

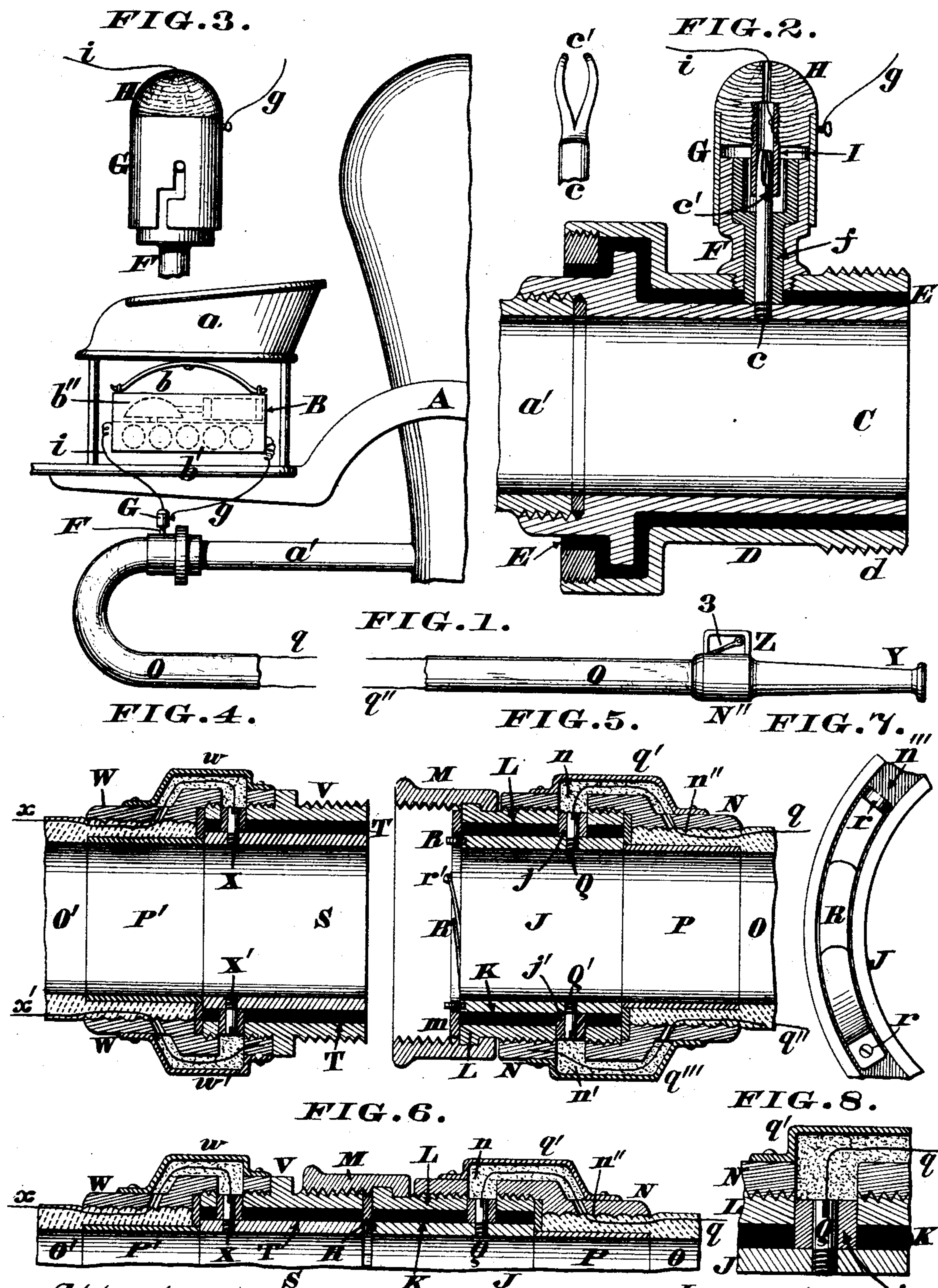
(No Model.)

2 Sheets—Sheet 1.

J. B. STRAUSS.
ELECTRIC HOSE COUPLING.

No. 500,822.

Patented July 4, 1893.



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Samuel M. Quinn

Inventor. J
Joseph B. Strauss.
By James H. Layman.
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(No Model.)

2 Sheets—Sheet 2.

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FIG. 9.

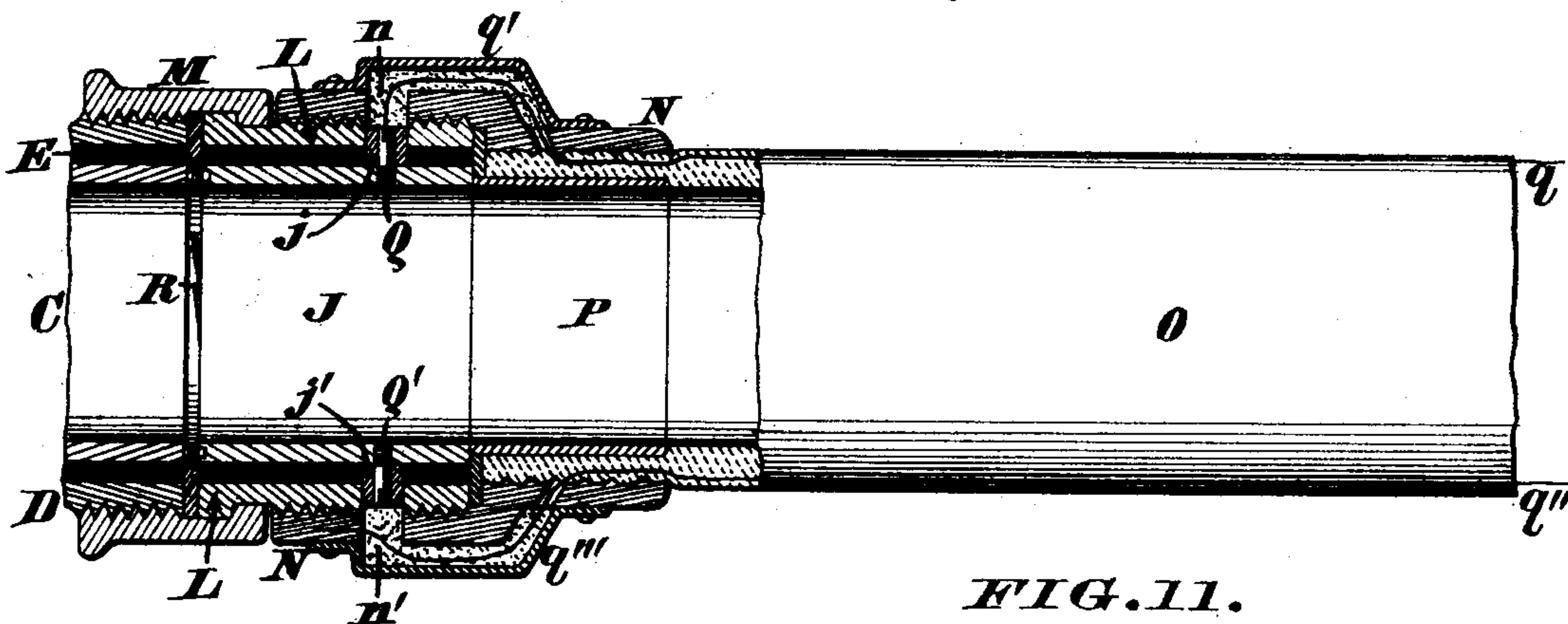


FIG. 11.

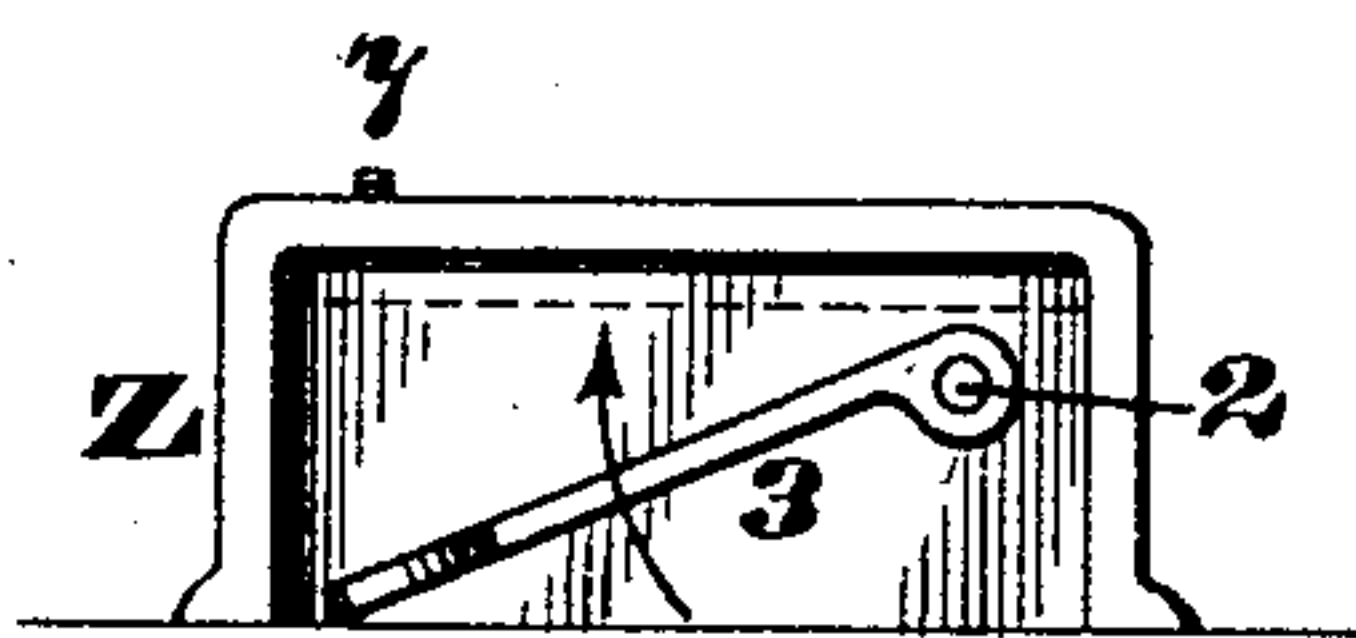


FIG. 10.

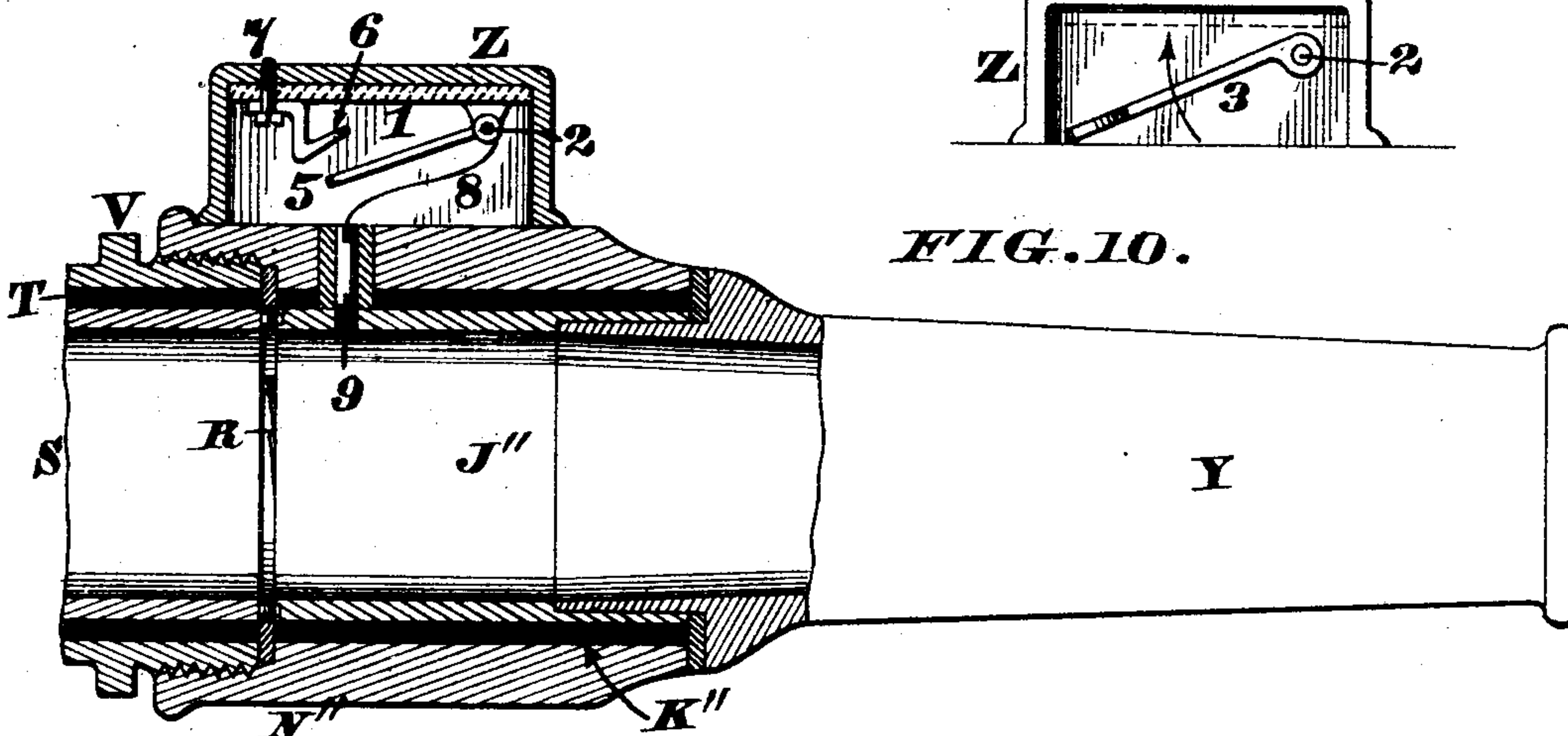


FIG. 13.

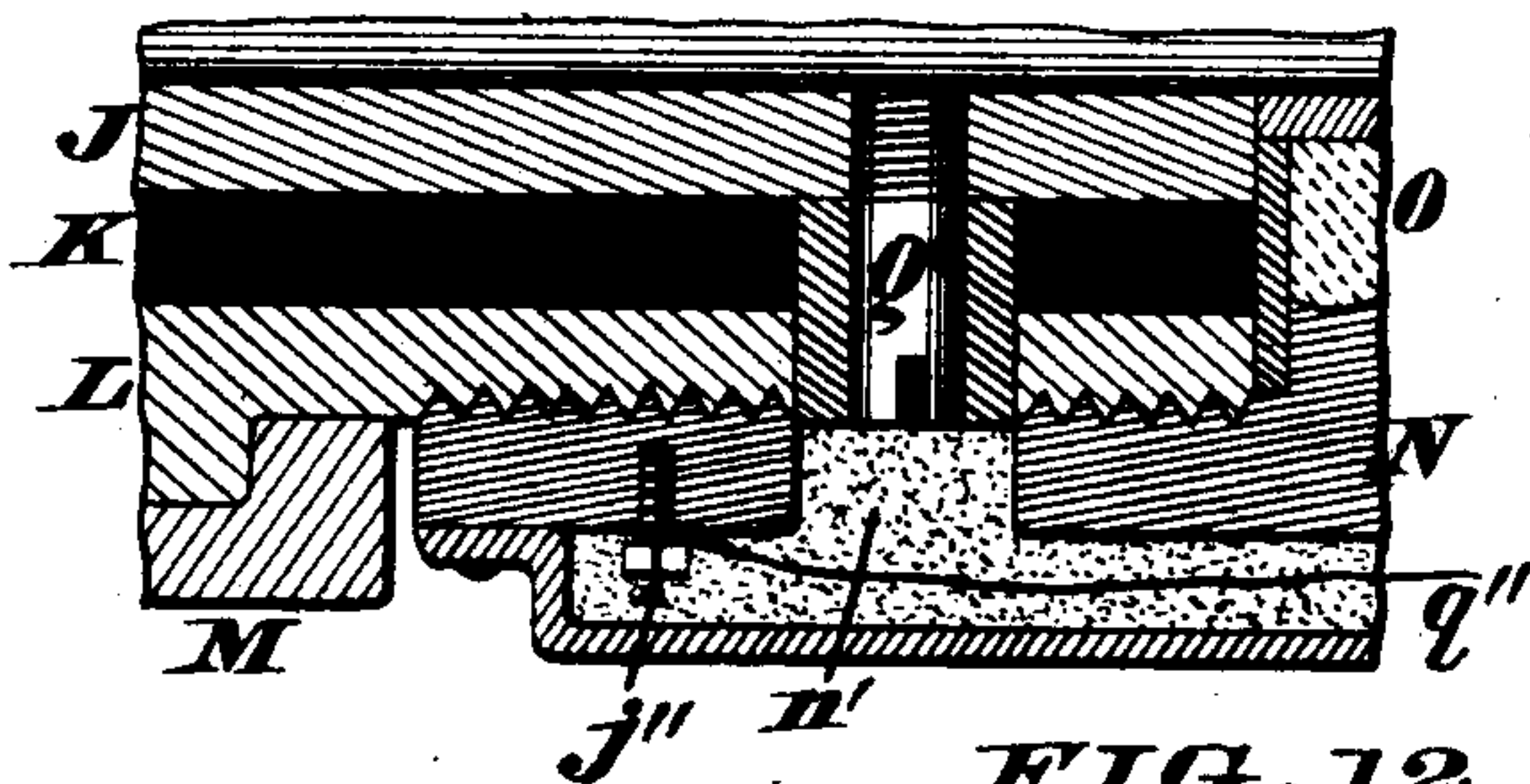


FIG. 14.

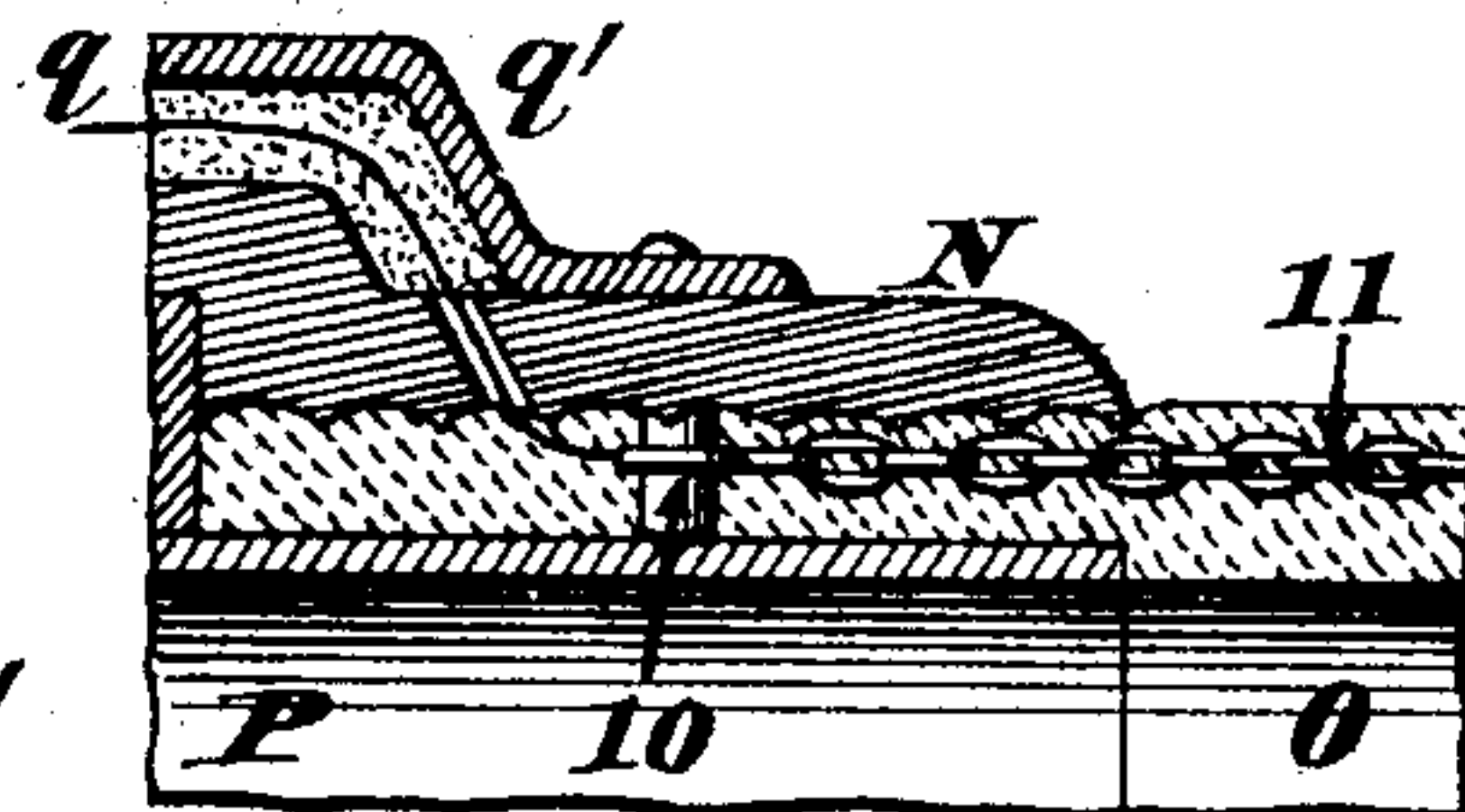
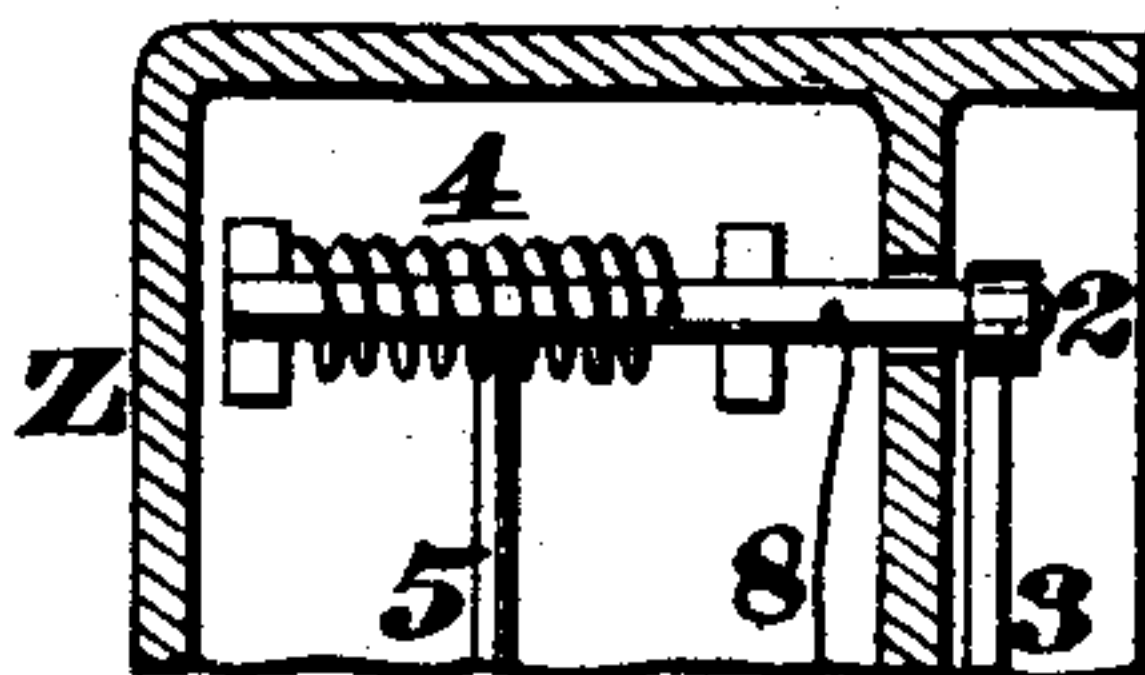


FIG. 12.



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UNITED STATES PATENT OFFICE.

JOSEPH B. STRAUSS, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO
MOE C. WEIL, OF SAME PLACE.

ELECTRIC HOSE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 500,822, dated July 4, 1893.

Application filed January 31, 1893. Serial No. 460,365. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. STRAUSS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Electric Hose-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawings, which form part of this specification.

My invention relates to the peculiar form of hose couplings seen in Letters Patent No. 454,669 and No. 469,283, granted to me June 23, 1891, and February 23, 1892, the details of the present improvements being hereinafter more fully described, and then pointed out in the claims.

In the annexed drawings—Figure 1 is an elevation showing a line of hose attached to a steam fire-engine, a portion of said hose being broken away, and the details of the couplings not being rigidly adhered to. Fig. 2 is an enlarged vertical section through the engine discharge-pipe and its accessories. Fig. 3 is a side elevation of a portion of the double connector wherewith the battery wires are attached to the engine coupling. Fig. 4 is an axial section of one of the male-couplings of the hose. Fig. 5 is a similar section of a female coupling. Fig. 6 is a still greater enlarged-section of the upper portions of a male and female coupling screwed together. Fig. 7 is an enlarged view of one of the contact springs of a female-coupling. Fig. 8 is a section through one of the plugs that conducts the electric current into the inner thimbles of the hose. Fig. 9 is a section showing the first length of hose screwed to the engine-coupling. Fig. 10 is a section showing the last length of hose connected to the nozzle-coupling. Figs. 11 and 12 show details of the contact maker applied to the nozzle. Fig. 13 is a section showing how the wires are arranged for conducting the electric current into the outer members of the couplings. Fig. 14 is a modification of my invention.

Referring to Fig. 1 A represents the front part of the frame of a steam fire-engine, of any construction, and *a* is a driver's seat mounted upon said frame, a box B. being suspended from this seat by one or more semi-elliptic, or

other appropriate springs *b*, in order that the dry-battery *b'*, and bell-ringer *b''*, may not be injuriously affected by the joltings and vibrations of the engine.

a' is the outlet or discharge pipe of the engine, to which is attached a special coupling, the peculiar construction of which is more clearly seen in Fig. 2. Here C represents a cylindrical extension of pipe *a'*. D is a sleeve having an external screw-thread *d*, and E is a non-conducting cylinder interposed between said parts C, D. Furthermore, these parts, C, D, are preferably secured in place and insulated in the manner described in Patent No. 469,283, previously alluded to, although this attachment may be made in any other way.

Projecting outwardly from the extension C is a pin or plug *c* whose exposed end is so slotted and bent at *c'*, as to have a slight spring-action, for a purpose that will presently appear. The greater portion of this pin is inclosed within a non-conducting bushing *f*, the upper end of which is increased in diameter, the bushing itself being secured within a metallic-standard F, screwed to the external sleeve D, the upper portion of said standard being also increased in diameter. Coupled to the enlarged portion of this standard by a bayonet joint, seen in Fig. 3, is a cylindrical housing G, attached to a non-conducting cap H, from the center of which depends a tube I, adapted to fit snugly around the split portion *c'*, of pin *c*. *g* is a wire leading from this metallic housing G, to one pole of the battery *b'*, and *i* a wire connecting the tube I with the other pole of said battery. These devices *c*, *f*, F, G, H, and I will hereinafter be referred to as the "double connector."

A female coupling capable of engagement either with the sleeve D, or with any male coupling of the hose is seen in Fig. 5, where J represents an inner thimble, K a non-conducting jacket surrounding it, and L an intermediate cylinder to which a customary swivel M is applied, the latter being provided with an annular gasket *m*.

Screwed, or otherwise attached to cylinder L is an outer cylinder N, having a pair of diametrically-opposite perforations *n*, *n'*, and corrugated internally at *n''*, to permit a se-

cure hold on the hose O, which is forced into these corrugations by an expansion ring P.

Q is a plug, tapped in the thimble J, and surrounded by a non-conducting bushing *j*, which plug has a wire *q* attached to it, and usually, by being soldered in a slot or nick in the unthreaded end of said plug. This wire *q*, is passed through a perforation in the corrugated portion of cylinder N, and then carried along side the hose O, being generally confined between the body of the same and its outer wrapping. *q'* is a cap secured to this outer cylinder N, and serving to protect the wire *q*, the interior of said cap, and the perforation *n*, being filled with any suitable non-conducting cement, as indicated by dotted lines, the said wire *q* being used for electrically connecting the thimble J, with the corresponding thimble of the male coupling, and thus forming part of the inner circuit. Q' is another screw-threaded plug, tapped in thimble J, and surrounded by a non-conducting bushing *j'*, but the other wire *q''*, has no connection with this plug, it being connected to the outer cylinder N, and usually by a screw *j''*, seen in Fig. 12. The principal duty of plug Q', is to co-act with the other plug Q, in holding the various parts of the female coupling securely in place. *q'''* is another cap on the side of this coupling.

The exposed end of thimble J has an annular groove *n'''*, as seen in Fig. 7, which groove admits one or more springs R, composed of a number of metallic plates or leaves, the springs being secured at *r*, and being so constructed as to cause their free ends to fly outwardly a limited distance, a contact point or bearing *r'*, being arranged at their free ends.

The male coupling, seen in Fig. 4, is to a great extent a mere counterpart of the female coupling, inasmuch as the former consists of a thimble S, non-conducting jacket T, sleeve V, expansion ring P', outer cylinder W, plugs X X', wires *x*, *x'*, and caps *w*, *w'*, the wire *x*, being connected to the plug X, while the other wire *x'* is attached to said outer cylinder W. Sleeve V is threaded externally to engage with the swivel M, in the usual manner. O', is a section of hose attached to this male coupling.

Y, in Fig. 10 is a nozzle, which, when made of metal, is suitably insulated from a butt consisting of a thimble J'', non-conducting jacket K'', and outer cylinder N'', which latter has an internal thread that screws on the adjacent male-coupling, a housing Z, being attached to said butt for the purpose of containing the circuit-closing devices, which are arranged, as follows: Secured within this housing Z, is a non-conducting plate 1, to which are attached bearings for a transverse shaft 2, which passes through to the outside of said housing and has a lever 3 secured to its outer end. Lever 3 is maintained in its normal position by an insulated spring 4, within the housing. Furthermore, this shaft

has, within the housing, an arm 5, adapted to make contact with an angular contact-piece 6, when the lever 3 is properly operated. Contact piece 6 communicates with the metallic housing Z by a screw or other fastener 7.

8 is a wire connecting the shaft 2, and through it the arm 5, with an insulated plug 9, communicating with the butt thimble J'', which latter has one or more metallic-contact-springs R arranged as in all the female couplings. Normally the wires *g*, *i*, are coupled to the box B by the "double connector," and when the engine is drawn to a fire, the yielding support *b* prevents any injurious vibrations of said box. Consequently, there is no danger of the battery or bell-ringer being disarranged, neither are the wire connections broken. When the engine reaches the fire, the hose is attached to the engine, and the nozzle coupled to the hose in the usual manner, which is all that is necessary to bring the electric devices in position for immediate use, and ready at any instant a pipeman wishes to send a signal back to the engineer. It is evident there is now a continuous inner path for the electric current, which metallic path begins at the battery with the wire *i*, tube I, pin *c*, and pipe extension C. This path is then continued from said extension to the springs R, which bear on its outer face, then along the thimble J of the first female coupling, thence through plug Q to wire *q*. The path is now continued by this wire to the plug X, of the thimble S of the first male-coupling, and then in the same manner through the remaining springs, thimbles and wires to the plug *q* of nozzle thimble J'', thence to shaft 2, and here the path leads to the shaft arm 5, and then ceases. It is also apparent that there is now a continuous outer path for the electric current, which metallic path begins at the battery with the wire *g*, housing G, standard F, and sleeve D. This path is then continued from said sleeve D to the swivel M of the first female-coupling, then along the intermediate cylinder L to the outer cylinder N, and from the wire *q''* of the same to the outer cylinder of the first male-coupling. This path then continues along the outer parts of the couplings, as above described, and finally reaches the butt N'' of the nozzle, at which place the path terminates in the housing Z, and its contact piece 6. It will thus be seen that there are two separate and distinct metallic-paths along the hose, and that these paths are made into one when arm 5 is caused to touch the contact-piece 6. Therefore, when lever 3 is so operated as to press this arm against said piece, the paths are joined, the circuit made, and the desired signal sounded on the bell or gong, any accidental ringing of the latter, by the severe vibrations of the engine, being prevented by the flexible suspension of the box containing the battery and bell.

In the modification of my invention, seen

in Fig. 14, the outer cylinder N has a stump 10, to which a chain 11 is attached, the other end of this chain being secured to a similar stump of a coupling at the opposite end of the hose. This chain not only prevents elongation, and consequent weakening of the hose, but also serves to protect the wire running along the same. Finally, in cities where the water pressure is sufficient to dispense with engines, the battery and bell ringer may be carried on a hose-reel or wagon, and taken off when a line of hose is coupled to a plug. The battery can then be connected to the first coupling in the same manner as seen in Fig. 1, thus enabling the pipeman to signal the attendant at the fire-plug.

I claim as my invention—

1. In combination with an electric hose-coupling consisting of an inner cylinder C, outer sleeve D, and intermediate non-conducting cylinder E, the pin *c*, secured at one end to said inner-cylinder C and having its other end split longitudinally at *c'*, the standard F, secured to said sleeve D, the non-conducting bushing *f*, interposed between said pin and standard, a housing G, capable of being readily coupled to said standard and having a wire *g* and non-conducting cap H secured to it, and a tube I projecting from said cap and adapted to surround the split portion *c'*, of said pin, and having a wire *i* attached to it, all as herein described, and for the purpose stated.

2. The combination, in an electric hose-coupling of the thimble J, an annular groove *n'''*, in one end thereof, an annular spring R, secured at one end within said groove, as at *r*, and normally tending to fly out of said groove, the free end of said spring being provided with an outwardly-projecting contact-bearing

r', all as herein described, and for the purpose stated.

3. In an electric hose-coupling, a circuit closer consisting of the housing Z, insulating plate 1, shaft 2, lever 3, spring 4, arm 5, contact piece 6, and a wire 8 that communicates with the nozzle butt, as set forth.

4. In an electric hose-coupling, a male member consisting of the thimble S, insulating jacket T, sleeve V, outer cylinder W, secured to said sleeve, plugs X, X', wires *x*, *x'*, and caps *w*, *w'*, for the purpose described.

5. In an electric hose-coupling, a female member, consisting of the thimble J, insulating jacket K, intermediate cylinder L, swivel M, outer cylinder N, plugs Q, Q', wires *q*, *q''*, and caps *q'*, *q'''*, for the purpose described.

6. In an electric hose-coupling, a male member consisting of the thimble S, insulating jacket T, sleeve V, outer cylinder W, secured to said sleeve, plugs X, X', wires *x*, *x'*, and caps *w*, *w'*, in combination with a female member consisting of the thimble J, insulating jacket K, intermediate cylinder L, swivel M, outer cylinder N, plugs Q, Q', wires *q*, *q''*, and caps *q'*, *q'''*, all as herein described and for the purpose set forth.

7. A wire applied to a hose and communicating with a coupling of the same, and a chain attached to the coupling, for the purpose of preventing any elongation of the hose and breaking of the wire, substantially as herein described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH B. STRAUSS.

Witnesses:

JAS. F. RUSLING,
JAMES W. RUSLING.