

No. 617,472.

Patented Jan. 10, 1899.

H. F. NEUMEYER & J. F. YOUNG.

WATER NOZZLE.

(Application filed Aug. 17, 1897.)

(No Model.)

Fig. 1.

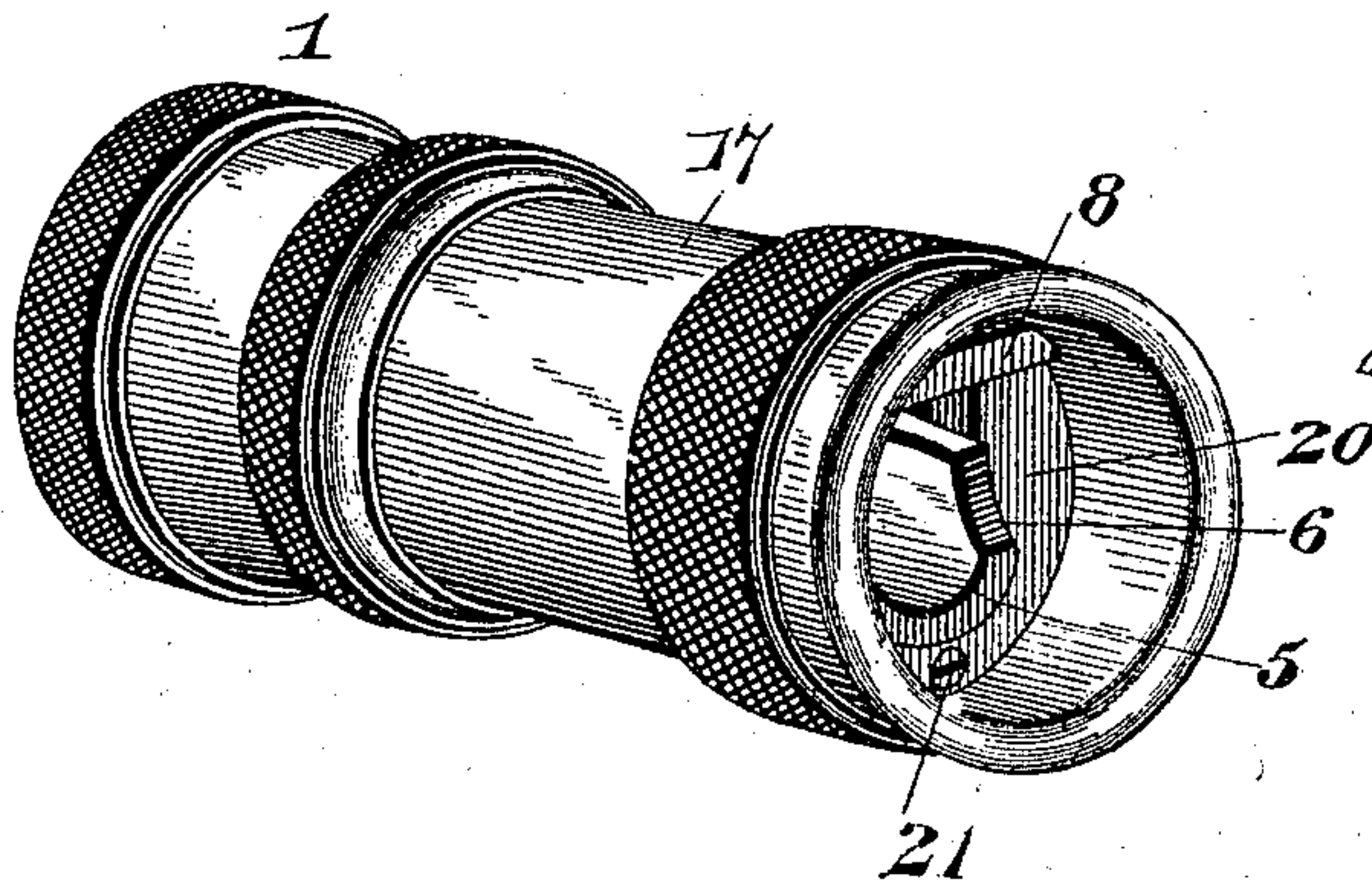


Fig. 6.

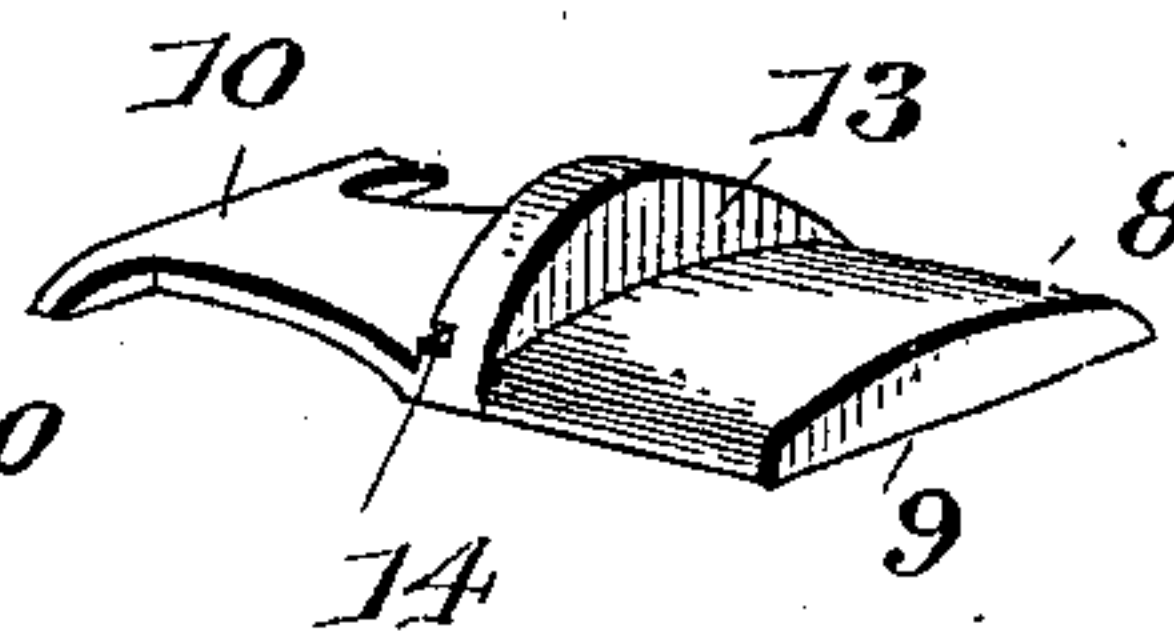


Fig. 2.

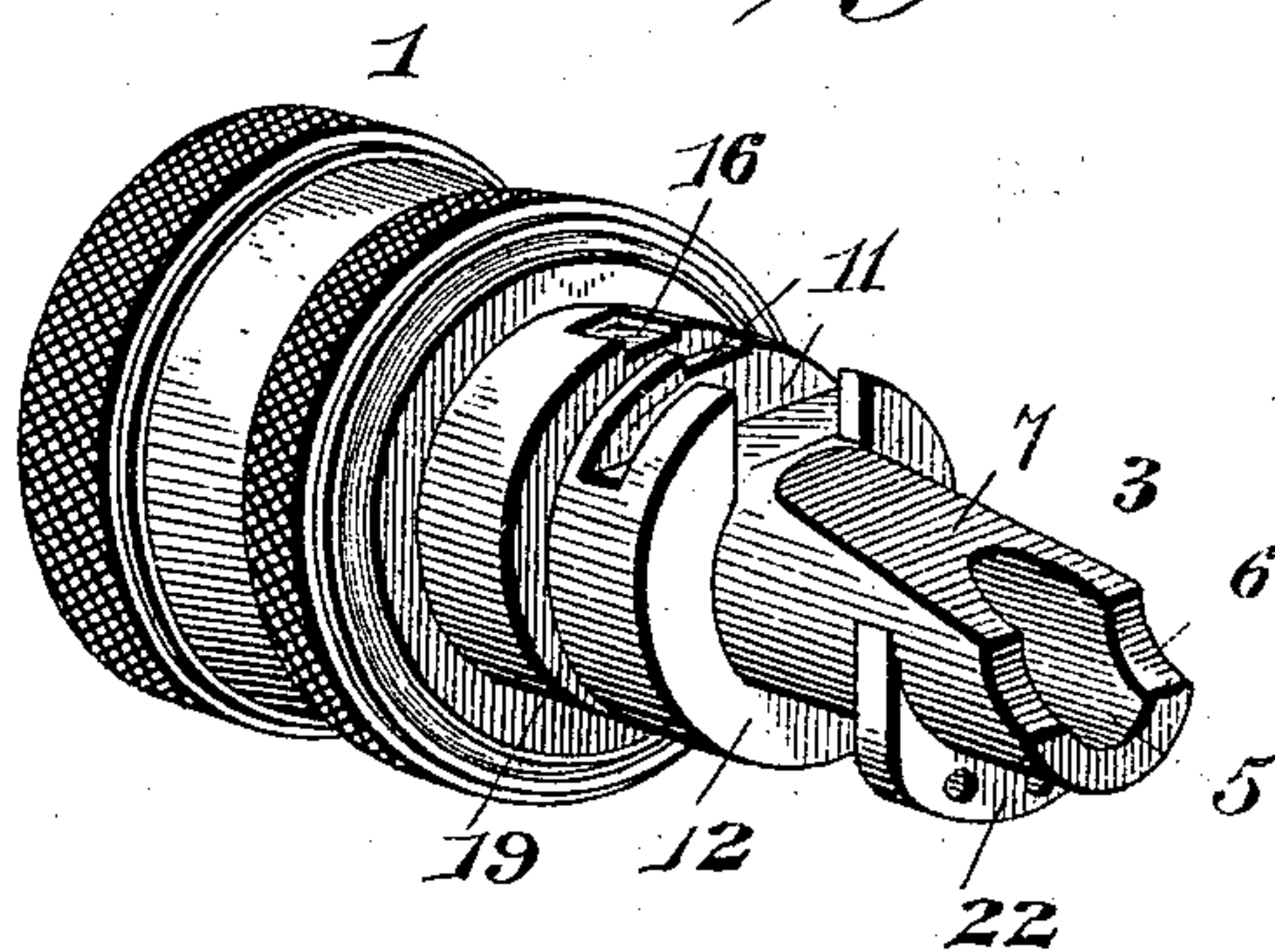


Fig. 3.

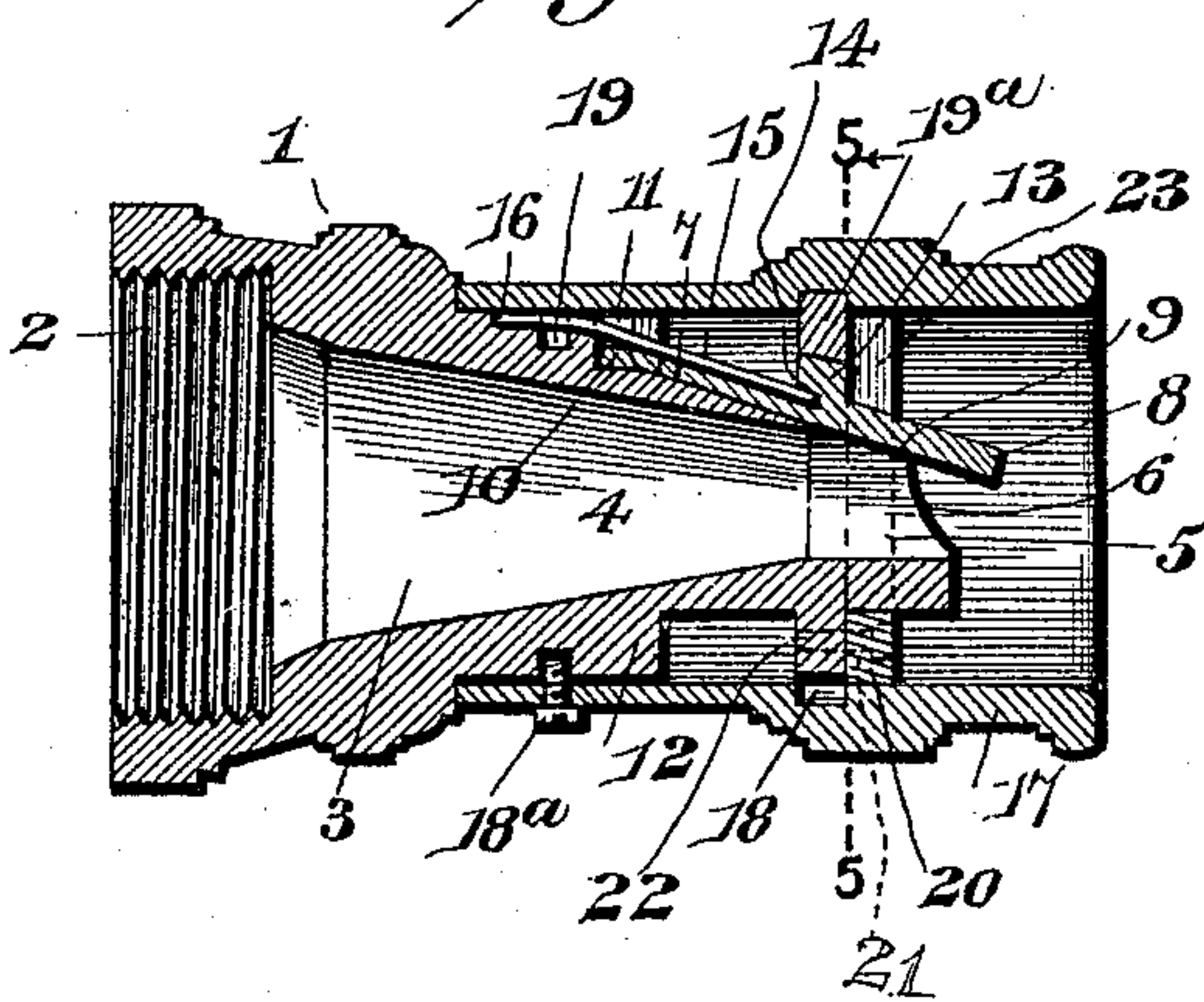


Fig. 5.

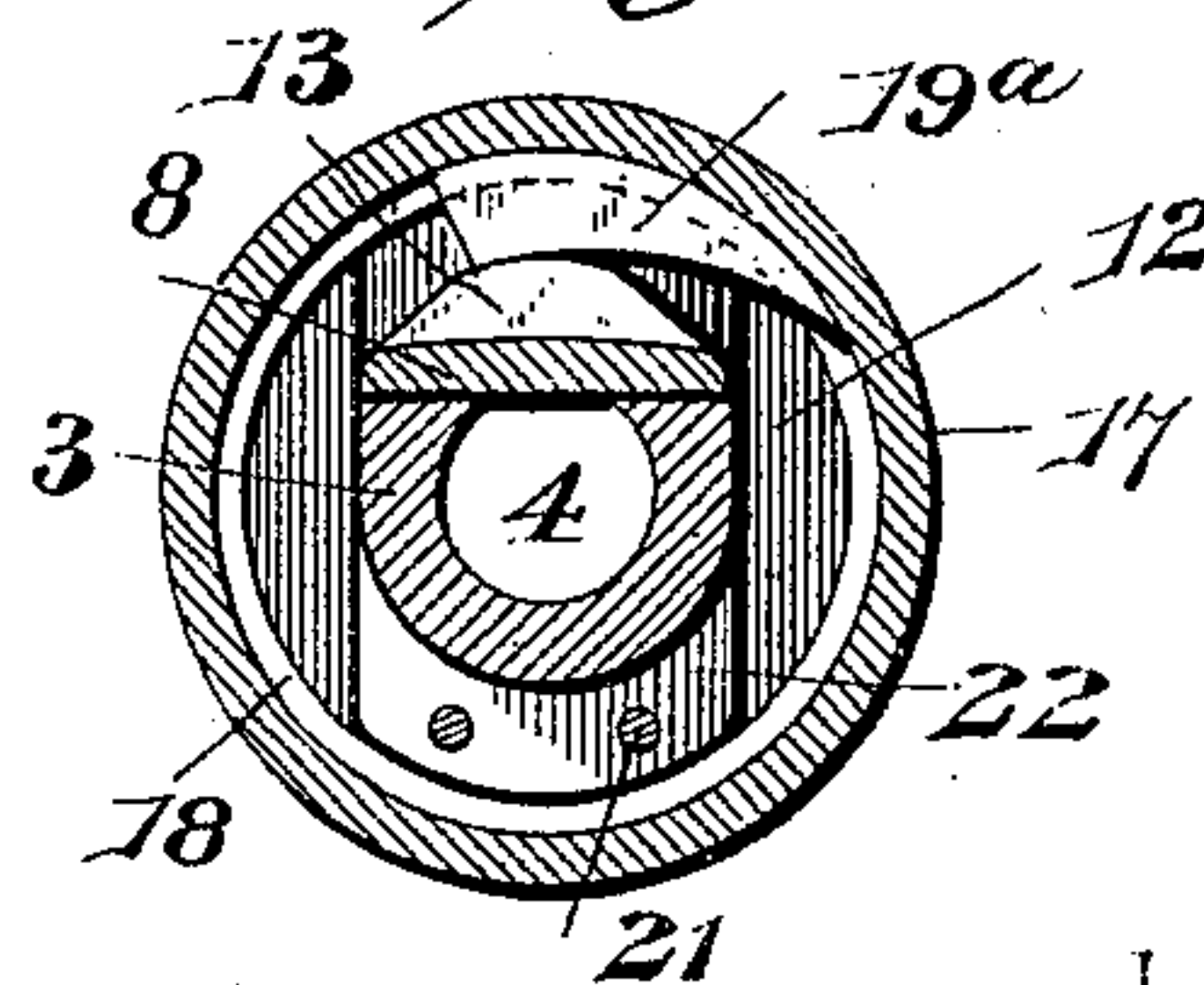
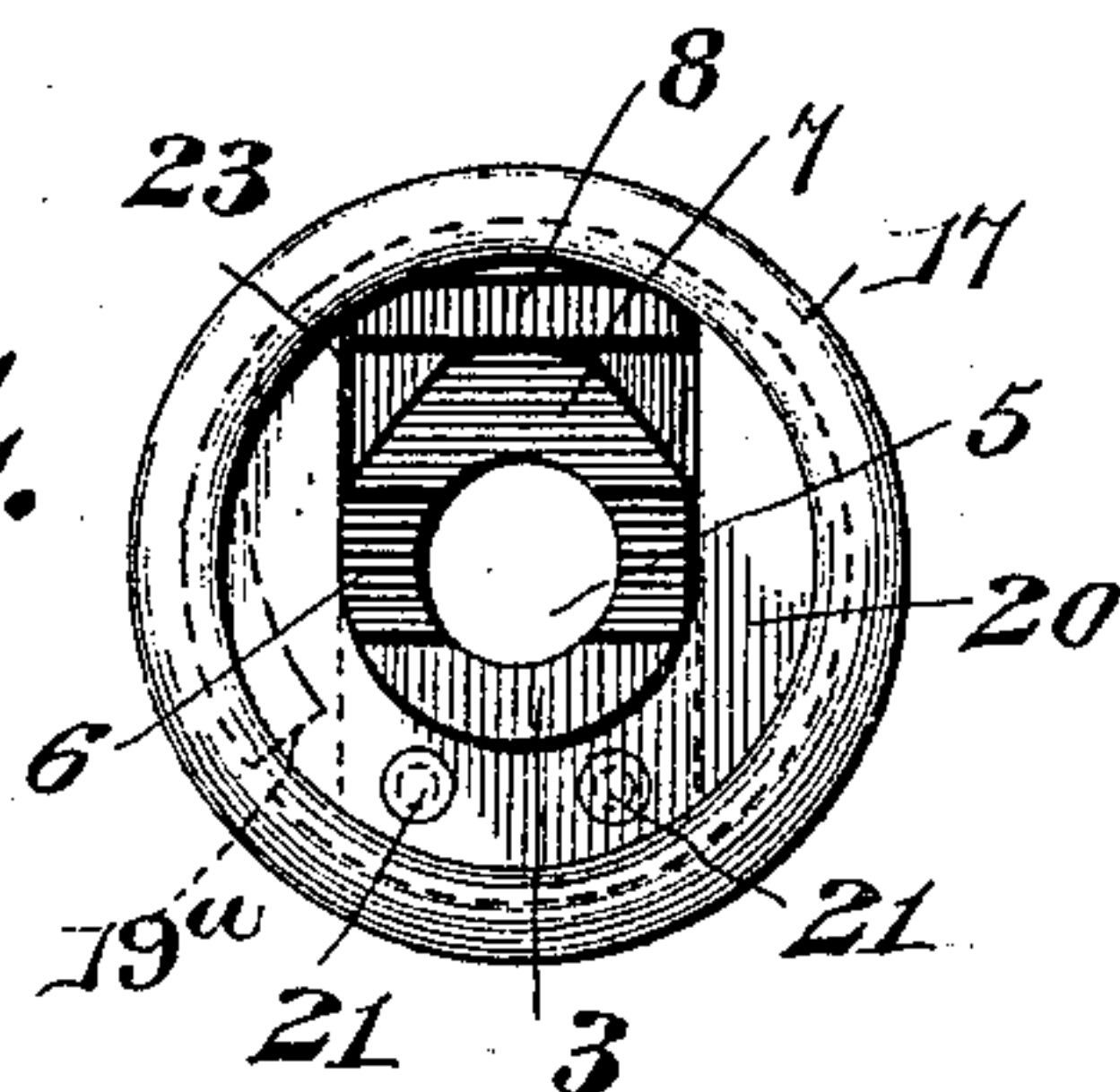


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

HORACE FALK NEUMEYER, OF MACUNGIE, PENNSYLVANIA, AND JONAS FRANCIS YOUNG, OF NIAGARA FALLS, NEW YORK.

WATER-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 617,472, dated January 10, 1899.

Application filed August 17, 1897. Serial No. 648,582. (No model.)

To all whom it may concern:

Be it known that we, HORACE FALK NEUMEYER, residing at Macungie, in the county of Lehigh and State of Pennsylvania, and JONAS FRANCIS YOUNG, residing at Niagara Falls, in the county of Niagara and State of New York, citizens of the United States, have invented a new and useful Water-Nozzle, of which the following is a specification.

This invention relates to water-nozzles; and it has for its object to provide a new and useful nozzle of this character well adapted for fire and domestic purposes.

With this end in view the present invention contemplates a simple and efficient construction of water-nozzle having provision for throwing either a solid stream or spray and for regulating the density of the spray as may be desired and in the accomplishment of these objects to provide a construction having an entire absence of parts that are capable of getting out of order.

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.

Referring to the drawings, Figure 1 is a perspective view of a water-nozzle constructed in accordance with this invention. Fig. 2 is a similar view with the outer rotatable tube and spraying-plate removed. Fig. 3 is a central longitudinal sectional view of the complete nozzle. Fig. 4 is an end view thereof. Fig. 5 is a cross-sectional view on the line 5 5 of Fig. 3. Fig. 6 is a detail in perspective of the hinged spraying-plate.

Referring to the accompanying drawings, the numeral 1 designates the nozzle-body, provided at one end with the usual interiorly-threaded coupling socket or cup 2, adapted to be coupled to the hose in connection with which the nozzle is employed, and beyond the coupling socket or cup 2 the nozzle-body is extended into an inner discharge-tube 3, having an inner tapered-bore portion 4 and a straight-bore portion 5, extending from the small end of the tapered bore 4 to the extreme outer end of the discharge-tube.

The said inner discharge-tube 3 of the nozzle-body is provided at its extreme outer end at diametrically opposite edges thereof with curved shallow depressions 6, which form channels to facilitate a free discharge of water from the discharging end of the tube 3, and the orifice at the discharging end of said tube 3 is intersected by a flat or curved inclined valve-seat 7, formed on one side of the tube 3 and designed to form a seat for the hinged spraying plate or valve 8, working on the discharge-tube directly over the said inclined valve-seat 7.

The spraying or valve plate 8 is provided with a flat or curved surface 9, opposing the seat 7, and which flat or curved surface is also designed to extend over the orifice at the outer end of the tube 3, so as to receive the impact of water thereagainst and provide for breaking the stream into a spray, as will be hereinafter more fully explained. The said spraying-plate 8 is of a sufficient length so as to extend slightly beyond the plane of the outer end of the tube 3 and is provided at its inner end with a T-head, 10 loosely engaging in a correspondingly-shaped bearing-socket 11, formed in one side of the wide bearing-collar 12, which is formed on the exterior of the nozzle-body 1 intermediate the ends of the latter. The T-head 10 and T-socket 11 form a loose hinge-bearing for one end of the spraying-plate 8, and said plate is further provided between its ends with a transversely-disposed convex bearing-rib 13, the inner side of which is formed with a kerf 14 to receive one end of a short leaf-spring 15, the other end of which spring is adapted to register in a shallow seat 16, formed in the collar 12 directly at one side of the T bearing-socket 11. The end of the spring 15 opposite its connection with the spraying-plate 8 is held within its seat 16 by means of the outer rotatable adjusting-tube 17, which tube is of a cylindrical form throughout and has the inner end portion thereof snugly fit and turn on the wide bearing-collar 12 of the nozzle-body. When the tube 17 is in the position specified, the same not only holds one end of the spring 15 fast, but forms a housing for the spraying-plate 8 and permits said plate to be

normally held away from the seat 7 by means of the tension of the spring.

The outer rotatable adjusting-tube 17 is retained in a working position on the nozzle-body by means of a retaining screw-pin 18^a, fitted in one side thereof near its inner end and working in the annular guide-groove 19, formed in the bearing-collar 12, said pin-and-groove connection preventing the displacement of the outer tube, while at the same time permitting of the necessary rotation thereof to effect an adjustment of the spraying-plate 8. The said outer rotatable adjusting-tube 17 is provided at a point intermediate of its ends with an interior annular groove 18, normally receiving therein the convex bearing-rib 13 of the plate 8, so as to permit the latter to normally lie close against the inner side of the tube 17 when a solid stream of water is being thrown from the nozzle, and within the plane of the tube 13 the tube 17 is further provided at the inner side thereof with a circularly-arranged inwardly-projecting cam-lug 19^a, adapted to be carried in and out of contact with the rib 13 of the plate, as clearly illustrated in the drawings.

To provide for a positive movement of the spraying-plate 8 toward and away from the seat 7, there is employed a ring guide-yoke 20, which registers inside of the outer tube 17 and embraces the outer end portion of the discharge-tube 3. The ring guide-yoke 20 is secured fast by means of the screws 21 or other suitable detachable connection to a securing-flange 22, formed on the tube 3 and projected from the side thereof opposite the inclined valve-seat 7, and said guide-yoke 20 is formed in the side next to the plate 8 with a guide-opening 23, within which the plate 8 works, and is thereby prevented from undue lateral play or movement during adjustment. This construction insures all parts of the nozzle being maintained in a proper working relation.

In the normal position of the different parts of the nozzle the spraying-plate 8 will be held away from the seat 7, thereby permitting a solid stream to issue from the tube 3; but when it is desired to contract the stream and to reduce the same into a spray or sheet the outer rotatable tube 17 is turned so as to carry the cam-lug 19 against the rib 13 of the plate 8, thereby moving said plate inwardly toward the seat 7, and the nearer the plate 8 is adjusted toward said seat the greater will be the density or fineness of the spray, and at this point it is to be observed that the lateral channels 6 at the outer end of the tube 3 permit of a widening of the sheet of water as it is deflected from the plate 8, as the latter is adjusted in close proximity to or directly on the seat 7.

From the foregoing it is thought that the construction, operation, and the many advantages of the herein-described water-nozzle will be readily apparent to those skilled in the art without further description, and it will

be further understood that various changes in the form, proportion, and the minor details of construction may be resorted to without departing 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—

1. In a water-nozzle, the nozzle-body having a discharge-tube provided with an inclined surface intersecting the discharge-orifice thereof, an outer tube fitted on the nozzle-body over the discharge-tube thereof, a spraying-plate arranged between the two tubes, and means, carried by the outer tube, for forcing said spraying-plate to a position over said inclined surface of the inner tube, and for holding the same rigid in its adjusted position, substantially as set forth.

2. In a water-nozzle, the nozzle-body having a discharge-tube provided at diametrically opposite edges of its discharge-orifice with shallow depressions forming lateral discharge-channels, and an adjustable spraying-plate arranged to project beyond and partly over the discharge-orifice of said tube, substantially as set forth.

3. In a water-nozzle, the nozzle-body having a discharge-tube provided at one side with an inclined valve-seat intersecting the discharge-orifice thereof, a spraying-plate hinged to the nozzle-body over said seat and extending beyond the plane of the discharge-orifice of the tube, and a movable outer tube fitted on the nozzle-body and carrying means for adjusting said plate to variable positions over said inclined seat, substantially as set forth.

4. In a water-nozzle, the body having a discharge-tube provided at one side with a flat inclined valve-seat intersecting the discharge-orifice thereof, a spraying-plate working over said seat and having a loose hinge connection at one end with the nozzle-body, a spring having one end engaged with said plate, an outer tube fitted on the nozzle-body over said plate and binding the other end of the spring to the body to provide for the normal support of the spraying-plate away from the seat, and means, carried by the outer tube, for adjusting the spraying-plate inwardly, substantially as set forth.

5. In a water-nozzle, the body having a discharge-tube provided with a flat inclined valve-seat intersecting the discharge-orifice thereof, a spraying-plate working over the seat and having a hinge connection with the nozzle-body, said plate having a rounded bearing-rib, and a rotatable outer tube fitted to the nozzle-body and having an inner circularly-arranged cam-lug adapted to work on said bearing-rib, substantially as set forth.

6. In a water-nozzle, the body having a discharge-tube provided with a flat inclined valve-seat intersecting the discharge-orifice thereof, said body also having intermediate its ends an exterior bearing-collar provided with a T-shaped bearing-socket, and a spring-

seat at one side of said socket, a spraying-plate working over the inclined seat and provided at one end with a T-head loosely registering in said socket and between its ends
5 with a rounded rib having a kerf at one side, a spring-plate engaged at one end in said kerf and adapted to have its other end register in said spring-seat, an outer rotatable adjusting-tube turning on said bearing-collar
10 and having a pin-and-groove connection therewith, said tube having an interior annular groove and a circularly-arranged cam-lug lying in the plane of said groove and adapted to engage said rib of the spraying-plate, and
15 a ring guide-yoke detachably fitted to and embracing the discharge-tube and provided in one side with a guide-opening receiving therein said spraying-plate, substantially as set forth.

7. In a water-nozzle, the nozzle-body having 20 a discharge-tube provided with an inclined surface intersecting the discharge-orifice thereof, a rotatable outer tube fitted on the nozzle-body over the discharge-tube thereof, a spraying-plate arranged between the two 25 tubes, and means, carried by the rotatable outer tube, for causing said spraying-plate to be moved onto or away from said inclined surface of the discharge-tube, substantially as set forth. 30

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

HORACE FALK NEUMEYER.

JONAS FRANCIS YOUNG.

Witnesses:

S. A. BUTZ,

EDWARD RUHE.