

J. C. HULL.
HOSE NOZZLE.

No. 179,478.

Patented July 4, 1876.

Fig. 1.

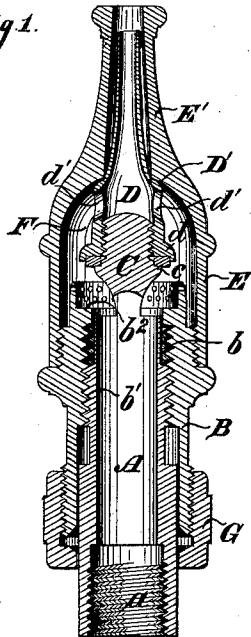


Fig. 2.

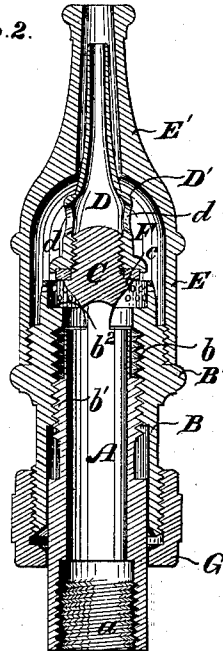
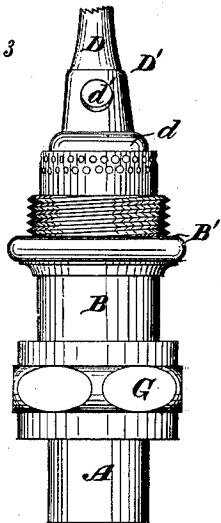


Fig. 3.



WITNESSES
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JOHN C. HULL, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN HOSE-NOZZLES.

Specification forming part of Letters Patent No. 179,478, dated July 4, 1876; application filed February 25, 1876.

To all whom it may concern:

Be it known that I, JOHN C. HULL, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hose-Nozzles, of which the following is a specification:

My invention relates to an adjustable hose-nozzle, by which the character of the stream caused to issue therefrom may be varied at pleasure, it being capable of throwing a large stream, one of lesser volume, and a spray.

The subject-matter claimed will hereafter specifically be set forth.

In the accompanying drawings, Figure 1 represents a longitudinal central section of the nozzle adjusted to throw a small stream; Fig. 2, a similar section with the parts adjusted to throw a large stream. Fig. 3 represents the nozzle as adapted to throw a spray or series of fine jets.

A tube, A, is provided at one end with a screw-thread, *a*, by which to attach it to a pipe, through which the fluid passes, or to the end of the hose in suitable manner. Around this supply-tube fits a casing or shell, B, provided internally with a screw-thread, *b*, by which it is adjustably secured to the tube by means of a corresponding screw, *b'*, cut thereon. Near its upper or outer end the casing B is internally shouldered at *b''*, and above this annular shoulder the casing is provided with a series of perforations extending around it in rows of any desired number. The tube A fits snugly in the shell or casing B, the outer diameter of the tube about corresponding with the inner diameter of the shell at or near the ends of the latter, as shown. The upper or outer end of the tube A is formed or provided with arms or branches, forming a cage supporting or terminating in a screw or threaded stud, C. The stud C has a shoulder, *c*, and beneath this shoulder is made inclined, so as to gradually deflect the water impinging against it. A detachable nozzle, D, for throwing a small stream, screws onto the end of the tube A upon the stud C, the lower or inner end of the nozzle being provided with an annular flange, *d*, between which and the shoulder *c* a washer of leather or other suitable material is clamped to make a tight joint. The nozzle D tapers gradually upward from the flange *d*

for a short distance, and is then formed with an abruptly-inclined or tapered annular shoulder, D', between which and the shoulder *d* side openings *d'* *d'* are made in the nozzle. Above the upper shoulder D' the nozzle tapers toward its outer end, as shown. A detachable outer casing or cap, E, having a nozzle, E', is secured upon the shell or tube-casing B by means of threads respectively cut upon the outside of the casing B above its shoulder B', and upon the inside of the end of the cap or outer casing. The inside diameter of the body of the casing E is considerably larger than the largest portion of the inner nozzle D, as shown, and forms a chamber or water-way, F, into which the water issues from the tube A. This chamber contracts at the top or discharge end, which is of a somewhat conical form, and communicates with and terminates in the way or passage of the nozzle portion E' of the cap. A waste-nut, G, for preventing leakage by water passing down between the inlet or supply tube A and shell B, screws onto the lower end of the shell and fits over the tube, as shown.

Instead of the tube A, shown as adapted to be screwed onto the end of a hose-pipe, it is obvious that the end of the pipe may be formed like the tube to adapt it to receive the nozzle D and cap and nozzle E E'; but I prefer the construction shown, as it enables me to apply my improvements to the branch pipes of hose already in use.

In operation, if a small stream of water is to be used, the tube A is adjusted, by screwing it up, to bring the conical or tapering shoulder D' of the nozzle D against the inner walls of the cap E at the top of the chamber F, around the large nozzle-way, thus closing communication between the water-chamber and large nozzle. When thus adjusted the fluid enters the chamber through the end of the tube A, between its branches, beneath the valve formed by the washer and shoulders *c* and *d*. The inclined lower portion of the stud C deflects the water outward and upward, while the formation of the flange *d* on the nozzle is such as to offer the least resistance to the passage of the water to the openings *d'* *d'*, through which it escapes in a stream at the end of the nozzle. When a large stream is to be thrown the parts are adjusted as shown in Fig. 2, when

the water passes, by the chamber F, through the two nozzles D E', issuing at the end of the nozzle E (which should be slightly contracted at its end to compensate for the space occupied by the shorter inner nozzle) in a solid stream. When a large stream is to be used the nozzle D may be entirely removed, if desired, by detaching the cap E, unscrewing the nozzle D, and then replacing the cap. To cause the water to issue in spray the cap or outer casing is removed, and the shoulder *d* of the valve on the end of the supply-pipe caused, by turning the nozzle D or shell B, to enter the mouth of the casing or shell B a sufficient distance to prevent the escape of the fluid in any other way than by the jet-openings in the shell.

It is obvious that vertical jet-openings may be made in the shoulder *d*, to produce a more efficient spray for sprinkling gardens, &c.

I claim as of my own invention—

1. The combination, substantially as hereinbefore set forth, of the supply-tube and the nozzles of different sizes, adjustable relatively to each other, as set forth, whereby streams of different sizes may be thrown from a common supply-tube.

2. The combination of the supply-tube, the shell or casing adjustably secured thereto, the

chambered outer casing or cap provided with a nozzle, and the inner nozzle, the water-way or passage of which communicates with the chamber in the outer casing, substantially as and for the purpose set forth.

3. The combination, substantially as hereinbefore set forth, of the supply-tube, the shell or casing adjustably secured thereto, and provided with jet-openings at its outer end, and the valve on the end of the supply-tube, for the purpose specified.

4. The hose-nozzle hereinbefore set forth, consisting of a supply-tube, a shell or casing adjustable thereon, and provided with a series of perforations at its outer end, a nozzle detachably secured to the supply-tube, and an outer casing or cap provided with a nozzle, and detachably secured to the inner shell or casing, these parts being constructed and operating substantially as hereinbefore set forth, to adapt the nozzle to throw solid streams of different sizes, or a spray.

In testimony whereof I have hereunto subscribed my name.

JOHN C. HULL.

Witnesses:

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