J. H. MELAVIN.

HOSE NOZZLE.

APPLICATION FILED AUG. 14, 1907.

898,759.

Patented Sept. 15, 1908.

Fig. 1.

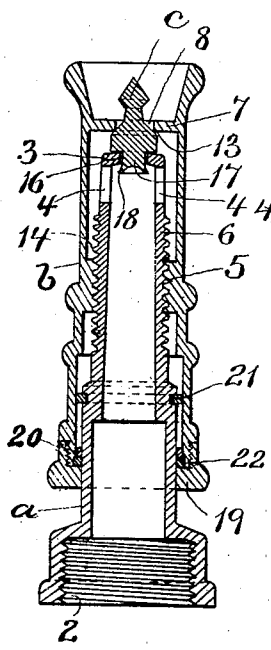


Fig. 2.

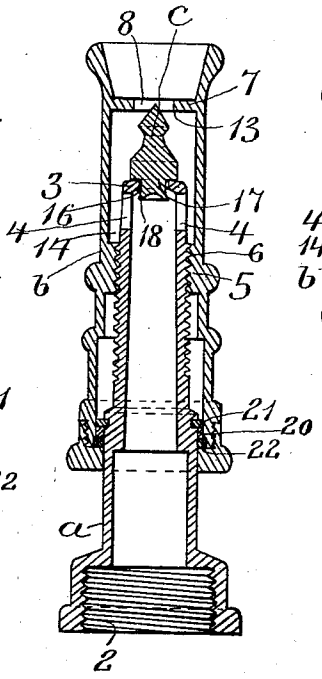


Fig. 3

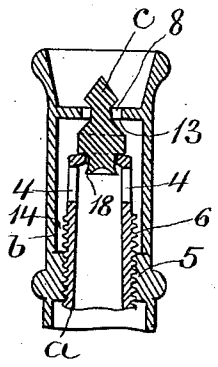
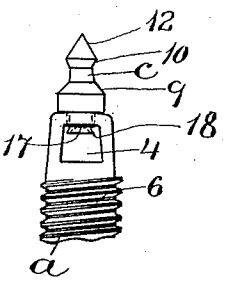


Fig. 4.



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UNITED STATES PATENT OFFICE.

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HOSE-NOZZLE.

No. 898,759. Specification of Letters Patent. Patented Sept. 15, 1908.

Application filed August 14, 1907. Serial No. 388,454.

To all whom it may concern:

Be it known that I, JOHN H. MELAVIN, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Hose-Nozzles, of which the following is a specification.

This invention relates to a hose nozzle, comprising a conduit member adapted for engagement with a hose, and provided with a tip formed to serve both as a valve and a deflector, and a sleeve adjustable longitudinally on the conduit member, and provided with a chamber surrounding the outlet of the conduit member, and with a contracted delivery outlet which is concentric with the axial center of the conduit member, the wall of the delivery outlet constituting a valve seat, on which the valve portion of the tip is adapted to close, while the deflector portion of the tip is adapted to pass through the outlet, and to modify the form of the stream emerging therefrom when the valve is opened. Heretofore in nozzles of this character, the tip has been integral with or rigidly affixed to the conduit member of the nozzle, and unless the parts are very accurately formed to insure the exact coincidence of the axis of the tip and of the conduit member, there is liability of the binding of the tip on the wall of the discharge nozzle when the sleeve is rotated on the conduit member, to adjust the discharge outlet relatively to the tip, the sleeve having a screw-thread engagement with the conduit member, so that by rotating the sleeve, the discharge outlet and tip are caused to assume different relative positions, in one of which the nozzle is closed by the seating of the valve portion of the tip, while in other positions the deflector portion of the tip coöperates with the wall of the discharge outlet in converting the stream into spray, and giving the same different forms, according to the adjustment.

The present invention has for its object to insure a central position of the tip relatively to the longitudinal axis of the conduit member, and it consists in a nozzle of the general construction above set forth, characterized by a loose mounting of the tip on the conduit member, so that the tip is adapted to be automatically centered, both by the seating or closing of the valve, and by the pressure of the escaping water against the deflector.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a longitudinal section of a nozzle embodying my invention, the nozzle being closed. Fig. 2 represents a view similar to Fig. 1, showing the nozzle opened. Fig. 3 represents a view similar to a portion of Fig. 2, showing a different adjustment of the sleeve relatively to the tip. Fig. 4 represents a side view of a portion of the conduit member and its tip.

The same letters of reference indicate the same parts in all the figures.

a represents a tubular conduit member, which is provided at its inner end with an internally-threaded socket or coupling member 2 adapted for engagement with a complemental coupling member on a hose. The outer end of the conduit member *a* has a cap or head 3, adjacent to which are ports 4 4, through which water passes outwardly from the conduit member.

b represents the sleeve which surrounds and is rotatable on the conduit member *a*, and is provided with an internal screw thread 5 engaging an external screw thread 6 on the conduit member *a*, so that the rotation of the sleeve on the conduit member, causes a longitudinal movement of the former relatively to the latter. The sleeve *b* is provided with a head 7, in the center of which is formed a discharge outlet 8, which is circular and concentric with the longitudinal axis of the conduit member *a*.

c represents the tip, which includes a tapered valve portion 9 and a double tapered deflector portion having a frusto-conical inner portion 10 and a conical outer portion 12. The valve portion 9 is formed to be seated on the valve seat 13, formed by the junction of the wall of the discharge outlet 8 with the inner side of the head 7. When the valve portion is thus seated, as shown in Fig. 1, the nozzle is closed. The deflector portion of the tip is adapted to pass through the discharge outlet 8, and to occupy different positions with relation thereto, as shown in Figs. 2 and 3, these different positions being caused by the rotation of the sleeve on the conduit member.

When the nozzle is opened, as indicated in Figs. 2 and 3, water passes from the conduit member through the ports 4 into a chamber 14, formed by an enlargement of the interior of the sleeve *b*, and passes from thence, between the deflector and the wall of the discharge outlet 8, in a stream which is converted into spray by the deflection of the

water, the form of the stream being dependent upon the adjustment of the parts. Heretofore the tip has been integral with or rigidly attached to the head 3 of the conduit member, as above stated. It is obviously necessary that the axial center of the tip be in exact alinement with the axial center of the conduit member, in order that the valve may be properly seated when the nozzle is closed, and in order that the deflector may be concentric with the discharge outlet, and further in order that the longitudinal adjustment of the sleeve may be effected without binding contact between the deflector and the wall of the outlet nozzle. It is a matter of considerable difficulty in forming the conduit member and the tip by the methods and means ordinarily used, to secure the necessary alinement of the tip and conduit member, and much difficulty has been experienced in making this class of nozzles for this reason. I overcome all objections that have heretofore been experienced, by mounting the tip loosely on the head 3 of the conduit member, so that the head is capable of a limited lateral movement, sufficient to insure its centering, both by the bearing of the valve portion on its seat when the nozzle is closed, and by the pressure of the water against the deflector part of the tip when the nozzle is opened. I accomplish this result in the present embodiment of my invention by forming an orifice 16 in the head 3, and a shank 17 on the inner end of the tip, the said shank being of smaller diameter than the orifice, so that it is capable of moving laterally therein to permit a limited lateral movement of the tip in any direction. The tip is prevented from being removed from the head 3 by slightly upsetting or enlarging the inner end of the shank 17, as indicated at 18. The outer face of the head 3 is preferably made somewhat convex, and the base of the tip surrounding the shank 17 correspondingly concave, as shown in the drawings.

It will be seen from the foregoing that the tip is adapted to be automatically centered by the pressure of the valve against its seat and by the water pressure against the deflector, so that the proper closing of the valve is insured, and all possibility of the binding of the deflector on the wall of the discharge outlet, when the sleeve is being adjusted, is prevented.

I do not limit myself to the described loose or automatically-adjustable connection between the tip and the conduit member, andmay provide this connection in any other suitable way.

To prevent leakage between the inner end of the sleeve and the conduit member, I provide the inner end of the sleeve with an inwardly-projecting shoulder 19, which supports a metal stop-ring 22 and a suitable compressing packing ring or gasket 20. The conduit member is provided with an outwardly-projecting metal stop ring 21 which is adapted to be seated on the packing 20 when the sleeve is adjusted to open the nozzle, as shown in Fig. 2, the said ring 21 acting as a stop to limit the outward adjustment of the sleeve on the conduit member.

I claim:

A hose nozzle comprising a conduit member adapted for engagement with a hose, a tip carried by the conduit, and having a valve portion and a deflector portion outside the valve portion, and a sleeve adjustable longitudinally on the conduit member, and provided with a chamber communicating with the said member and with a contracted delivery outlet substantially concentric with the axial center of the conduit member, and of larger diameter than the said deflector portion, the wall of said outlet constituting a valve seat on which the valve portion of the tip is adapted to close, while the deflector portion of the tip is adapted to pass through the outlet, the tip being loosely mounted on the conduit member and adapted to have a limited lateral movement, whereby the deflector portion is prevented from binding on the wall of the delivery outlet while passing through the same, and is adapted to be automatically centered relatively to the said outlet.

In testimony whereof I have affixed my signature, in presence of two witnesses.

JOHN H. MELAVIN.

Witnesses:

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