(No Model.)

T. C. CHURCHMAN.

NOZZLE.

No. 259,667. Patented June 20, 1882.

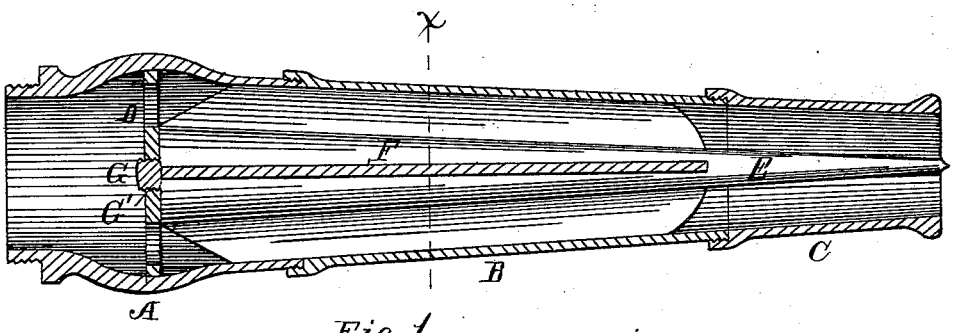

Fig. 1.

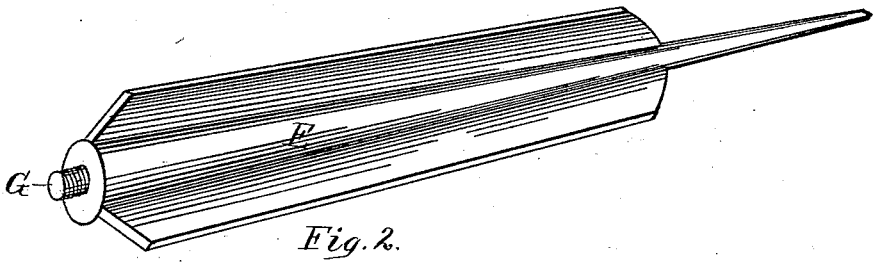

Fig. 2.

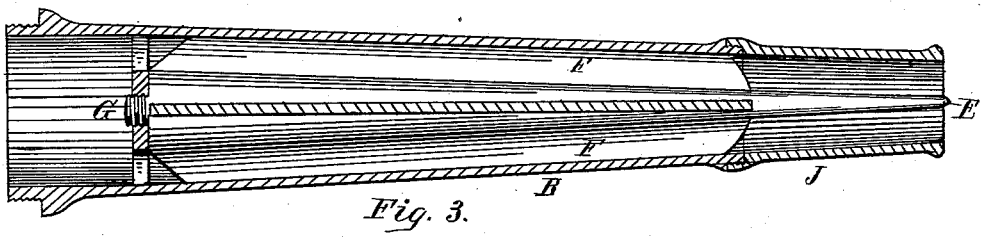

Fig. 3.

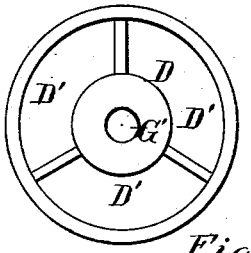

Fig. 4.

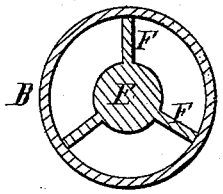

Fig. 5.

Witnesses:
W. Klein
J. H. Bailey

Inventor:
T. C. Churchman
by J. L. Ferbs
Atty.

UNITED STATES PATENT OFFICE.

THOMAS C. CHURCHMAN, OF SACRAMENTO, CALIFORNIA.

NOZZLE.

SPECIFICATION forming part of Letters Patent No. 259,667, dated June 20, 1882.

Application filed January 30, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. CHURCHMAN, of Sacramento city, in the county of Sacramento and State of California, have invented a new and useful Improvement in Nozzles, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of the nozzle. Fig. 2 is a perspective view of the core. Fig. 3 is a longitudinal sectional view of a modified form of the nozzle. Fig. 4 is a view of the core-head, and Fig. 5 is a cross-sectional view of the nozzle through the line *x* of Fig. 1.

The object of my invention is to provide an improved hose-nozzle.

In the ordinary nozzle as now constructed the water on emerging from the nozzle gradually begins to spread and spray, and the desideratum is to construct a nozzle which will deliver the water in a solid stream farther than the nozzles now in use. Investigation shows that a stream of water passing through a nozzle assumes a circular or spiral motion to a certain degree, and the water, therefore, as it leaves the nozzle, has a tendency to separate, owing to the centrifugal force caused by this circular motion. It is also evident that the water at the point of the nozzle is very much compressed, owing to the taper of the nozzle within, so that the water as it is ejected is suddenly permitted to expand beyond the nozzle, which in a measure accounts for the spraying so frequently noted.

To obviate and remedy these objections I have invented the within-described nozzle, which consists in having a core provided with flanges or leaves within the nozzle to form separate channel-ways for the water, said core being so arranged as to project slightly beyond the mouth of the nozzle and terminate in an abrupt point, as will be hereinafter fully set forth.

Referring to the accompanying drawings, Fig. 1 represents one form of the nozzle or shell, made in three parts, A, B, and C. A disk or head, D, having openings D′, is placed in the large or rear end of the nozzle; or this head may be cast with the rear part, A, of the nozzle. Centrally this disk is provided with a screw-threaded hole, G′. A core, E, having preferably the same taper as the shell of the nozzle, is provided at the rear end with a screw-threaded stud, G, to enter the screw-threaded hole G′. This core extends to the discharge end of the nozzle and terminates in an abrupt taper, projecting but slightly beyond the end of the nozzle. Projecting from the core E are three or more flanges or leaves, F, which are intended to form separate and independent channel-ways for the egress of the water.

Fig. 3 represents my improvement applied to the ordinary nozzle. In this instance the nozzle is constructed in two parts, B and J, although I do not consider this necessary, since the core E can be inserted from the rear end of the nozzle, as is obvious. A nozzle provided with these separate channel-ways will effectually prevent the water from assuming a spiral motion in its route through the nozzle. The water on reaching the end of the nozzle entirely surrounds the end of the core, so that when it is ejected from the nozzle there is a vacuum formed by the end of the core. The water being greatly compressed and having a tendency to expand will, instead of expanding outwardly, seek to fill up the vacuum made by the end of the core. Hence the spraying and spreading from this cause will also in a measure be avoided. The principal features of my invention, therefore, are to eject water from a nozzle straight and direct without a spiral motion, and to provide for expansion toward the center of the stream-body, as shown.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A nozzle for hose, having within a tapering core provided with flanges or leaves which terminate a short distance back of the muzzle, said core extending to and projecting slightly beyond the discharge end of the nozzle, terminating in an abrupt taper, substantially as and for the purpose herein shown.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of witnesses.

THOMAS CURTIS CHURCHMAN.

Witnesses:

T. L. ACOCK,

DUNCAN BEAUMONT.