

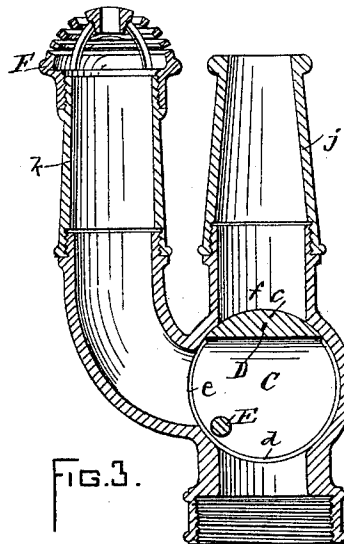
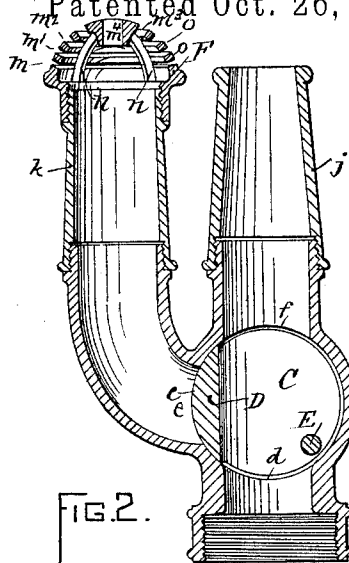
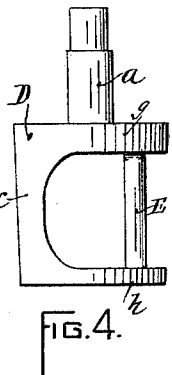
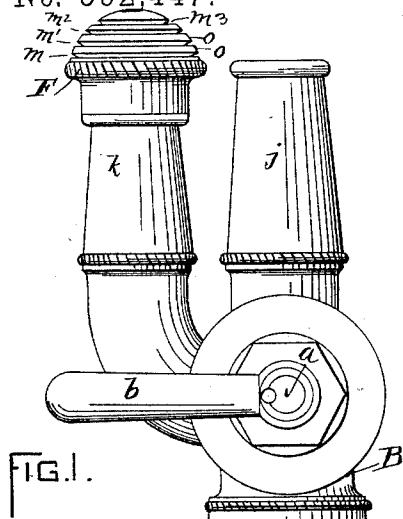
(No Model.)

2 Sheets—Sheet 1.

C. N. RICHARDSON.
HOSE PIPE NOZZLE.

No. 592,447.

Patented Oct. 26, 1897.



WITNESSES.

Henry J. Tarceau.

James W. Beaman.

INVENTOR.

Charles N. Richardson.

BY

J. Scholfield

ATTY.

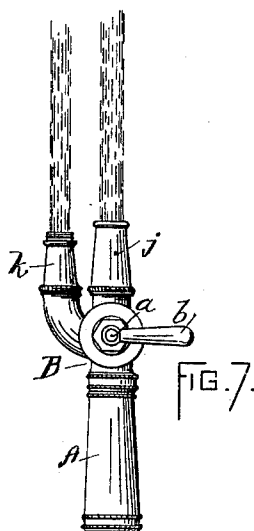
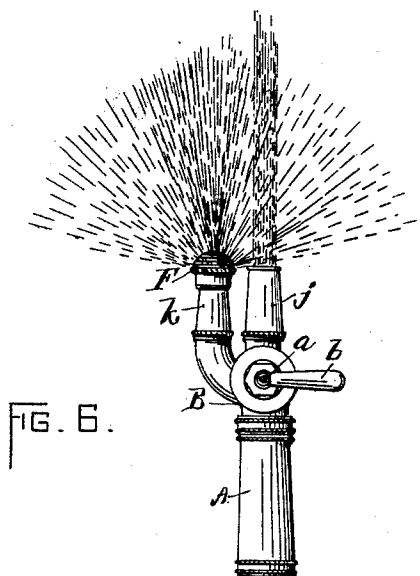
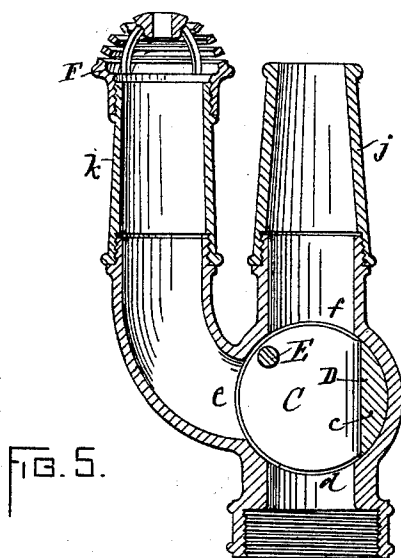
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Harry J. Garceau.
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INVENTOR:

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UNITED STATES PATENT OFFICE.

CHARLES N. RICHARDSON, OF PROVIDENCE, RHODE ISLAND.

HOSE-PIPE NOZZLE.

SPECIFICATION forming part of Letters Patent No. 592,447, dated October 26, 1897.

Application filed July 22, 1896. Serial No. 600,156. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. RICHARDSON, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Hose-Pipe Nozzles, of which the following is a specification.

The object of my invention is to provide a hose-nozzle adapted to project either a single stream, two streams, a spray, or both stream and spray at the option of the fireman, and to provide a wide protecting-spray having a full volume of fluid at its forwardly-projected inner portion; also, in emergencies, to employ the principle of the hydraulic ram for the powerful projection of the spray; and my invention consists in the improved construction and arrangement of the parts of the nozzle, as hereinafter fully set forth.

In the accompanying drawings, Figure 1 represents a side view of my improved hose-pipe nozzle. Fig. 2 represents an axial section showing the outlet-opening of the valve-chamber at the spraying-nozzle closed by the valve. Fig. 3 represents the same with the outlet-opening of the valve-chamber at the stream-projecting-nozzle closed. Fig. 4 represents a side view of the valve removed from the nozzle. Fig. 5 represents an axial section showing both outlet-openings of the valve-chamber open for projecting both a stream and spray. Fig. 6 represents a side view with the valve in position for throwing both a stream and spray. Fig. 7 represents the nozzle with the spraying-tip removed for throwing two full streams from the same line of hose.

In the accompanying drawings, A represents the hose-pipe, to the outer end of which is attached the two-part nozzle B, having a valve-chamber C, in which is placed the valve D, the said valve being constructed, as shown in Fig. 4, with a stem *a*, to which the operating-handle *b* is secured, the said valve being made in slightly-tapering form with the periphery cut away, leaving the segment *c*, as shown in the sectional views, of sufficient surface area to cover either the inlet-opening *d* or the outlet-openings *e* and *f* without materially interfering with the free passage of the fluid through either of the others, so that but one of the said openings can be closed at the same time. The comparatively thin end

portions *g* and *h* of the valve are supported against the pressure of the column of fluid passing through the valve-chamber C by means of bar E, which connects the said end portions, the bar E being so located relatively to the closing face of the valve that when either of the three openings to the valve-chamber are closed by the valve the bar E will be turned to one side, as shown in Figs. 2, 3, and 5, so as not to obstruct the free passage of the fluid.

The nozzle *j* for the projection of a full stream is arranged in the line of the axis of the hose-pipe A, while the nozzle *k* for the projection of the spray is connected at the side of the valve-chamber and thence deflected to a direction parallel to that of the nozzle *j*. The spraying-nozzle *k* is provided with the spraying-tip F, having in its dome-shaped head the concentric annular openings *m m' m² m³* and the central opening *m⁴*, the annular rings *o*, formed between the said openings, being supported by means of the ribs *n*, formed integral with the said rings, and in order to provide both a wide spray for the protection of the fireman against the heat of the fire and at the same time be able to project a full volume of spray in a forward direction onto the fire, the first annular opening *m* of the tip is made of comparatively narrow width, the openings *m' m² m³* increasing in width, preferably in proportion to their decrease of diameter, so that about the same area of opening will be preserved in each case for the passage of the fluid. The tip F is connected to the nozzle by means of a screw-thread, whereby it is made readily removable in case it is desired to project two full streams onto the fire, as shown in Fig. 7.

In using my improved hose-pipe nozzle a full stream may be projected onto the fire by turning the valve to the position shown in Fig. 2, and in case a spray alone is required the fireman turns the valve to the position shown in Fig. 3, and when both stream and spray are desired the valve is turned to the position shown in Fig. 5, and when in that position, with both the full stream and spray in operation, the sudden turning of the valve to shut off the full stream will cause a water-hammer action upon the spraying-nozzle, producing a spray of extraordinary force and

volume as a protection to the fireman and for extinguishing a sudden outburst of flame in his vicinity.

I claim as my invention—

- 5 1. In a hose-pipe nozzle, the combination of a nozzle for projecting a full stream, and a nozzle for projecting a spray, with a valve adapted to control the passage of the fluid through the spray-nozzle alone, through the
10 full-stream nozzle alone, or through both together, and having the valve provided with a supporting-bar which upon the turning of the valve for directing the passage of the fluid to either or both of the nozzles, passes from one
15 side to the other of the opening through which

the fluid issues, to provide a clear passage for the same, substantially as described.

2. The spraying-tip for hose-pipe nozzles, provided with a series of concentric annular openings, the outer opening being of comparatively narrow width to project a wide
20 protecting-spray, and the others of the series being made of gradually-increasing width, whereby a full volume of fluid will be projected in a forward direction at the inner portion of the spray, substantially as described. 25

CHARLES N. RICHARDSON.

Witnesses:

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HARRY J. GARCEAU.