(No Model.)

T. J. McTIGHE & F. W. ROBERTSHAW.

HOSE NOZZLE.

No. 264,317. Patented Sept. 12, 1882.

Fig. 1.

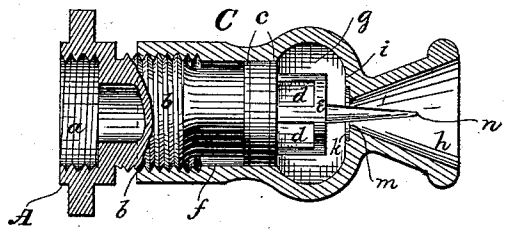


Fig. 2.

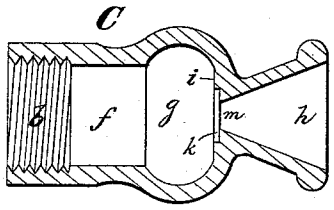


Fig. 3.

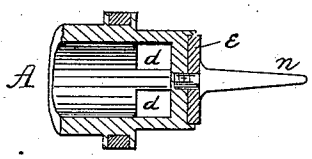
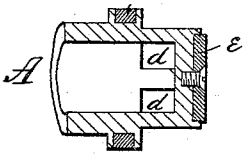


Fig. 4.



Witnesses,
Thomas. J. Patterson
William. Billings

Thomas J. McTighe
Frederick W. Robertshaw
Inventors,
Connolly Bros & McTighe
Attorneys.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

THOMAS J. McTIGHE AND FREDERICK W. ROBERTSHAW, OF PITTSBURG, PENNSYLVANIA.

HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 264,317, dated September 12, 1882.

Application filed March 3, 1882. (No model.)

To all whom it may concern:

Be it known that we, THOMAS J. McTIGHE and FREDERICK W. ROBERTSHAW, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Hose-Nozzles; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a longitudinal section of the nozzle complete. Fig. 2 is a similar section of the outer shell or nozzle-piece. Fig. 3 is a modification in section of the valve. Fig. 4 is another modification.

This invention relates to the construction of hose-nozzles of that class in which the stream can be adjusted to throw any quantity within the limits of the device or may be shut off altogether.

It consists in a hollow plug, upon which screws a nozzle-piece having a flat valve-seat behind the discharge-outlet, said plug having its end adjacent to such valve-seat solid or closed, and formed as a valve shutting against such seat in the direction of the pressure; and in the construction and combination of parts substantially as hereinafter fully described and claimed.

In the drawings, A designates the hollow plug, having thread *a* for attachment to the hose, thread *b* for attachment and regulation of the nozzle C, collars *c c* for the reception of a suitable packing-ring, openings *d d* communicating with the inside of the plug A, and closed outer end flattened and constituting the flat valve *e*, which, if desired, may be faced with suitable soft metal or other material.

C is the nozzle-piece, having thread *b* for screwing onto the plug A, cylindrical portion *f* for the play required in adjustment, enlarged valve-chamber *g*, and divergent mouth or delivery *h*. At the rear of mouth *h* the chamber *g* is at its front squared off to form a valve-seat, *i*, which is easily done by a suitable tool inserted from the rear end of the part C. The front of chamber *g* is cut away to a flattened or annular recess, *k*, as shown, which meets the rear of the mouth *h* at a comparatively sharp edge, marked *m*. Plug A, at its front end, is armed with the spur *n*, (slightly tapering by preference,) which is long enough to occupy the center of the orifice *m* in all positions of adjustment of the nozzle-piece C.

Thus constructed the operation is as follows: By screwing the piece C tightly down on plug A the valve *e* is brought squarely to its seat *i*, somewhat as a compression-valve, thus tightly closing the nozzle so that no water can escape. The pressure of the water inside, acting against the back of valve *e*, tends to hold it tight and secure. If we now unscrew nozzle-piece C a small distance, the seat *i* is drawn away from valve *e*, leaving an aperture, through which the water finds vent coming through plug A, openings *d*, into chamber *g* to the valve-aperture. In passing the valve the pressure is suddenly relieved by the recess *k*, and the issuing water then has an opportunity to take, as it were, a solid character. But if the water rushing to the orifice *m* from opposite diameters were permitted to come in direct contact a sort of churning action would take place, and the nozzle could not be used to play a solid stream. We correct this by interposing at the center of the orifice *m* the deflecting-spur *n*, which prevents the water from opposite sides meeting and deflects it outwardly more or less in a straight line from the nozzle, thus effecting its issuance in the character of a solid stream. The subsequent breaking up of such stream is avoided by constructing the orifice with the sharp edge *m*, by means of which the friction is suddenly discontinued, whereby the water no longer tends to hug the sides of the mouth *h*. For spraying, the sharp edge *m* may be rounded off.

By the above construction the stream will be always solid, no matter how much or how little aperture is adjusted between valve *e* and seat *i*.

If desired, the construction may be as in Fig. 3, where the valve *e* is made of hard fiber, celluloid, or other material.

In such nozzles where the character of the

stream is not so much required as the facility for shutting off and regulating, the spur *n* may be left off; but in all cases the seat *i* will be constructed at the discharge end of the chamber *g* at the rear of the mouth *h*.

We claim as our invention—

1. In a hose-nozzle, a hollow plug, A, having openings *d* and a compression-valve, *e*, in combination with a surrounding adjustable nozzle-piece, C, having chamber *g*, mouth *h*, and flat valve-seat *i* behind the mouth, substantially as described.

2. In a hose-nozzle, the combination of the plug A, having compression-valve *e*, with nozzle-piece C, having seat *i*, an orifice, *m*, and an annular recess or relief-chamber, *k*, between said seat *i* and orifice *m*, substantially as described.

3. In a hose-nozzle, the combination of the plug A, having valve *e* and tapered spur *n*, with nozzle-piece C, having seat *i* and a central orifice, said spur projecting through the central orifice in all positions of the piece C, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

THOMAS J. McTIGHE.
FREDERICK W. ROBERTSHAW.

Witnesses:
D. E. DAVIS,
J. B. CONNOLLY.