

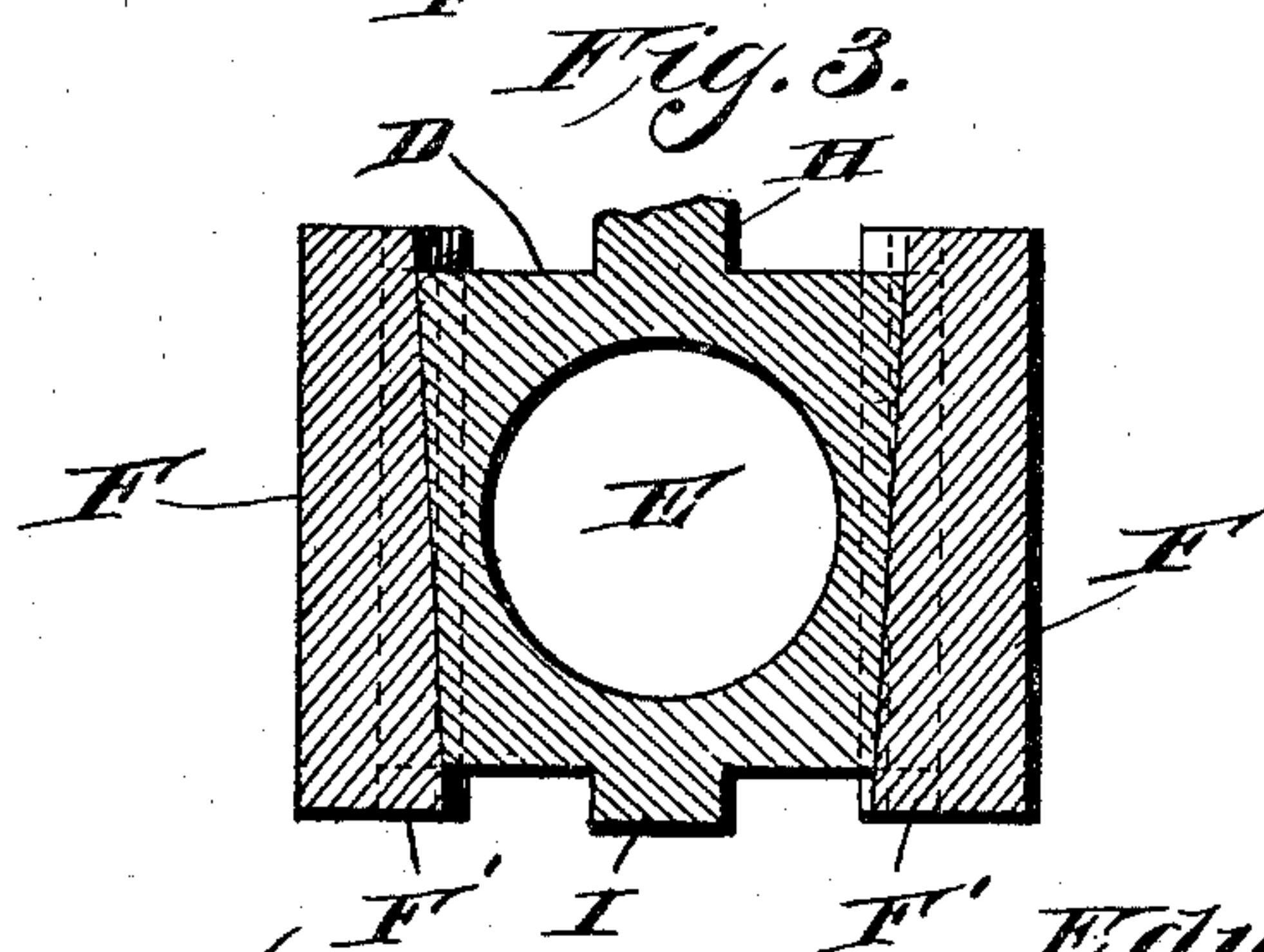
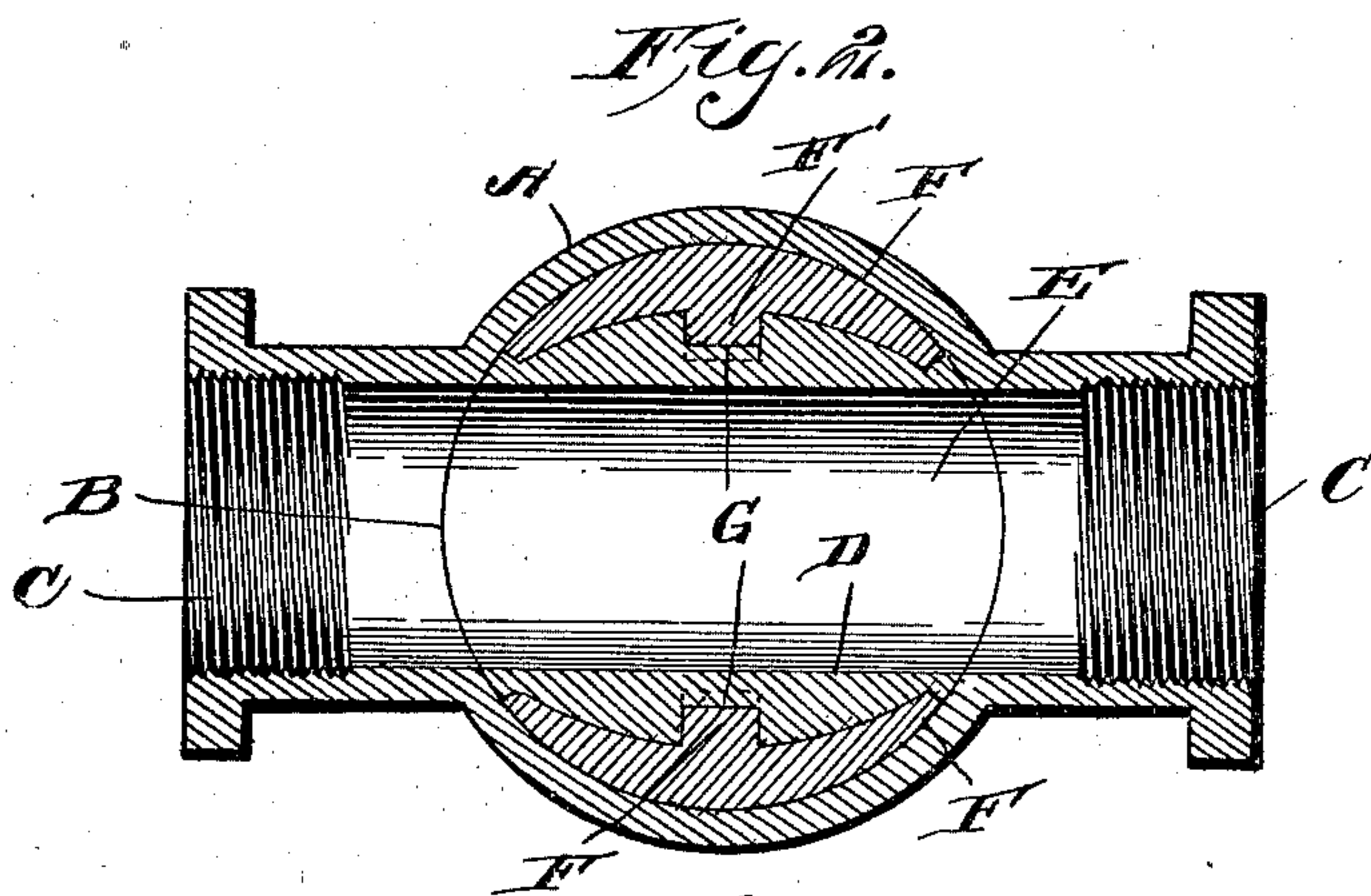
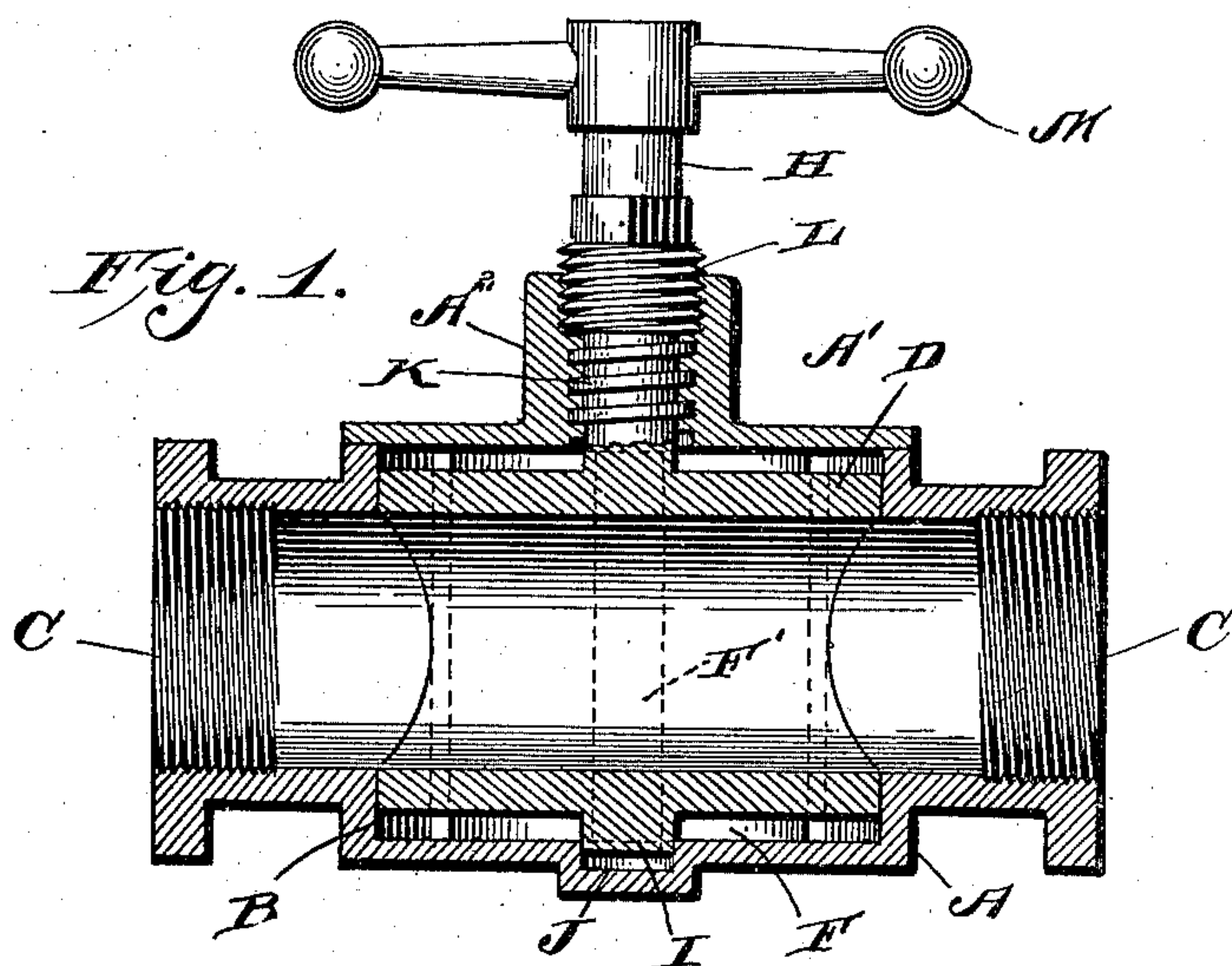
No. 709,146.

Patented Sept. 16, 1902.

E. M. ERDMAN.
STRAIGHTWAY VALVE.

(Application filed Nov. 21, 1901.)

(No Model.)



Witnesses:

Louis D. Heinrichs
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Inventor:

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Atty

UNITED STATES PATENT OFFICE.

EDWARD M. ERDMAN, OF POTTSVILLE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WILLIAM J. MATZ, OF POTTSVILLE, PENNSYLVANIA.

STRAIGHTWAY VALVE.

SPECIFICATION forming part of Letters Patent No. 709,146, dated September 16, 1902.

Application filed November 21, 1901. Serial No. 83,130. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. ERDMAN, a citizen of the United States, residing at Pottsville, county of Schuylkill, and State of Pennsylvania, have invented a certain new and useful Improvement in Straightway Valves, of which the following is a specification.

My invention relates to a new and useful improvement in straightway valves, and has for its object to provide a valve which when open will present practically no resistance against the passage of steam, water, or other liquid by having the opening through the plug of the valve nearly as large if not as large as the pipe which conducts the fluid and at the same time when the valve is closed to have it bind against the seat, so as to prevent any leakage around the plug.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a central section through my improved valve; Fig. 2, a horizontal section through the same; Fig. 3, a vertical section through the plug.

In the drawings, A represents the casing of the valve, which is open at the upper end and is bored with a straight cylindrical opening B for the plug. The inlet and outlet openings C connect with the central bore B.

D is the plug, which has formed through it the passage E. This plug D is cut away upon each side, and this cut-away portion extends from the top to the bottom of the plug, and in these cut-away portions are fitted the blocks F, the outer surface of which conforms to the cylindrical bore B and is concentric with the balance of the plug D. In the center of the cut-away portion in which the blocks fit is a further cut-away portion G, which tapers inward from the top to the bottom of the plug, as shown in Fig. 3. The

blocks F have formed with them the rib F', the inner face of which is beveled to correspond with the bevel of the cut-away portion G. Thus it will be seen that if the plug D is forced downward between the blocks F these blocks will thereby be forced outward in contact with the wall of the valve-casing. This is the essential feature of my invention. After the plug D has been inserted in the bore B of the casing the opening through the upper portion of the casing is closed by the plate A', and this plate A' has formed with it the boss A², through which the valve-stem H extends. The plug D is less in height than the distance between the bottom of the casing A and the plate A'; but the blocks F extend from the bottom of the casing upward and in contact with the top plate A'. Therefore the plug D may move a limited distance vertically, and the lower end of said plug has a short stud I formed with it, which has its bearing within a recess J, formed in the lower portion of the casing A. The valve-stem H where it passes through the boss A² has a screw-thread K formed thereon, which is threaded within the boss, and this stem after passing upward through the stuffing-box L is furnished with a hand-wheel M, by which the same may be turned. Thus it will be seen that as the valve-stem H is rotated for the purpose of closing the valve the screw-thread K will also cause the plug D to be forced outward, which will force the blocks F outward against the wall of the casing, and so make a perfectly tight joint when the valve is turned off; but when it is desired to open the valve the first movement in one direction will release the blocks F and allow the plug to turn easily within the bore B. The plug may be limited in its movement by coming in contact when it is closed with the bottom plate of the casing and when it is open with the top plate, and therefore does not need any stops other than this for limiting the movement.

This valve can also be used to great advantage as a throttle-valve, and if it was found inconvenient to give the lever which was connected to the valve-stem one-quarter movement the valve-stem could be operated

through a train of gears, so that the lever would only need to have a short movement to turn the valve one-quarter of a revolution.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

10 In a valve, the combination with a casing having a cylindrical transverse chamber, of a valve comprising a cylindrical plug fitting said chamber and of appreciably less height than the chamber, said valve having a trans-
15 verse passage and being cut away on two opposite sides, the cut-away portions having end shoulders parallel with the longitudinal axis of the valve and a central groove whose inner face tapers inwardly from top to bot-
20 tom, a block fitting each cut-away portion of the plug and having parallel ends on which said shouldered ends of the valve slide, and

a central rib fitting said groove and having a corresponding taper, a central stem integral with the valve and having a screw-thread 25 mating with a similar thread in the casing, and a central stud on the lower end of the valve rotatably received in a recess in said casing to guide the valve, said blocks fitting the inside of the chamber and extending from 30 top to bottom thereof and held against up and down movement, and said valve having a limited endwise play in said blocks and abutting against the top or bottom of the casing at each end of its rotary movement in 35 opening and closing.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

EDWARD M. ERDMAN.

Witnesses:

ALBIN F. DAY,
FRANK LITTLE.