J. W. GRAY.
Hose-Nozzle.

No. 203,539. Patented May 14, 1878.

Fig. 1.

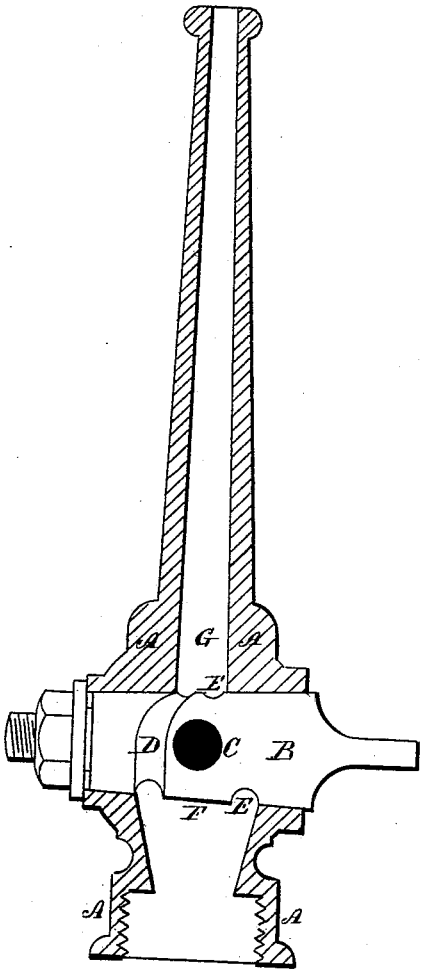


Fig. 2.

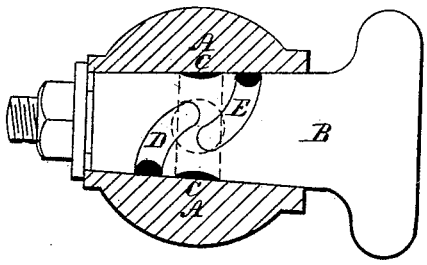
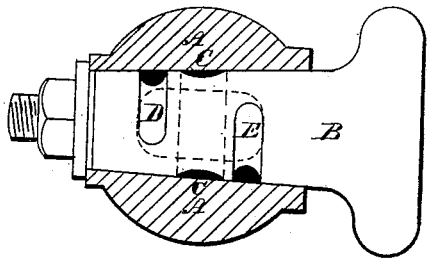


Fig. 3.



Witnesses.

F. H. Ensign
Willard Eddy

Inventor.

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UNITED STATES PATENT OFFICE.

JOHN W. GRAY, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN HOSE-NOZZLES.

Specification forming part of Letters Patent No. **203,539**, dated May 14, 1878; application filed March 7, 1878.

To all whom it may concern:

Be it known that I, JOHN W. GRAY, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Hose-Nozzles; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to hose-nozzles that are designed to throw either a solid stream or spray, at pleasure, by simply turning the cock, and without any change of attachments or otherwise in the nozzle.

My improvement has for its object a simpler, more effective, and a more easily constructed nozzle than has heretofore been in use.

My invention consists in the construction and devices that will be hereinafter described.

In the accompanying drawings, Figure 1 shows a section of the nozzle, taken longitudinally, and passing through the axis of the cock, which latter is shown full and not in section. Fig. 2 is a cross-section of the nozzle through the axis of the cock, showing a top view of the latter part. The dotted circle shows the position of the interior of the delivery-tube upon the top of the cock. Fig. 3 shows the same section as Fig. 2, with the cock as seen from the under side. The dotted oval line shows the position of the entrance-tube upon the bottom of the cock.

In all the foregoing figures the cock is shown in the position for throwing spray.

A is the fixed part of the nozzle. It is furnished with a screw for attaching to a hose, in the usual manner. B is a cock, turning in a socket of a slightly conical form in the part A. C is a straight opening through the cock, which operates in the usual manner, for throwing a solid stream. In the drawing it is shown as turned at right angles to the direction of the stream, in which case it is shut off. When turned one-quarter around it will lie in the direction of the axis of the nozzle, and a straight stream will pass through it. D and E are two curved channels formed in the cock B, leading around it, one upon one side of the cock and the other upon the other side, and passing outside of the ends of the aperture C. The ends of these channels are wider apart upon one side of the cock than upon the other, so that in one position of the cock, as shown in Fig. 3 and at the top in Fig. 1, the two ends come within the circle of the delivery-pipe at G, and, as shown in Fig. 3 and at the bottom in Fig. 1, the two ends are wider apart than the diameter of the same circle. The entrance-aperture, as shown by the dotted oval in Fig. 3, is sufficiently large to include any of the openings of the cock that may be turned toward it.

From this arrangement of the channels it will be observed that when the cock B is turned half-way around from its position shown in the drawing the blank space at F comes opposite the delivery-aperture G, and shuts off all communication and all flow of water through the nozzle. There is also sufficient space around the ends of the aperture C to cut off all communication with the side channels D and E when either end of C is opposite the delivery-pipe.

The upper ends of the channels D and E, as shown in Fig. 2, approach each other so as to enter the delivery-pipe, near the circumference, in opposite directions, so as to create a rapid rotary motion in the discharged water as it passes along the bore of the nozzle. The centrifugal force thus generated throws the water into spray the moment it leaves the end of the nozzle.

The stream discharged from my improved nozzle can be modified from a complete spray to a solid stream by turning the cock through one-quarter of the circumference either way from the position shown in the drawing. The edge of the opening C comes within the circle of the delivery G before the channels D and E have passed out, so that through the upper half of the circumference of the cock the stream can be varied at pleasure, while by turning it completely half round from the position shown the water is cut off.

What I claim as my invention is—

1. The combination, with a hose-nozzle, of a cock, B, provided with channels D and E

around its outside, which, in one position of the cock, allow the water to pass around it, so as to enter the exit-opening of the nozzle in opposite tangential directions, and in the opposite position, or a half-turn therefrom, shut off the flow, substantially as herein set forth.

2. The combination of the exterior channels D and E with the ordinary central opening C in the cock of a hose-nozzle, substantially as and for the purpose herein described.

JOHN W. GRAY.

Witnesses:

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