

(No Model.)

W. F. CUNNINGHAM.  
RAM JET NOZZLE.

No. 551,527.

Patented Dec. 17, 1895.

Fig. 1.

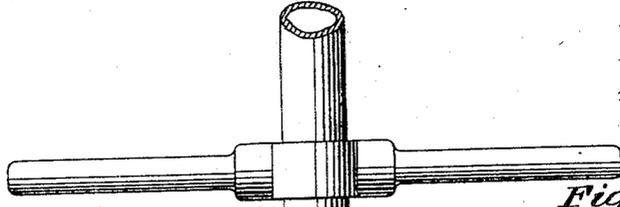


Fig. 4.

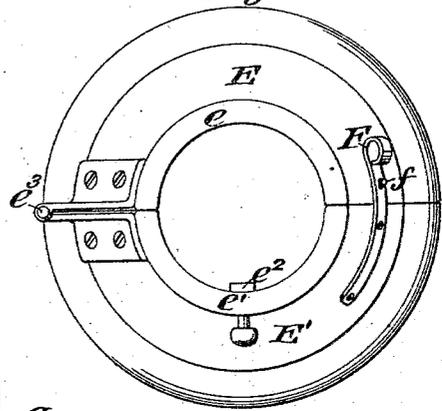


Fig. 3.

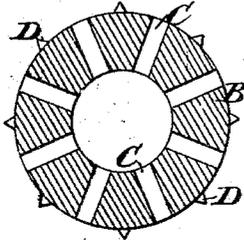


Fig. 2.

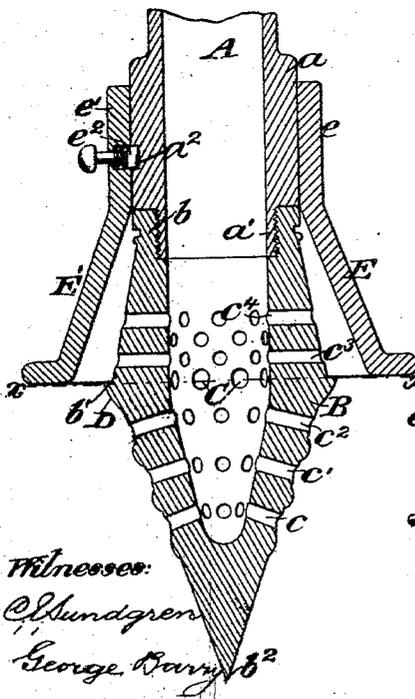
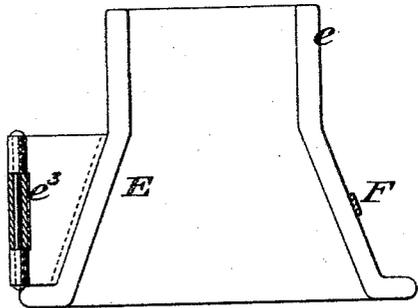


Fig. 5.



Witnesses:  
O. Lundgren  
George Barry

Inventor:  
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# UNITED STATES PATENT OFFICE.

WILLIAM F. CUNNINGHAM, OF BROOKLYN, NEW YORK.

## RAM JET-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 551,527, dated December 17, 1895.

Application filed January 16, 1895. Serial No. 535,079. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. CUNNINGHAM, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Ram Jet-Nozzles, of which the following is a specification.

My invention relates to an improvement in ram jet-nozzles for use in connection with fire-extinguishing hose or where it is desirable to force the nozzle through a floor or partition to discharge the water into an apartment beyond.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the nozzle as it appears when ready for use, the stem being partially broken away to show the means of securing the removable handles to the stem or shank.

Fig. 2 is an enlarged vertical longitudinal section through the head, the shield, and a portion of the stem or shank of the nozzle. Fig. 3 is a transverse section through the head of the nozzle along the line  $x x$  of Fig. 2. Fig. 4 is an enlarged top plan view of the shield, and Fig. 5 is a view of one of the half-sections of the shield in elevation.

The stem or the shank of the nozzle is denoted by A and consists of a tube of brass or other suitable material and is provided at its discharge end with a thickened wall  $a$  terminating in an exteriorly-screw-threaded nipple  $a'$  for the attachment thereto of the head of the nozzle.

The head of the nozzle is denoted by B and from its upper portion  $b$ , where it is fitted to screw onto the nipple  $a'$  of the shank, it gradually increases in size to a point  $b'$ , in the present instance somewhat less than half its length, and from the point  $b'$  it tapers down to a sharp point  $b''$ . The head B has a thick wall and is preferably made of steel for the purpose of forcing its way through a floor or partition without liability of breakage. The wall of the head B is provided with manifold perforations, a central group C being made somewhat larger than the others and directed radially to the longitudinal axis of the head, while others,  $c$ ,  $c'$ ,  $c^2$ ,  $c^3$  and  $c^4$ , are given various inclinations at angles to the longitudinal axis of the head for the purpose of discharging jets of water in numerous different

directions, so as to fill the space surrounding the head as full as may be of water.

The exterior of the pointed portion of the nozzle B is provided with a series of winding ribs D in the nature of screw-threads, so that after the head has been forced into the floor or partition, in the event it should not pass through under the impulse given it in the direction of its axis, it may be turned and advanced in the nature of a screw by the effect of the ribs D upon the wall of the opening.

For the purpose of preventing the water issuing from the head B from interfering with the operator while he is locating the nozzle and forcing it through the partition or floor, I provide a flaring or bell-shaped shield, consisting of two half-sections E E', the upper portions  $e e'$  of which are adapted to embrace the thickened portion  $a$  of the shank or stem of the nozzle with an easy sliding fit. To hold the shield temporarily in position with its flaring portion around the upper portion of the head B, I provide it with a spring-catch  $e^2$ , which is adapted to enter a socket  $a^2$  in the exterior of the thickened portion  $a$  of the stem or shank. The half-sections E E' are hinged together, as at  $e^3$ , and may be held in their lateral adjustment around the stem or shank by means of a latch F made of steel or other suitable resilient material and fastened at one end to one of the sections, as at E', the other end being free to be elevated over a pin or stud  $f$  extending from the face of the section E.

The stem or shank A is provided with one or more pairs of removable handles G G', the said handles being in the present instance provided with screw-threaded sockets  $g g'$  adapted to screw onto threaded nipples  $h h'$  extending in diametrically opposite directions from a collar H fixed to the stem or shank.

In operation, suppose it be desired to discharge water into a room below, which is filled with smoke and flame as to render it undesirable to open the door or window of the room. The fireman taking this ram jet-nozzle into the room above, raises it and plunges it down through the floor. Before so forcing it through the floor or partition the catch  $e^2$  is withdrawn to permit the shield to slide upwardly along the shank or stem A as the head of the nozzle is extended down into the room

below, thereby keeping the smoke and flame from issuing up through the larger hole made by the head. If desired to insert the nozzle deeper than the set of handles G, G', they may be unscrewed and the shield may be momentarily removed and again adjusted above the collar H.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim is—

15 1. The ram jet nozzle, comprising a pointed head provided with jet holes through its walls and with winding ribs or threads on its exterior and a stem or shank connected with the head, substantially as set forth.

20 2. The ram jet nozzle, comprising the pointed head having jet openings therethrough, a stem or shank connected with the head and a shield arranged to slide upwardly along the

stem or shank as the head is forced through the floor or partition, substantially as set forth.

3. The ram jet nozzle, comprising a pointed head of larger diameter provided with jet openings through its wall, a stem or shank of lesser diameter connected with the head, a collar secured to the stem or shank and operating handles removably connected with the stem, substantially as set forth.

4. The combination with the pointed head provided with jet openings through its wall and the stem or shank connected with the head, of the two part shield fitted to surround a portion of the head and means for removably locking the two sections of the shield together around the stem of the shank, substantially as set forth.

WILLIAM F. CUNNINGHAM.

Witnesses:

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