

(No Model.)

T. A. WATROUS.
THILL COUPLING.

No. 572,141.

Patented Dec. 1, 1896.

Fig. 1.

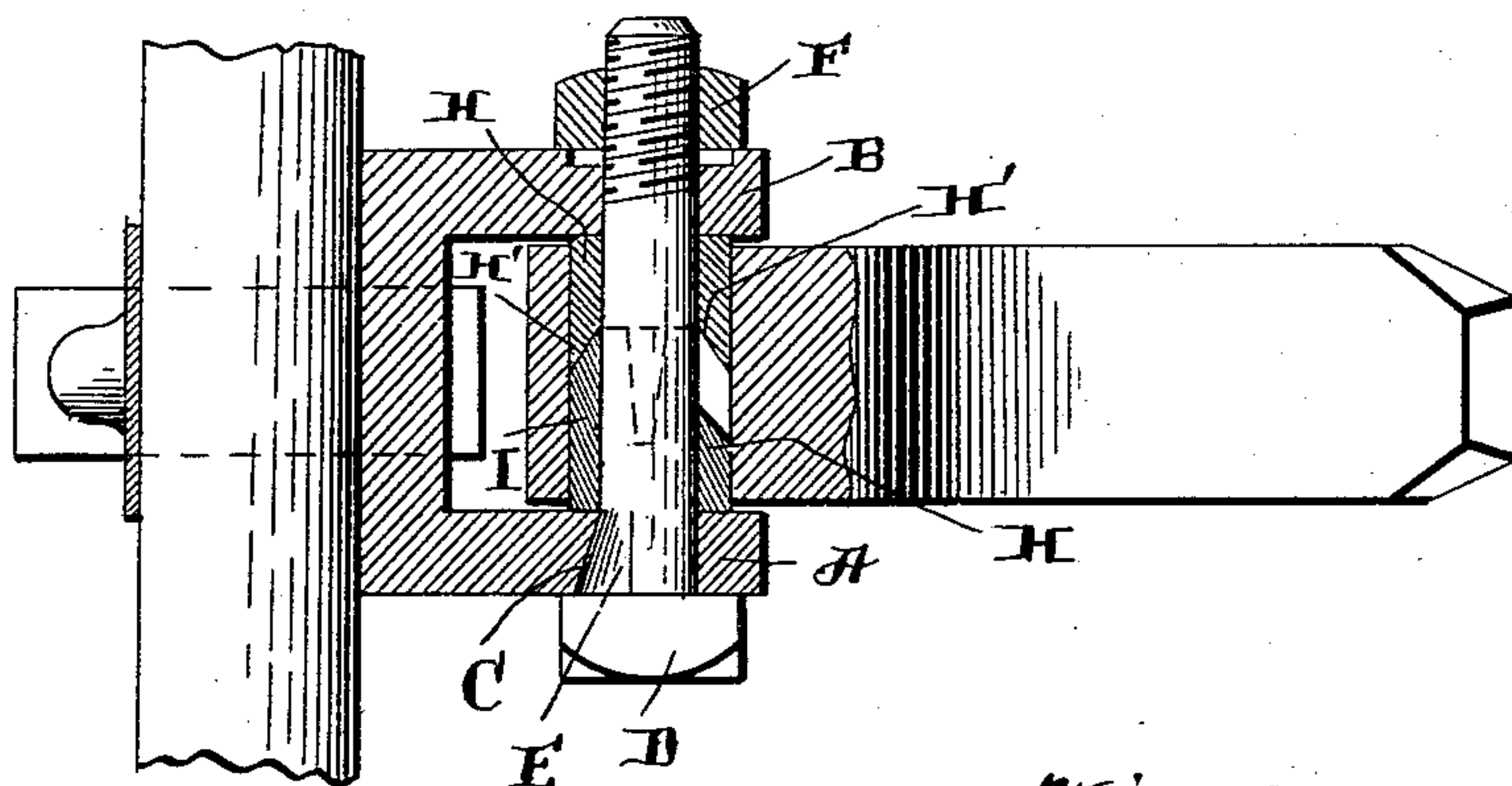


Fig. 2.

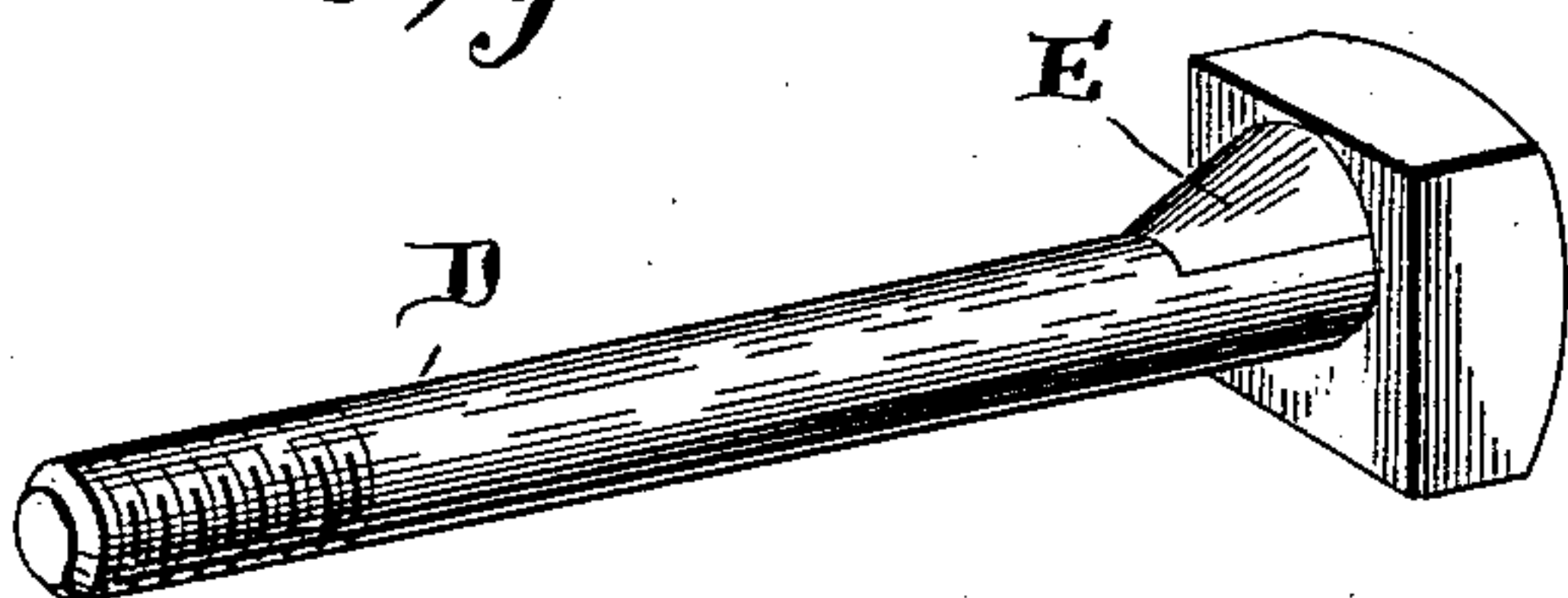


Fig. 3.

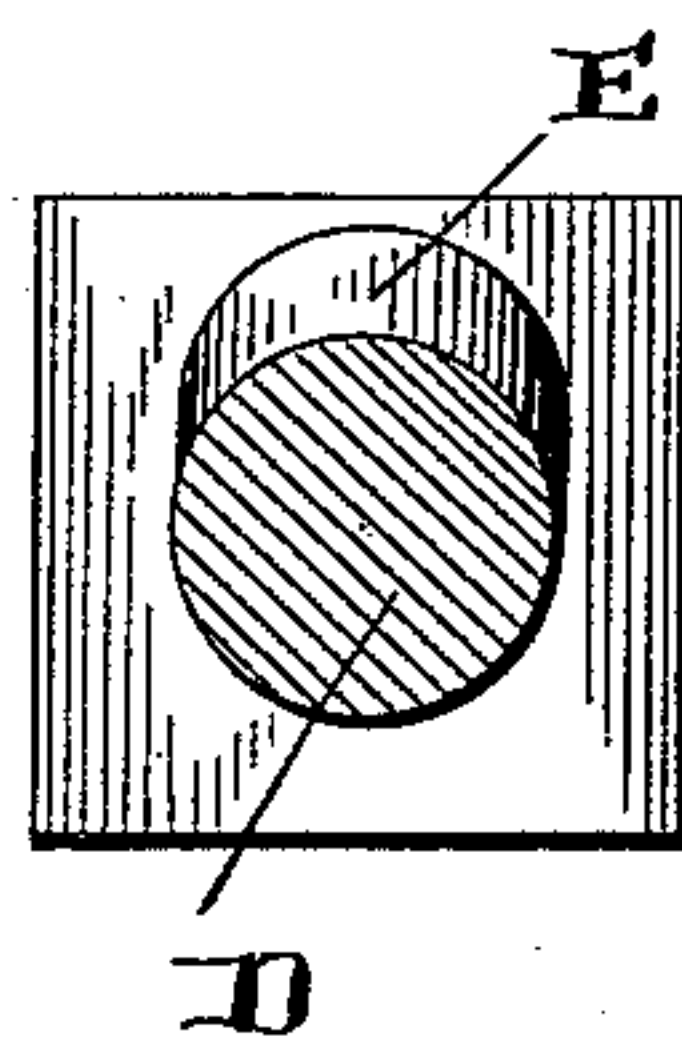


Fig. 4.

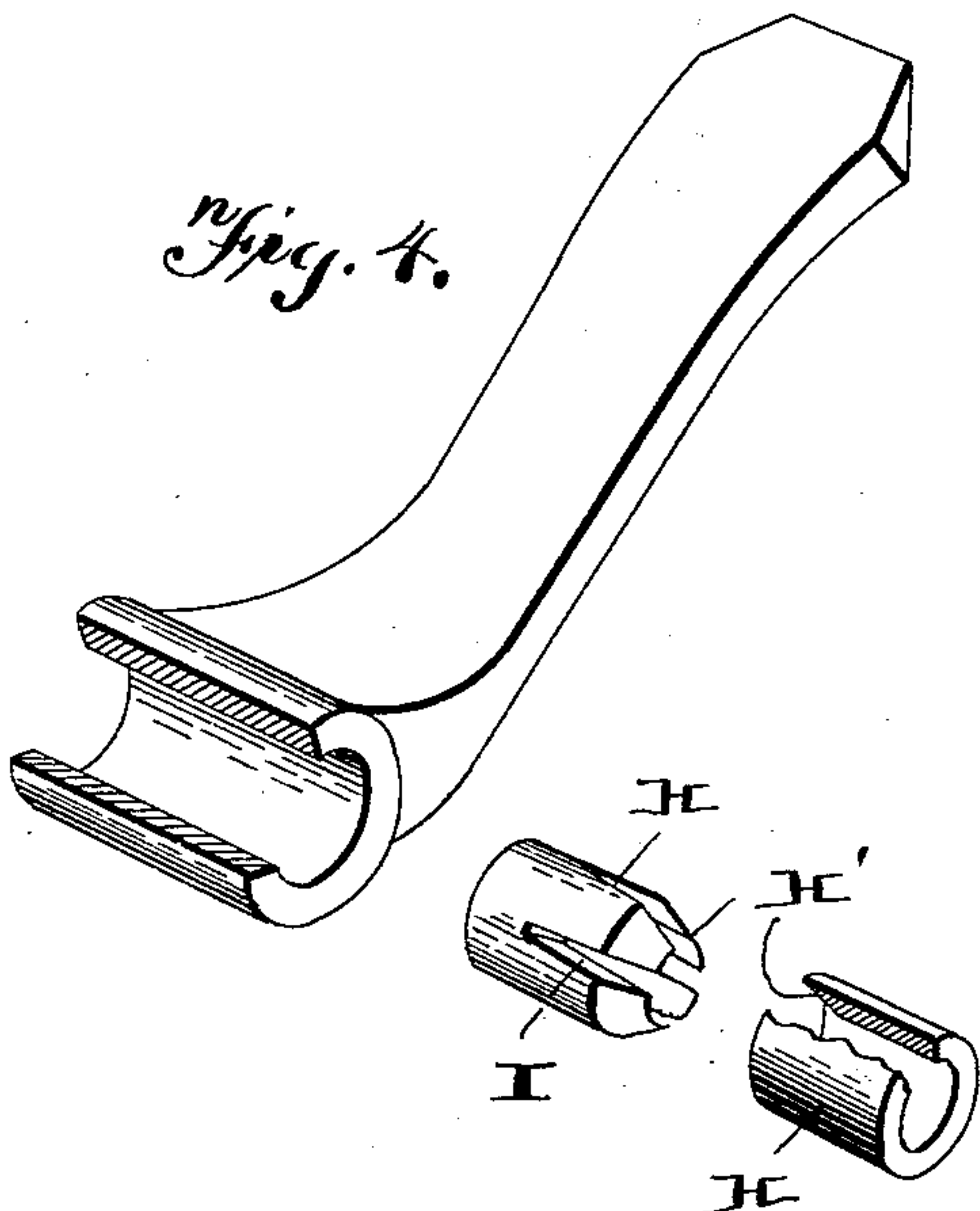
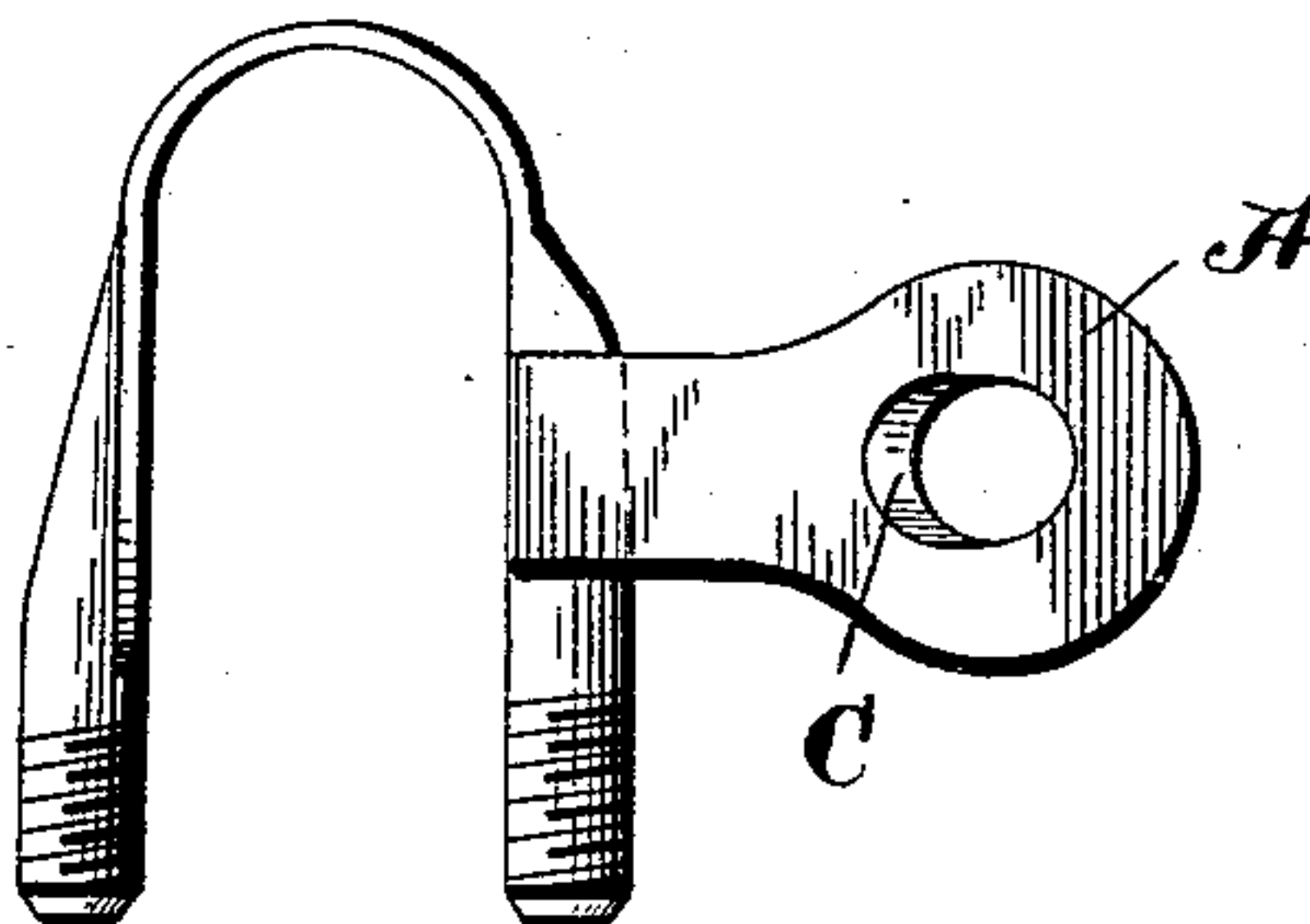


Fig. 5.



Witnesses
Geo. C. French
James W. Berard

Inventor
Thomas A. Watrous
By *Patience Nesht*
Attorneys

UNITED STATES PATENT OFFICE.

THOMAS A. WATROUS, OF ELMIRA, NEW YORK, ASSIGNOR OF TWO-THIRDS TO WALTER V. ELLIOTT, OF SAME PLACE.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 572,141, dated December 1, 1896.

Application filed September 16, 1895. Serial No. 562,675. (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.

This invention pertains to improvements in thill-couplings; and the object of the same is to provide a non-rolling bolt of improved construction; and a further object is to provide the thill-eye with a renewable bolt-passage. With these objects accomplished I am enabled to bring all the wear upon the removable parts rather than upon the shackle and thill-arm, as is now usually the case, thus greatly reducing the cost of repairing, and by constructing these removable wearing parts of superior metal, such as would be too expensive for the shackle and thill, the expense of repair is reduced to a minimum. By my improved arrangement I am also enabled to renew the bolt-passages of thills not previously provided with my improvement, thus saving the expense of renewing the arm when the bolt-passage has become worn.

The invention consists in the novel features of construction hereinafter fully described and claimed, and illustrated by the accompanying drawings, in which—

Figure 1 is a sectional plan view of a coupling. Fig. 2 is a detail perspective view of the bolt. Fig. 3 is a sectional view of the same, taken near its head. Fig. 4 is a detail perspective view of the thill-arm shown partially in section, with the bushings also illustrated but removed therefrom. Fig. 5 is a side elevation of the shackle.

A and B designate the respective shackle-arms. Each arm is provided with a circular bolt-opening, the opening in arm A being provided upon its rear side with the enlargement C, while the outer end of the opening in arm B is reamed or enlarged for the purpose presently to be stated. The greater portion of the bolt D is of ordinary construction, but the portion immediately inside of the head, which

occupies the shackle-arm A, is constructed with the inwardly-tapering prominence E, which extends inward until it coincides with the circular exterior of the bolt, the size of the prominence tapering downward and converging into the bolt, as clearly illustrated in Fig. 3. The prominence thus described fits snugly the depression C of the thill-arm A and holds the same positively from rotation or rolling, while the bolt may be always held tightly in the thill-arm by tightening up the nut F. By this arrangement the greater portion of the depression C need be only of such size as to accommodate bolt D, the offset or enlargement of said opening being only sufficient to accommodate tapering prominence E of the bolt. Heretofore it has been proposed to hold the bolt from turning by turning the head end of the bolt laterally and providing the thill-arm with a depression to accommodate said laterally-turned end, so as to prevent the bolt from turning. The expense and complication of such arrangement is avoided by the simple and effectual arrangement herein disclosed. The nut spans the countersink around the bolt-passage of arm B and thus only the edges and corners of the nut bear against the arm-surface, thus securing a firmer hold against rotation than though the meeting surfaces were flat altogether, and, too, as the edges and corners of the nut wear the latter will have a tendency to fit into the countersink, and being thus seated will be securely held against rotation.

The tendency of the thill-arm eyes is to wear in an eccentric manner, or, in other words, to enlarge upon one side only of the center of the eye. In order to obviate destruction of thill-arms, I have set about to prevent the wear referred to, and I accomplish this end by reaming out or drilling the thill-eye considerably larger than the bolt and inserting in the space thus formed tubular and cylindrical-formed bushings H, the same being preferably in two sections of nearly equal length. Where the two sections meet in the thill-arms the ends of each section are beveled in opposite form at H', the longer section being beveled so as to mesh into the other part to the extent of the beveled portion. Thus one section operates to contract the

forked end of the other section and cause it to collapse and clasp the bolt, thus preventing jarring and conflict of the parts in the event of the bolt becoming too small to fill the thill-eye.

To obtain the contraction referred to and thus secure a firm hold upon the bolt, one section of the bushing is provided with a series of V-shaped slits I at its inner end, which permit the same to contract at said end when under pressure and thus secure a hold on the bolt, while their slightly-protruding outer ends guard the thill-arm from contact and wear with the shackle-arms, and also afford the means for operating the bushings by compression between the shackle-arms when the nut is turned up. Thus the bushing and the eye are practically one integral piece, as far as the wear upon the bolt is concerned, the bushing moving at all times with the thill-arm, and thus receiving the wear which would come otherwise upon the eye proper. It is my intention to construct these bushings of hard metal, so as to reduce as much as possible the tendency to wear away. When, however, said bushings do become worn, they may be simply driven from their position and new ones inserted, the thill-eye in the meantime having been preserved intact, so that it receives and holds a new bushing as effectually as it did the original one.

While when the bolt is tightened up the bushings will have a more or less tendency to tighten the thill-arm between the shackle-arms, yet, as it will be understood from the foregoing description and explanation, this is not the primary object in providing the bushings in the invention, the same being arranged more particularly for the purpose of receiving the wear and thus making it possible to provide substantially a new thill-arm by renewing the bolt-passage.

I am aware that I am not the first to arrange the bushings within the thill-arm eye for the purpose of holding the said arm

tightly within the shackle, and to this I make no broad claim. So far as I am aware, however, devices provided with such bushings are so arranged as to permit the thill-arm to turn thereon rather than therewith, thus causing frictional contact between the bushings and the eye and subjecting the latter to the same amount of wear as though in direct contact with the shackle-bolt, as in the old and common arrangement of thill-couplings.

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

1. The combination of the shackle, the bolt, the thill-arm, a bushing interposed between the bolt and arm, said bushing formed in two aligned longitudinally-split sections, one of said sections being formed at its inner end with an internal circumferential bevel, and the other section formed with the external bevel, whereby when the bushing-sections are forced together the externally-beveled section will be contracted to grasp the bolt and the internally-beveled section expanded to tightly fit the thill-eye, substantially as shown and described.

2. The combination of the shackle, the bolt, the thill-arm having the eye reamed out larger than the bolt, the straight bushings fitting within the eye and beveled at their inner ends in opposite form so as to mesh one within the other to the extent of the beveled portion, one section of the bushing being formed with the V-shaped slits in order to contract when pressed or driven into the tapering portion of the other section, thus causing the slitted portion to contract and grasp the bolt, substantially as shown and described.

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

THOS. A. WATROUS.

Witnesses:

GEO. W. REYNOLDS,
H. K. FUHRMAN.