

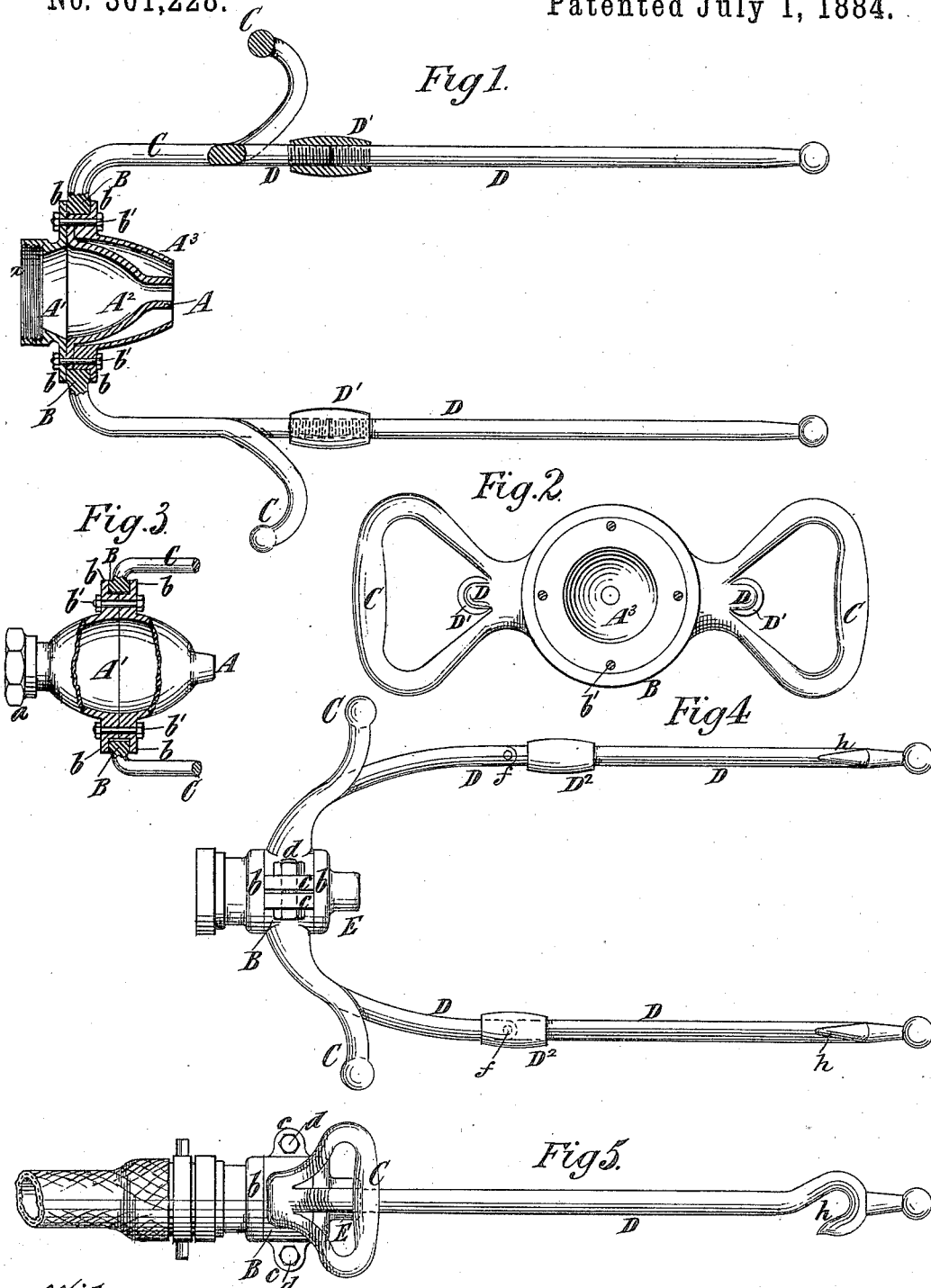
(No Model.)

J. E. GILLESPIE.

HOSE NOZZLE.

No. 301,228.

Patented July 1, 1884.



Witnesses

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JAMES E. GILLESPIE, OF WARWICK, NEW YORK.

HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 301,228, dated July 1, 1884.

Application filed September 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. GILLESPIE, of Warwick, in the county of Orange and State of New York, have invented certain new and useful Improvements in Hose and Pipe Nozzles, of which the following is a specification.

One object of my invention is to provide a nozzle which will automatically vary and regulate the size or diameter of the stream discharged from it in proportion to the pressure of the water in the hose or pipe.

To this end the invention consists in a hose or pipe nozzle having an elastic and automatically-expansible tip. The elastic material may be of such strength that the minimum pressure under which it is to be used will allow it to contract to its smallest size, and the tip will expand or distend as the pressure increases, so as to throw a larger stream.

The invention also consists in a hose or pipe nozzle having in rear of its tip a chamber or enlargement, and having the tip and a portion of said chamber or enlargement made of elastic or yielding material. The chamber or enlargement in rear of the tip serves to counteract the tendency of the water to acquire a circular or rotary motion as it leaves the nozzle. I also combine with the nozzle comprising elastic material, as above described, a guard, which surrounds the elastic portion and prevents its distention to a degree which would render it liable to rupture.

Another object of my invention is to enable a hose or pipe nozzle to be held with much greater ease than is now possible against movement sidewise, or wobbling while in use; and to this end the invention further consists in the combination, with a hose or pipe nozzle, of handles projecting therefrom forward of the tip.

It also consists in the combination, with a hose or pipe nozzle, of a band loosely surrounding the same, and handles projecting from said band forward of the tip of the nozzle.

It also consists in the combination, with a hose or pipe nozzle, of open handles projecting forward of or in line with the tip of the nozzle, and supplemental handles projecting

still farther forward of the nozzle-tip, and preferably made detachable, so that they may be used or not, as is desired.

It also consists in the combination, with a hose or pipe nozzle, of handles projecting forward of the tip thereof, and one or both of which are hooked to enable the nozzle to be readily suspended from a ladder or other support.

In the accompanying drawings, Figure 1 represents a longitudinal section of my improved nozzle. Fig. 2 represents a transverse section thereof. Fig. 3 represents a partly-sectional side view of a nozzle of slightly modified form, also embodying one feature of my invention. Fig. 4 represents a side view of a short nozzle, such as is sometimes applied to a hose-coupling, also embodying my invention; and Fig. 5 represents another view of the nozzle shown in Fig. 4.

Similar letters of reference designate corresponding parts in all the figures.

Referring, first, to Figs. 1 and 2, A designates the nozzle proper or tip, which is very short, and A' A² designate the chamber or enlargement in rear of the tip, the part A' of which is provided with an internal screw-thread, *a*, whereby it may be attached to a hose or pipe. The part A' of the chamber or enlargement is composed of metal; but the part A², with the tip A, is made of india-rubber or some other elastic or yielding material. The part A² is closed or surrounded by a guard, A³, which is made of metal or other rigid material, and the part A' and guard A³ are provided with flanges *b*, between which the edge or rim of the elastic nozzle portion A² is clamped and held by bolts *b'*, inserted through said flanges. The part A², with its tip A, should be of such thickness and strength that the minimum pressure which will be used will allow it to contract to its smallest size or diameter, while any excess of that pressure will expand or distend the tip, and so increase the size or diameter of the stream discharged. When the maximum pressure for which the nozzle is intended is reached, the part A² will have been distended so that it will bear against the guard A³, and hence it will be seen that

further distention and rupture will be prevented by said guard. The rubber will begin to come in contact with the guard A³ near its flange *b*, and will be then pressed out gradually to the tip. By making the nozzle-tip and part of the chamber or enlargement of india-rubber, I enable the nozzle to automatically adapt its size to the pressure of the water, and if the pressure increases even considerably, the nozzle will distend so as to throw a stream of proportionately greater size or diameter. The flange *b* on the guard A³ is rabbeted on the inner side, so as to form between the flanges *b b* an annular channel or groove, in which fits a band, B.

C designates handles, which are here represented as formed upon the band B, and projecting therefrom outward and forward, so as to extend to a point in line with or forward of the tip of the nozzle A. The handles C (shown in Figs. 1 and 2) project some little distance in front of the nozzle, and are open, as seen in Fig. 2, so that the hand may be readily inserted through and closed around each of them. As clearly shown in Fig. 1, the two handles C are hooked or turned backward at the ends, so that either of them may be hooked over a ladder-round or other support, to suspend the nozzle therefrom.

D designates supplemental handles, which consist of round bars projecting straight forward and may be parallel with each other. In this instance the supplemental handles really project from the handle C; but they might project directly from the band B, or from some other part of the nozzle, said band being considered as a part of the nozzle. It will be readily seen that two men, each holding a handle C with one hand and a handle D with the other hand, can very easily control and handle the nozzle. By means of the handles C they can hold the nozzle against the backward pull which is due to reaction as the water issues from the nozzle, and by the hands which hold the handles D far forward of the tip of the nozzle they can direct the stream up or down or to either side, as may be desired.

The ordinary nozzle always has a great tendency to move sidewise or to wobble, and the greatest exertions of firemen are often required to hold the nozzle against such force and prevent its flying out of their hands and injuring them or becoming unmanageable. Where the nozzle is provided with handles which project forward of its tip the firemen have such a leverage that they can control the nozzle and direct it up or down or from side to side, as may be necessary, with the least possible exertion, and all they have to hold it is the backward pull of the nozzle produced by reaction. This may be easily resisted by the hold on the open handles C.

As clearly seen in Figs. 1 and 2, the supplemental handles D are connected with the main handles C by ordinary screw-threaded

sleeve-couplings, D', which enable the supplemental handles to be taken off when the nozzle is not in use, or when it is desired to use it with the handles C alone.

Referring now to Fig. 3, A designates the tip of the nozzle, and A' the chamber or enlargement, which, as here represented, is made of rigid material. Its two parts are provided with flanges *b*, through which are passed securing-bolts *b'*, and the flanges are rabbeted, so as to form an annular groove or channel for the reception of a band, B, from which the handles C project. The chamber or enlargement A' has a screw-threaded socket, *a*, whereby it may be connected with a hose or pipe.

Referring now to Figs. 4 and 5, E designates a short nozzle, such as is sometimes attached to a hose-coupling. Upon its exterior are annular beads or flanges *b*, which form between them an annular groove or seat wherein is loosely fitted a ring or band, B, made in two parts and connected by bolts *d*, passing through lugs *c* upon said two parts. The band B has open handles C projecting from it, and also has the straight parallel supplemental handles D, which may be hinged or jointed at *f*, as shown in Fig. 4, so that they may be turned over when the nozzle is not in use, or which may be rigid, as shown in Fig. 5.

When the nozzle is to be used, the handles D may be made rigid by sleeves D², which are moved or slid down over the hinged joints *f*. In this example of my invention the two supplemental handles are formed with hooks *h* at their ends, whereby the nozzle can be readily suspended from a ladder-round or other support.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A hose or pipe nozzle having an elastic and automatically-expandible tip, substantially as herein described.

2. A hose or pipe nozzle having in rear of its tip a chamber or enlargement, and having the tip and a portion of said chamber or enlargement made of elastic or yielding material, substantially as and for the purpose described.

3. In a hose or pipe nozzle, the combination of a chamber or enlargement consisting of a portion made of rigid material and a portion comprising the tip made of elastic or yielding material, and a guard inclosing the elastic portion, substantially as and for the purpose described.

4. The combination, with a hose or pipe nozzle, of handles projecting therefrom forward of the tip of the nozzle, substantially as and for the purpose specified.

5. The combination, with a hose or pipe nozzle, of a band loosely surrounding the same, and handles projecting from said band forward of the tip of the nozzle, substantially as and for the purpose specified.

6. The combination, with a hose or pipe

nozzle, of open handles projecting therefrom, and supplemental handles projecting forward of the tip, substantially as and for the purpose specified.

5 7. The combination, with a hose or pipe nozzle, of the open handles C and the detachable supplemental handles D, substantially as and for the purpose specified.

8. The combination, with a hose or pipe

nozzle, of handles D, projecting therefrom to forward of the tip of the nozzle and provided with hooks h, substantially as and for the purpose specified.

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