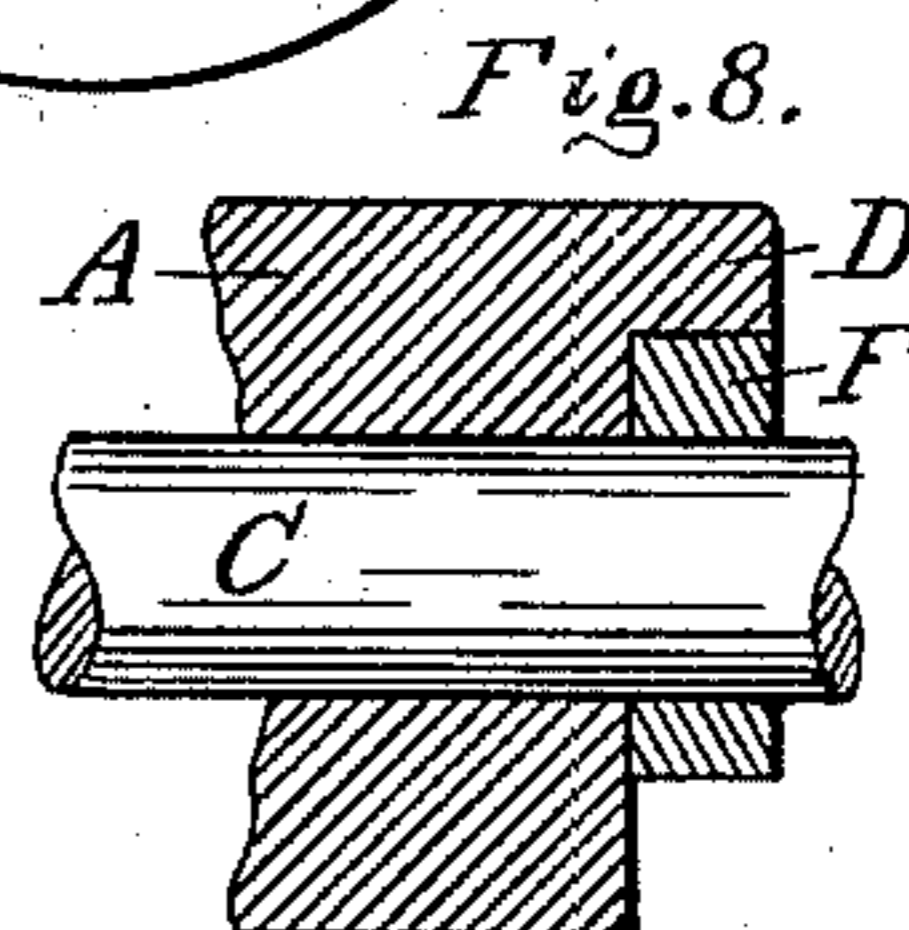
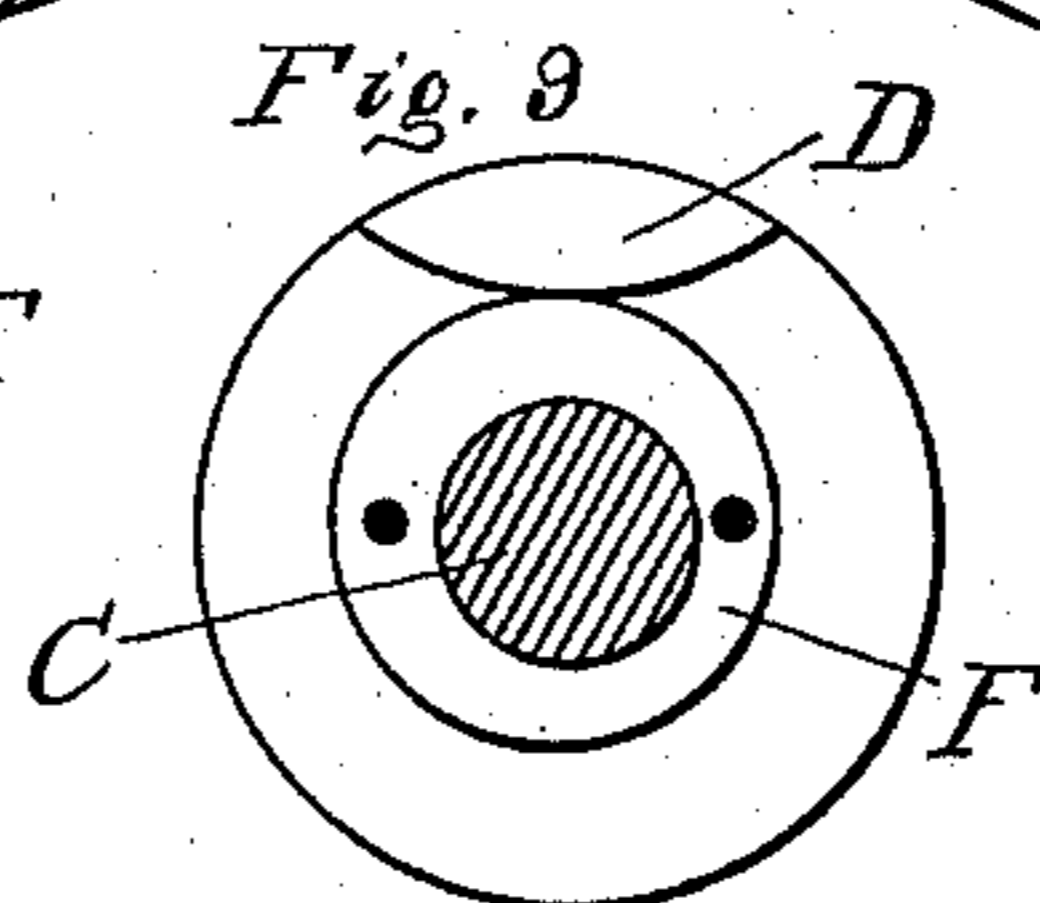
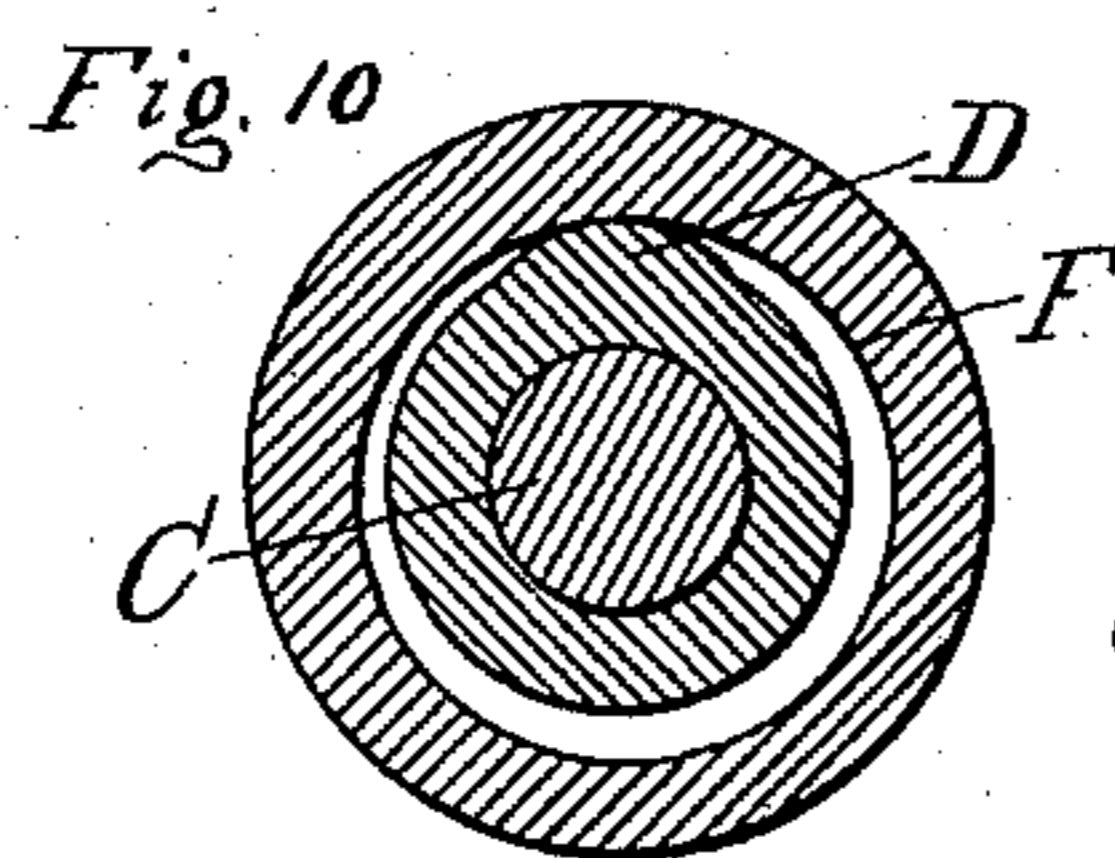
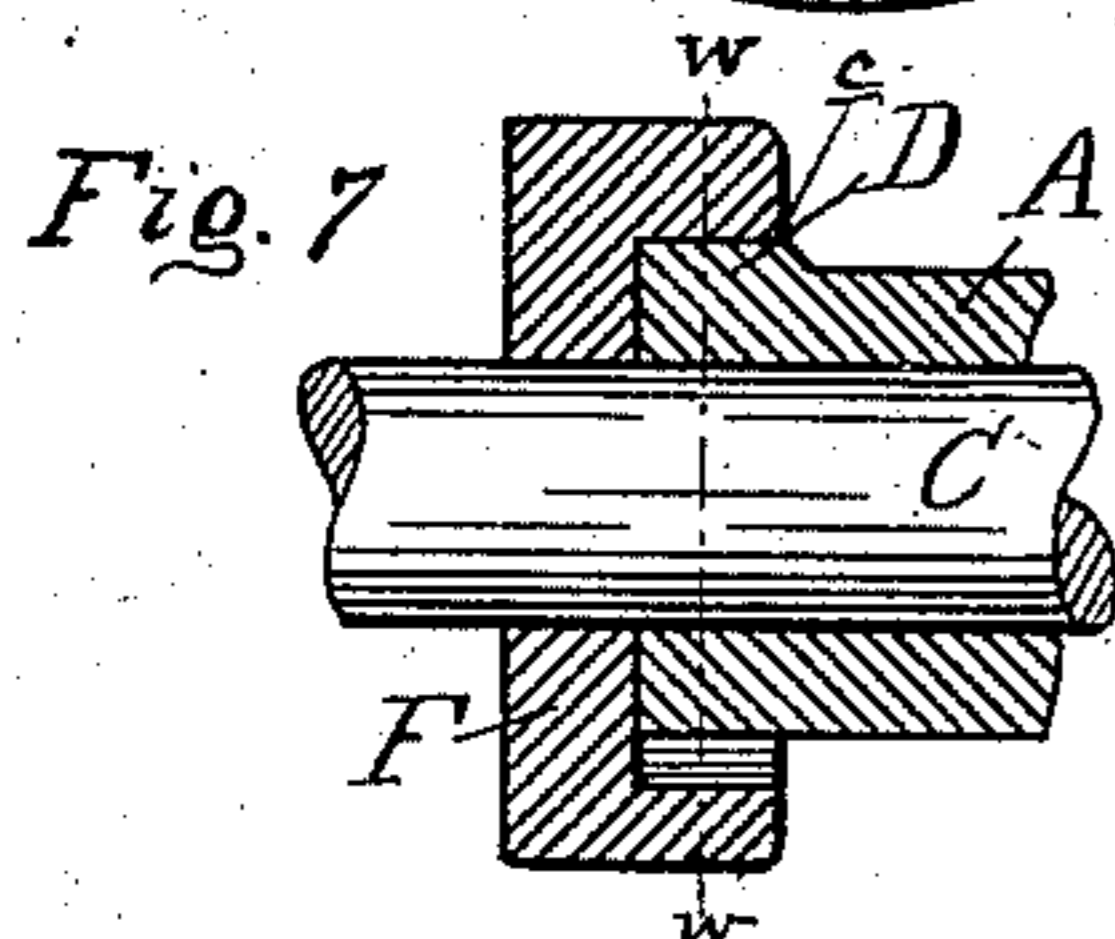
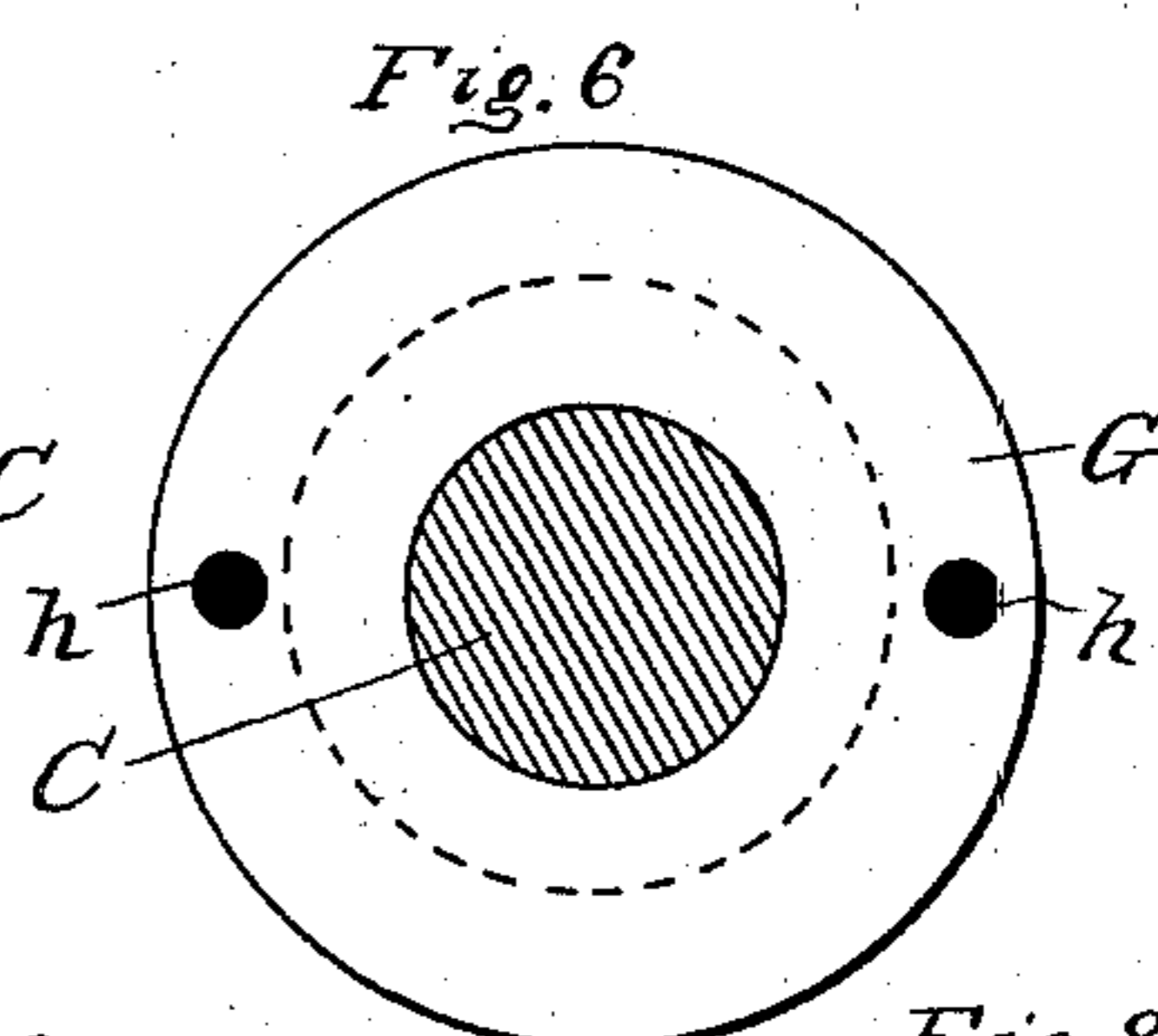
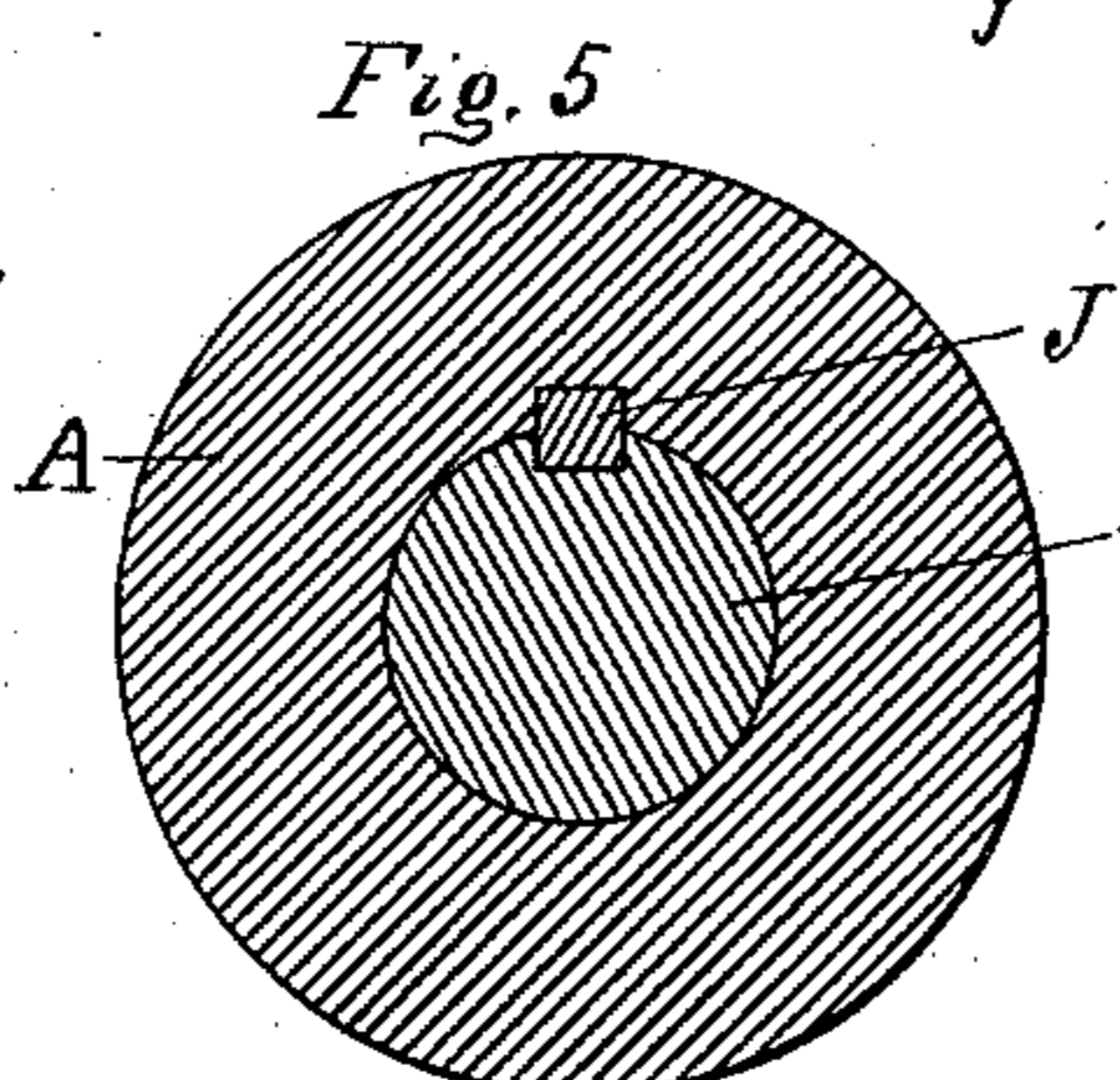
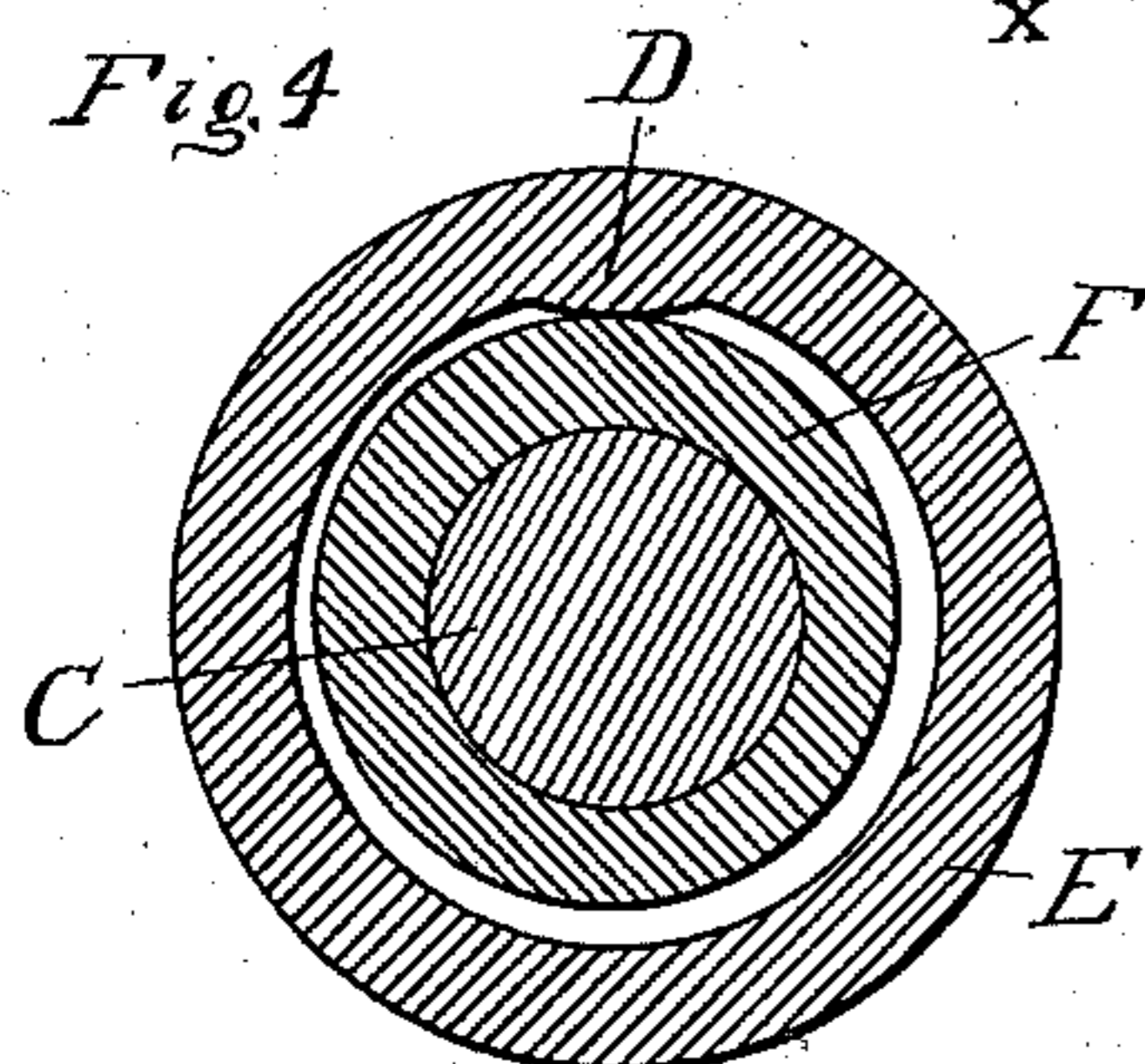
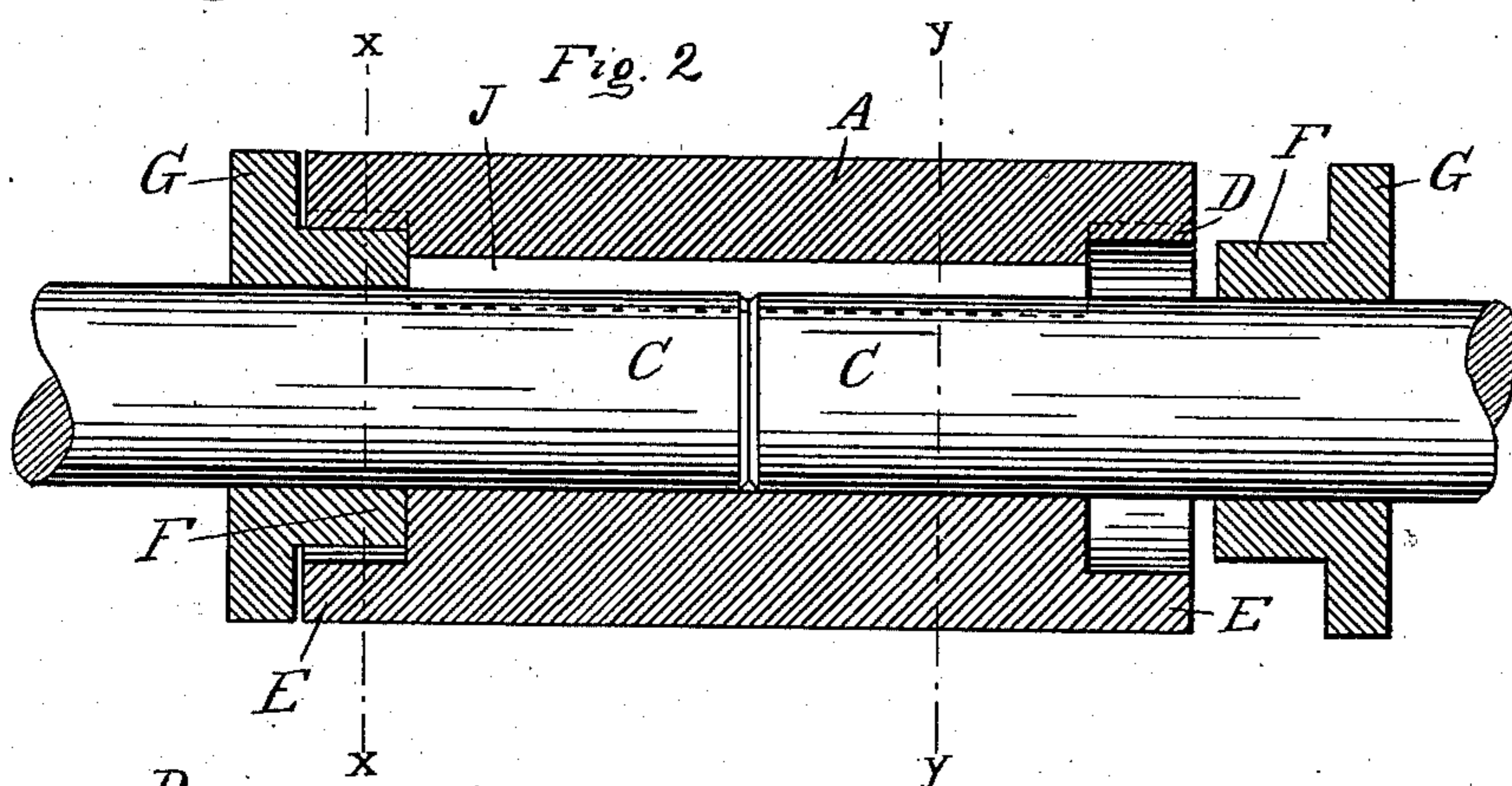
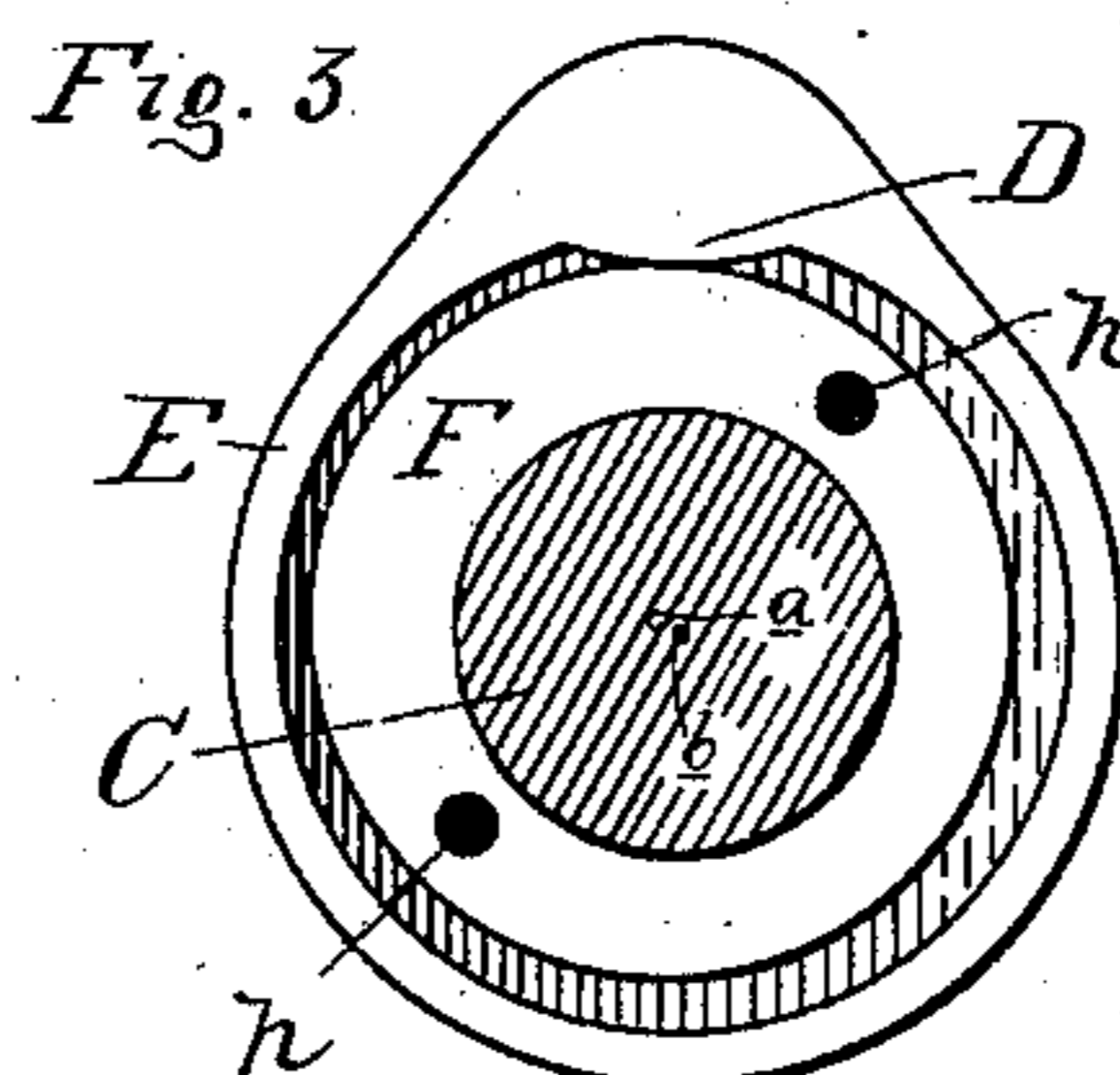
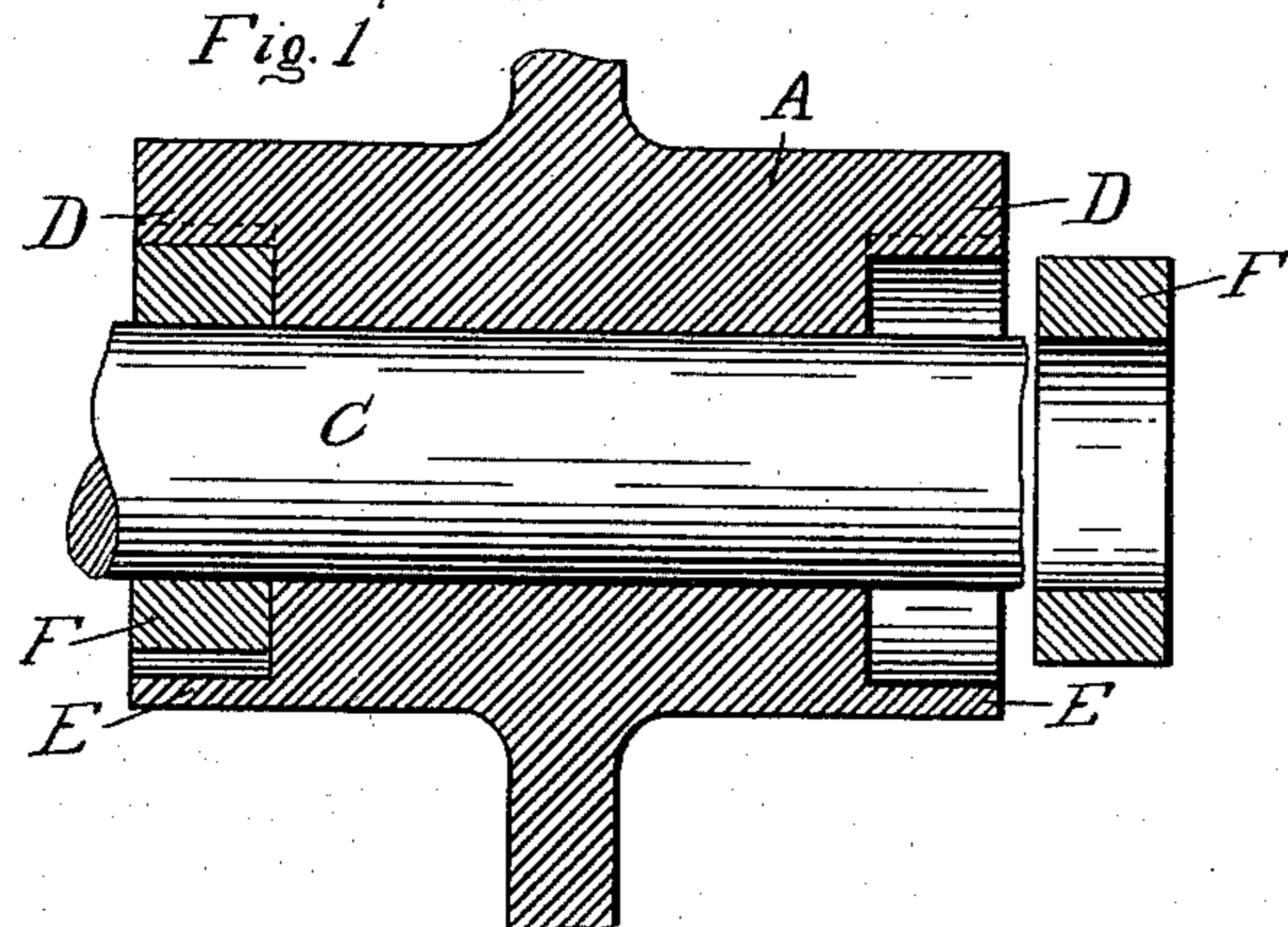


(No Model.)

O. KROMER.
FRICTION COUPLING.

No. 385,122.

Patented June 26, 1888.



Witnesses:

P. M. Hulbert.

[Signature]

Inventor:

Otto Kromer.

By *Thos. J. Sprague & Son.*
Att'ys.

UNITED STATES PATENT OFFICE.

OTTO KROMER, OF SANDUSKY, OHIO.

FRICTION-COUPLING.

SPECIFICATION forming part of Letters Patent No. 385,122, dated June 26, 1888.

Application filed December 12, 1887. Serial No. 257,643. (No model.)

To all whom it may concern:

Be it known that I, OTTO KROMER, a citizen of the United States, residing at Sandusky, in the county of Erie and State of Ohio, have
5 invented certain new and useful Improvements in Friction-Couplings, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in friction-couplings, designed for
10 securing all kinds of mechanical devices upon shafts or for use as a shaft-coupling; and the invention is intended to form an improvement upon a similar coupling for which I have received Letters Patent, dated June 22, 1886,
15 and numbered 344,320.

The invention consists in the simplified construction whereby I am enabled to manufacture the device by casting without any
20 expense in fitting it, which was required in the former device, and whereby I am enabled now to manufacture the device more cheaply.

In the drawings which accompany this specification, Figures 1 and 2 are vertical central
25 longitudinal sections, the former showing my device as preferably applied to secure various kinds of mechanical devices upon a shaft, and the latter as applied for a shaft-coupling. Fig. 3 is an end elevation of Fig. 1. Fig. 4 is a
30 cross-section of Fig. 2 on line *x x*. Fig. 5 is a cross-section of Fig. 2 on line *y y*. Fig. 6 is an end elevation of Fig. 2. Figs. 7 and 8 are vertical central sections showing modifications of my improved coupling. Fig. 9 is an end
35 elevation of Fig. 8. Fig. 10 is a cross-section on line *w w*, Fig. 7.

A is a collar or sleeve, which may represent the hub of a pulley or other piece of machinery or the sleeve of a shaft-coupling, according to the use to which my improvement
40 is applied, and this collar or sleeve is provided with the usual cylindrical bore to fit the shaft or shafts C. Upon one or both ends of this collar or sleeve I provide an endwise-projecting abutment, D, which may be incorporated
45 with a circular flange, E, upon the end of the sleeve or collar, as shown in Figs. 1, 2, and 3, or which may form an isolated stud, as shown in Figs. 8 and 9.

50 F is a ring-wedge, either provided with the flange G or without, and with the sockets *h* or

their equivalents, for the use of a spanner or wrench, as will more fully hereinafter appear. The inner face of the ring is cylindrical and fits the shaft, and the outer face is also cylindrical, but is eccentric to the inner face, the
55 former having its center at *a* and the latter having its center at *b*.

The parts being constructed and arranged as shown and described, they are intended to operate as follows: After the ring-wedge is slipped
60 upon its shaft so that its thinnest portion is brought under the abutment D, the spanner or wrench is then applied to it, by means of which it can be turned with great force upon
65 its axis until it is firmly wedged between the shaft and the abutment. A similar ring-wedge may be applied to the other end of the hub or sleeve, and if turned in the opposite direction to the one upon the opposite end the collar or
70 sleeve can be so firmly locked in position upon the shaft that as a means of fastening it will favorably compare with the present means, while at the same time no injury can happen
75 to the shaft, as frequently is the case with the use of set screws or keys, and, further, the collar or sleeve can be readily removed again, if desired.

In applying my device to the hubs of pulleys or any other kind of wheel where great
80 strain is brought on the fastening I deem it advisable to strengthen the abutment by increase of metal on the hub and by the use of the circular flange E, which forms a recess which conceals and protects the ring-wedge, as
85 shown in Figs. 1 and 3.

The flange G on the ring-wedge is merely intended to give more body to the ring-wedge, so that the sockets may be placed nearer the
90 outer edge without weakening the ring.

It is obvious that my ring-wedge need not be a complete ring, as only a portion of the ring is required to form the locking device. I
95 however prefer to use the complete ring. The advantage which I get with my construction is that no fitting at all is required, and the whole device may be made in operative shape by casting.

In the application of my device as a shaft-coupling (shown in Fig. 2) I put a loose key, J, into a suitable keyway formed in the ends
100 of the shafts to be coupled, and a correspond-

ing keyway I provide in the sleeve. While this is not necessary it greatly tends to strengthen the coupling. In Fig. 7 I show a ring-wedge constructed and applied upon the 5 outer face of the abutment on the collar or sleeve. It will be readily seen that this is merely the converse way of my former construction, and forms a part of my invention, and the cylindrical face (marked *c* in this modification) of the ring-wedge forms the equivalent of the outer cylindrical face of the ring-wedge, as shown in the other constructions. 10

What I claim as my invention is—

1. In a friction-coupling, the combination, 15 with a collar or sleeve provided with a bore for the reception of a shaft, and an abutment on the end of said collar or sleeve, of a ring-wedge having a bore to fit the shaft, and an outer cylindrical face, or its described equivalent, eccentric therewith and adapted to operate in connection with the shaft and abutment 20 on the collar or sleeve, substantially as and for the purpose described.

2. In a shaft-coupling, the combination, with 25 a collar or sleeve provided with a central bore,

and an annular flange formed upon the end of said collar or sleeve, and an abutment formed integral with said flange, of a ring-wedge having a corresponding bore with the sleeve and an outer face eccentric therewith, said ring-wedge being adapted to act in connection with the abutment and shaft, substantially as and for the purpose described. 30

3. In a friction-coupling, the combination, with a sleeve provided with a central bore, a 35 keyway formed in said bore, an annular recess formed on the end of said sleeve eccentric thereto, and an abutment formed on the inner face of said recess, of a ring-wedge having a corresponding bore with the sleeve and 40 adapted to fit into the recess, substantially as and for the purpose described.

In testimony whereof I affix my signature, in presence of two witnesses, this 5th day of December, 1887.

OTTO KROMER.

Witnesses:

PHILIP HERDER, —
J. ERCKENER.