(No Model.)

J. D. SHOOTS.

SPRAY NOZZLE

No. 567,925. Patented Sept. 15, 1896.

Fig. 1.

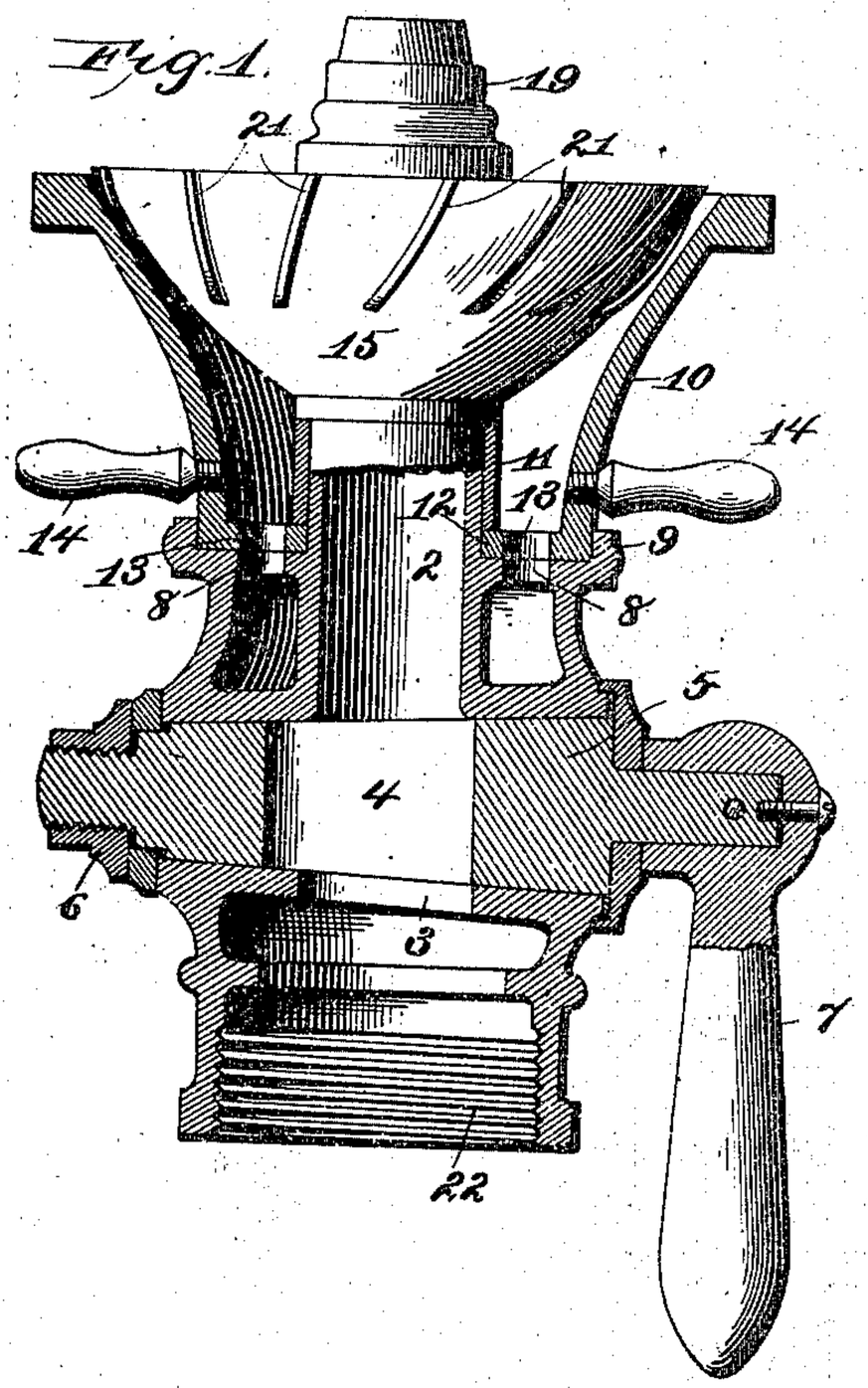


Fig. 2.

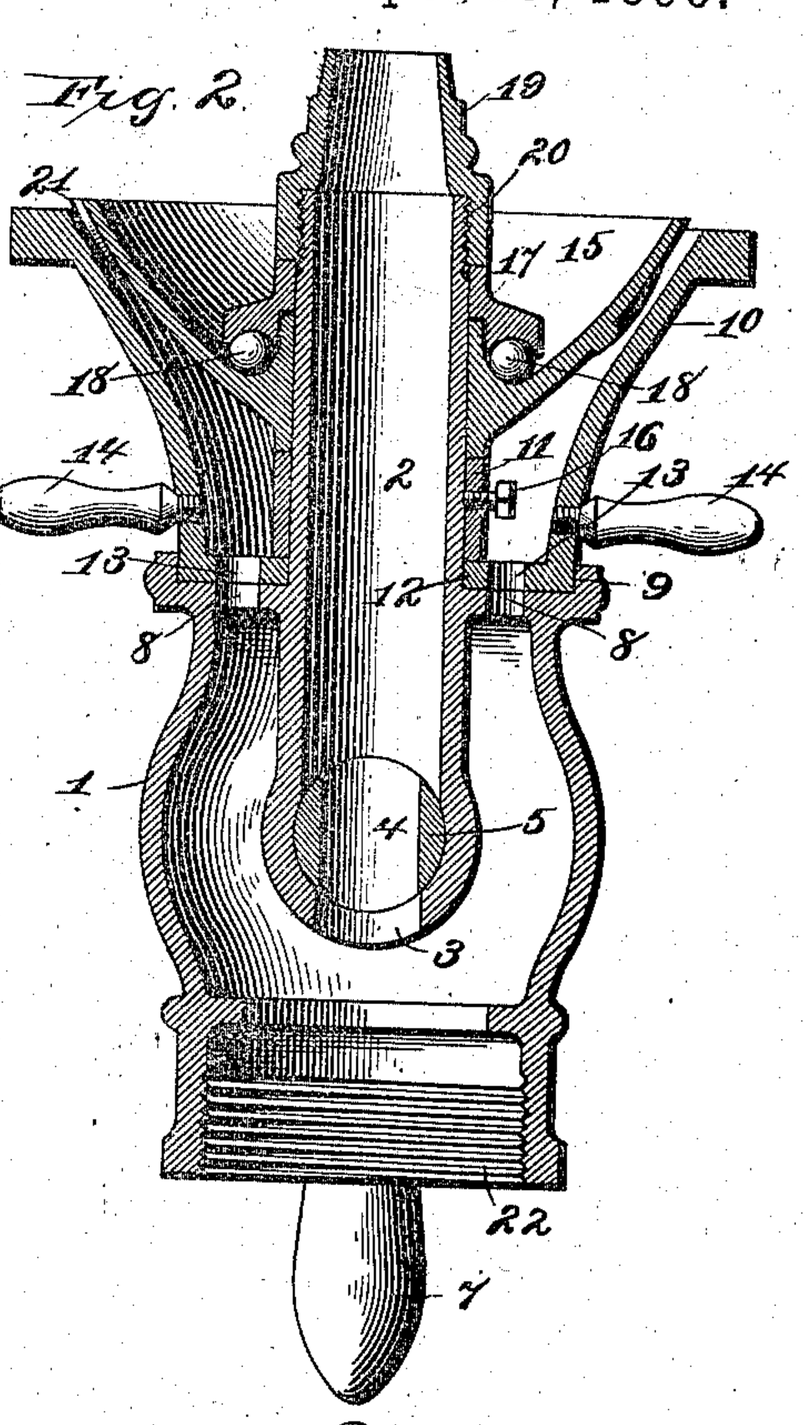


Fig. 3.

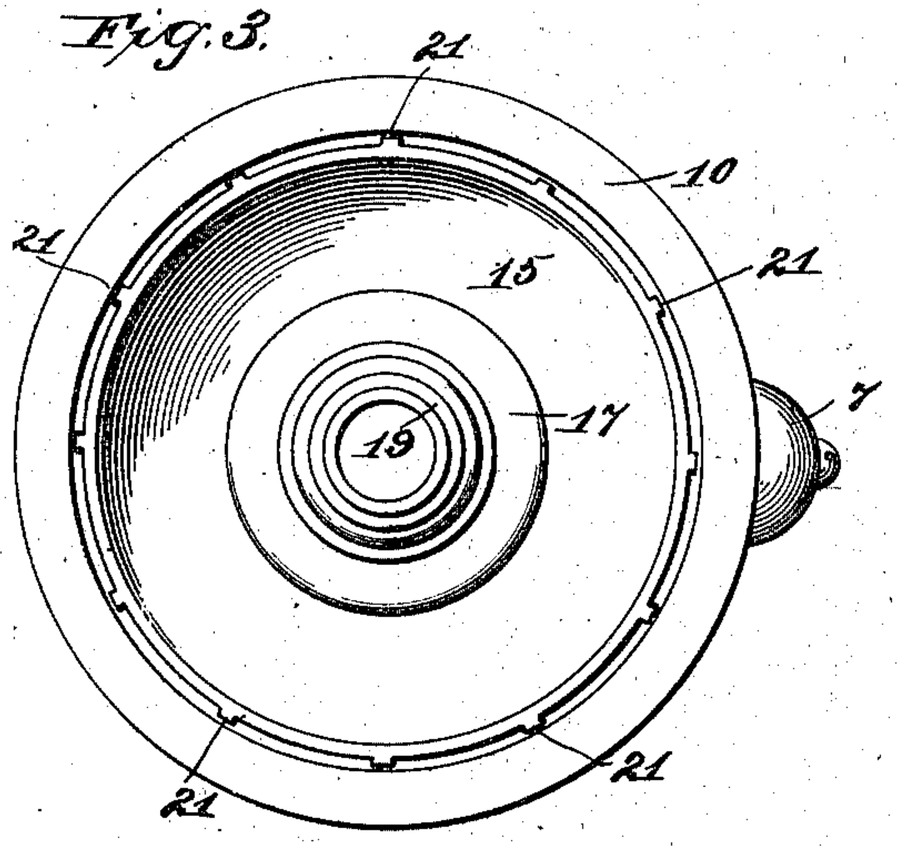
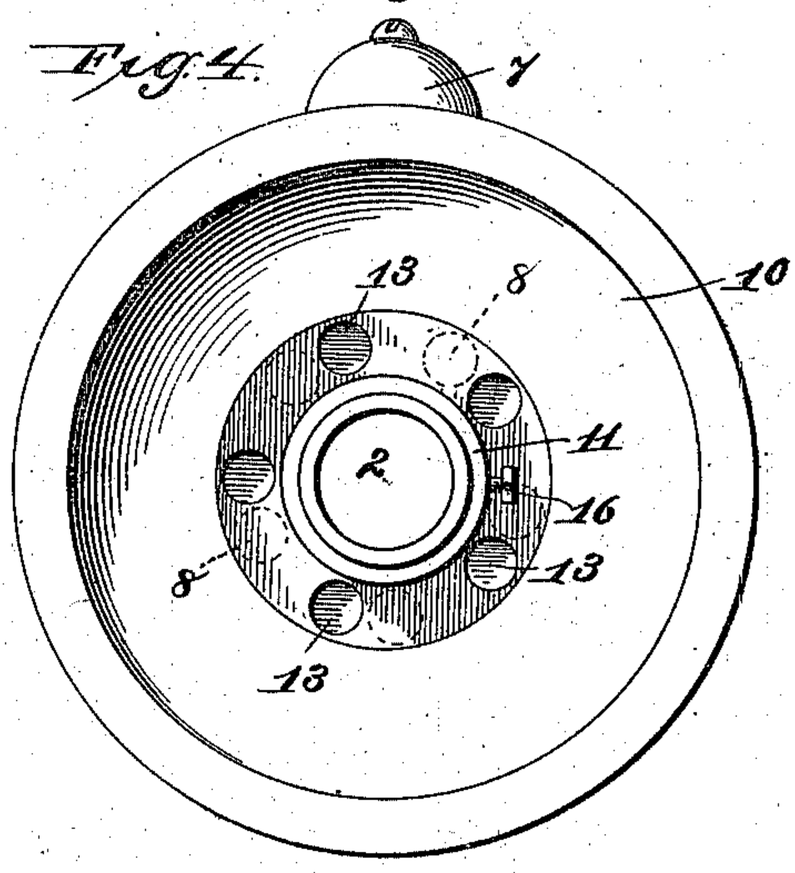


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE

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SPRAY-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 567,925, dated September 15, 1896.

Application filed December 4, 1895. Serial No. 570,970. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. SHOOTS, a citizen of the United States, residing at Horseheads, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Spray-Nozzles, of which the following is a specification.

My invention relates to a new and useful improvement in combination-nozzles for use in connection with fire-hose or other purposes for which such a nozzle is adapted, and has for its object to provide a simple and effective device by means of which either a solid stream, a bell-shaped spray, or a spray and stream of water may be thrown by the proper manipulation of the valves.

With these ends in view my invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction and operation in detail, referring by number to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a central vertical view, partly in section, of my improved nozzle; Fig. 2, a sectional view at right angles to Fig. 1; Fig. 3, a plan view of the nozzle; and Fig. 4, a light view, the spray-disk being removed.

Similar numbers denote like parts in all the views of the drawings.

1 is the body or casing of the device, having a general spherical shape, with which is formed the central tube 2. A portion of this tube extends downward into the casing, and is provided with an opening 3 at its lower end adapted to register with the opening 4 in the plug-valve 5, which is fitted upon a taper into this tube and the casing 1, as clearly shown in Fig. 1. The plug-valve is secured in position in the usual manner by a nut and washer at 6, and 7 is an operating-handle by which the valve is manipulated. The top of the casing is closed by part of the casting, through which are formed a number of holes 8. 9 is a flange formed around this portion of the casting and turned so as to form an annular seat, into which fits the lower end of the spray-nozzle 10, which is flared outward at its upper end.

11 is a collar fitted over the outside of the tube 2 and in connection with the bottom 12 of the spray-nozzle, by means of which said nozzle is held upon its seat. Formed through this bottom are a number of holes 13, which correspond to the holes 8 in the casing, so that by revolving the spray-nozzle upon the tube 2 said holes will be brought into or crowded out of alinement, whereby the flow of water into said nozzle will be regulated or prevented. Suitable handles 14 are set into the outer circumference of the spray-nozzle, in order that the latter may be easily revolved upon its axis for the purpose just described.

15 is a saucer-shaped disk having a central opening of sufficient size to form a bearing around the tube 2, upon which said disk may revolve. The lower edge of this disk bears against the collar 11, which latter is held in place against rotation by the set-bolt 16; and 17 is one member of the ball-bearing, which also fits over the tube and incloses a number of balls 18 in a suitable groove formed within the spray-disk, as clearly shown in Fig. 2. These parts are secured in place upon the tube by the nozzle 19, being threaded at 20 upon the upper end of said tube. By these means the spray-nozzle may be turned upon the tube, but is confined against longitudinal movement by the collar 11, and the spray-disk may revolve upon the tube, as will be hereinafter set forth. Cast upon the under side of the saucer-shaped disk are a number of ribs 21, set at an angle to the axial line of the device, so that water passing under pressure between said disk and spray-nozzle will cause said disk to revolve after the manner of a turbine, which is well understood.

From this description the operation of my improvement will be obviously as follows: The coupling 22 having been secured to suitable hose and the water-pressure turned in said holes to produce a solid stream, it is only necessary to turn the plug-valve 5 into the position shown in Figs. 1 and 2, after having previously revolved the spray-nozzle so as to carry the holes 8 and 13 out of alinement, when the water will be forced to flow through the openings 3 and 4 and be conducted by

the tube 2 to the nozzle 19, from whence it will be projected in a solid stream; but if a spray is desired the plug-valve is turned at right angles to the position shown in the drawings and the holes 8 and 13 caused to aline by the proper revolution of the spray-nozzle, when the water will be forced to pass through these openings and, crowding its way between the saucer-shaped disk and spray-nozzle, will cause the former to revolve rapidly upon its axis, which will impart a spiral movement to the water, thus integrating it into a fine effective spray; but should both a spray and solid stream be desired the spray-nozzle may be left in the position just described and the plug-nozzle turned to that shown in the drawings, when both a spray and stream will issue from the two nozzles.

It is well known in the state of the art to which this device belongs that it is very desirable at times to be able to convert a nozzle into either a spray or solid stream, but the difficulty heretofore experienced has been in the complication of parts necessary to bring about this result and the liability of the water leaking through the joints; but I have entirely overcome these difficulties and produced a very simple and effective device for accomplishing the result.

Having thus fully described my invention, what I claim as new and useful is—

The herein-described combination of a nozzle, a tube projecting into and out of said nozzle, a valve fitted into the tube and casing, whereby the passage in the former is controlled, a spray-nozzle fitted around said tube, and provided with holes 13, adapted to register with the holes 8, formed in top of said casing, a saucer-shaped disk partly inclosing the mouth of said spray-nozzle, and fitted to revolve upon said tube, the member 17, forming a part of a suitable ball-bearing, and the nozzle 19, fitted upon the upper end of the tube, whereby the revolving disk and ball-bearing are held in place, substantially as and for the purpose set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JAMES D. SHOOTS.

Witnesses:
C. E. CARPENTER,
M. E. UPDIKE.