(No Model.)

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NOZZLE.

No. 573,721. Patented Dec. 22, 1896.

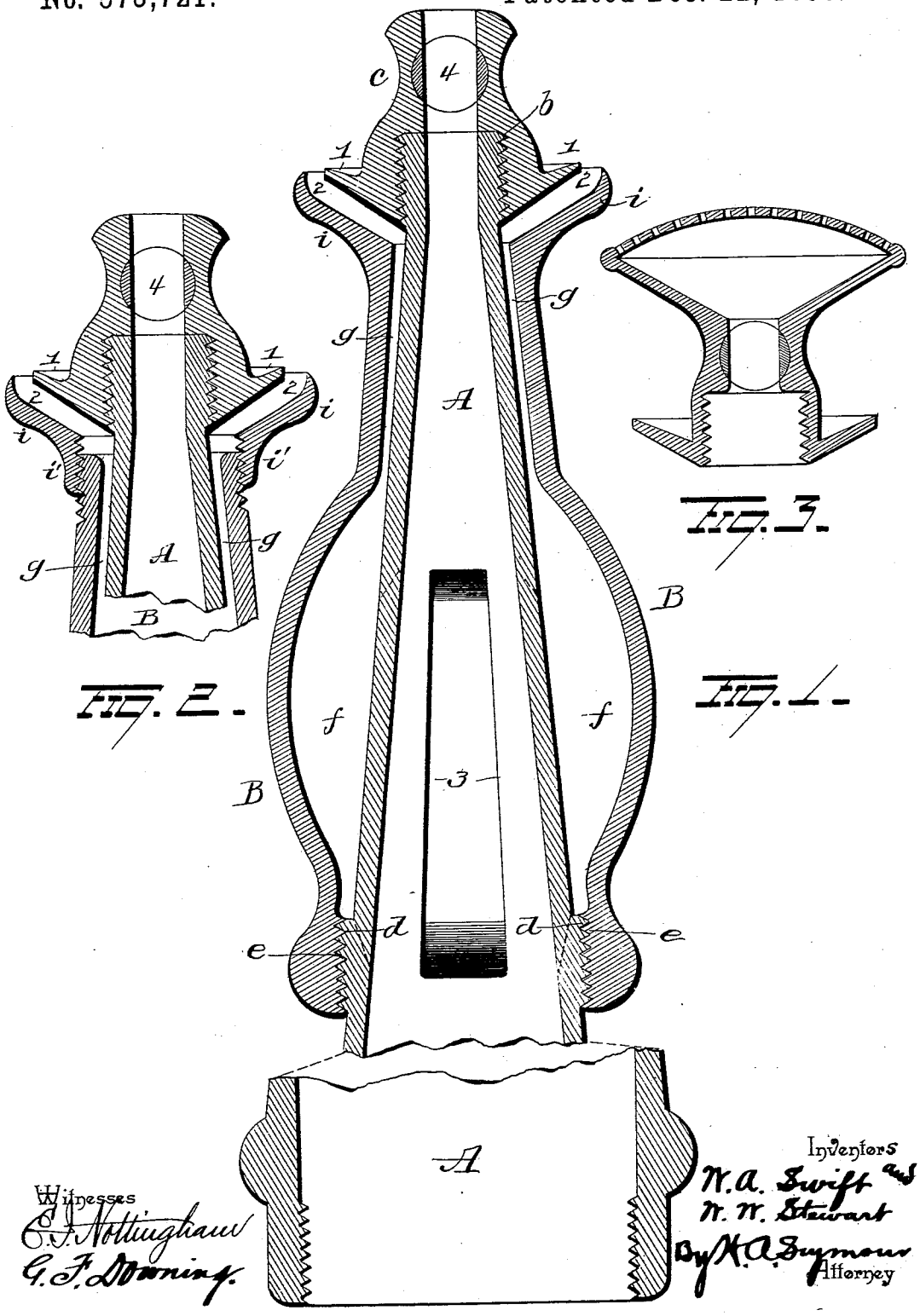

FIG. 1.

FIG. 2.

FIG. 3.

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NOZZLE.

SPECIFICATION forming part of Letters Patent No. 573,721, dated December 22, 1896.

Application filed October 5, 1895. Serial No. 564,770. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. SWIFT and WILLIAM W. STEWART, residents of Columbus, in the county of Muscogee and State of Georgia, have invented certain new and useful Improvements in Nozzles; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in nozzles, the object of the invention being to produce a nozzle by means of which the fireman can be protected from excessive heat.

A further object is to so construct a nozzle that a spray of water can be made to flow from the same in rear of the tip through which the straight stream passes.

A further object is to produce a nozzle by means of which a solid stream and a spray may be made to flow therefrom simultaneously, or either a stream or a spray separately.

A further object is to produce a nozzle which may be used as a lawn or street sprinkler by setting the nozzle in a portable stand or with the nozzle attached to a hose and throwing the water at any place which may be desired.

A further object is to produce a spray in the rear of the tip, and by changing the tip having solid outlet to one having closed perforated end to form a combination straight and lateral spray, the object being to use both outlets for sprays when fighting fire at close range, thus covering large areas.

A further object is to make the tips for different-sized outlets for the water, say from one-half inch to one and one-half or two inches in diameter, without changing any other part of the nozzle.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional view illustrating an embodiment of our invention. Figs. 2 and 3 are detail views.

A represents a conical pipe or nozzle provided at its larger end with internal screw-threads *a* for the reception of the coupling of a hose, and at its smaller end said pipe or nozzle is provided with external screw-threads *b* for the reception of the nozzle-tip or outlet *c*. The tip or outlet *c* is made at its rear end with an annular outwardly and slightly forwardly projecting flange 1, the function of which will be presently fully explained, or said flange might be made to project at right angles from the tip.

At a point between its ends the pipe or nozzle A is provided with external screw-threads *d*, with which screw-threads *e* at the rear end of a shell B mesh, said shell being made to inclose a portion of the pipe or nozzle A and form a chamber *f* between itself and said pipe or nozzle. The forward end of the shell B is made of greater internal diameter than the external diameter of the pipe or nozzle A, so as to form a duct or channel *g*, which communicates at its rear end with the chamber *f*, and the extreme forward end of the shell is made with an annular flaring flange *i*, disposed nearly parallel with the flange 1. An annular outlet-passage 2 is thus formed between the flanges 1 and *i*. The flange *i* is slightly curved and projects somewhat beyond the flange 1.

The pipe or nozzle A is made with a series of elongated openings 3, (preferably four in number,) through which water will pass from said pipe or nozzle into the chamber *f*, and from thence through the annular channel or duct *g* to the annular outlet 2, from which it will be emitted in the form of a spray similar in shape to an umbrella.

The nozzle will preferably be provided at a point forwardly of the opening 3 with a valve 4, by means of which the flow of water to the tip or outlet *c* can be stopped if desired, and said tip may be made open for a solid stream or enlarged and perforated for a spray.

From the construction and arrangement of parts above described it will be seen that a solid stream of water can be made to flow through the outlet *c*, if open outlet is used, or spray, if a perforated tip, Fig. 3, be used, and simultaneously a spray will be emitted in rear

of the outlet *c*. This spray will protect the fireman using the nozzle from the excessive heat of the fire.

By means of my improvement a solid stream can be made to flow from the nozzle and at the same time a considerable area in proximity to the fireman can be wet without the necessity of diverting the main stream from the outlet *c*.

If desired, the nozzle can be used without the spray by turning the shell B so as to cause the forward end thereof to bear against the rear of the tip *c* and thus close the annular outlet 2, or the spray could be used independently of the main stream by merely closing the valve 4. The solid stream and spray can thus be used simultaneously or either one without the other, as desired.

By making the flange *i* curved and wider than the flange 1 it will be seen that by causing the flange *i* to approach comparatively close to the flange 1 the spray can be made to flow straight ahead, or approximately so. By moving the flange *i* rearwardly, so as to enlarge the chamber or outlet 2, the spray will flow laterally, practically coincident with the rear face of the flange 1. Instead of making the flange *i* integral with the shell B, as shown in Fig. 1, it may be made on a sleeve *i'*, adapted to screw on the forward end of the shell B, as shown in Fig. 2.

Water might be conveyed to the spray in other ways than above described, and various slight changes might be made in the details of construction of our invention without departing from the spirit thereof or limiting its scope, and hence we do not wish to limit ourselves to the precise details of construction herein set forth; but,

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a nozzle, the combination with a pipe or nozzle having a deflecting annular flange which extends outwardly at an angle thereto whereby to deflect water coming into contact therewith outwardly, of an adjustable ring or collar back of said flange between which and the flange a passage for water is formed, said ring or collar being of greater diameter at its outer end than the flange and extending forwardly at its extreme outer end whereby to turn the flow of water from its outward direction to a straight forward course or any intermediate angle between a straight forward course and the outward lateral direction induced by the annular flange, and means for maintaining a continuous flow of water from the supply to both apertures of the nozzle, substantially as set forth.

2. In a nozzle, the combination with a pipe or nozzle having a screw-thread formed thereon at or near its outer end, and an outwardly-deflecting annular flange screwed on this thread, of an adjustable annular ring or collar having a greater diameter at its outer end than the flange and projecting forwardly at its outer end whereby to change the direction of the spray passing between the flange and ring or collar from a lateral direction to a straight forward course or to an intermediate angle between the outward and forward direction, and means for maintaining a continuous flow of water from the supply to both apertures of the nozzle, substantially as set forth.

3. In a nozzle, the combination with a pipe or nozzle having a screw-threaded exterior, a shell surrounding the pipe or nozzle and screwed thereon whereby an annular space is formed between them, said pipe or nozzle having communicating openings for the passage of water therefrom into the space between the shell and pipe or nozzle, of an outwardly-projecting flange on the outer end of the pipe or nozzle, and a ring or collar screwed on the end of the outer shell, said ring or collar being of greater diameter at its outer end than the flange and extending forwardly to deflect the water turned laterally by the flange to different angles to a straight forward direction and means for maintaining a continuous flow of water from the supply to both apertures of the nozzle, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

W. A. SWIFT.
W. W. STEWART.

Witnesses:
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