

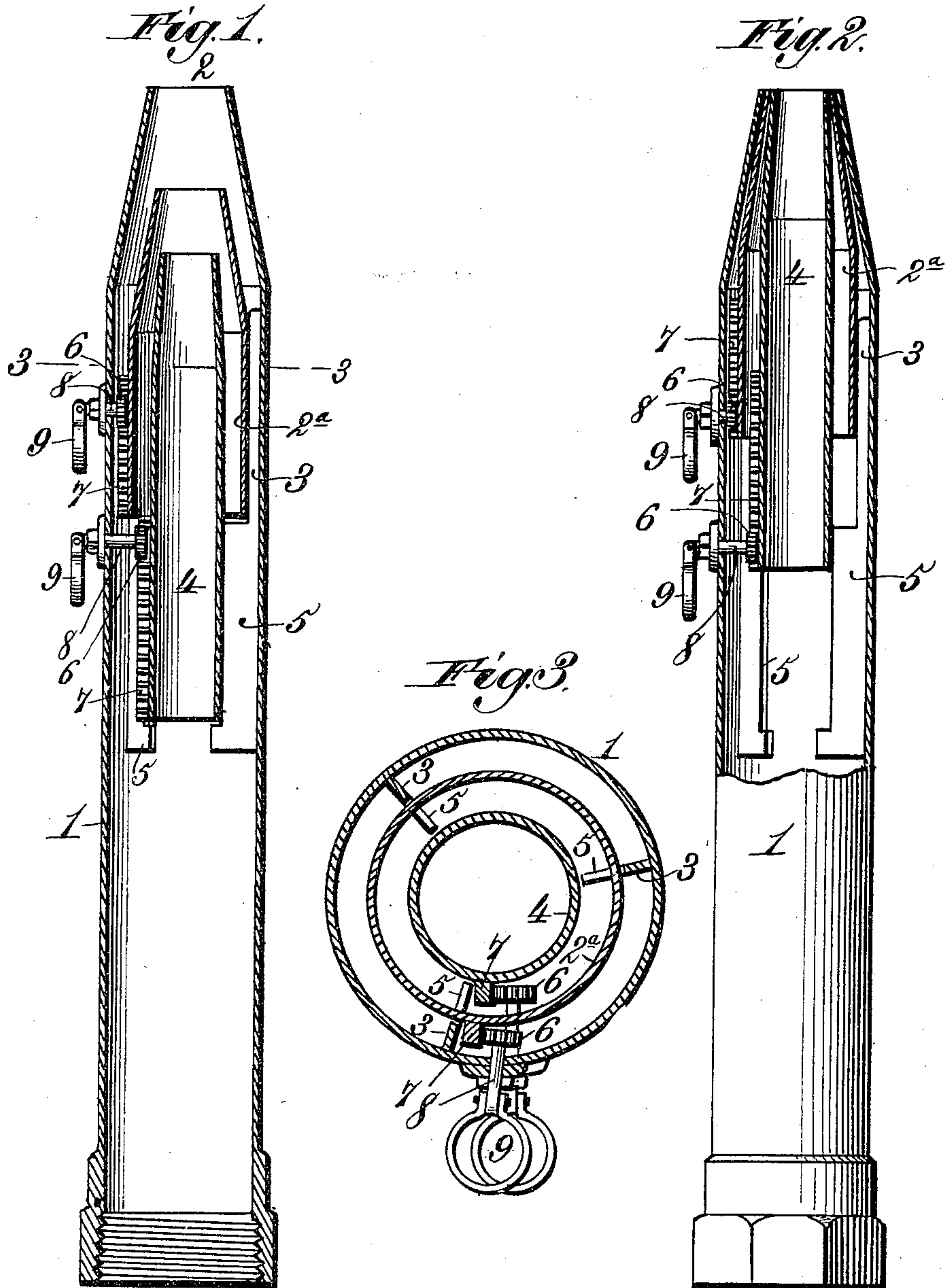
No. 658,586.

Patented Sept. 25, 1900.

M. REILING.  
FIRE HOSE.

(Application filed Aug. 17, 1899. Renewed July 27, 1900.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

MEINHARD REILING, OF FORT WAYNE, INDIANA.

## FIRE-HOSE.

SPECIFICATION forming part of Letters Patent No. 658,586, dated September 25, 1900

Application filed August 17, 1899. Renewed July 27, 1900. Serial No. 25,048. (No model.)

*To all whom it may concern:*

Be it known that I, MEINHARD REILING, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented new and useful Improvements in Variable or Differential Nozzles for Fire-Hose, of which the following is a specification.

My invention relates to variable or differential nozzles for fire-hose, my purpose being to provide a simple and economical construction by which the diameter of the exit-opening may be regulated, the size of the stream issuing from the nozzle being thereby diminished and its velocity and range correspondingly increased.

It frequently happens at fires that intense heat or other circumstances render it necessary or desirable that the fireman handling the nozzle should stand temporarily at such a distance from the flames that a stream delivered by the nozzle at the maximum capacity of the latter will fail to reach the point where its effect is needed.

It is my object, therefore, to provide simple and easily-operated means whereby the diameter of the exit-opening may be reduced without shutting off the delivery of water or arresting the action of the engine.

My invention consists, to these ends, in the novel features of construction and new combinations of parts, which will now be described in detail, and then particularly pointed out and defined in the claims that terminate this specification.

For the purposes of the following description reference is had to the accompanying drawings, in which—

Figure 1 is a central longitudinal section of a nozzle having my invention, the parts being shown in the position they occupy when the stream delivered is of maximum diameter. Fig. 2 is a similar sectional view showing the same parts adjusted to the position for delivering a stream of minimum diameter. Fig. 3 is a transvers section, the scale being somewhat enlarged.

The reference-numeral 1 in said drawings indicates a nozzle for a fire-hose having an exit end 2, which is tapered or shaped approximately like a truncated cone, the inte-

rior passage having a slight contraction, as is usual in these nozzles.

Within the nozzle 1 I arrange a short tubular section 2<sup>a</sup>, which is supported concentrically by longitudinal ribs 3, which may be formed either upon the inner face of the nozzle 1 or upon the outer surface of the tubular section 2, so that the latter may be capable of an adjustment in the direction of its axis which coincides with the axis of the nozzle. Its end is tapered or contracted slightly, the angle being less than that of the nozzle, its outside diameter being such that when pushed to its outward limit of movement its contracted end will accurately fit the exit end of the nozzle, as shown in Fig. 2, thereby reducing the interior diameter of the latter to the dimensions of the tubular section. To effect a still further reduction, a second tube-section 4, of greater length than the part 2<sup>a</sup>, is arranged concentrically within the nozzle, lying partly within the latter and partly within the tubular section 2<sup>a</sup>, the contraction of its exit end being less than that of the latter. This part is supported, like the other, upon ribs 5, and, if necessary, auxiliary supporting-ribs may be provided between the outer face of the part 4 and the inner surface of the tubular section 2<sup>a</sup>. Longitudinal movement is imparted to the tube-sections by small spur-gears 6, which mesh with toothed racks 7 on the said sections. The gears 6 are mounted on short spindles 8, passing through the nozzle at suitable points and provided with handles 9, by which they are operated. These handles are preferably connected to the outer ends of the spindles by a pivotal joint, which enables them to be turned so that they lie against the exterior of the nozzle, where they are not liable to catch in the clothing or become injured by an accidental blow. The second tube-section 4 when pushed forward fits at its exit end closely within the corresponding end of the first section and reduces the diameter of the opening through which the water must pass to the interior diameter of its own exit end. It is evident that these successive reductions may be varied as desired by merely varying the dimensions of the tube-sections.



I do not limit my invention to the use of any specific number of these tube-sections, as I may employ one only, or I may use any number greater than one.

5 What I claim, and desire to secure by Letters Patent of the United States, is—

1. A nozzle for fire-hose, having a tapering unobstructed exit end, an open inlet end arranged in alinement, an interior tube-section  
10 provided with a tapering exit and an open inlet alined with the exit and inlet of the nozzle-body, and means for shifting the tube-section to move its tapering exit end into the exit of the nozzle-body, substantially as described.  
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2. A nozzle for fire-hose, consisting of a nozzle-body having an unobstructed exit at its front end, an open inlet at its rear end alined with said exit, an interior tube-section  
20 having a front exit end and a rear inlet end in alinement with the said exit and inlet of the nozzle-body, and mechanism having a part thereof extending laterally through the side wall of the nozzle-body for shifting said  
25 tube-section longitudinally to move its exit end into or out of the exit of the nozzle-body, substantially as described.

3. A nozzle for fire-hose, consisting of a nozzle-body, having an exit and an inlet end,  
30 an interior tube-section having an exit and an inlet end alined with the inlet and exit ends of the nozzle-body, a rack secured to and extending longitudinally of the outer surface of the tube-section, a gear arranged between  
35 said tube-section and the nozzle-body, and means for rotating said gear to shift the tube-section longitudinally and place its exit end within the exit of the nozzle-body, substantially as described.

4. A nozzle for a fire-hose, having a tube-section arranged therein, a rack secured to and extending longitudinally of the tube-section, a gear engaging said rack, and means  
40 for rotating the gear to shift the tube-section longitudinally and move its front end into or out of the exit of the nozzle, substantially as described.  
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5. A nozzle for a fire-hose, consisting of a

nozzle-body having a lateral orifice, an interior tube-section, a rack secured to and extending longitudinally of the tube-section, a  
50 gear arranged between said tube-section and said nozzle-body, and a spindle extending through the lateral orifice in the nozzle-body and connected with said gear to shift the  
55 tube-section and move its exit end into or out of the exit of the nozzle-body, substantially as described.

6. The combination with a nozzle for fire-hose, of a plurality of interior, concentric  
60 tube-sections having support upon longitudinal ribs, and means for independently adjusting said sections longitudinally, substantially as described.

7. The combination with a nozzle for fire-hose, of one or more interior, concentric, tube-sections supported upon longitudinal ribs, a spur-gear meshing with a rack on each section, and a short spindle passing through the wall of the nozzle to carry said gear, substan-  
70 tially as described.

8. The combination with a nozzle for fire-hose, of one or more interior, concentric tube-sections supported by longitudinal ribs, a spur-gear meshing with a rack on each section, a short spindle passing through the wall of the nozzle to carry said gear, and a handle connected to the outer end of the spindle by a pivot, substantially as described.  
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9. The combination with a nozzle for fire-hose, of a plurality of interior, concentric tube-sections of successively-reduced diameter supported upon longitudinal ribs, said sections being of different length, spur-gears meshed with racks on said tube-sections and  
80 carried by spindles passing through the wall of the nozzle, and handles pivoted to the outer ends of said spindles, substantially as described.  
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In testimony whereof I have hereunto set  
90 my hand in presence of two subscribing witnesses.

MEINHARD REILING.

Witnesses:

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