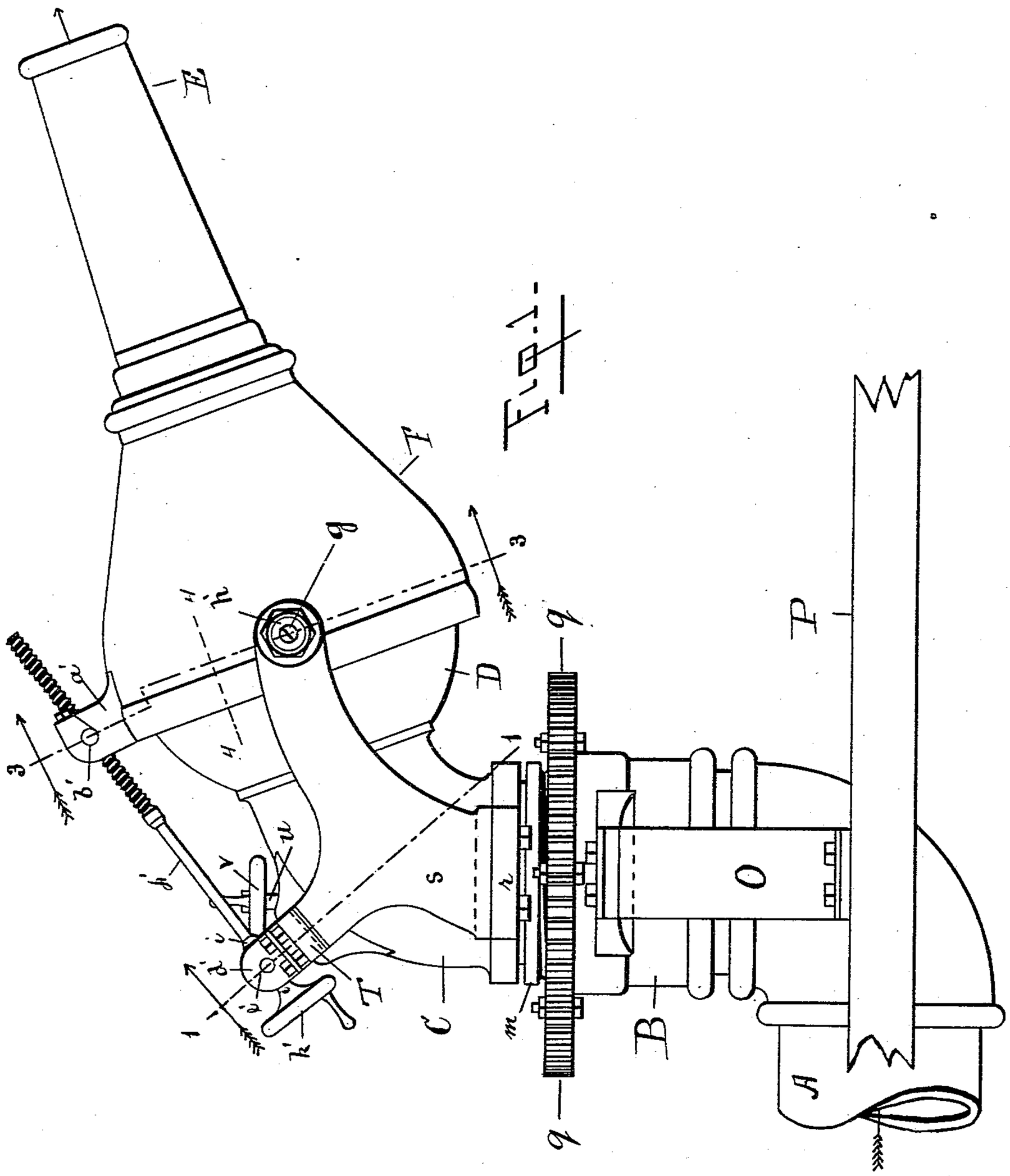
(No Model.) 3 Sheets—Sheet 1.

H. H. GORTER.

ADJUSTABLE NOZZLE FOR HOSE PIPES.

No. 557,799. Patented Apr. 7, 1896.



Witnesses
M. Rosenfeld
[illegible]

Inventor
Henry H. Gorter
per A. S. Paré
Attorney

(No Model.) 3 Sheets—Sheet 2.

H. H. GORTER.

ADJUSTABLE NOZZLE FOR HOSE PIPES.

No. 557,799. Patented Apr. 7, 1896.

Fig. 2.

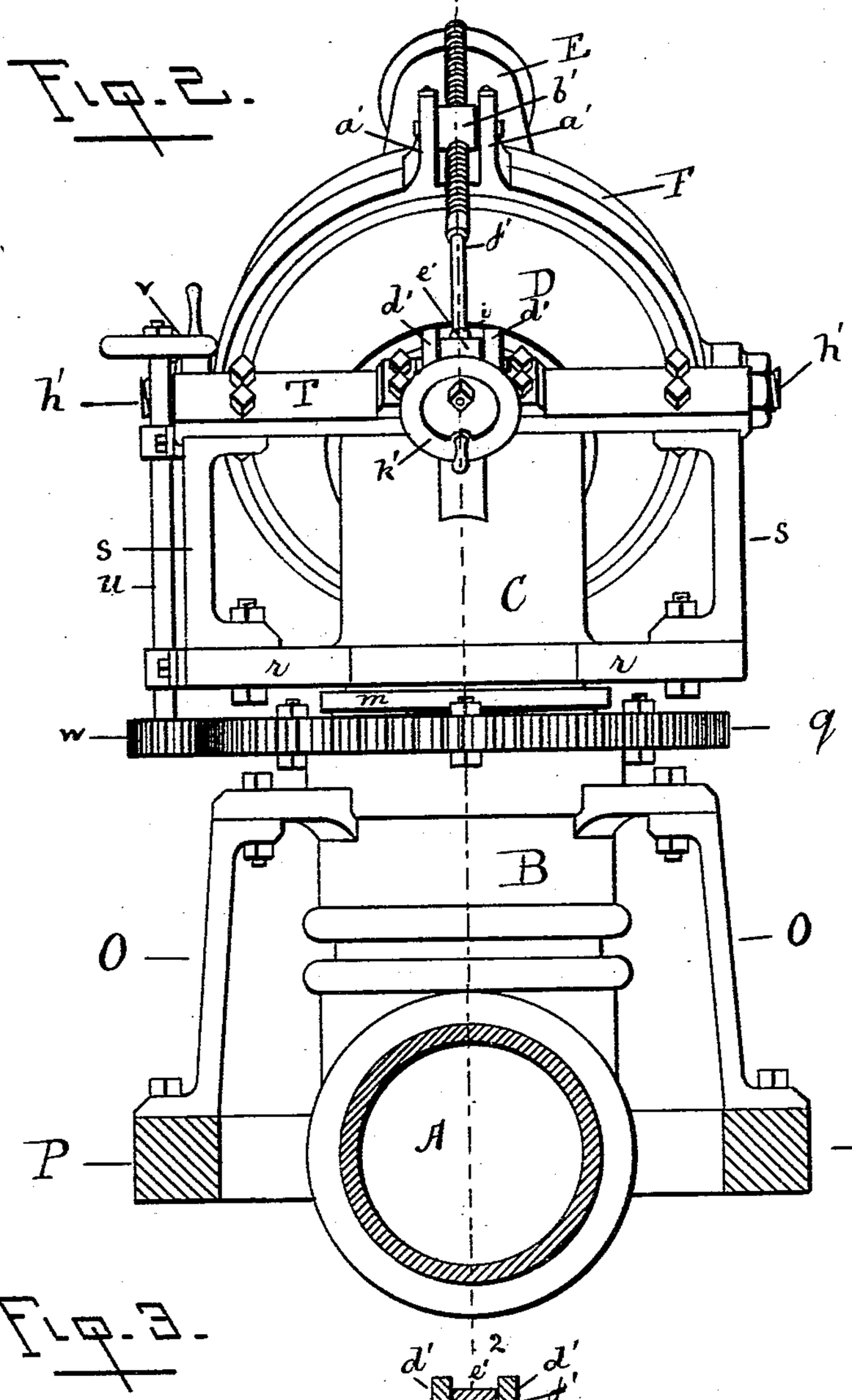
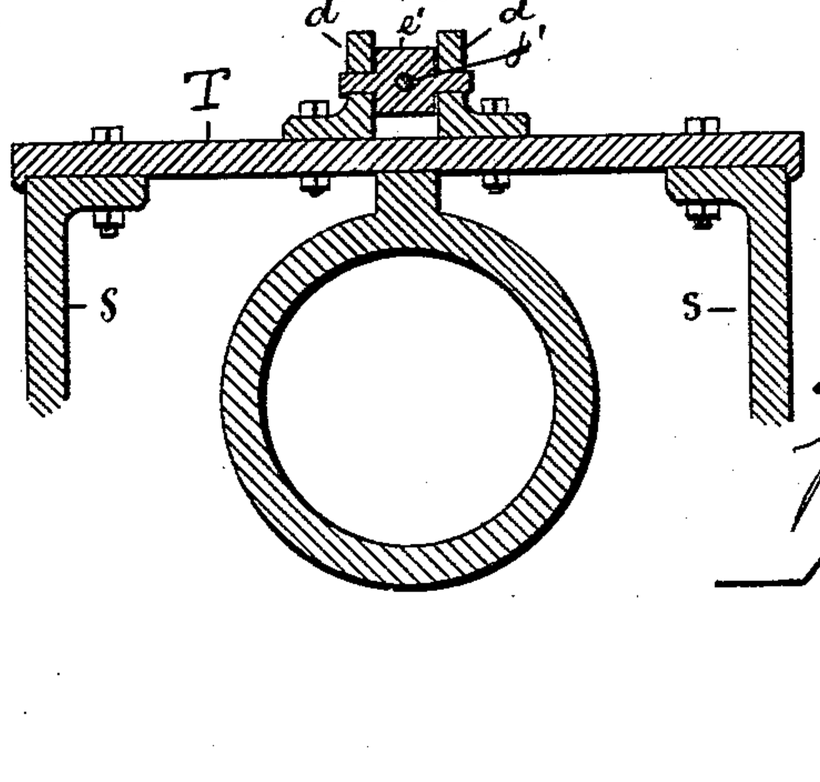


Fig. 3.



Witnesses
M. Rosenfeld
L. Ellick

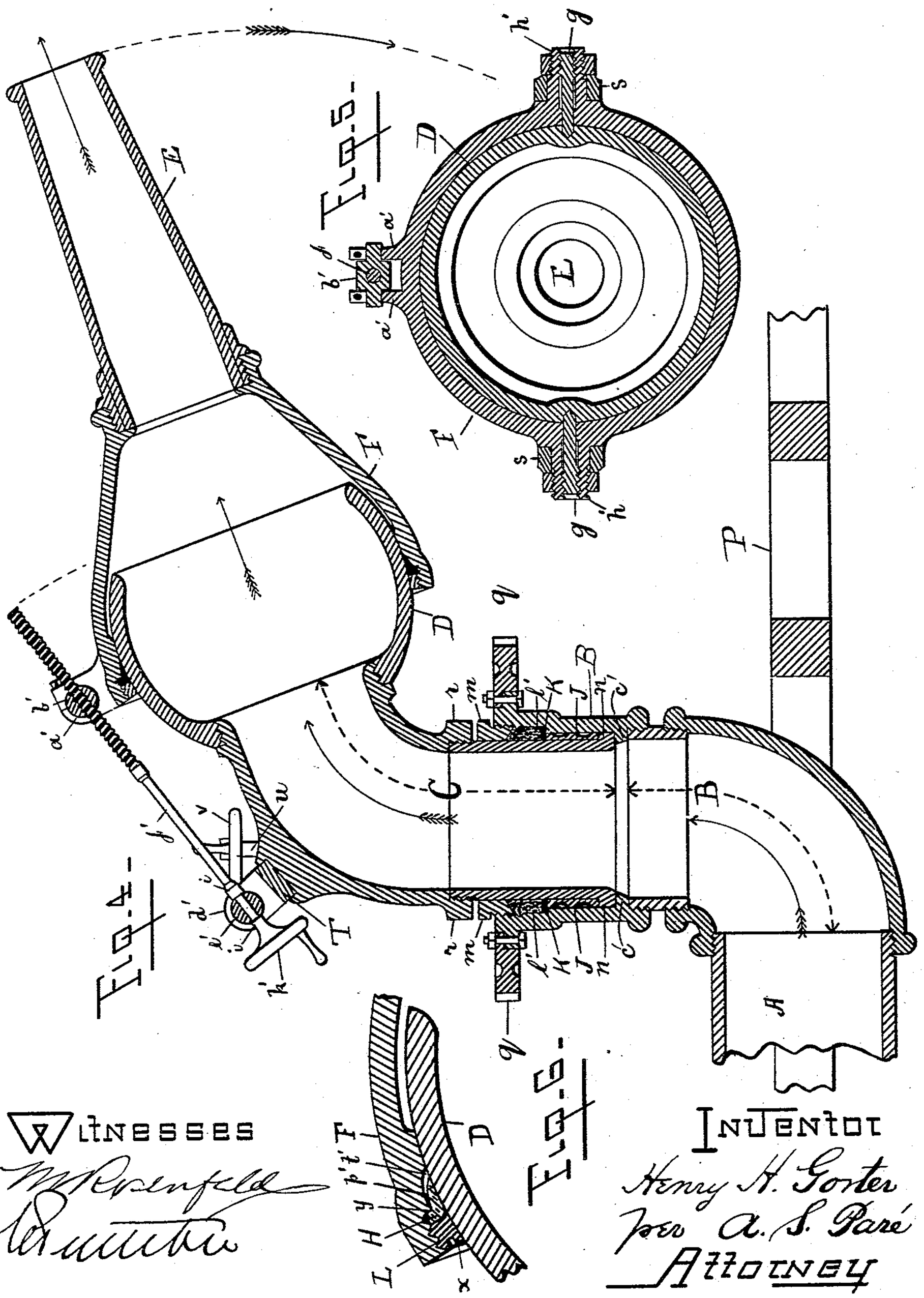
Inventor
Henry H. Gorter
per A. S. Paré
Attorney

(No Model.) 3 Sheets—Sheet 3.

H. H. GORTER.

ADJUSTABLE NOZZLE FOR HOSE PIPES.

No. 557,799. Patented Apr. 7, 1896.



Witnesses

M. Rosenfeld

A. Smith

Inventor

Henry H. Gorter

per A. S. Paré

Attorney

UNITED STATES PATENT OFFICE.

HENRY H. GORTER, OF SAN FRANCISCO, CALIFORNIA.

ADJUSTABLE NOZZLE FOR HOSE-PIPES.

SPECIFICATION forming part of Letters Patent No. 557,799, dated April 7, 1896.

Application filed December 28, 1894. Serial No. 533,224. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. GORTER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Adjustable Nozzles for Hose-Pipes; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention relates to improvements in that class of apparatus for handling a stream of water for fire purposes—such as used on water-towers, battery, and gallery stream—commonly known as "goosenecks," in which the nozzle is connected with the supply or main pipe by means of a curved section of pipe and a ball-joint, and in which suitable means are provided for permitting the nozzle to be elevated or depressed and also moved in a horizontal direction.

Referring to the accompanying drawings, Figure 1 is a side elevation of my invention. Fig. 2 is a rear view of Fig. 1. Fig. 3 is a cross-section taken from line 1 to 1 of Fig. 1, looking in the direction of the arrows. Fig. 4 is a longitudinal section taken from line 2 to 2 of Fig. 2. Fig. 5 is a cross-section taken from line 3 to 3 of Fig. 1, looking in the direction of the arrows; and Fig. 6 is a longitudinal section taken from line 4 to 4 of Fig. 1.

Let A represent the main hose or pipe to which the gooseneck and nozzle are connected.

B is the first curved section, which attaches by screw-threads or otherwise to the end of the pipe.

C is the second curved section, which is joined to the first curved section by a horizontal-moving joint hereinafter particularly described. The upper end of this section has a hollow semiglobular enlargement D screwed upon it, which forms a part of this joint, by which the nozzle E is connected to the section. The nozzle has also a semiglobular enlargement F, which fits over the enlargement D and is secured to it by a trunnion *g* on each side, thus forming a pivoted ball-and-socket joint. A packing is interposed between the bearing-surfaces, so that the joint is rendered water-tight, and means, hereinafter described, are provided for moving the nozzle vertically on the joint.

I have particularly illustrated in Fig. 6 the manner in which I propose to make the ball-joint water-tight, which consists of packing H, preferably of leather, inserted into a circular chamber L, formed upon the inner wall of the semiglobular enlargement F and projecting rectangularly within a smaller chamber p' and tapering at the end to a thin edge, leaving a circular space t'. A gland x is then screwed within chamber L, so as to compress the packing against shoulder y, formed at the edge of the chamber p'. This gland is provided with holes to enable me to screw it in place. Constructed in this manner, if water should escape between the bearing-surfaces of the two globular enlargements F and D it will naturally force its way into the space t' and compress the thin edge of the packing against the outer wall of the semiglobular enlargement D, making an additional tight joint.

The joint between the lower section B and second curved section C is constructed as follows: The lower end of section C is made small enough to enter the upper end of section B until its lower edge, which projects outwardly to form a circular flange n, rests upon an internal shoulder c' in section B. In the space between these two telescoping parts, and on the top of flange n, I first insert a narrow metal ring j, and upon this metal ring I place an india-rubber ring K. Upon this ring I place any suitable packing l'. A gland m is then screwed down upon the packing, so as to compress it and cause it to make a close water-tight joint without interfering with the rotation of the upper section.

The metal ring J is intended to reduce the friction, and may be taken out altogether, if desired, or may be cast integral with the lower part of section C; but I prefer to carry out this feature in the manner shown in Fig. 4, as I obtain a much better result.

The lower stationary curved section B is supported by a standard O on each side, the lower ends of which rest upon and are secured to the base or foundation timbers P, while their upper ends are secured to a fixed flange on the section, as shown at Figs. 1 and 2. Around the upper end of the section is a circular flange q, the rim of which is toothed in the manner of a spur-wheel.

The upper section C has a flange r cast around it just above the joint, and a standard s is secured upon this flange on each side

of the section, to which the axle h' of the semiglobular enlargement F of the nozzle E is pivoted, thereby reducing the strain on the trunnion g. (Shown at Figs. 1, 2, and 5.) These standards extend upward high enough to support a cross-bar T, which extends across the section opposite the elbow or bend, thus forming a frame or transverse beam supported on the standards, and all forming a part of the second or swivel section.

A vertical shaft u is supported in boxes at one end of this frame, and this shaft has its upper end formed into a hand wheel or crank v, while a traveler-pinion w is secured upon its lower end in position to mesh with the spur-wheel on the flange q of the lower section.

By means of the crank v the shaft u and pinion w can be rotated by hand, thus causing the pinion to act as a progressive lever, and by traveling around the toothed flange q it moves the upper section C and nozzle around in a horizontal sweep on the packed joint between the two sections.

On the top of the enlarged portion of the nozzle I cast or otherwise secure two projections a' a', which serve as bearings for the journals of a block b', which is mounted between them. This block has a hole passing transversely through it, which is tapped with screw-threads.

Two similar projections d' d' are formed on or secured upon the middle of the cross-bar T in a line with the projections a' a', and a similar block e' is mounted between them. A rod f' has one end passing through the block e' and secured by collars i i on each side of the block, while its opposite end is formed into a screw which passes through the screw-threaded block b' on the enlargement of the nozzle. A hand wheel or crank k' on the outer end of the rod serves to rotate it, so that its screw-threaded end will traverse in the screw-threaded block on the enlargement, and thus raise or lower the nozzle in a vertical direction according to the direction in which the hand wheel or crank is turned. By this arrangement a person can stand at the end of the section and with one hand operate the vertical shaft that swings the nozzle in a circle, while he turns the crank that moves the nozzle in a vertical direction with the other hand, and thereby keep the movements of the entire machine under control.

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

1. In a nozzle, the combination with a fixed section, an upper swiveled section, a lateral projection on the swiveled section standards secured to the projection on opposite sides of the section, an adjustable nozzle pivotally supported on the standards, an adjusting-screw connecting with the standards and the nozzle beyond the pivots, and means for turning the swiveled section, substantially as described.

2. In a nozzle, the combination with a fixed section having a horizontal gear thereon, of a swiveled section on the fixed section above the gear, a pinion carried by the swiveled section meshing with the gear, means for rotating the pinion, standards on the swiveled section, a nozzle having a pivotal connection with the standards, and an adjusting device between the nozzle and swiveled section, substantially as described.

3. In a nozzle adapted for fire-extinguishing apparatus having a lower fixed section, an upper swivel-section and a vertically-adjustable nozzle, a flange projecting outwardly, secured to the swivel-section, and a standard secured to said flange on each side of the section, in combination with an adjustable nozzle pivoted to the standard, substantially as set forth, and for the purpose described.

4. The herein-described nozzle, composed of a lower fixed section, an upper swivel-section, a flange secured to the swivel-section provided with standards projecting upwardly, on each side of the section, and connected together by a cross-bar, fitted in a socket cast upon the elbow of the swivel-section, projections d' d' suitably secured to said bar and provided with movable block e' bored across its diameter, similar projections a' a' secured to the top of the nozzle and provided also with movable block b', having a tapped hole with screw-threads, in combination with a rod having at one end a hand wheel or crank, and at the other threads cut thereon and suitably secured to block e', and adapted to be screwed in block b', and means for rotating said rod, substantially as set forth, and for the purpose described.

5. A nozzle composed of a fixed section, a swivel-section provided with means for giving it a horizontal rotary motion, consisting of a toothed circular flange suitably secured to the fixed section, a traveling pinion secured to the swivel-section and adapted to mesh with the teeth of the flange, and means for rotating said pinion, standards on the swiveled section an adjustable nozzle pivotally secured to the standards beyond the section and having a ball-and-socket connection with the swivel-section, provided with means for giving it a vertical movement consisting of a partly-threaded rod pivotally secured to the swivel-section and the nozzle, adapted to move the nozzle vertically, substantially as set forth, and for the purpose described.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 22d day of December, A. D. 1894.

HENRY H. GORTER.

Witnesses:
CHAS. J. ARMBRUSTER,
JNO. L. BOONE.