

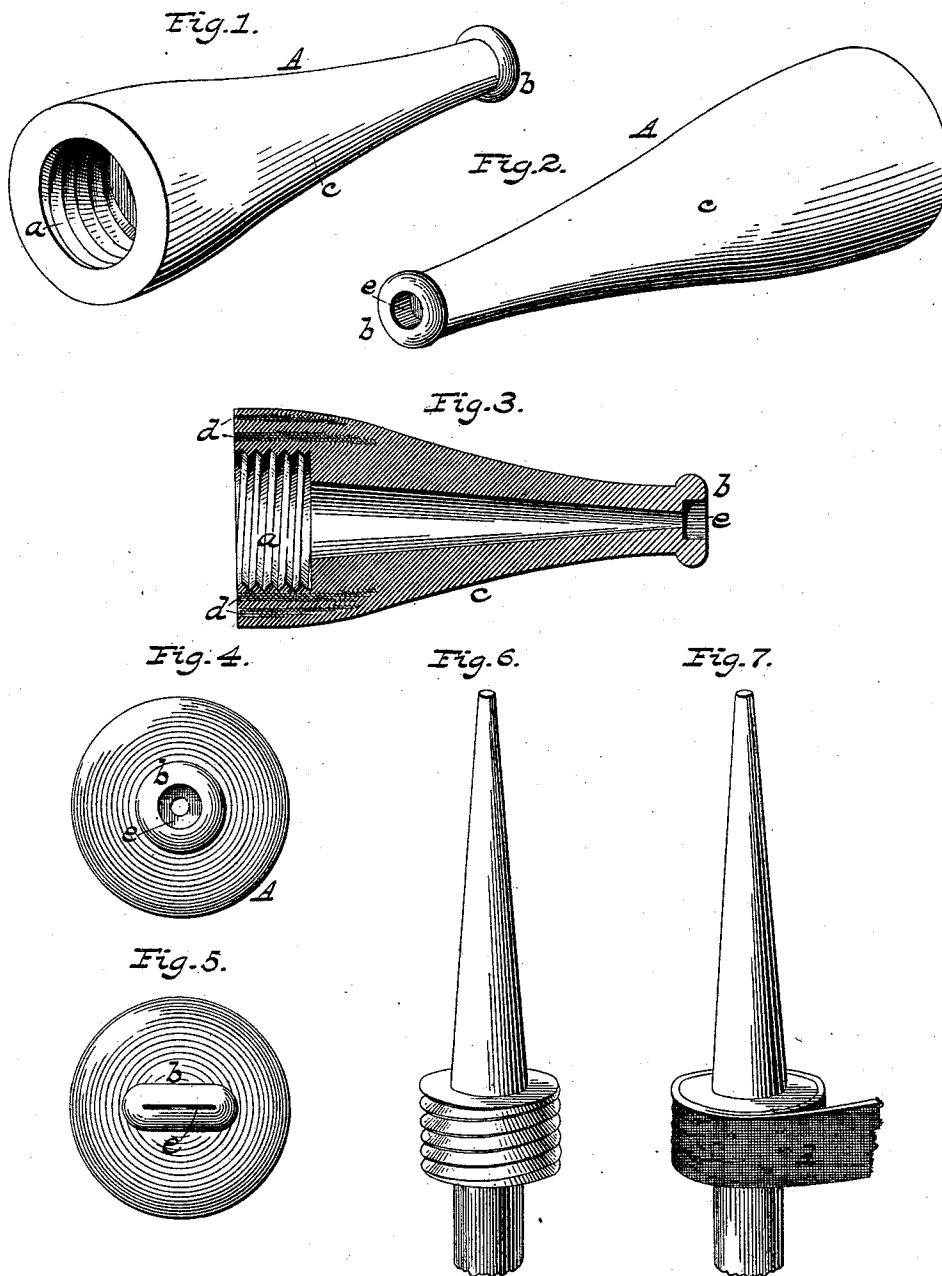
(No Model.)

J. W. GRAY.

HOSE NOZZLE.

No. 359,602.

Patented Mar. 22, 1887.



Witnesses:

James F. Duhamel
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Inventor:

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UNITED STATES PATENT OFFICE.

JOHN W. GRAY, OF HARTFORD, CONNECTICUT.

HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 359,602, dated March 22, 1887.

Application filed February 9, 1886. Serial No. 191,335. (No model.)

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, of which the following is a specification.

My invention relates to hose-nozzles; and it consists in constructing the same with a flexible tip containing a water-passage or discharge-orifice of larger size at the extremity of the tip than back of said point.

In the annexed drawings, Figures 1 and 2 are perspective views of the improved nozzle, looking from opposite ends; Fig. 3, a longitudinal central section; Figs. 4 and 5, views of the fore end or discharge-orifice in its normal and flattened shape; Fig. 6, a view of the core, and Fig. 7 a view illustrating the manner of introducing the fibrous strips.

The purpose of my invention is to produce a cheap and efficient nozzle, suitable for throwing at will either a solid stream or a spray, and of being closed without the aid of a cock, as mentioned. To this end I construct the nozzle in the following manner and form.

In order to produce a proper central opening, it is of course necessary to employ a mandrel or core which is of the form required for the interior of the finished nozzle. Having provided a mandrel or core, unvulcanized rubber is cut into suitable pieces, and these are wound upon this steel core, (which forms part of the mold,) using a softer grade or quality of rubber at the discharge end than at the socket or butt-end of the nozzle. At the socket or butt layers of cloth previously coated with rubber are wound firmly about the threaded portion of the core to give strength and firmness to said portion, and render it incapable of stretching and permitting the accidental detachment of the finished nozzle from the nozzle-coupling. This winding may be carried to any extent desired or deemed advisable as to thickness, and also as to the distance it shall extend from the butt or socket portion. From the butt to a point within a short distance of the discharge end the rubber is of a comparatively hard and unyielding nature; but from that point to the

extreme forward end a softer grade is used, in order that the discharge-orifice may be flattened by pressure of the fingers to cause a spray, or be completely closed, as desired. To cause the spray to be spread laterally over the adequate space, the discharge-orifice is made larger than the water-passage back of said orifice, so that a wide opening is produced by flattening or compressing the tip of the nozzle.

Referring now to the drawings, A indicates the nozzle; *a*, the threaded socket thereof; *b*, the tip; *c*, the body or intermediate portion.

In Fig. 7 is indicated the manner of introducing the fibrous or woven strip *d*, and in Fig. 3 the position of said material in the finished nozzle is indicated. When the winding is finished, the entire nozzle is coated with the same quality of rubber as is used in the body or main portion of the nozzle, and projecting or surplus portions are cut away to give the nozzle approximately the form of the mold. The nozzle thus formed, or partially formed, is introduced, together with the core, into the mold, and the whole is put into the steam-press or vulcanizer and vulcanized in the well-known manner. The vulcanizing being completed the nozzle is withdrawn from the mold and the core is removed from the nozzle. The fin or feather left where the parts of the mold meet is trimmed off and the nozzle is ready for the market.

As shown in Fig. 3, the tip is made with an internal enlargement, *e*, constituting the discharge-orifice, and when the tip is compressed a wide and thin opening is produced, as shown in Fig. 5, which causes the water to be discharged in the form of a spray, and to spread laterally over considerable space.

It is not essential that webbing be employed to strengthen the socket portion of the nozzle, as a metal ring or coil of wire or equivalent strengthening device may obviously be employed. It will also be seen that a metal socket-piece, with or without a cock, might be added to the nozzle made in other respects as above set forth.

In order to fully secure the benefits of my invention, it is necessary that the contracted

or smaller, as well as the enlarged, portion of the water-passage in the tip be compressed or flattened, and this can only be done where the smaller, as well as the larger, part of the
5 discharge passage or orifice is formed in the flexible tip.

Having thus described my invention, what I claim is—

A rubber hose-nozzle having a flexible tip formed with a discharge-orifice larger than the water-passage back of said orifice.

JOHN W. GRAY.

Witnesses:

HENRY HERING,
GRAY STAUNTON.