

No. 641,933.

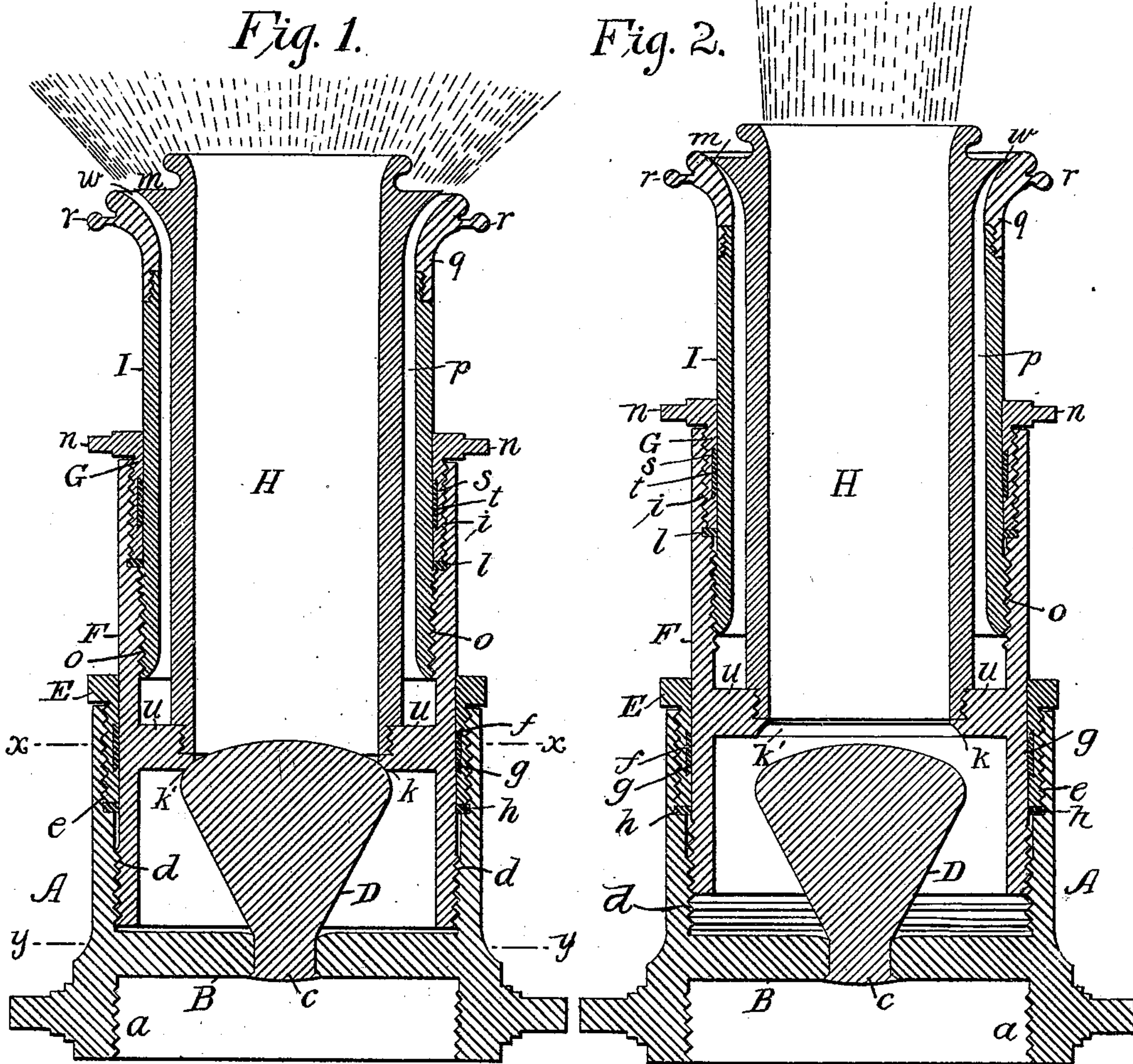
Patented Jan. 23, 1900.

W. H. CANNER.
CONVERTIBLE HOSE NOZZLE.

(Application filed Mar. 25, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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2 Sheets—Sheet 2.

Fig. 3.

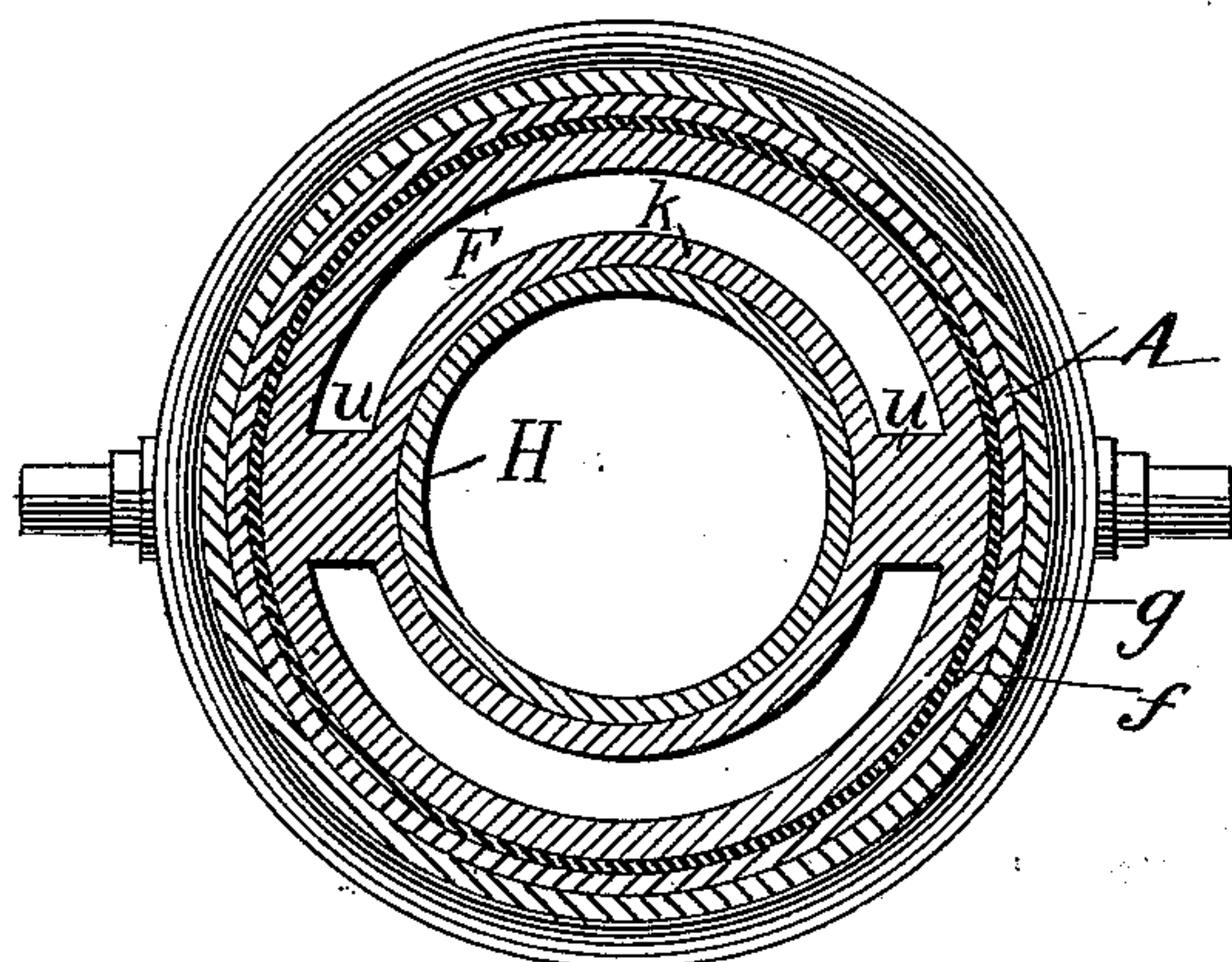


Fig. 4.

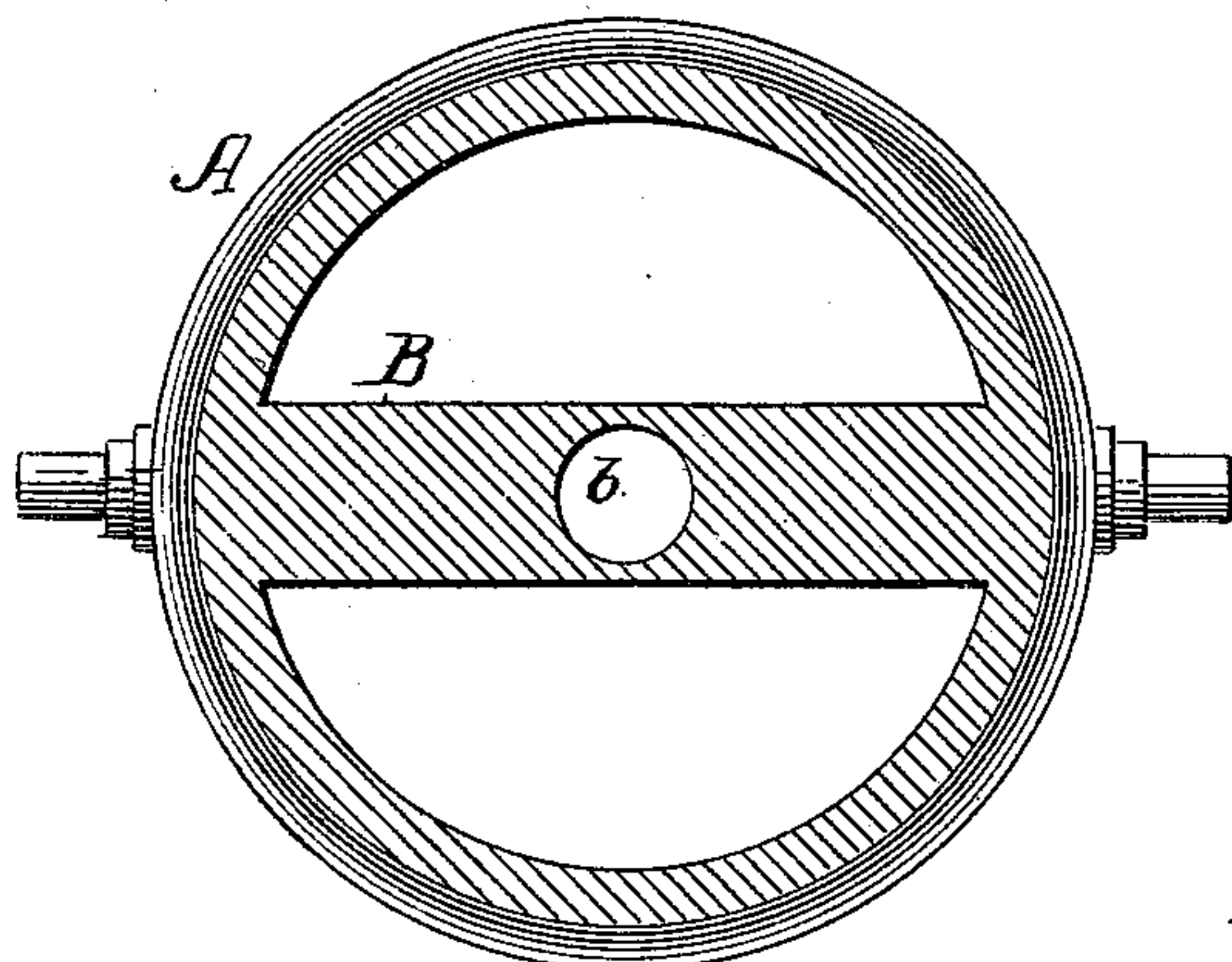
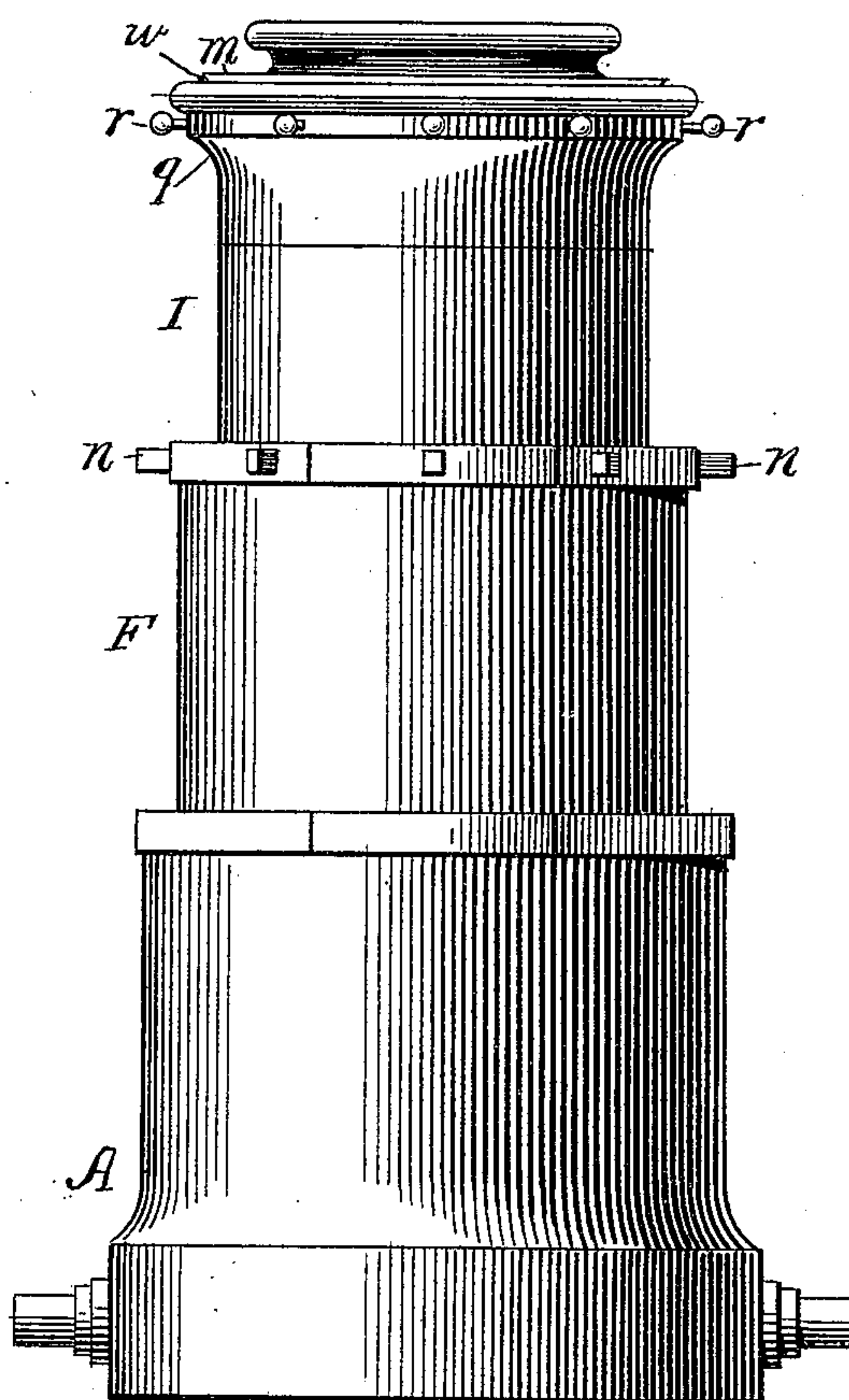


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM H. CANNER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
JOHN M. FISHER, OF SAME PLACE.

CONVERTIBLE HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 641,933, dated January 23, 1900.

Application filed March 25, 1897. Serial No. 629,217. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. CANNER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Convertible Hose-Pipe Nozzles; and I 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.

This invention relates to improvements in the construction of nozzles for hose and other pipes which are used for throwing water under pressure for extinguishing fires, washing and sprinkling streets, and other like purposes; and it has special reference to that class of nozzles which have two orifices, from one of which the water is ejected in a straight solid stream and from the other in a circular conical sheet that forms a water shield between the hoseman and the fire which protects him from the heat and also serves to drive the smoke and flame before him; and my invention has for its object to construct the nozzle so that the shutting off of the water or changing its delivery from one orifice to the other can be done without danger of bursting the hose.

A further object of my invention is to change the delivery of the water from one orifice to the other while under pressure and without shutting it off.

In the accompanying drawings, Figure 1 represents a longitudinal section of my improved hose-pipe nozzle arranged for discharging a circular or conical sheet of water; Fig. 2, a similar view of the hose-pipe nozzle, but arranged for discharging a solid straight stream, the circular orifice being closed. Fig. 3 is a horizontal section of the hose-pipe nozzle, taken on line *x x* of Fig. 1. Fig. 4 is a similar section taken on line *y y* of Fig. 1, and Fig. 5 is a side elevation of the hose-pipe nozzle.

Referring to the drawings, A designates the hose-pipe, screw-threaded at *a* for connecting it with the hose branch. Inside said pipe, above the threads *a*, is cast a bridge B, having a hole *b* through it, which is centrally placed relatively to the pipe and nozzle. On

this bridge is placed a valve D, which has the form of an inverted cone; but at the point is formed a stud *c*, which is inserted in the hole *b* and secured by upsetting its end against the under side of the bridge, whereby the valve is fastened in place, but not rigidly, by preference a slight wobbling motion being allowed it in order that it may adjust itself to any irregularities in the valve-seat.

The pipe A is internally screw-threaded at *d* for a short distance above the bridge, and from where the threads terminate it is turned out to form an annular recess *e*, which is also screw-threaded, and in this recess a gland E is screwed. This gland has a hexagonal cap that fits down on the end of the pipe, and a groove *f*, formed in its inner surface, contains packing *g*, and between its lower end and the bottom of the recess is a packing-ring *h* for stopping leakage around the gland.

F is a sleeve, screw-threaded at its lower end, which is inserted in the pipe A and makes a screw connection with the threads *d*, so that it can be moved in and out by turning it, the hexagonal cap of the gland giving the necessary purchase to turn it. The packing *g* prevents leakage around this sleeve. The sleeve is screw-threaded at *o*, and in its upper end is a screw-threaded recess *i*, in which is screwed a gland G, that has a cap formed with projecting lugs *n*. This gland has a groove *s* in its inner surface, in which is placed a band of packing *t*, and between it and the bottom of the recess is a packing-ring *l* to stop leakage around the gland.

H is a pipe for delivering the solid stream of water. Its lower end is screwed into a ring *k*, which is connected with the sleeve F by bridges *u u*. This ring has its under edge beveled to form a valve-seat *k'*. The pipe H being connected with the sleeve F, when the latter is screwed out of pipe A it lifts the valve-seat *k'* off the valve D, thereby permitting the water to flow into the pipe H, from which it is ejected in a solid stream. Outside of pipe H is another pipe I of somewhat larger diameter, so that a space *p* is left between the pipes. The pipe I is inserted in the sleeve F and by means of threads on its lower end makes a screw connection with the sleeve at *o*, so that it can be moved in and out of the

sleeve by turning it axially. The gland G, with its packing *t*, prevents leakage around the pipe. The circular orifice *w* is formed between a flange *m* in the upper end of the pipe H and a bell-shaped cap *q*, preferably screwed on the upper end of pipe I, the opposite sides of the flange and bell-mouth being curved outward and forming a continuation of the space *p* between pipes H I, so that the water will be deflected gradually to the orifice *w*, abrupt turns being avoided. The cap *q* is provided with projecting knobs *r* to facilitate turning the same. By screwing the pipe I out of the sleeve F the cap *q* is moved against the flange *m*, thereby tightly closing the orifice *w* and stopping the passage of the water.

It will be observed that the hose-pipe A, sleeve F, and pipe I are telescoped together, and the connection between adjacent members being made by screw-joints the sleeve and pipe I can be moved in and out independently. When, therefore, a solid stream only is to be thrown by the nozzle, the pipe I is screwed out until the cap *q* meets the flange *m* and closes the orifice *w*. Then the sleeve F is screwed out to lift the valve-seat *k'* off the valve D, whereupon the water flows through to the pipe H and is ejected therefrom in a solid stream. If a conical or circular sheet of water is wanted, the sleeve is screwed in until the valve-seat closes against the valve, shutting off the water from the pipe H, and then pipe I being next screwed down into the sleeve opens the orifice *w*, thus allowing the water to pass out in a flaring circular sheet, which forms a complete shield in front of the hosemen and by driving the smoke and flame before them enables them to work with comfort, safety, and efficiency. If both a solid stream and a circular or conical sheet of water are required from the nozzle, the pipe I is screwed down far enough so that when the sleeve is screwed out to admit the water to the pipe H the orifice *w* will remain open the proper distance to deliver sufficient water to form the water shield or conical sheet, as well as the solid stream, from the pipe H. These successive changes in the direction of the outflow of water are made without shutting off or checking the water, and thus all danger of bursting the hose by shutting off the water while the pressure continues is avoided. Another object gained by this construction of the nozzle is that the water cannot be shut off abruptly before the pumping is stopped, as is frequently done where a key or plug is used, with the result of bursting the hose. This is prevented in the nozzle herein described by operating the shutting-off devices by means of their screw connections, which, while rapid enough for the purpose of turning on the water, yet by closing gradually give time for stopping the pumps.

By constructing the nozzle as herein described the use of left-hand screw-threads is avoided and all the movable parts are adjusted by turning them in the same direction.

Furthermore, all the joints and screw connections being inside are protected against jamming.

I claim—

1. A convertible hose-pipe nozzle composed of telescopic sections and having orifices for discharging a solid straight stream and a circular or conical sheet of water, consisting of a sleeve telescoped into the hose-pipe, and making a screw connection therewith, a central straight-stream pipe connected at its inner end with the sleeve and having at its outer end an outwardly-curved flange, an exterior nozzle-pipe telescoped into the sleeve and forming a screw connection therewith, and having a bell-shaped cap at its outer end, a space between the exterior and central nozzle-pipe, and a stationary valve connected with the hose-pipe under the central nozzle-pipe, the construction being such that by screwing the sleeve out the central nozzle-pipe is lifted off the valve and the water flows into the said pipe and is discharged therefrom in a solid stream, and by screwing the exterior nozzle-pipe into the sleeve the orifice between the cap and flanges is opened, and the water flowing through the space between the two nozzle-pipes is discharged in a circular or conical sheet, substantially as specified.

2. In a convertible hose-nozzle, a hose-pipe, a sleeve screwed into the hose-pipe, an outer nozzle-pipe screwed into the sleeve and having a bell-shaped cap at its outer end, a central nozzle-pipe placed inside of the outer nozzle-pipe, and connected at its lower end with a valve-seat, which in turn is connected by a bridge with the sleeve and having at the upper end a bell-shaped exterior flange, and a conical valve connected with a bridge in the hose-pipe, the central nozzle-pipe and the outer nozzle-pipe being separately movable whereby the central nozzle-pipe can be raised off the valve to admit the water to the central nozzle-pipe from which it is ejected in a solid stream, or the outer pipe moved inward to open the orifice which ejects the circular or conical sheet of water, substantially as specified.

3. In a convertible hose-pipe nozzle, a central nozzle-pipe having an exterior bell-shaped flange at its upper end, an exterior nozzle-pipe having a bell-shaped cap at its upper end, the central nozzle-pipe being connected with the valve-seat, which in turn is rigidly connected by a bridge with a sleeve, and the exterior nozzle-pipe being screwed into the sleeve, and the sleeve screwed into the hose-pipe and a valve at the lower end of the central nozzle-pipe connected with the bridge in the hose-pipe, there being a space between the exterior and central nozzle-pipes for the passage of the water to the circular orifice, the construction being such, that by screwing the sleeve out of the hose-pipe the valve-seat is lifted off the valve and the water passes to the central water-pipe, and by means of the exterior nozzle-pipe when

5 screwed in or out, opens or closes the orifice
w, the central nozzle-pipe and exterior nozzle-pipe being independently movable whereby a straight stream can be discharged from
the nozzle or a circular stream at will, substantially as specified.

10 4. In a hose-pipe nozzle, the combination
with a hose-pipe of a valve, connected with a
bridge in the hose-pipe, a sleeve screwed into
the hose-pipe, a straight-stream nozzle-pipe
connected at its lower end with a valve-seat
and with the sleeve, whereby the water is

turned on or off by screwing the sleeve in or
out of the hose-pipe, whereby too sudden
shutting off of the water is prevented and liability of bursting the hose thereby avoided,
substantially as specified. 15

In testimony that I claim the invention
above set forth I affix my signature in presence of two witnesses.

WILLIAM H. CANNER.

Witnesses:

FREDK. HAYNES,
CHAS. E. PETERS.