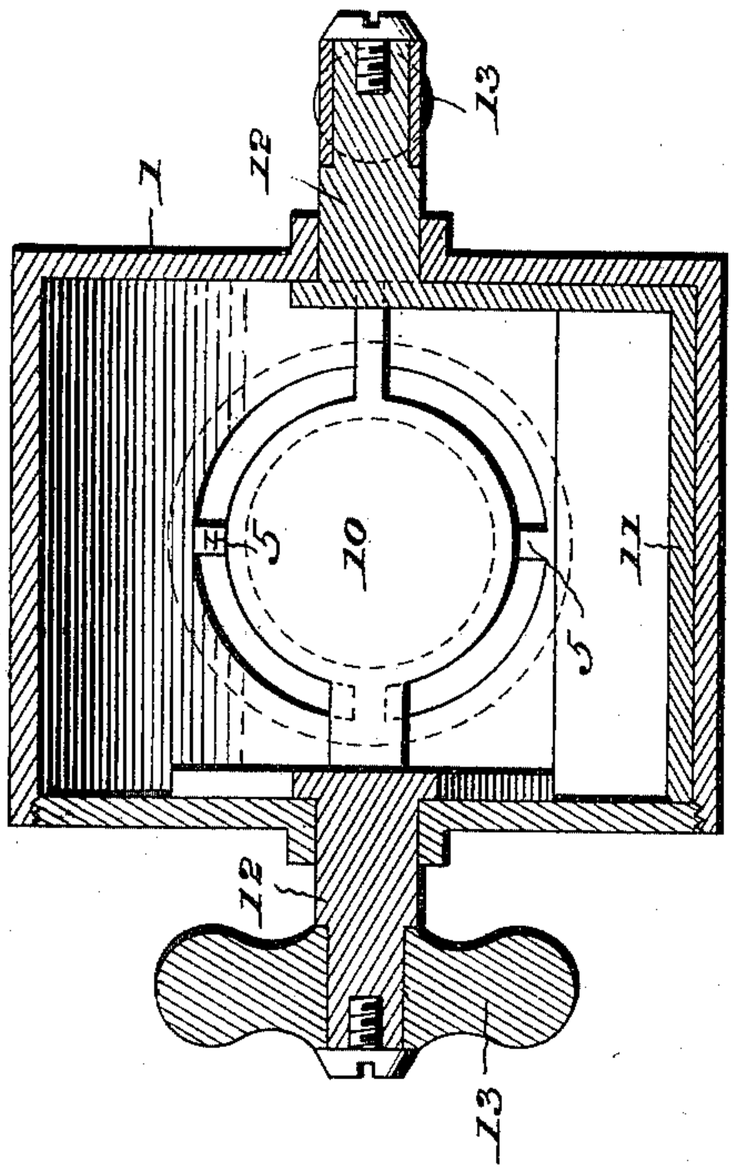


Fig. 5.

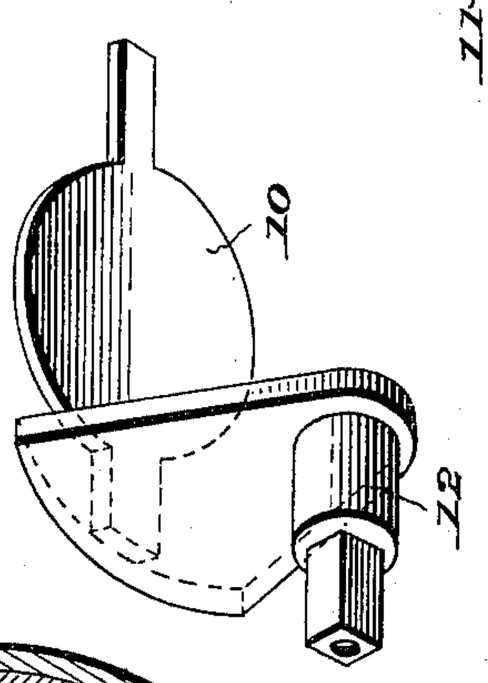


Fig. 6.

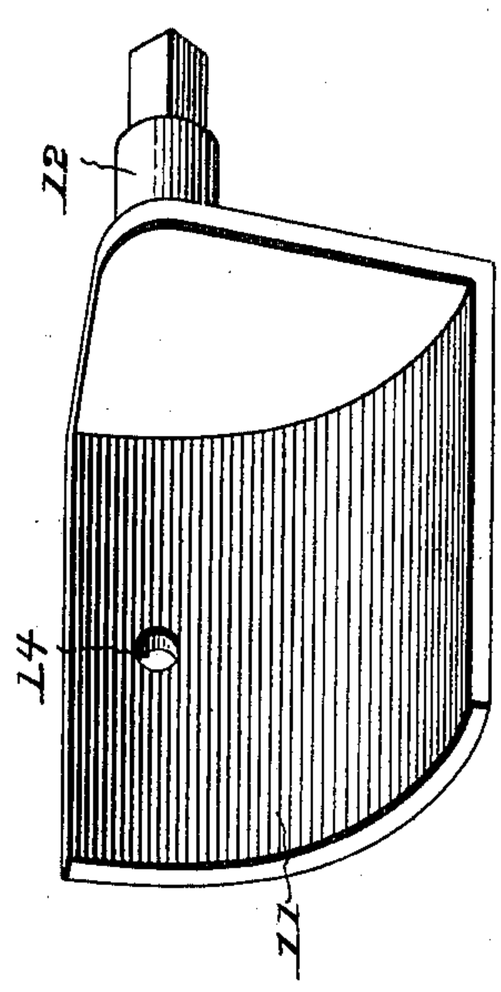
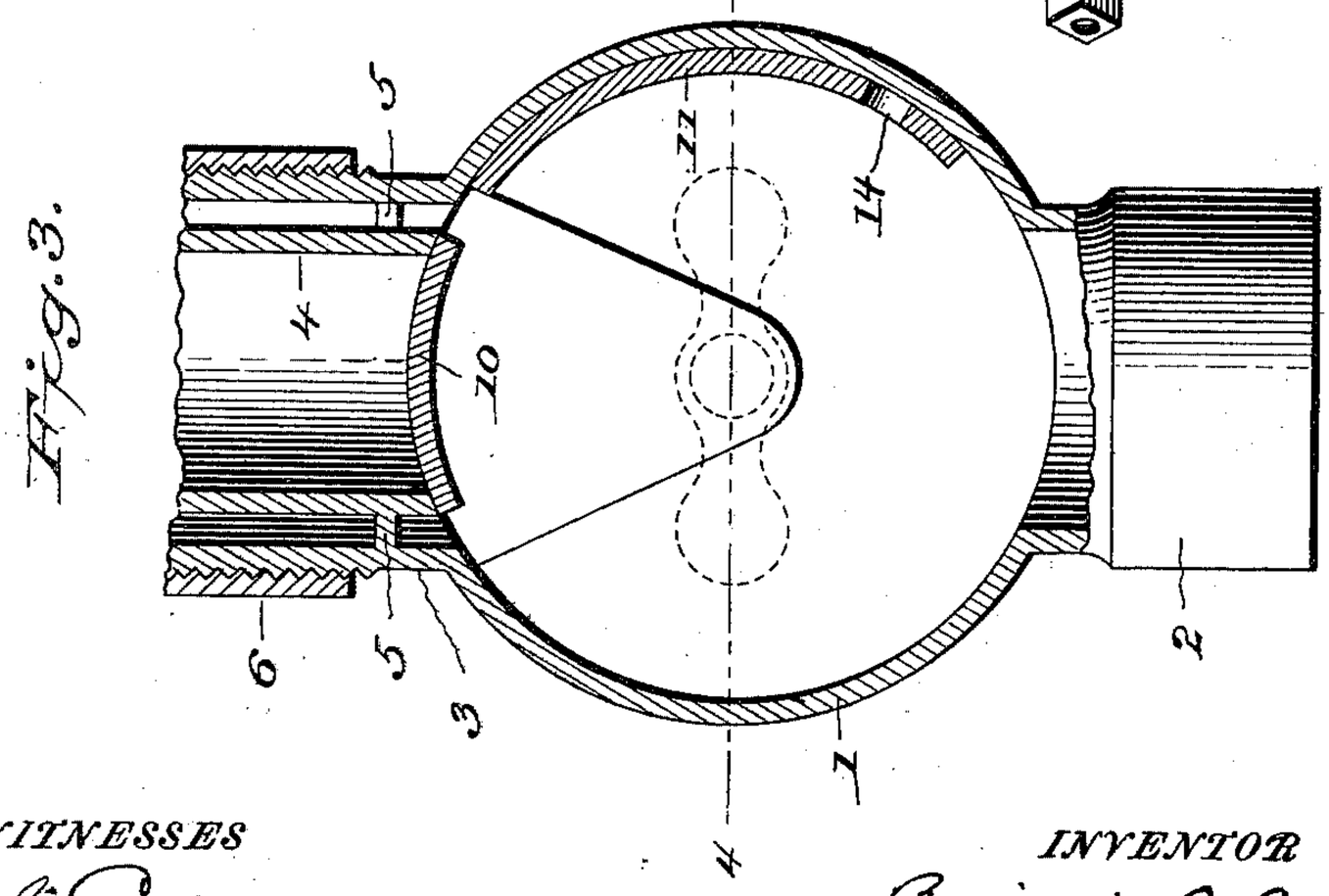


Fig. 3.



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UNITED STATES PATENT OFFICE.

BENJAMIN CHAPMAN CRANE, OF MONTESANO, WASHINGTON.

FIRE-HOSE NOZZLE.

SPECIFICATION forming part of Letters Patent No. 626,596, dated June 6, 1899.

Application filed July 14, 1898. Serial No. 685,909. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN CHAPMAN CRANE, a citizen of the United States, residing at Montesano, in the county of Chehalis, State of Washington, have invented certain new and useful Improvements in Fire-Hose Nozzles, of which the following is a specification.

My invention relates to fire-hose nozzles, and more particularly to that class of nozzles adapted to throw a straight stream and also a spray of large diameter, and has for its object to provide an improved construction of gates or valves for the same, whereby both the straight stream and the spray may be employed or either one employed alone, provision being also made for furnishing a small straight stream where the full force of the nozzle is not required.

A further object of my invention is to so improve and simplify the construction of the spray portion of the nozzle that the latter can be readily manipulated and the angle of projection of the spray be varied as may be desired.

These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a central longitudinal sectional view of a fire-hose nozzle embodying my invention, both the straight stream and the spray being shown cut off. Fig. 2 is a similar view, partly broken away, taken on the line 2 2, Fig. 1. Fig. 3 is a view similar to Fig. 1, the straight stream being shown cut off and the spray open. Fig. 4 is a transverse sectional view taken on the line 4 4, Fig. 3. Figs. 5 and 6 are detail views of the cut-off valves.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings the reference-numeral 1 denotes the casing, provided with the interiorly-screw-threaded projection 2 for connection with the hose-pipe and with the exteriorly-screw-threaded projection 3, having an inner concentric stream-pipe 4, connected thereto by the spider 5, an annular space being left between the parts 3 and 4 for the passage of the spray-stream. Engaged with the screw-threads on projection 3 is a nozzle 6, while loosely mounted on the stream-pipe 4 is a disk 7, its outward movement being limited by a nut 8, screwing on the outer end of the stream-pipe 4. Also screw-threaded onto the disk 7 is a deflecting-collar 9, for a purpose hereinafter to be described.

Within the casing 1 I have provided two independent cut-off gates or valves 10 and 11, each rotatable on an independent bushing 12, said bushings projecting centrally through opposite sides of the casing and provided with suitable handles 13 for manipulating the same. It will be observed by reference to Figs. 3, 4, and 5 that the diameter of gate or valve 10 is only sufficient to cover the end of the stream-pipe 4, leaving open the annular spray-passage, while the gate or valve 11 is large enough to cover both passages completely, as seen in Figs. 1, 2, and 6, thereby completely cutting off the stream-pipe and spray-passage. I have provided, however, in one side of the gate or valve 11 an aperture 14, which when said gate or valve is moved to the position shown in dotted lines in Fig. 1 will register with the stream-pipe 4, and thus provide a small straight stream for extinguishing small conflagrations or for other purposes.

From the above description the operation of my improved construction will be understood to be as follows: Referring to Figs. 1 and 2, it will be seen that both the stream and spray are completely cut off by reason of the fact that the gate or valve 11 completely covers both orifices, though when it is desired to employ a small straight stream alone the same can be readily provided by turning said gate or valve to the left to the position shown in dotted lines in Fig. 1, when the orifice 14 will register with the stream-pipe 4. When it is desired to employ the spray alone, the gate or valve 11 is given a quarter-turn to the left or a three-quarter turn to the position shown in Fig. 3 and gate or valve 10 turned to cover the stream-pipe 4, as also seen in Figs. 3 and 4, which will leave the spray-passage open for the passage of the water therethrough. The force of said water will instantly carry the disk 7 up against its collar 8, leaving an annular passage between said disk and the nozzle 6 for the escape of the water, the amount of flow being readily regulated or cut off by screwing nozzle 6 along the projection 3, the outer surface of said noz-

zle being preferably roughened to provide a firm grip for the hand of the manipulator. The angle of throw of the spray-stream may be readily varied by manipulating the deflecting-collar 9, so that the spray may either be thrown forward at an angle or deflected backward in a shower over the manipulator of the hose or caused to escape at any intermediate angle.

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

1. A nozzle, combining in its structure a stream-pipe, and an annular spray-nozzle surrounding said stream-pipe, and two independent cut-off gates or valves, one adapted to close both the stream-pipe and spray-nozzle and the other adapted to close the stream-pipe alone, substantially as set forth.

2. A nozzle, consisting of a casing, a stream-pipe extending therefrom, and an annular spray-nozzle surrounding said stream-pipe, in combination with two independent cut-off gates or valves rotatable in said casing and each having a bushing projecting centrally through opposite sides of said casing for manipulating the same, one of said gates or valves adapted to close both the stream-pipe and spray-nozzle and the other adapted to close the stream-pipe alone, substantially as set forth.

3. A nozzle, consisting of a casing, a stream-pipe extending therefrom, a projection surrounding said stream-pipe and providing an annular intermediate spray-passage, a spray-nozzle adjustable longitudinally on said projection, a disk on said stream-pipe toward and from which said spray-nozzle may be adjusted to provide a varying annular outlet for the spray-passage, and a deflecting-collar adjustable on said disk for varying the angle of projection of the spray, substantially as set forth.

4. A nozzle, combining in its structure a stream-pipe, an exteriorly-screw-threaded projection surrounding said stream-pipe and providing an annular intermediate spray-passage, a spray-nozzle engaged with said threaded projection and adjustable longitudinally on the exterior thereof, a disk on said stream-pipe toward and from which said spray-nozzle moves in its adjustment to provide a varying annular outlet for the spray-passage, and a deflecting-collar adjustable on said disk for varying the angle of projection of the spray, substantially as set forth.

5. A nozzle, combining in its structure a stream-pipe, a projection surrounding said stream-pipe and providing an annular intermediate spray-passage, a spray-nozzle adjustable longitudinally on said projection, a disk on said stream-pipe toward and from which said spray-nozzle may be adjusted to provide a varying annular outlet for the spray-passage, a deflecting-collar adjustable on said disk for varying the angle of projection of the spray, and means for cutting off both the stream-pipe and the spray-passage or the stream-pipe alone, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

BENJAMIN CHAPMAN CRANE.

Witnesses;
H. M. SUTTON,
S. S. PETERS.