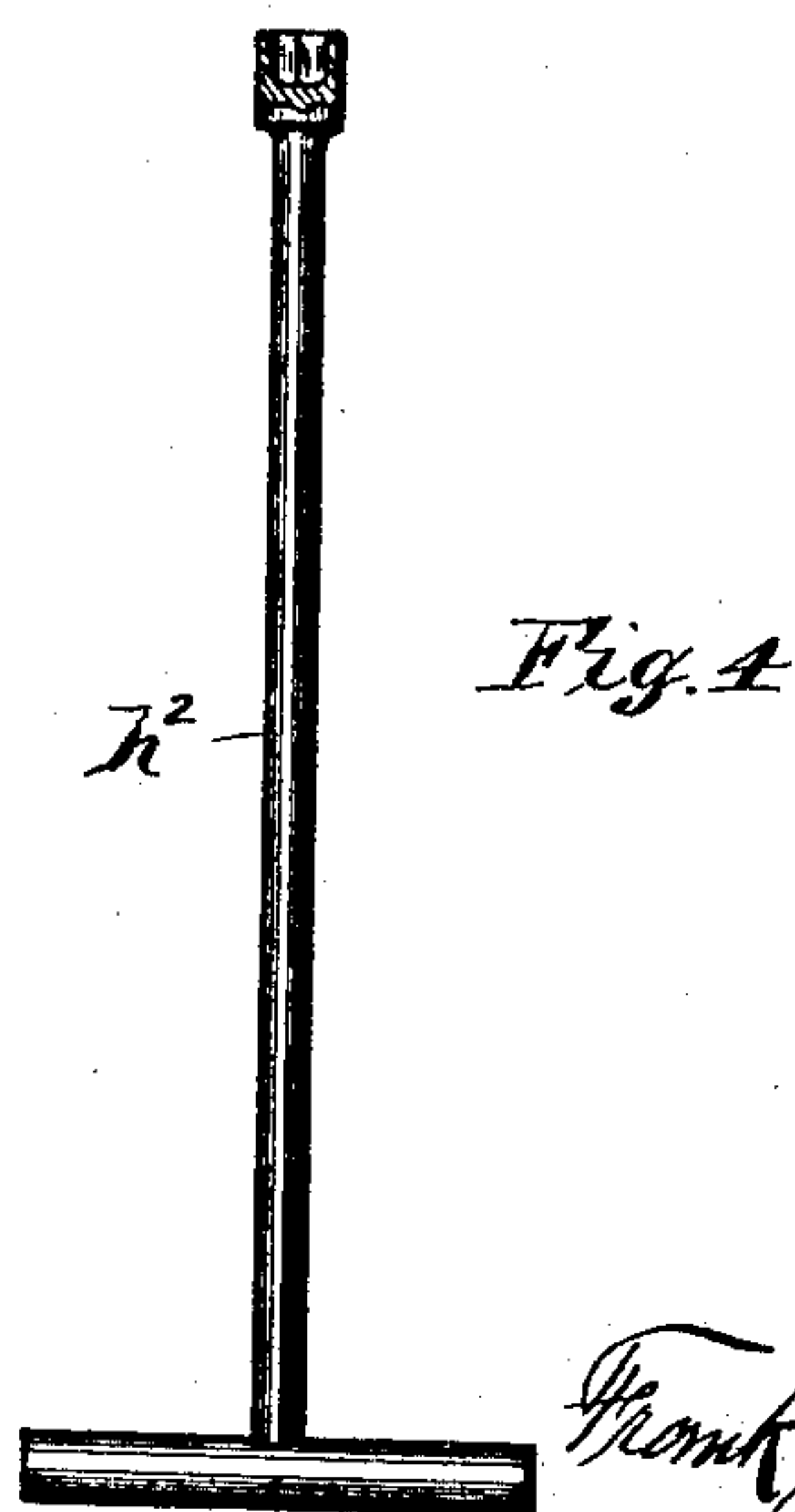
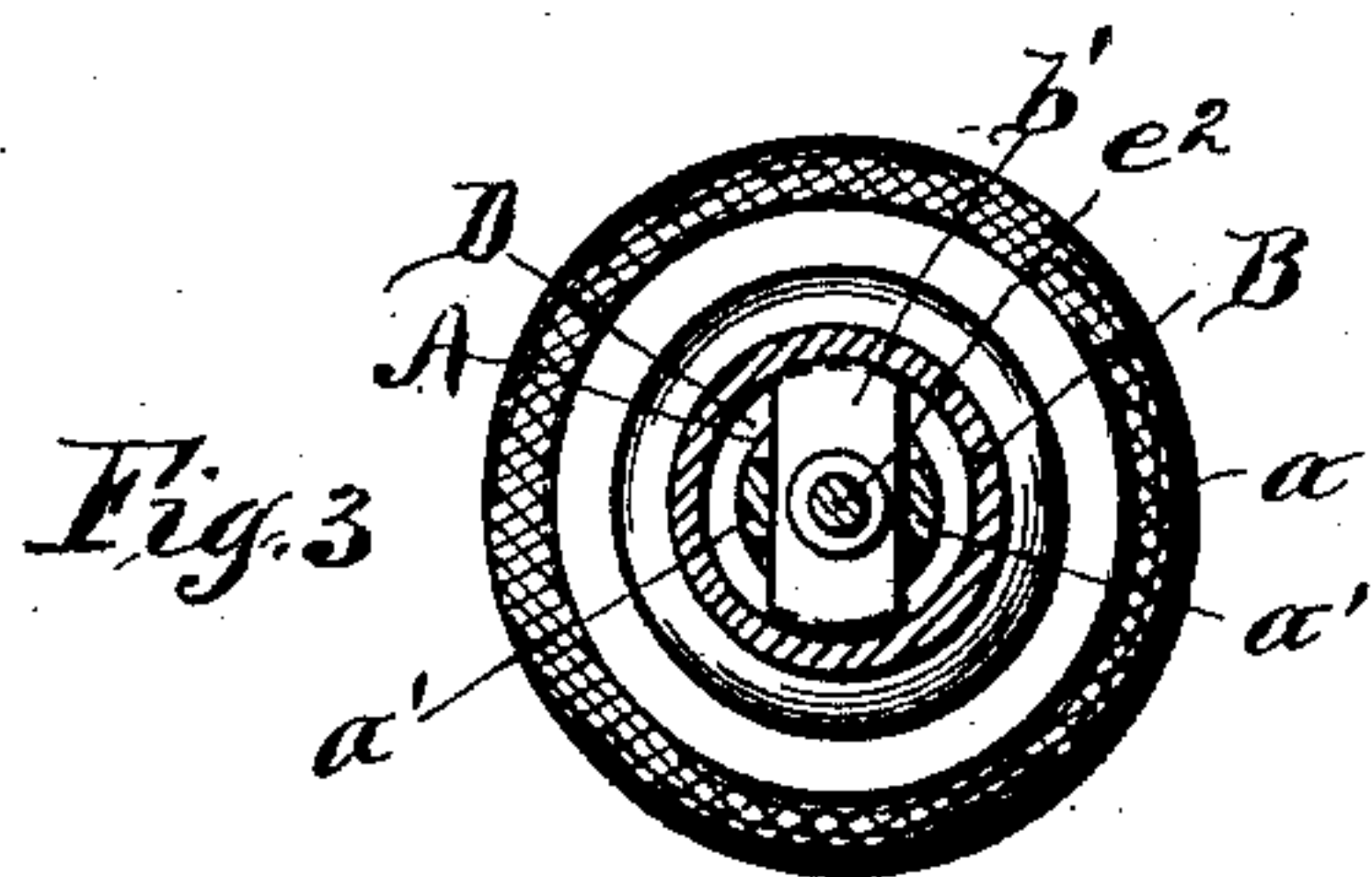
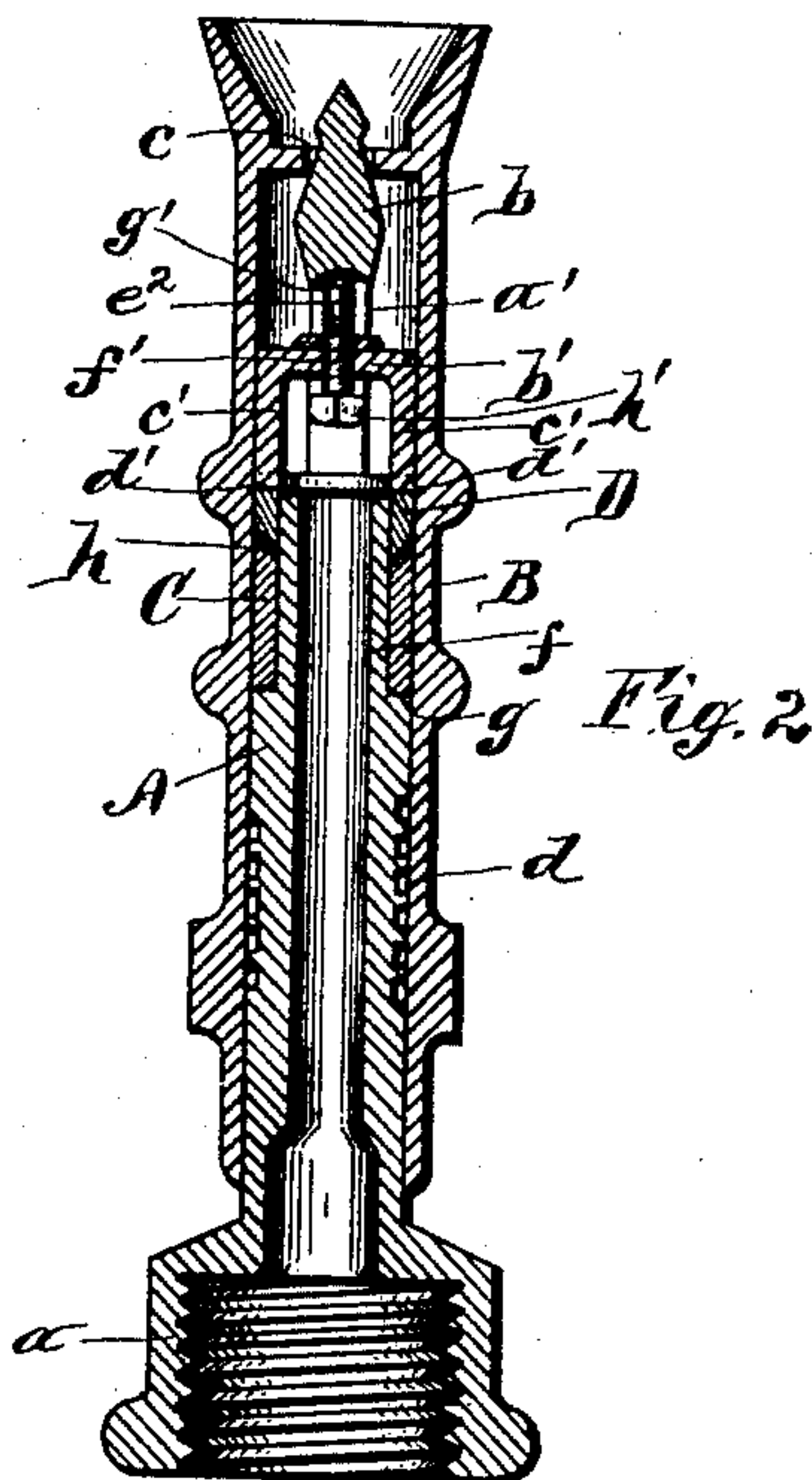
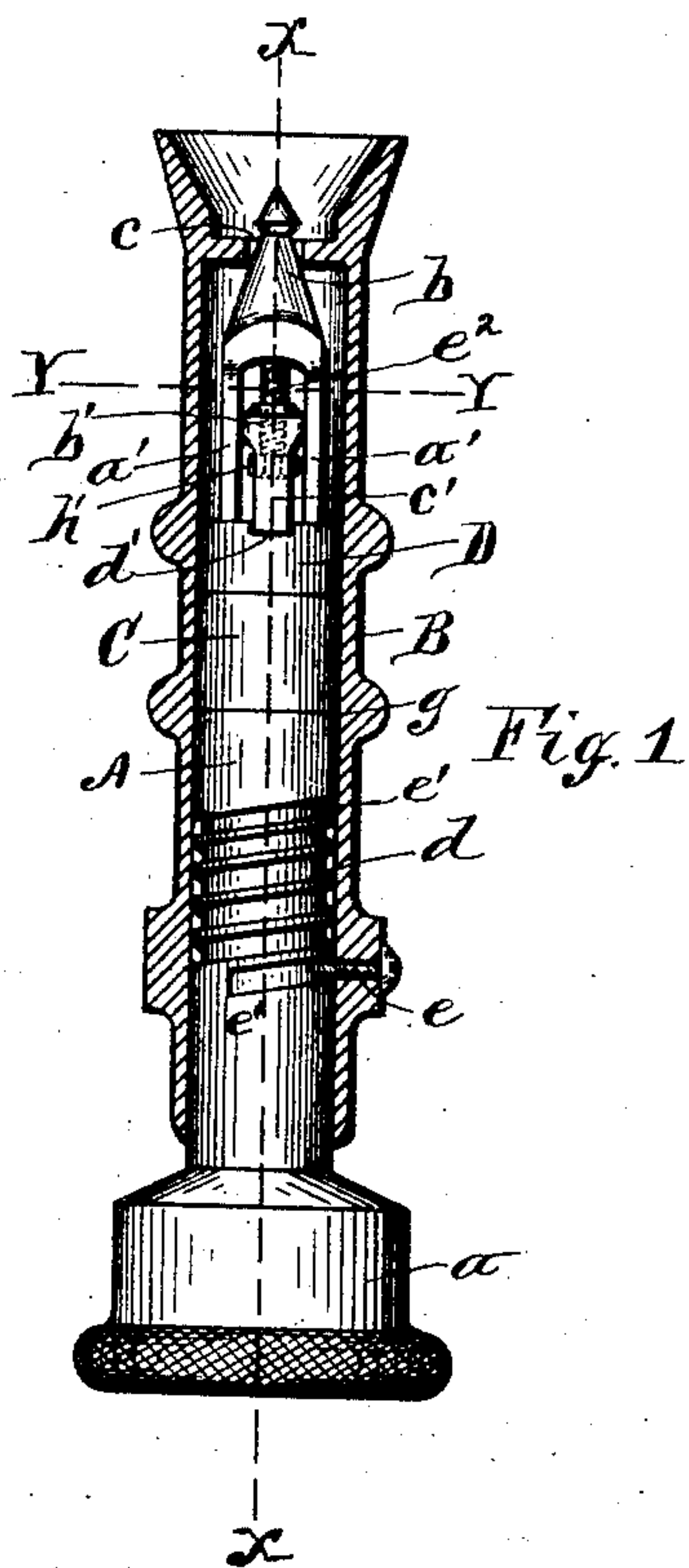


No. 839,811.

PATENTED JAN. 1, 1907.

F. J. CHRISTMAN.
HOSE NOZZLE.

APPLICATION FILED AUG. 19, 1905.



WITNESSES:

G. H. Palmer.
J. J. Laas.

INVENTOR

Frank J. Christman
By E. Laas
his ATTORNEY.

UNITED STATES PATENT OFFICE.

FRANK J. CHRISTMAN, OF SYRACUSE, NEW YORK, ASSIGNOR TO JOHN R. CLANCY, OF SYRACUSE, NEW YORK.

HOSE-NOZZLE.

No. 839,811.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed August 19, 1905. Serial No. 274,835.

To all whom it may concern:

Be it known that I, FRANK J. CHRISTMAN of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Hose-Nozzles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention pertains to the class of hose-nozzles which are adapted to be adjusted so as to control the discharge of water, and thereby produce either a solid stream or a spray of varying densities.

The invention is particularly related to the hose-nozzle shown and described in my United States Letters Patent No. 771,350, dated October 4, 1904, which comprises a water-discharge tube provided with a conical valve entering an aperture in the outer end of a sleeve mounted longitudinally movable on said tube, the movement of which sleeve controls the discharge of water. The said patented construction also embodies a tubular packing, which is seated in a circumferentially-reduced outer end portion of the discharge-tube and which serves to prevent leakage at the rear end of the sleeve incident to the closing of the discharge-aperture by the conical valve and the resultant back pressure of the water.

The main object of the present invention is to provide a hose-nozzle of the aforesaid character with effectual and reliable means, which may be easily and conveniently adjusted for the purpose of expanding the tubular packing as the same becomes worn, and thereby maintain a water-tight joint between the tube and sleeve, said wear being produced by the longitudinal movement of the sleeve.

Another object is to provide packing-expanding means which can be readily operated without requiring the removal of the sleeve from the discharge-tube.

Furthermore, the object of the invention is to produce a hose-nozzle which shall be simple, strong, and durable in construction, efficient in its operation, and at the same time inexpensive to manufacture.

To that end the invention consists in the novel construction and combination of the component parts of the hose-nozzle, as hereinafter described, and set forth in the claim.

In the accompanying drawings, Figure 1 is a side view of the water-discharge tube, with the inclosing sleeve shown in section. Fig. 2 is a longitudinal section of said tube and sleeve, taken on the dotted line X X in Fig. 1. Fig. 3 is a transverse section taken on the dotted line Y Y in Fig. 1, and Fig. 4 illustrates a socket-wrench which is employed for operating the screw of the expanding means.

Similar letters of reference indicate corresponding parts.

A denotes the water-discharge tube, which is provided with an enlarged portion *a*, having an internal screw-thread and constituting part of the usual coupling for attaching the nozzle to the water-supplying hose. Said tube is formed at its outer end portion with two oppositely-disposed longitudinal stems *a' a'*, terminating with a conical valve *b*. B denotes the sleeve, which incloses the said discharge-tube A with a close fit and is provided at its outer end portion with a discharge-aperture *c* for the reception of the aforesaid conical valve *b*. This sleeve is adapted to be adjusted longitudinally on the tube, whereby the valve is caused to enter the aperture *c* to a greater or less extent, and thereby regulate the flow of water, so as to produce either a solid stream or a varying spray or to completely shut off the discharge.

The adjustment of the sleeve for the purpose stated may be effected by any suitable means. However, I prefer to employ the means shown and described in my patent hereinbefore referred to, which means consists of a spiral groove *d*, provided in the exterior of the discharge-tube A and which is engaged by a screw or pin *e*, attached to the sleeve. The engagement of this pin or screw with the spiral groove causes the sleeve to be moved longitudinally on the tube when the former is turned. The groove *d* is terminated with abrupt cross-walls *e' e'*, constituting stops against which the pin or screw abuts to limit the movement of said sleeve.

The outer end portion of the discharge-tube A is reduced circumferentially, as indicated at *f*, thereby producing a shoulder *g*.

C denotes a tubular packing, which embraces the reduced portion of the discharge-tube and is seated on the shoulder *g* and which may be composed of any suitable

elastic or yielding material which is so treated as to render it self-lubricating.

To prevent the leakage of water between the tube A and its inclosing sleeve B incident to wear on the packing produced by the movement of the sleeve, I employ adjustable means for conveniently expanding the said packing as may be required from time to time, which will now be described.

The aforesaid circumferentially-reduced portion of the tube A extends beyond the packing C and is embraced by a longitudinally-movable ring D, which abuts against the outer end of the packing and is tapered externally at its abutting edge, as indicated at *h*, so as to cause the ring to effectually expand the packing when pressed firmly onto the same. This pressure is preferably applied by means of a follower *b'*, formed with two oppositely-disposed longitudinal arms *c' c'*, which bear against the outer edge of the ring. Said arms preferably engage notches *d' d'*, provided in said edge, and thereby lock the follower to the ring, so as to prevent the latter from turning on the tube with the sleeve. The said follower *b'* is disposed between the valve-stems *a' a'*, formed on the tube, and is thereby sustained irrevolubly, and it is operated by means of a screw *e²*, working in a screw-threaded aperture *f'*, provided in the follower and disposed in range with the passage of the tube, which screw has its outer end bearing in a recess *g'*, formed in the rear end of the conical valve, as clearly shown in Fig. 2 of the drawings. The inner end of the screw is preferably provided with a square or polygonal head *h'* for the reception of a suitable socket-wrench *h²*, which is illustrated in Fig. 4 of the drawings.

Owing to the screw *e²* bearing against the valve and the follower sustained against rotation by the valve-stems, as stated, the said follower is caused to travel inward when the screw is turned to the right, thereby forcing the aforesaid ring D firmly onto the packing C, and by reason of the ring being tapered, as indicated at *h*, it is caused to effectually expand the said packing, and thus produce a

water-tight joint between the discharge-tube A and its inclosing sleeve B, which guards against leakage of the water at the rear end of the sleeve, incident to the closing of the discharge-aperture *c* by the conical valve *b* and resultant back pressure produced. It will thus be seen that when the packing becomes worn it can be easily and conveniently expanded to take up the wear by simply removing the nozzle from the hose and inserting the socket-wrench through the rear end of the discharge-tube, thereby obviating the necessity of detaching the sleeve B from the tube.

It will be understood that in lieu of a square or polygonal head the screw may be provided with a slotted head for the application of an ordinary screw-driver.

What I claim as my invention is—

In a hose-nozzle of the class described, the combination with a discharge-tube formed with a circumferentially-reduced outer end portion and with a pair of stems extending forwardly from said reduced portion, said stems terminating in a conical valve provided in its rear end with a recess disposed in range with the passage of the tube, and a longitudinally-movable sleeve inclosing the tube and provided with a discharge-aperture receiving the conical valve, of an elastic tubular packing embracing the reduced portion of the tube and shouldered thereon, a ring movable longitudinally on said reduced portion and abutting against the outer end of the packing to expand the latter, a follower disposed between the valve-stems and locked to the expanding-ring and provided with a screw-threaded aperture in range with the passage and aforesaid recess and a screw working in said aperture and bearing in said recess and operative for moving the follower to cause the said follower to force the ring against the packing as and for the purpose set forth.

FRANK J. CHRISTMAN. [L. s.]

Witnesses:

J. J. LAASS,

L. H. FULMER.