

(No Model.)

2 Sheets—Sheet 1.

J. BUSH.
FIREMAN'S HOSE NOZZLE.

No. 577,717.

Patented Feb. 23, 1897.

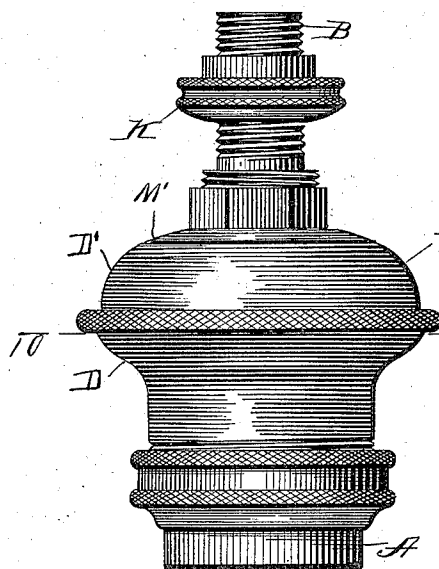


Fig. 1.

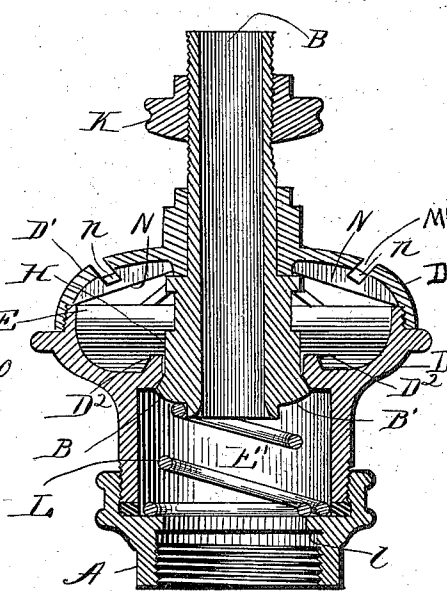


Fig. 2.

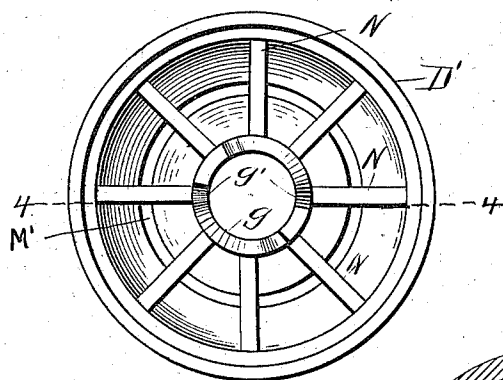


Fig. 3.

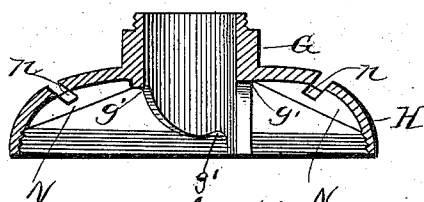


Fig. 4.

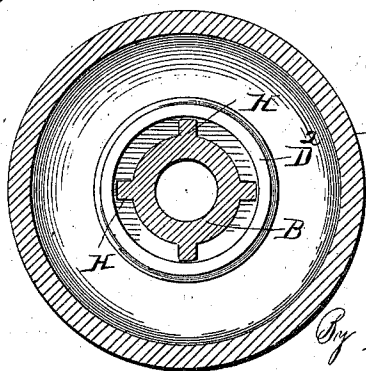


Fig. 10.

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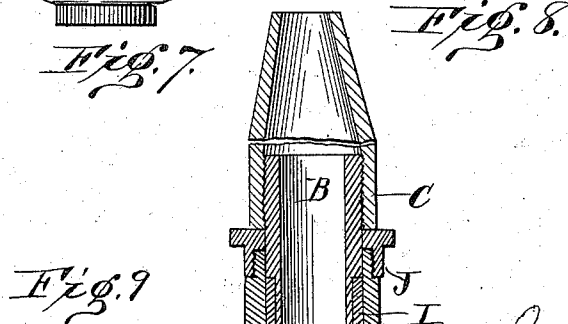
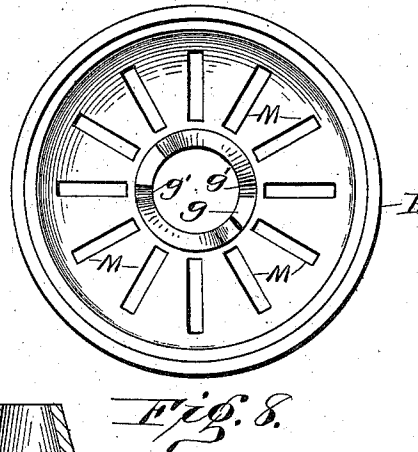
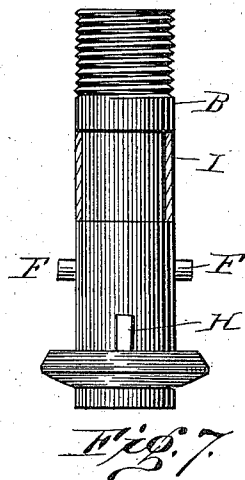
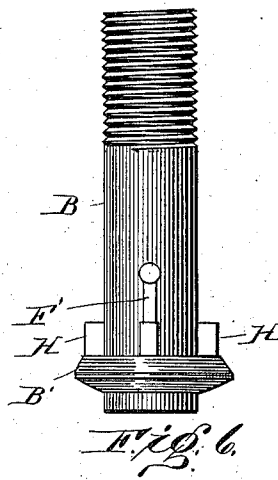
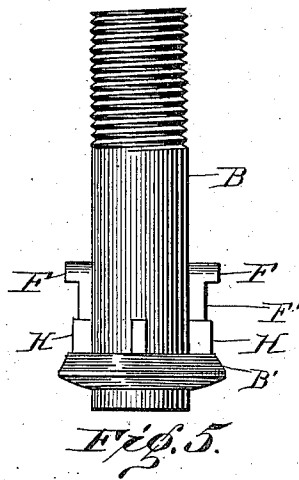
(No Model.)

2 Sheets—Sheet 2.

J. BUSHA.
FIREMAN'S HOSE NOZZLE.

No. 577,717.

Patented Feb. 23, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH BUSH, OF PITTSBURG, PENNSYLVANIA.

FIREMAN'S HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 577,717, dated February 23, 1897.

Application filed February 24, 1896. Serial No. 580,419. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BUSH, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Firemen's Hose-Nozzles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention has particular reference to that type of nozzles for firemen's use constructed to throw a solid stream alone or both a spray and solid stream together at the will of the operator; and it consists in certain peculiarities of construction substantially as hereinafter described, and particularly pointed out in the subjoined claims.

In the accompanying drawings, illustrating the invention, Figure 1 is an elevation of that part of a firemen's nozzle embodying my improvements. Fig. 2 is a sectional view of the same, showing the inlet to the spraying-chamber closed. Fig. 3 is an inverted plan view of the upper half of the shell of the spray-chamber. Fig. 4 is a section on the line 4 4 of Fig. 3. Figs. 5 and 6 are views of the tube through which the solid stream flows, looking at different sides thereof. Fig. 7 is a detail view of a slightly-modified form of tube. Fig. 8 is an inverted plan view of a slightly-modified form of upper half of the shell of the spraying-chamber, and Fig. 9 is a longitudinal sectional view of the device with the valve away from its seat. Fig. 10 is a horizontal section on the line 10 10 of Fig. 1.

The same letters of reference designate the same parts in the several figures.

A designates the inlet end of the shell of the nozzle, into which the pipe or hose-collar is screwed in the well-known manner.

B designates a tube, open from end to end, through which the solid stream flows, and C designates the nozzle-tip, threaded upon the outer end of said tube B and from which said solid stream issues.

The shell of the spraying attachment consists, preferably, of a rear section D and a forward section D', threaded together at their adjacent ends and dished or concaved to form a chamber E, surrounding said tube B, and formed with alined openings through which said tube passes. The section D projects rearward sufficiently to form a chamber E' of considerably greater diameter than the opening through tube B, and is screwed into part A at its rear end, and at the junction of chambers E and E' is formed with an annular flange D², the opening through which is of somewhat greater diameter than the tube B, so as to leave a water-passage around the tube from one of said chambers to the other, as shown in Fig. 10. This flange forms a seat for a valve B', carried by the inner end of said tube.

When the valve is upon its seat, chamber E' has no communication with chamber E, whereby the water is caused to flow only through tube B and tip C and to issue from the latter in a solid stream; but when it is away from its seat said chambers will be in communication with each other, so that the stream will be divided, one portion flowing from chamber E' into chamber E and issuing from the latter in the form of spray through openings, hereinafter described, in section D' of the shell, while the other part will flow from said chamber E' into and through tube B and tip C.

The valve is moved to and from its seat by causing tube B to move longitudinally when turned, and this movement is produced, preferably, by the coaction of a cam and a pin, (or cams and pins,) one of which is stationary and the other affixed to the tube. In the construction herein shown said tube is formed with laterally-projecting pins F, received by openings formed in a stationary sleeve G, encircling said tube B, and engaging rearwardly-curved walls of said openings, said walls forming the cams g, whereby when the tube is turned in one direction the pins will be caused to slide rearward upon the cams, thus moving the tube similarly and carrying the valve away from its seat, and when the tube is turned in the opposite direction the valve will in like manner be moved forward to its

seat. At each end of the cams g is a recess g' , which recesses form seats for the pins at each extremity of the movement of the latter.

The valve B' is hollow and encircles the lower end of tube B . The best results will be obtained if said valve and the flange D^2 are beveled, as shown. The tube B will preferably be provided with wings H , engaging the flange D^2 and serving to obviate any tendency of the tube to wobble, and the pins F may have strengthening-pieces F' , extending longitudinally of and secured to said tube. The wall of the tube may be reduced in thickness to form a recess for a packing-ring I , and the forward end of the shell may be provided with a stuffing-box J to prevent leakage around the tube.

Any suitable means by which the tube B may be turned may be provided, but I prefer to employ the collar K , threaded upon said tube and having a roughened outer surface, as shown. To keep said tube from movement by the jolting to which the nozzle is subjected while being drawn from place to place, or when turned upon its end, a spring L , seated upon a flange l at the rear end of section A and engaging at its other end the rear extremity of the tube, is employed.

The spray-openings may consist of a series of slots M , as shown in Fig. 8, but I prefer to form them by cutting a circular slot M' in the forward end of section D' , which is spanned by a series of ribs N , attached to the inner wall of said section. Each of these ribs is formed with a recess n , registering with said slot M' , which recesses cause the water to consolidate as it leaves the openings. The walls of the slots M or M' are preferably beveled, as shown in Figs. 4 and 8.

From the above it will be seen that I have provided a nozzle of very simple and practical construction, which may be quickly and easily adjusted to throw either a solid stream alone or both a solid stream and spray, and one having few or no parts liable to get out of order, and which may be quickly put together or taken apart whenever desired, and also one in which access to all of the parts may readily be had.

I do not wish to be understood as limiting myself to the detail construction herein described and shown, as many of the parts may be varied without departing from the spirit of the invention.

Having thus described my invention, what I believe to be new, and desire to secure by Letters Patent, is—

1. A fireman's hose-nozzle of the class described, consisting of a shell, formed to provide an enlarged chamber at its forward end, said chamber having spraying-openings in its front wall and also having alined openings in its front and rear walls, a valve-seat encircling the opening in its rear wall and a sleeve encircling the opening in the forward wall and projecting into said chamber, said sleeve being formed with a cam-groove; a freely-mov-

able tube extending through said sleeve and chamber and having a pin engaging said cam-groove; a valve encircling the inlet end of said tube; and a nozzle-tip at the opposite end thereof, substantially as described.

2. A fireman's hose-nozzle of the class described, consisting of a shell, embodying a rear section having an inlet-opening and an annular flange forming a valve-seat encircling said opening, and a forward section formed with spraying-openings and having a central sleeve projecting inward toward said valve-seat and formed with a cam-groove, said sections being threaded together and dished in opposite directions, to form conjointly a widened chamber; a freely-movable tube extending through said sleeve and chamber and having a pin engaging said cam-groove; a valve encircling the inlet end of said tube; and a nozzle-tip at the opposite end thereof, substantially as described.

3. A fireman's hose-nozzle of the class described, consisting of a shell, embodying a rear section, consisting of an annular flange forming a valve-seat, a dished end extending forwardly from said flange and a tubular extension projecting rearward from said flange; a forward section, consisting of a dished rear end having spraying-openings, and a central sleeve projecting toward said valve-seat and formed with a cam-groove; said tubular extension of the rear extension being of greater inside diameter than the opening through said flange; and a collar on the rear end of said extension; a freely-movable tube extending loosely through said sleeve and flange and having a pin engaging said cam-groove; a valve encircling the inlet end of said tube; and a nozzle-tip at the opposite end of the latter.

4. A fireman's hose-nozzle of the class described, consisting of a shell formed to provide an enlarged chamber at its forward end and with an annular flange having an opening forming the inlet to said chamber, the forward wall of said chamber being formed with spraying-openings and with a sleeve projecting inward toward said flange, said sleeve being formed, at diametrically opposite sides, with cam-grooves which are curved in opposite directions and with recesses at each end of each groove; a tube, extending through said sleeve and flange and provided with pins engaging said cam-grooves; a valve encircling the inlet end of said tube; and a nozzle-tip at the outlet end of the latter.

5. A fireman's hose-nozzle of the class described, consisting of a shell formed to provide a forward enlarged chamber and a rear chamber and having an annular flange between said chambers, the front wall of said forward chamber being formed with spraying-openings and with a sleeve projecting inward toward said flange, said sleeve having a cam-groove; a tube, extending loosely through said sleeve and flange and provided with a pin engaging said cam-groove; a valve, encircling the inlet end of said tube and controlling com-

munication between said chambers; a nozzle-
tip at the outlet end of said tube; and a coiled
spring seated in the rear chamber of the shell
and engaging said valve.

- 5 6. In a spraying-nozzle, the combination
with the shell having an annular opening for
the issue of the spray, of a series of ribs, span-
ning said opening and formed with recesses

registering therewith to cause the water to
consolidate as it leaves the latter.

In testimony whereof I affix my signature
in presence of two witnesses.

JOSEPH BUSHA.

Witnesses:

JOHN L. RALPH,
THOS. RALPH.

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