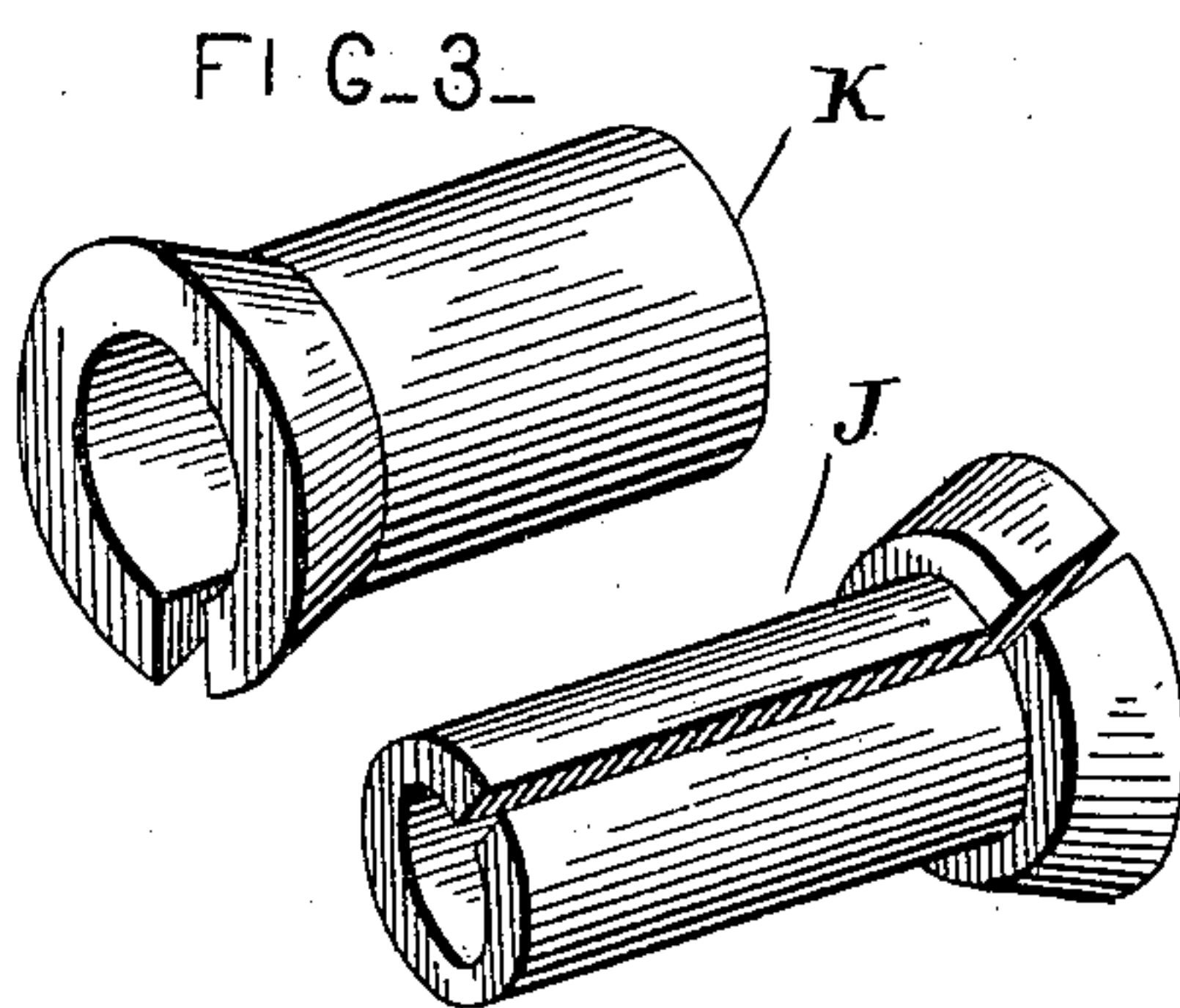
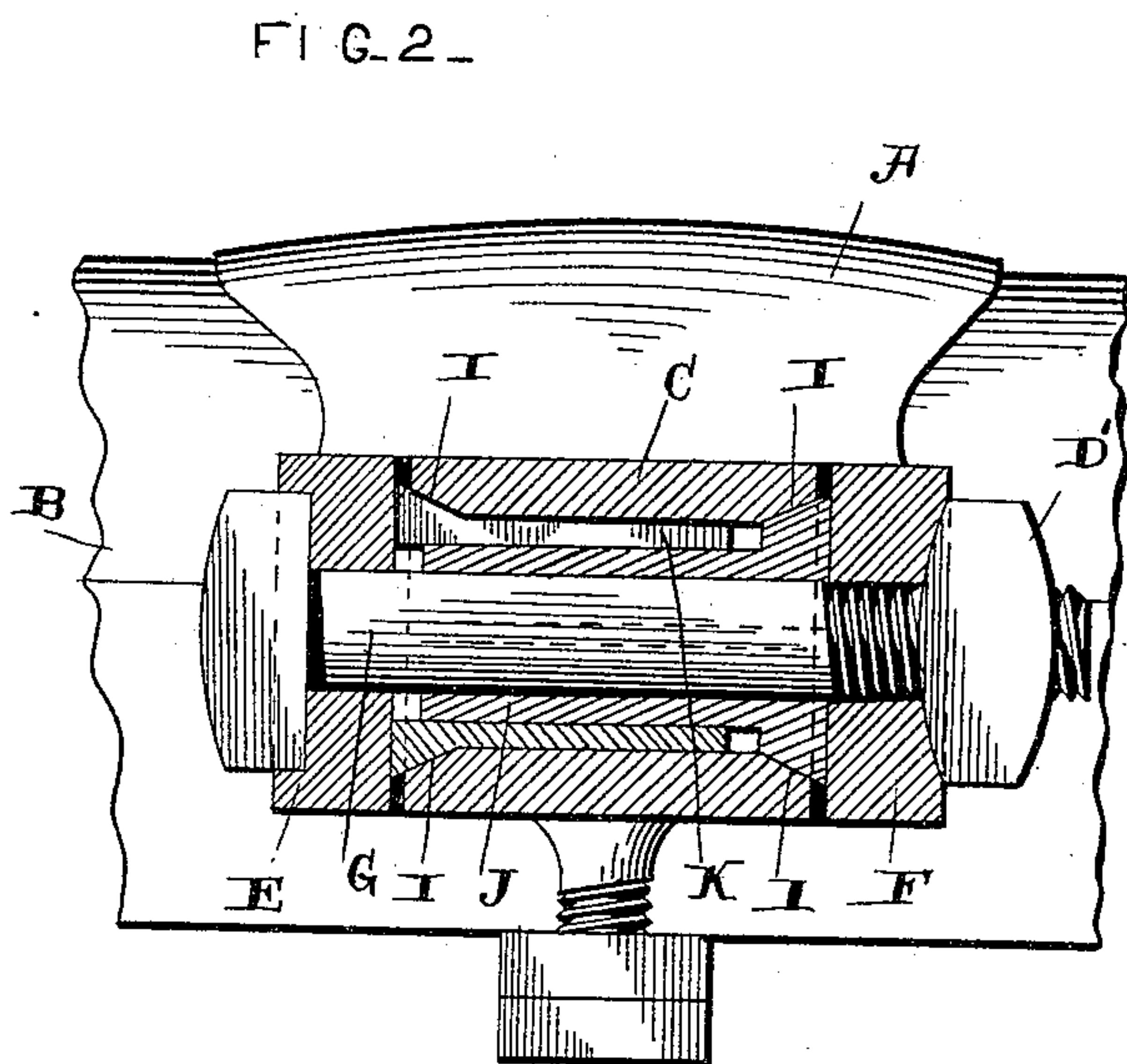
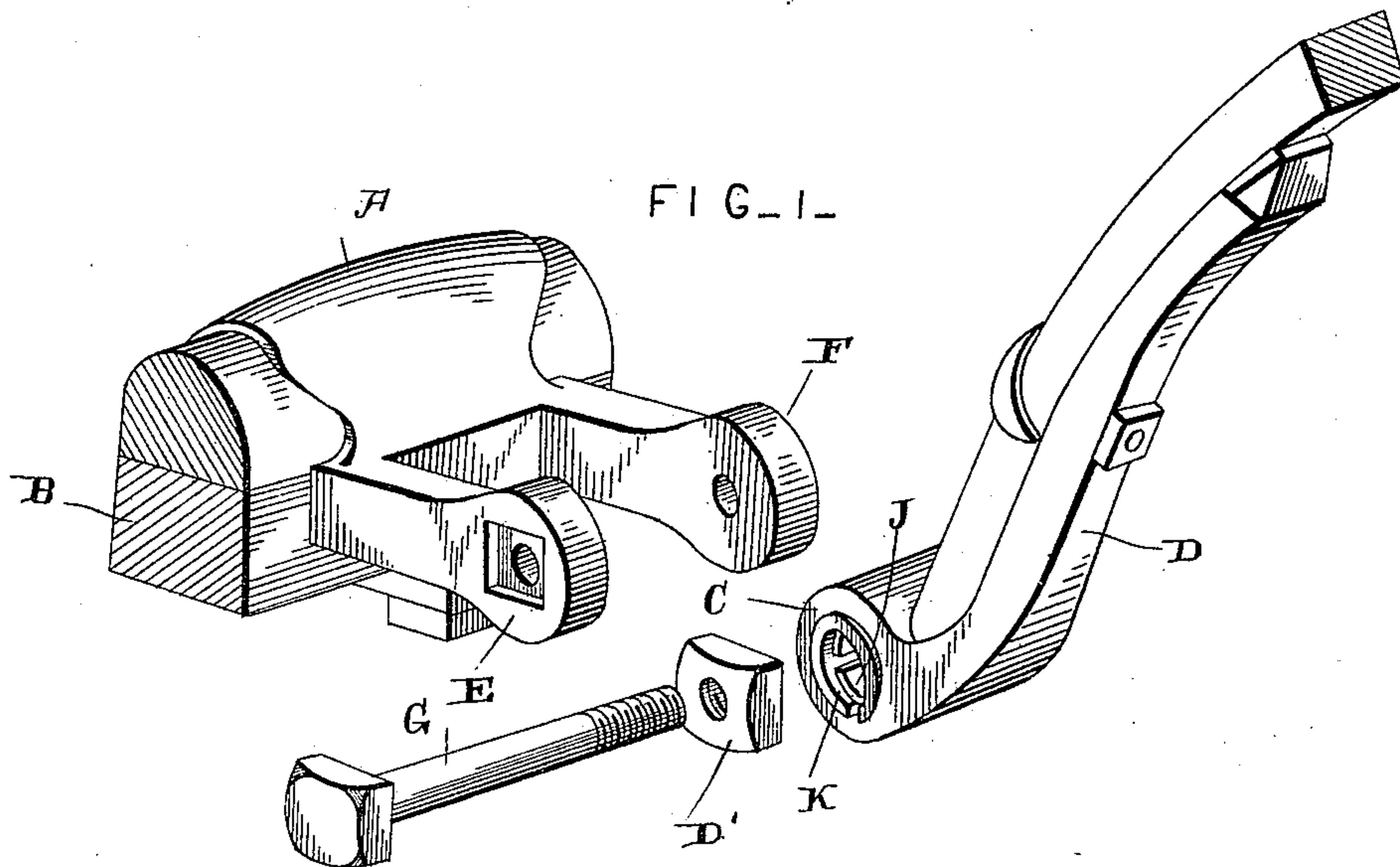


(No Model.)

T. A. WATROUS.  
THILL COUPLING.

No. 467,024.

Patented Jan. 12, 1892.



WITNESSES.

*Geo. E. French.*

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*attys.*



# UNITED STATES PATENT OFFICE.

THOMAS A. WATROUS, OF ELMIRA, NEW YORK, ASSIGNOR OF ONE-HALF  
TO WILLIAM D. REYNOLDS, OF SAME PLACE.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 467,024, dated January 12, 1892.

Application filed October 2, 1891. Serial No. 407,496. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. WATROUS, of Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Thill-Couplings; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in thill-couplings; and it consists in certain novel features of construction which will be fully described hereinafter, and more particularly referred to in the annexed claims.

The object of my invention is to construct a bushing which may be easily applied to thills of the ordinary construction, and which will prevent all wear which would otherwise be caused by friction, and which will also prevent rattling of the thills, thus doing away with expensive and complicated anti-rattlers now commonly used.

Referring to the accompanying drawings, Figure 1 is a perspective view of the parts of the coupler detached. Fig. 2 is a sectional view showing the position of the bushing within the thill-arm. Fig. 3 is a detached view of the bushing.

A represents a clip, which is of the usual construction, and which is secured to the axle B of the vehicle in the ordinary manner.

C represents the arm to which the thill D is bolted and which is secured between the clip-arms E F by the bolt G. The opposite ends of the opening in the arm C are countersunk, as shown at I, Fig. 2, and adapted to fit within the said opening are the bushing-sections J K, having enlarged ends which fit the countersunk openings I. These bushing-sections have a longitudinal slot running their entire length, and being formed of spring metal are capable of contraction or expansion, as may be desired. The telescoping-section K is made shorter than the section J, so that when the two are placed together the latter extend through the former. The enlarged ends of the bushing-sections extend a little beyond the faces of the arm C, so that a tight fit is insured when the arm C is forced between the arms E F. If the arm C, together with the

extended ends of the bushing, is too wide to enter between the said arms, the bushing-sections may be forced inward, contracting them, and admitting the arm C to enter between the arms E F. As the bushing is capable of contraction to a considerable extent, this adjustment becomes an important factor and adds greatly to the utility of the improvement. From this it will be seen that it is not always necessary to have thill-arms of a certain width with relation to the space between the arms of the clip, as arms of narrower width than those usually employed may be secured in position and held in a rigid manner. Another great advantage of this construction is having the bushing-sections extend through the body of the arm A, so that they are always in position therein, whether the thills are secured in position to the clips A or removed therefrom. The bushing is so wedged in that it cannot drop out when the shafts are detached, which is a great advantage over the bushing which is made tapering its entire length. When the thills are in place and the bolt G passed through the arms E F, the said arms may be drawn together by screwing the nut D' down on the bolt. This operation contracts the sections of the bushing by forcing them farther into the countersunk openings in the arm C, causing them to bind the bolt G and preventing any rattling of the thill. The arm E of the clip A has a square depression in its outer face, which forms a seat for the head of the bolt G and prevents the same from turning while the nut is being placed thereon or removed. The opposite arm F is constructed with a circular tapering depression for the reception of the nut, the inner face of which is tapered outward correspondingly, so that when the nut D' is drawn up tightly on the bolt the said bolt will be drawn to the center of the opening in the said arm and not to either side, which might occur in the ordinary construction. Thus the bolt is always made to occupy one position in relation to the said arms, and enlargement of the holes by the movement of the bolts is prevented.

The attachment to thill-couplings herein shown and described is very cheap, is effectual in performing the work desired, and is capable of attachment to couplings of ordi-



nary construction by simply reaming out the ends of the openings in the thill-arms.

Having thus described my invention, I claim—

- 5 1. In a thill-coupling, a clip, a thill-arm, and a bushing made in sections and adapted to telescope, the said sections being formed with a slot running their entire length, the parts being combined substantially as shown and described.
- 10 2. In a thill-coupling, a clip, a thill-arm, a bushing adapted to fit the said arm which is formed of sections which telescope, one of the said sections being made shorter than the
- 15 other, and tapering heads formed on the outer ends of the said sections which fit countersunk openings in the thill-arm, the parts being combined substantially as shown and described.
- 20 3. In a thill-coupling, a clip, a thill-arm provided with an opening having countersunk

ends, a telescoping bushing made of spring metal and provided with a longitudinal slot extending its entire length, conical heads formed on the outer ends of the telescoping- 25 sections which fit the countersunk openings in the thill-arm, and a securing-bolt, the parts being combined substantially as shown and described.

4. In a thill-coupling, a clip, a thill-arm, 30 and a bushing made in sections which enter the thill-arm from opposite sides, each of the said sections being provided with a longitudinal slot extending its entire length, the parts being combined substantially as shown and 35 described.

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

THOMAS A. WATROUS.

Witnesses:

NELL E. NIMBS,  
JAMES N. WARD.