

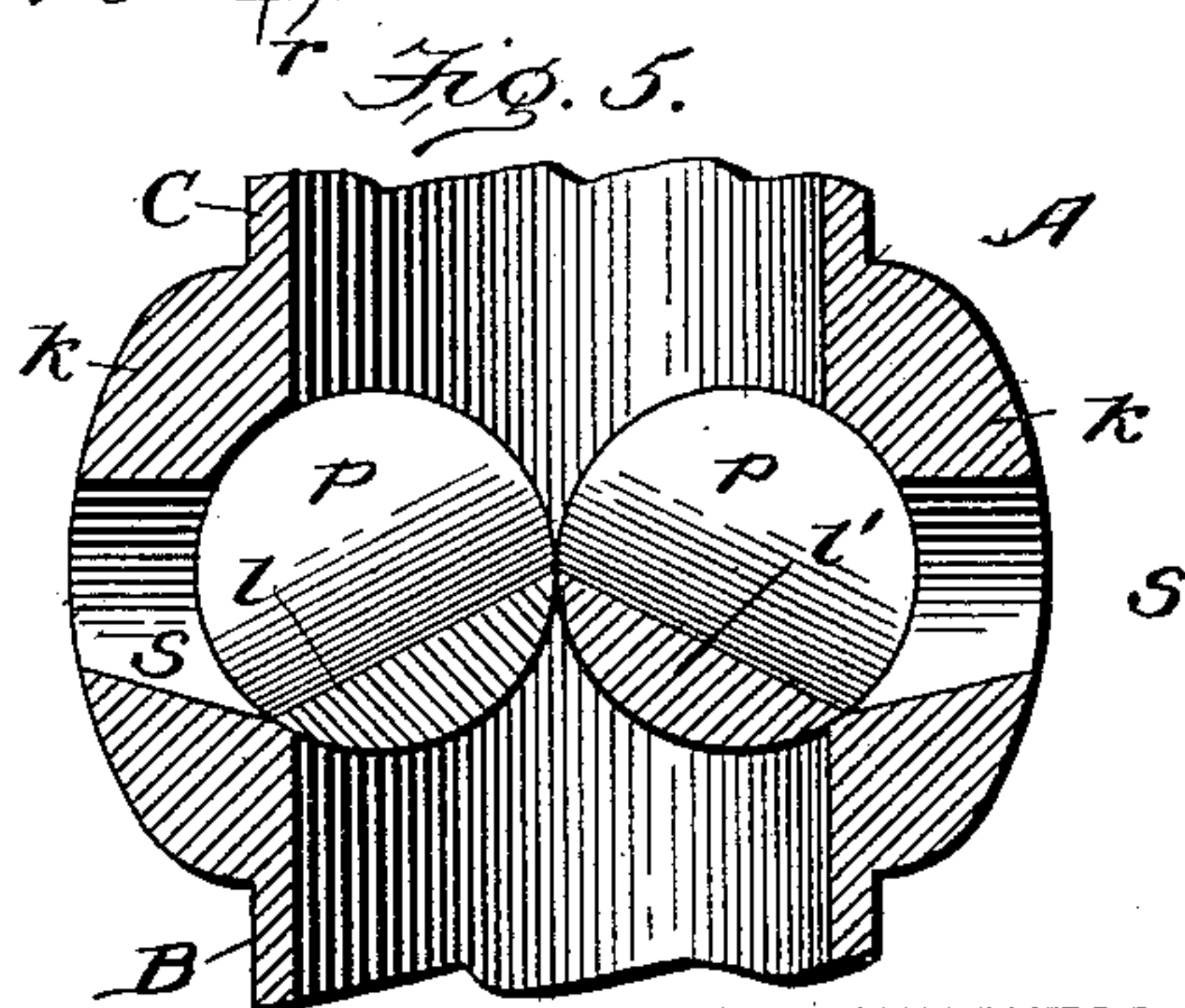
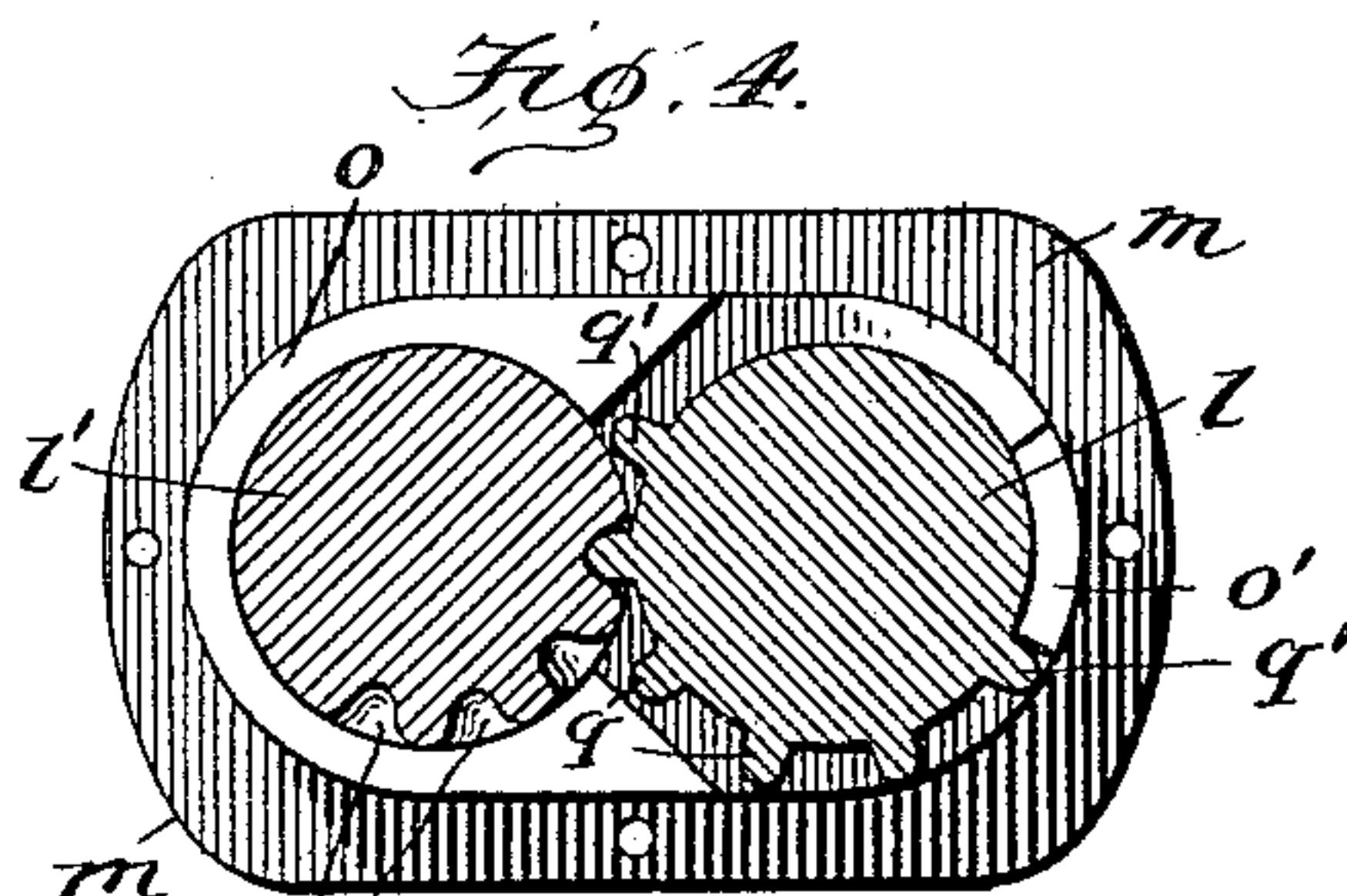
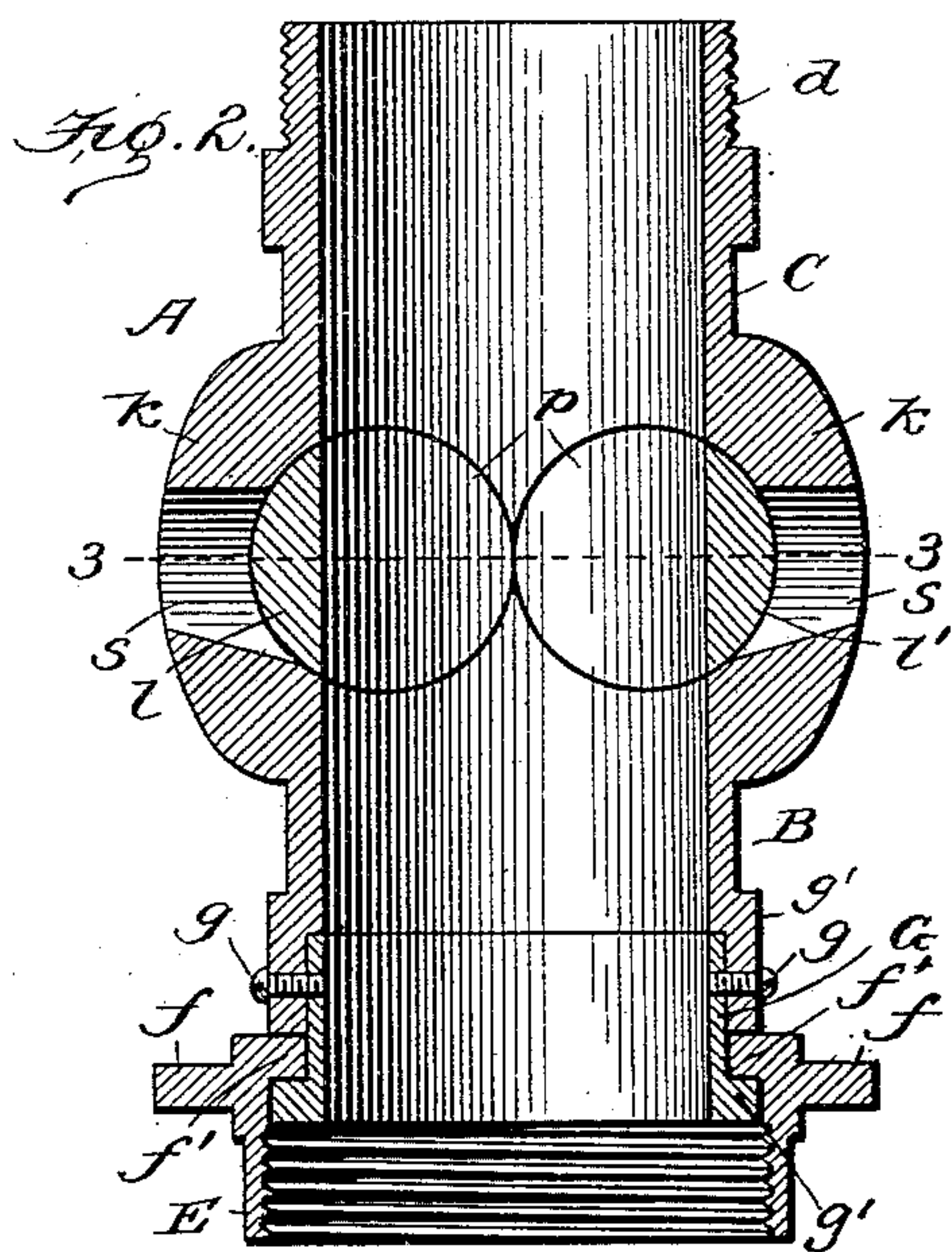
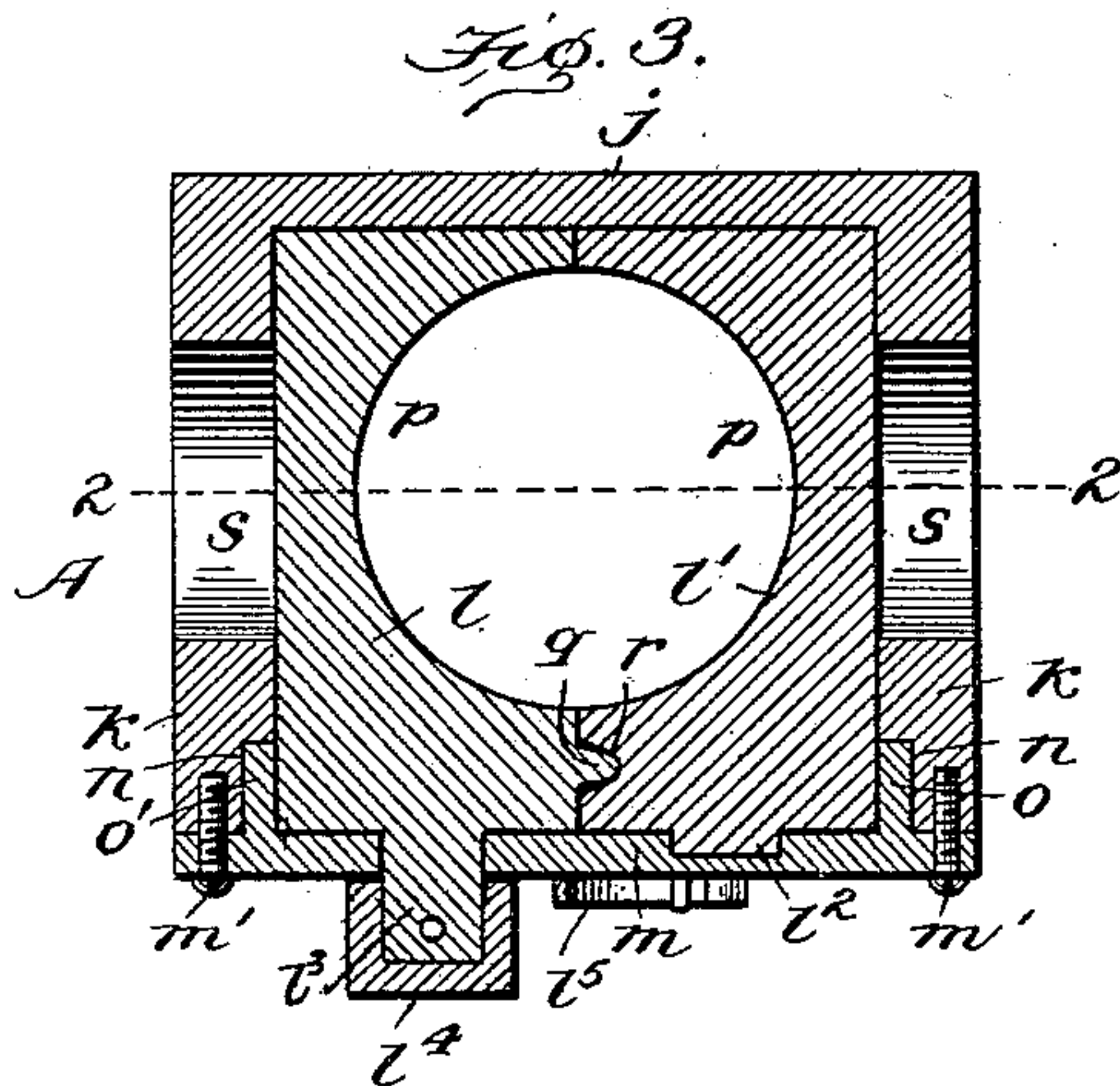
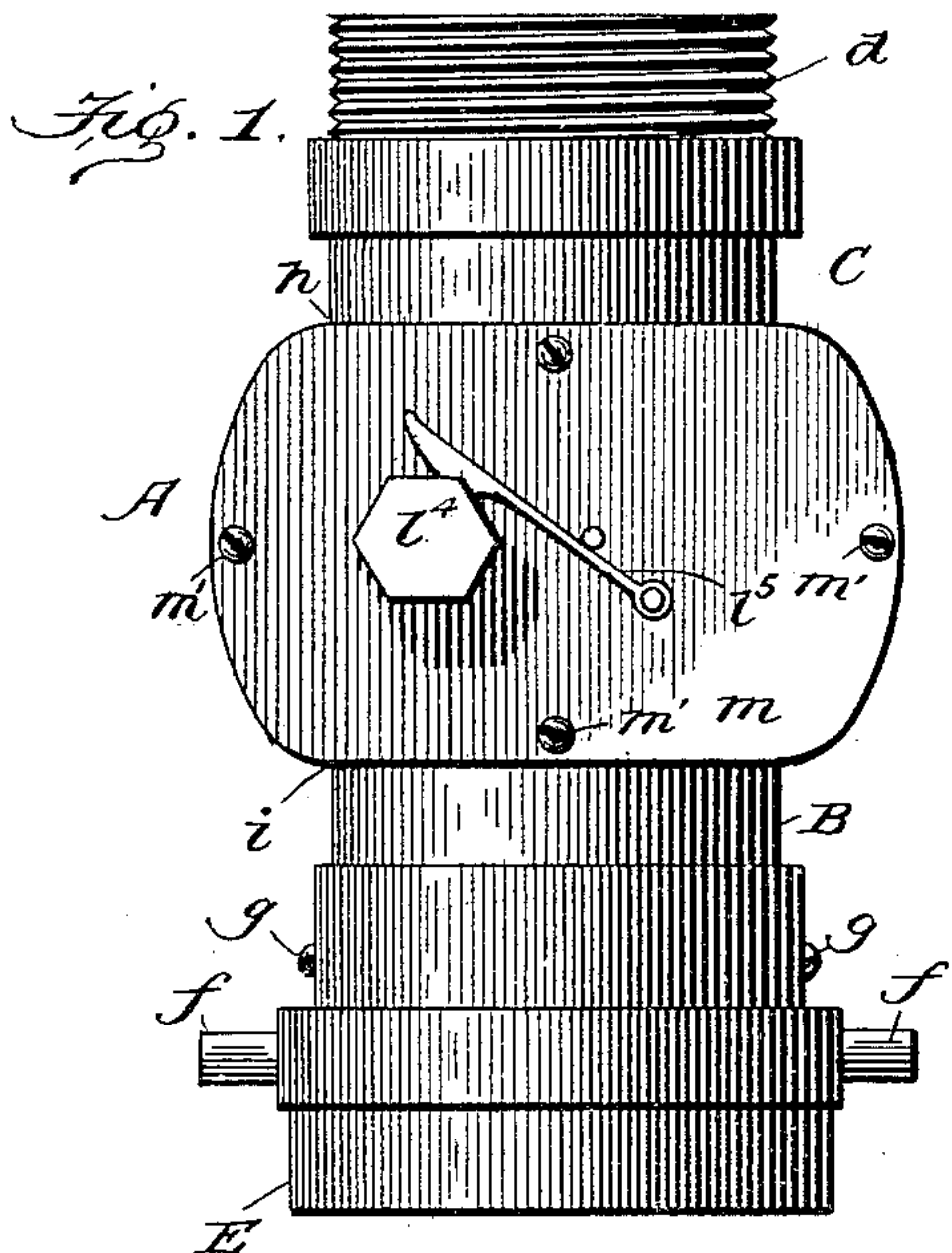
No. 620,769.

Patented Mar. 7, 1899.

C. F. HANSON.
RELIEF VALVE.

(Application filed Mar. 29, 1898.)

(No Model.)



WITNESSES:

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CHRISTIAN FRANK HANSON, OF LA CROSSE, WISCONSIN.

RELIEF-VALVE.

SPECIFICATION forming part of Letters Patent No. 620,769, dated March 7, 1899.

Application filed March 29, 1898. Serial No. 675,601. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN FRANK HANSON, a citizen of the United States, residing at La Crosse, in the county of La Crosse and State of Wisconsin, have invented certain new and useful Improvements in Relief-Valves; 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.

My invention relates to an improved relief-valve for use on fire and other hose.

The object of the invention is to provide a simple and effective relief-valve which may be applied to the hose at any desired distance from the nozzle to cut off the flow of water and allow the water between it and the nozzle to drain off, so as to enable the firemen to carry the hose up high fire escapes and ladders with comparative ease and facility.

To this end the invention consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, and specifically set forth in the appended claims, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevational view of a relief-valve constructed in accordance with my invention. Fig. 2 is a central vertical section of same on line 2 2 of Fig. 3, showing the valve open. Fig. 3 is a horizontal section on line 3 3 of Fig. 2. Fig. 4 is an inner side view of the detachable head, showing the valve-cylinders in cross-section. Fig. 5 is a view similar to Fig. 2, but showing the valve closed.

Referring now more particularly to the drawings, A represents the valve-casing, provided with the usual inlet and discharge pipe extensions B C, the latter being flanged and exteriorly threaded at *d* to receive the coupling-collar on the end of one hose-pipe section and the former having an internally-threaded collar E to engage the end of the adjoining hose-pipe section in the usual manner. This collar is provided with the ordinary turning lugs *f* and with an annular flange *f'*, which is adapted to turn freely on a sleeve C, secured to the said pipe-section B by screws *g* and provided at its outer end with a flange *g'*, which holds the collar in place.

The casing A is formed with flat top and

bottom portions *h i*, a flat side *j*, and rounded or bulged-out ends *k*, which receive the partial cylinders *l l'*, constituting the valve, the open side of the casing being closed by a flat detachable plate or head *m*, as shown in Figs. 1 and 3. This head may be secured by screws *m'* or any other suitable fastening devices. The side wall *j* is formed with two nearly-cylindrical seats (not shown) to receive and support the inner ends of the valve-cylinders, and the chamber of the casing is enlarged at its open side to form a recess *n* to receive the segmental flanges *o o'*, projecting from the inner side of the detachable head *m*, which flanges form seats and supports for the outer ends of the valve-cylinders, as well as a water-tight connection between said detachable head and the wall of the case. Packing may, however, be interposed between these parts to secure an absolutely water-tight joint. The head *m* is in addition provided with a bearing-recess to receive a journal *l²* on the outer end of the valve-cylinder *l'* and with an opening through which a journal *l³* on the valve-cylinder *l* projects to the exterior. On the outer end of this journal is a head *l⁴*, to which a wrench or any other suitable device may be applied when it is desired to open and close the valve, as hereinafter described.

Each valve-cylinder is provided at one side of its periphery with a recess *p*, formed by cutting from it about midway of its length and at right angles to its axis a semicircular piece of metal, and these recesses when brought opposite to each other form a space equal in area to the area of the pipe extensions B C, as shown in Fig. 2. The valve-cylinder *l* is provided around a portion of its periphery with a series of teeth *q*, which mesh with a corresponding series of sprockets or recesses *p* in the valve-cylinder *l'*, and these are so arranged with relation to the recesses *p* that the cylinder *l*, when rotated by means of a wrench applied to the head *l⁴*, moves the cylinder *l'* in unison with it in one direction or the other to cut off or let on the flow of water. Preferably the number of teeth on the one cylinder exceeds the number of sockets in the other cylinder, so that the end teeth *q'* will act as stops to limit the movement of the valve in both directions. A spring pawl or catch 2⁵ engages the head 2⁴ and serves to

prevent accidental movement of same and turning of the valve when the hose is dragged.

The curved or bulged-out ends *k* of the casing are provided with openings *s* to allow the water to drain out between the valve and the hose-nozzle when said valve is closed, as shown in Fig. 5.

It will be noted that the valve is always open, having two operative positions to allow the water to flow in one direction or the other, but no blank position to totally cut off the flow of water in both directions. When the valve-cylinders are in the position shown in Fig. 2, a way is formed for the passage of water through the hose; but when said cylinders are turned to the second position (shown in Fig. 5) the flow of water through the hose is cut off and a way is formed for the discharge of the water in the forward section of the hose through the drain-opening *s*. A valve of simple construction is thereby formed, which may be quickly and positively operated.

From the above description, taken in connection with the accompanying drawings, the construction and mode of operation of my improved relief-valve will be readily understood. This valve is designed particularly for use on fire-hose, although it may be advantageously employed on hose, steam, or water pipes of any kind from which it is desirable to allow the water to escape when the nozzle-valve is shut off. In fires in large buildings it is frequently necessary to raise the hose up high fire escapes and ladders. This is a difficult and dangerous operation, for the reason that the hose filled with water is very heavy and hard to manage, especially when the water is shut off at the nozzle.

By my invention, which may be applied at any point desired from the nozzle, the flow of water may be cut off and the water between it and nozzle permitted to escape, thereby relieving the hose of the weight of the water and rendering it easy to handle.

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

1. A valve of the character described, comprising in its construction a casing provided with inlet and discharge connections and

drain-orifices arranged at opposite sides thereof, and a valve consisting of two partial cylinders connected to rotate in unison and having two open operative positions, each of said cylinders being provided with a recess operating in conjunction to form a way for passage of water through the casing when the valve-cylinders are in one position, and for the discharge of water through said drain-orifices when the valve-cylinders are in the other position, substantially as described.

2. A valve of the character described, comprising in its construction a casing having inlet and discharge pipe connections and outwardly curved or bulged walls provided with drain-orifices, and a valve consisting of two partial cylinders connected to rotate in unison and having two open operative positions, each of said cylinders being provided with a recess operating in conjunction to form a way for passage of water through the casing when the valve-cylinders are in one position, and for the discharge of water through said drain-orifices when the valve-cylinders are in the other position, substantially as described.

3. A valve of the character described, comprising in its construction a casing having a flat top and bottom, a flat closed side and an open side closed by a flat detachable cover-plate, and curved or bulged-out end portions provided with drain-orifices, in combination with a valve consisting of two partial oscillating cylinders, each having a portion of its periphery removed to form in conjunction a waterway adapted, when the valve is closed, to allow the water contained in the hose to discharge through said orifices and provided with teeth to move in unison, a journal on one cylinder projecting through said cover-plate and provided with a head whereby the cylinders may be operated, and a spring-catch engaging said head to prevent turning of the valve-cylinders, substantially as described.

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

CHRISTIAN FRANK HANSON.

Witnesses:

JOHN J. ESCH,
WALTER C. WINTER.