

(No Model.)

F. L. DECARIE.
HOSE NOZZLE.

No. 582,345.

Patented May 11, 1897.

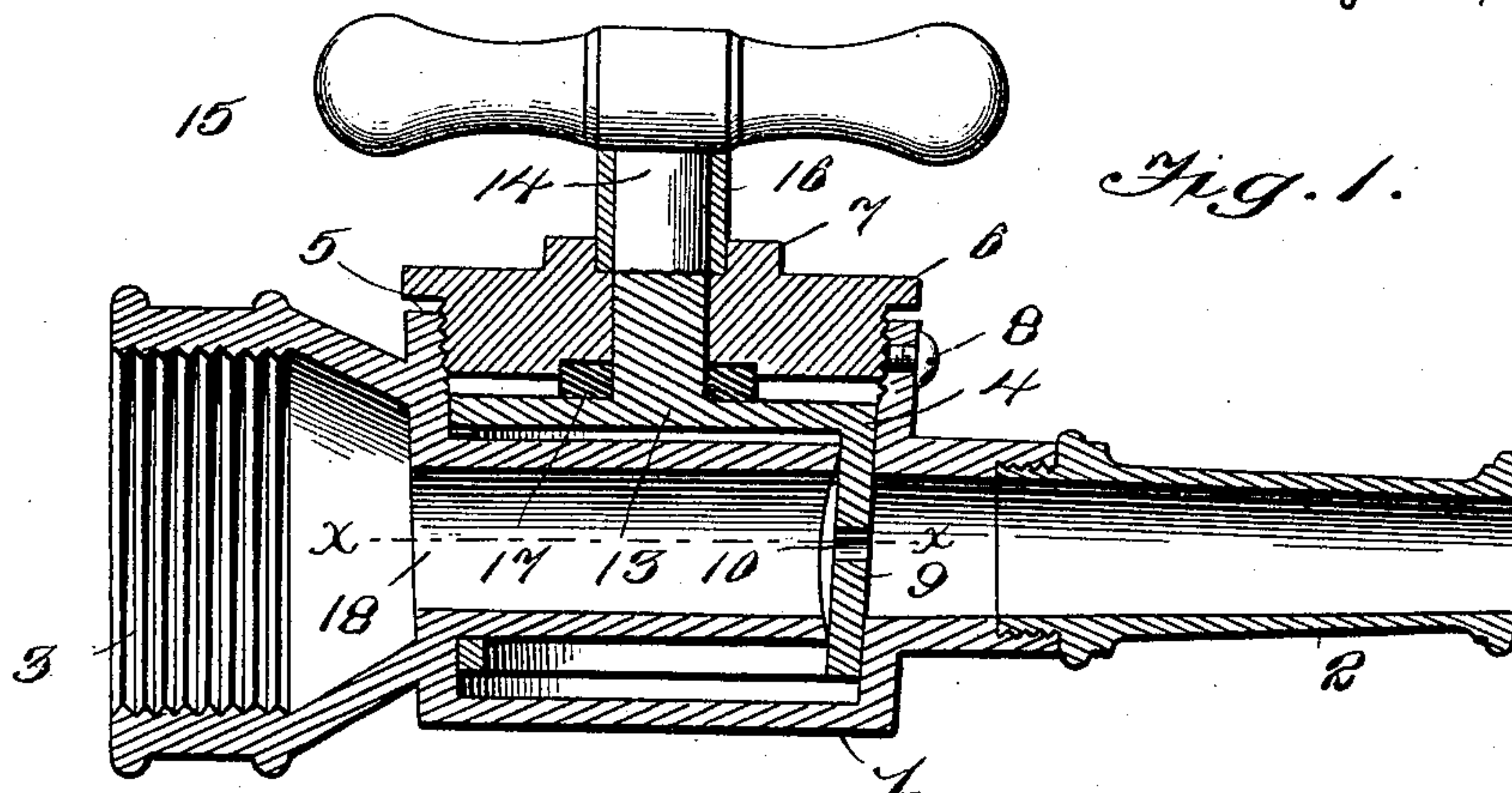


Fig. 1.

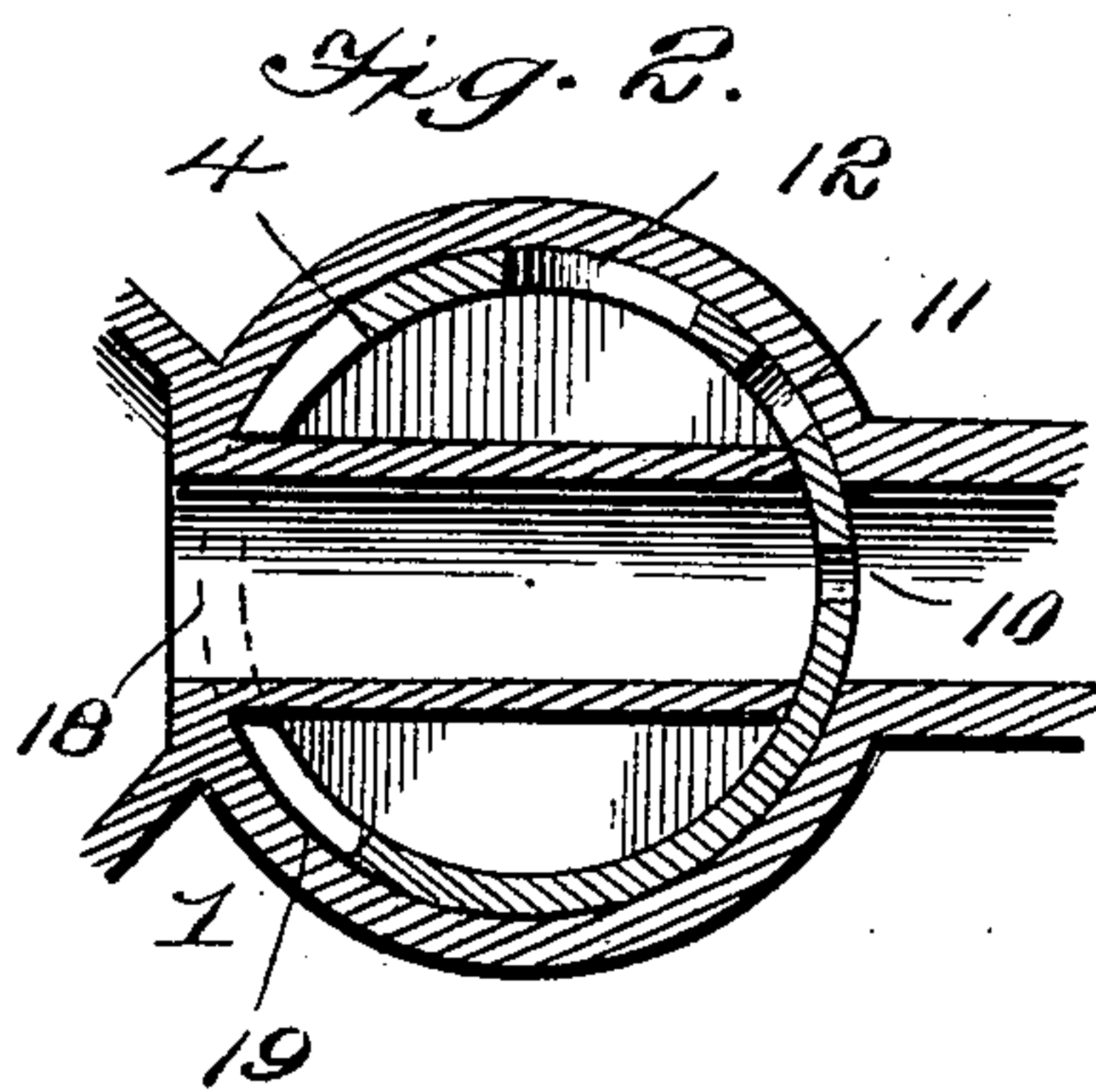


Fig. 2.

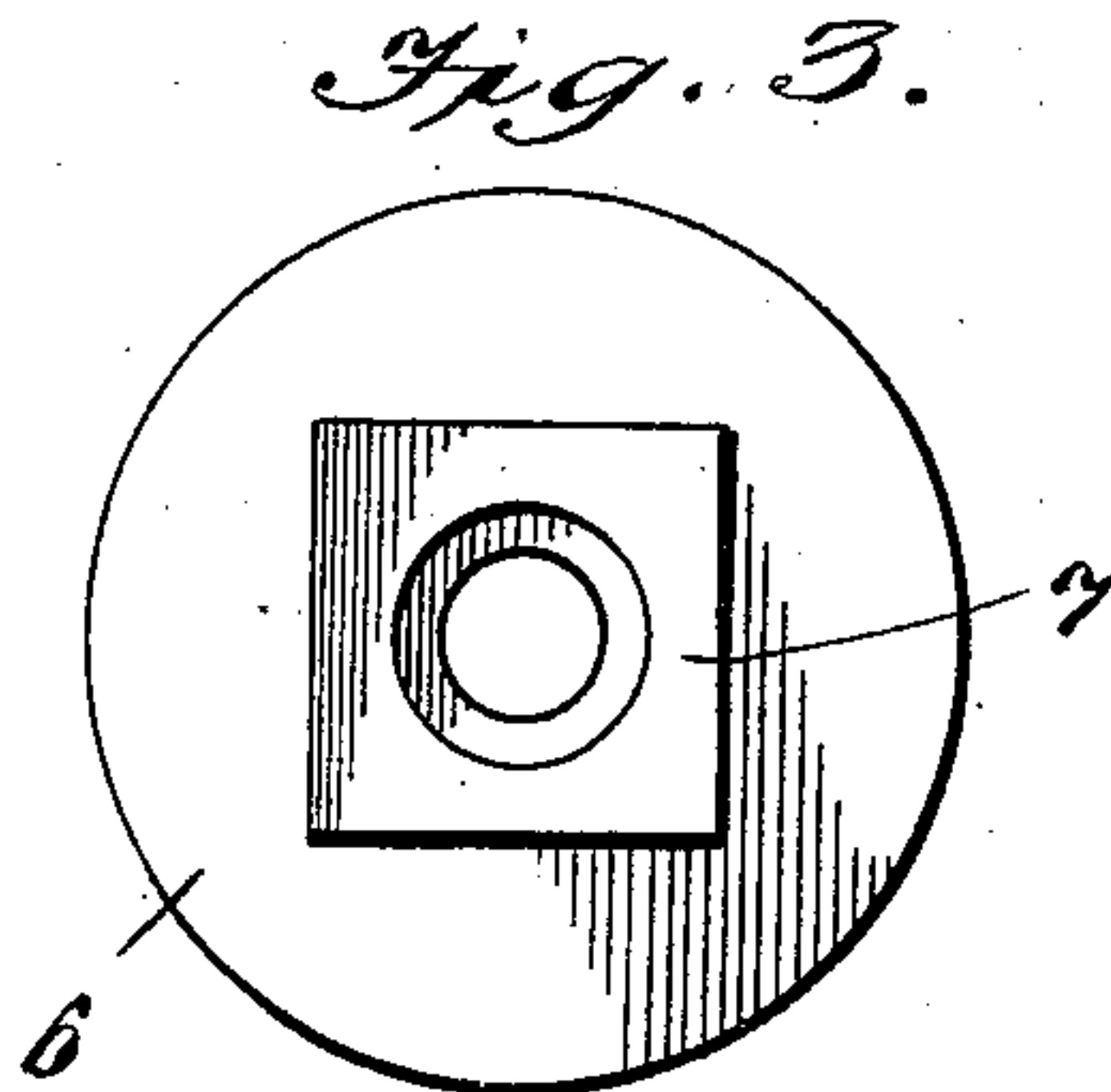


Fig. 3.

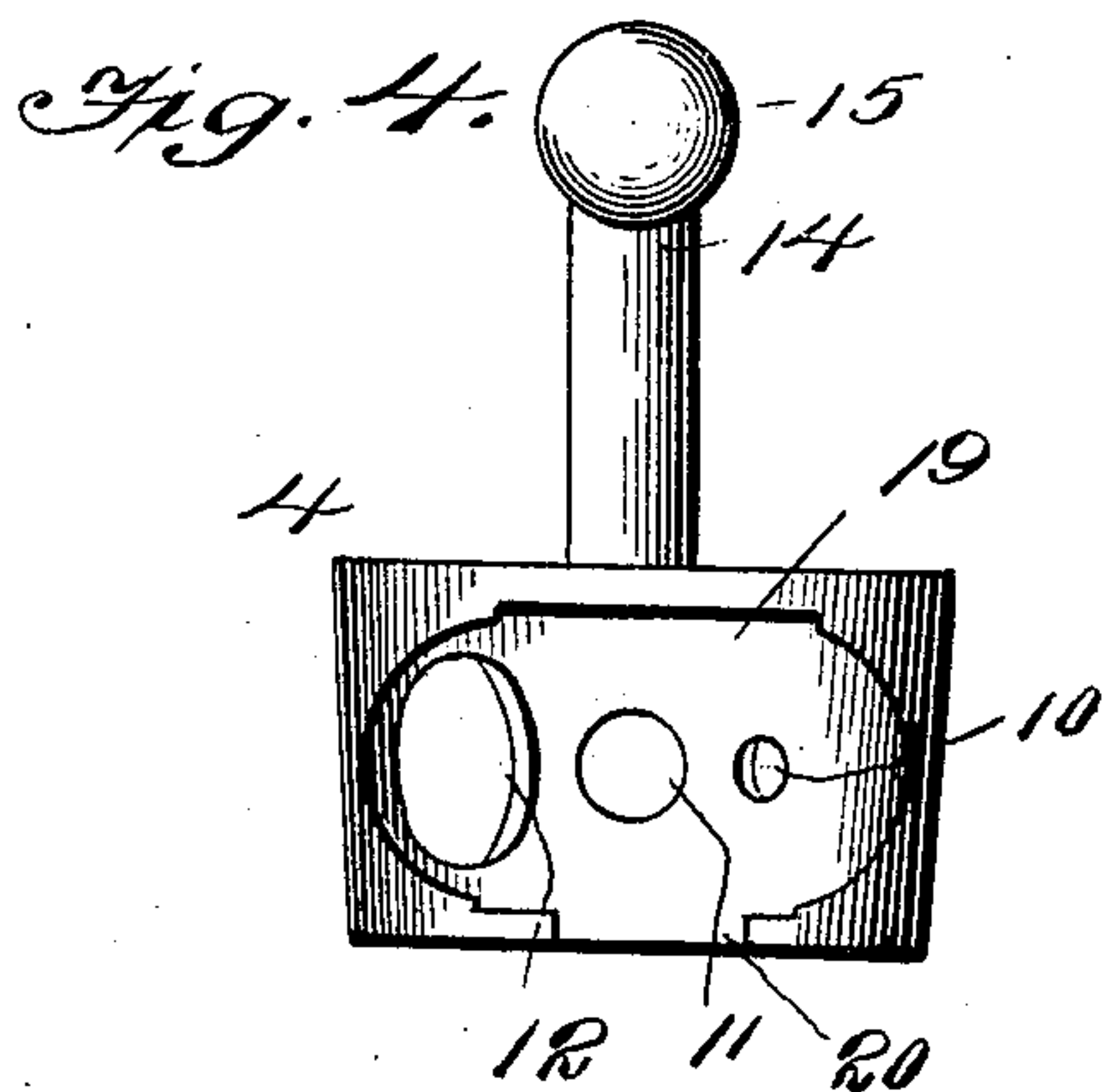


Fig. 4.

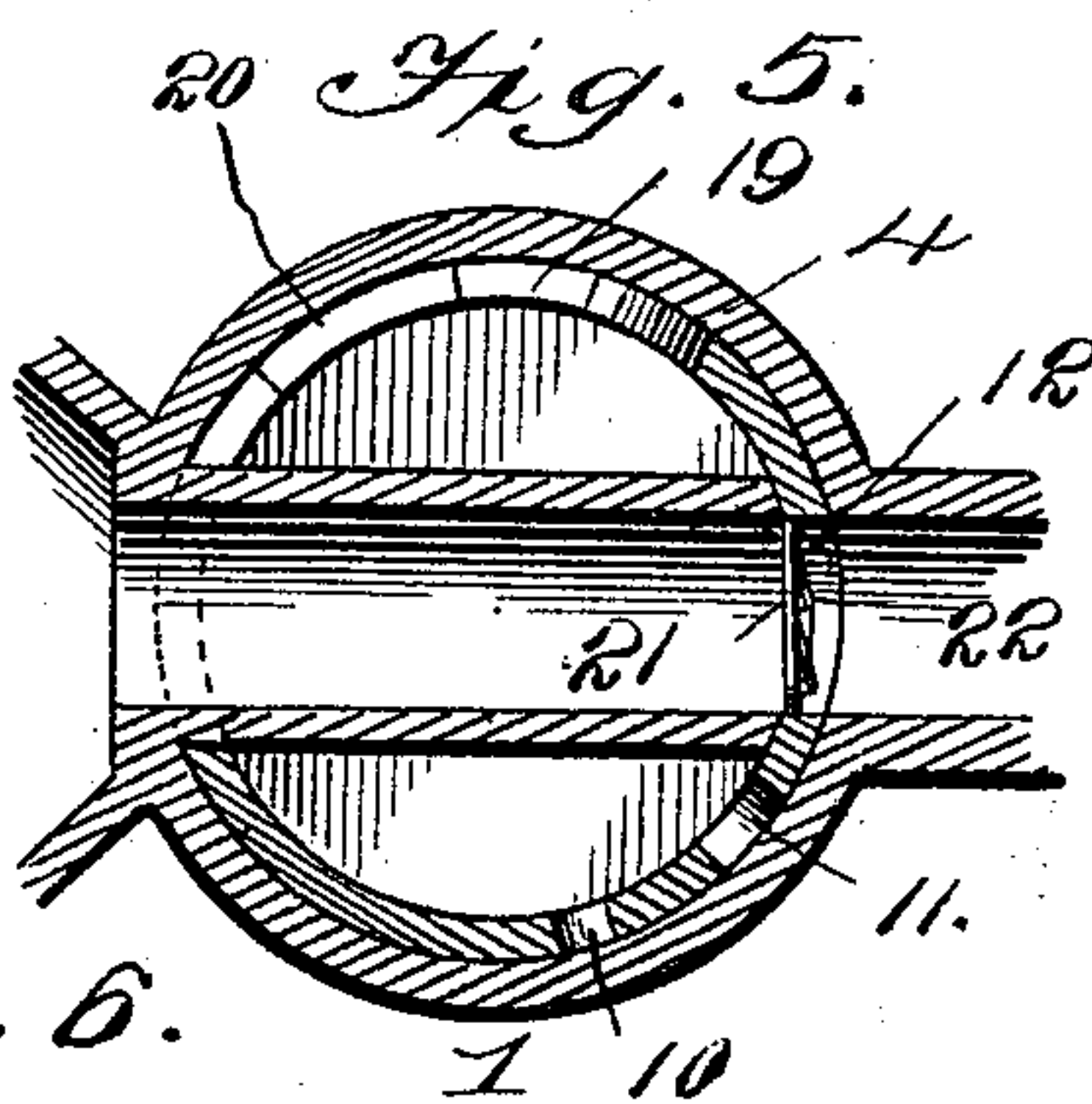


Fig. 5.

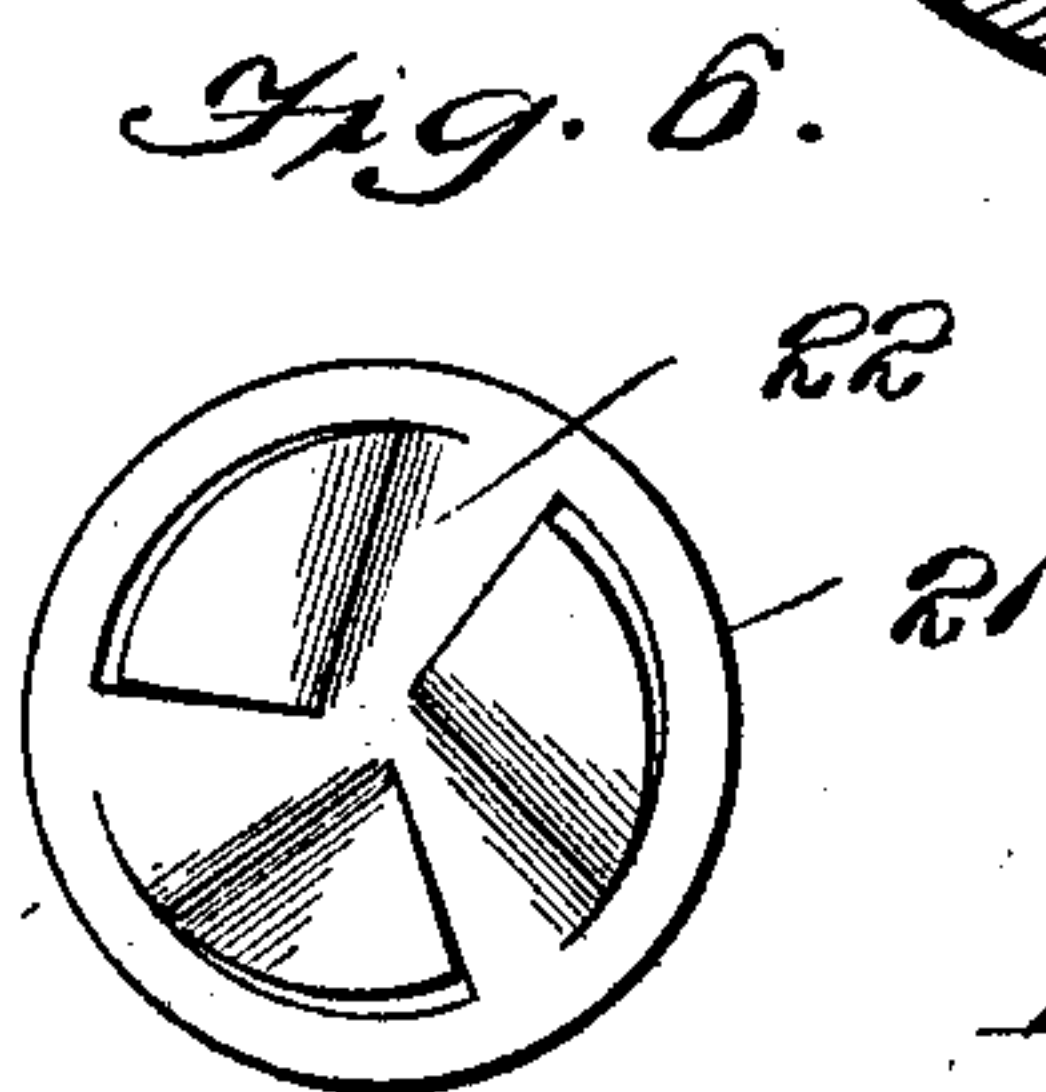


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

FELIX LOUIS DECARIE, OF MONTREAL, CANADA.

HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 582,345, dated May 11, 1897.

Application filed February 26, 1896. Serial No. 580,779. (No model.)

To all whom it may concern:

Be it known that I, FELIX LOUIS DECARIE, a subject of the Queen of Great Britain, residing at Montreal, Province of Quebec, Canada, have invented a new and useful Hose-
Nozzle, of which the following is a specification.

It is a desideratum in the construction of nozzles for hose-pipe, steam-exhaust, and for
other purposes to provide for the variation of the stream to effect certain results.

The object of this invention is to secure a maximum force of stream by offering a minimum amount of resistance to its passage
through the nozzle, whether it be for throwing a jet or spray or allowing the escape of exhaust-steam.

For a full understanding of the merits and advantages of the invention reference is to be
had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing
from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a vertical central longitudinal section of a nozzle for attaining the objects of this invention. Fig. 2 is a plan section of the middle portion of the nozzle on the line X X of Fig. 1. Fig. 3 is a top plan view of the movable cap for clamping or releasing the regulating-plug. Fig. 4 is a detail view of the regulating-plug and its operating-stem. Fig. 5 is a detail view showing a discharge-orifice in the regulating-plug provided with means for spraying the stream or jet issuing
from the nozzle. Fig. 6 is a detail view of the sprayer.

Corresponding and like parts are designated in the following description and the detail views of the accompanying drawings by the same reference-characters.

The valve-casing 1 is adapted to receive a nozzle 2, and has a threaded nipple 3 for the connection therewith of a hose-pipe or other tubing to which the invention is to be coupled. That portion of the casing inclosing the plug-valve 4 is conico-cylindrical, and is closed at its lower end and open at the top, and has its

inner wall threaded for a short distance from the open end to receive the threaded portion 5 of a cap 6, provided for closing the open end of the said casing. The cap 6 overlaps the end of the casing, and a space exists between the end of the casing and the adjacent side of the overhanging portion of the cap to admit of the latter screwing into the valve-casing when it is required to jam the plug-valve. A flange or boss 7 is formed centrally on the top side of the cap, and its outer edge is flattened to provide a series of faces to receive a wrench or similar tool to admit of the cap being screwed into or out of the valve-casing according as it is required to tighten or loosen the plug-valve. A binding-screw 8 operates in a threaded opening in the side of the valve-casing near its open end and is adapted to engage with the threaded portion 5 of the cap 6, so as to secure the latter in the adjusted position.

The plug-valve 4 is hollow, and its vertical wall 9 has formed therein a series of discharge-openings 10, 11, and 12 of different area to vary the size of the stream or jet escaping from the nozzle. There may be as many of these discharge-openings as desired, and their size and form will vary according to the purpose for which the device is designed. This plug-valve is of tapering form and is fitted within the valve-casing by a ground joint, whereby leakage is avoided and a close fit secured. The top 13 of the plug-valve is im-
perforate and sufficiently stout to sustain a pressure perpendicular thereto and which when applied will jam the plug-valve in the valve-casing and prevent the same from being turned easily. A stem 14 has connection with the plug-valve and passes through an opening in the cap 6 and boss 7 and terminates in a handle 15, by means of which the plug-valve is turned so as to bring the required discharge-opening in register with the nozzle 2, so as to secure a stream or jet of desired size and capacity. The opening in the boss 7 through which the stem 14 passes is slightly enlarged to receive the lower end of a tube 16, which is fitted upon the projecting portion of the stem 14 and which has its end notched at opposite points to receive the lower portion of the handle 15, so that the handle, stem, and plug-valve will turn to-

gether as one part. The lower end of the tube 16 obtains a purchase upon that portion of the cap bordering upon the opening through which the stem 14 passes and inclosed by the boss 7. Hence it is obvious that upon backing the cap 6 the plug-valve will be moved outward and consequently loosened, the outward thrust of the cap being transmitted to the stem 14 by means of the tube 16 obtaining a purchase at its ends against the said cap and the handle 15. A washer or ring 17 is interposed between the lower face of the threaded portion of the cap and the top 13, so as to obviate an extended bearing or frictional engagement between these parts.

A tube 18 extends across the valve-casing and is joined thereto at the side adjacent to the nipple 3 and terminates short of that side of the valve-casing adjacent to the nozzle 2, the space or distance corresponding to the thickness of the wall 9. The free end of the tube 18 is formed on the arc of a circle corresponding to the inner side of the wall 9, so as to fit against the same snugly, and the bore of this tube 18 corresponds to the bore of the nozzle 2 and represents a stream corresponding to the capacity of the device.

The tube 18 projects across the space within the plug-valve and is in line with the nipple 3 and the nozzle 2, and in order to allow the plug-valve to turn, so as to bring the various discharge-openings thereof in proper position, a portion of the wall 9 is removed, as shown at 19, this space or opening 19 being of such a length as to admit of any one of the discharge-openings being brought into proper position or of a portion of the wall being interposed between the end of the tube 18 and the nozzle 2, so as to shut off the stream or jet when required. A notch 20 is formed in the lower end of the plug-valve and communicates with the space 19 to admit of the removal of the plug-valve or the placing of the same in position when required, the notch corresponding in length to the width of the tube 18, so that the latter may pass there-through when removing or placing the plug-valve in position. It must be understood that sufficient space is provided between the top and bottom sides of the tube 18 and the adjacent portions of the plug-valve so as to admit of the latter moving within the valve-casing under the action of the cap 6, whereby the plug-valve can be tightened or loosened. The tube 18 may be dispensed with, but it is preferred to employ the same, as thereby counter-currents within the plug-valve are obviated and the resistance to the flow of the water through the valve-casing is reduced to a minimum. Hence the available stream is of maximum force.

The discharge-openings herein particularly described result in the throwing or escape of a solid stream or jet, but in some instances it is desirable to spray the stream or jet, and particularly is this the case when playing upon a fire at close range, and to effect this

end a device is fitted in one or more of the discharge-openings, and consists of a disk 21, having a series of wings 22, formed by radial and circumferential slits, the end portions of the wings being given a partial twist, whereby the solid stream is broken up and caused to escape through the nozzle in a spray, so as to cover an extended area, as will be readily understood.

Having thus described the invention, what is claimed as new is—

1. In combination, a valve-casing having a nozzle and a nipple at diametrically opposite points and about in the same straight line, a hollow tapering plug fitted into the valve-casing and having different-sized openings in the same plane with one another and the nozzle and nipple, and adapted to be brought in register with the nozzle, a cap for closing the open side of the casing and having screw-thread connection therewith, and adapted to be turned up against the plug to secure a tight joint between the said plug and valve-casing, and means for securing the cap in the adjusted position, substantially as described.

2. In combination, a valve-casing having ingress and egress openings in the same plane, a hollow tapering plug fitted into the valve-casing and having different-sized openings formed in a portion of its wall in the same plane with the ingress and egress openings, and adapted to be brought in register with the egress-opening, and having a portion of its wall opposite the different-sized openings removed, an operating-stem projecting from the plug, a cap for closing the open side of the valve-casing and having screw-thread connection therewith to be turned up against the plug to secure a tight joint between the latter and its casing, and having an opening for the passage of the stem of the plug, and means for securing the cap in an adjusted position, substantially as set forth.

3. In combination, a valve-casing open at one end and having a nozzle, a cap for closing the open end of the casing and having a screw-thread connection therewith, and formed with a central opening and boss, the latter adapted to receive a wrench or tool for the purpose described, a binding-screw for securing the cap in the located position, a valve operating in the casing and provided with a series of discharge-openings of varying size, an operating-stem passing through the said cap and having connection with the valve, and a tube secured upon the projecting portion of the operating-stem to receive the outward thrust when backing the aforesaid cap, substantially as set forth.

4. In combination, a valve-casing having ingress and egress openings at diametrically opposite points and in about the same straight line, a tube in line with the ingress and egress openings and extending into and across the valve-casing, and a hollow plug fitted into the valve-casing and having the said tube projecting therein, the said plug having differ-

ent-sized openings to be brought in register with the egress-opening and the delivery end of the said tube, and having a centrally-disposed operating-stem, substantially as shown 5 and described.

5. The combination with a valve-casing having a nozzle and an inner tube, and formed with an open end, of a hollow valve operating in the valve-casing and receiving the said 10 inner tube thereof, and having a series of discharge-openings of varying size, an operating-stem to turn the valve for bringing any one of the series of openings in register with the nozzle and inner tube, and a cap for clos-

ing the open end of the valve-casing and hav- 15 ing a screw-thread connection therewith and constructed to move the aforesaid valve positively in either an outward or inward direction, substantially as and for the purpose set forth.

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

FELIX LOUIS DECARIE.

Witnesses:

ALEXANDER S. DECARIE,
LOUIS A. R. DECARIE.