

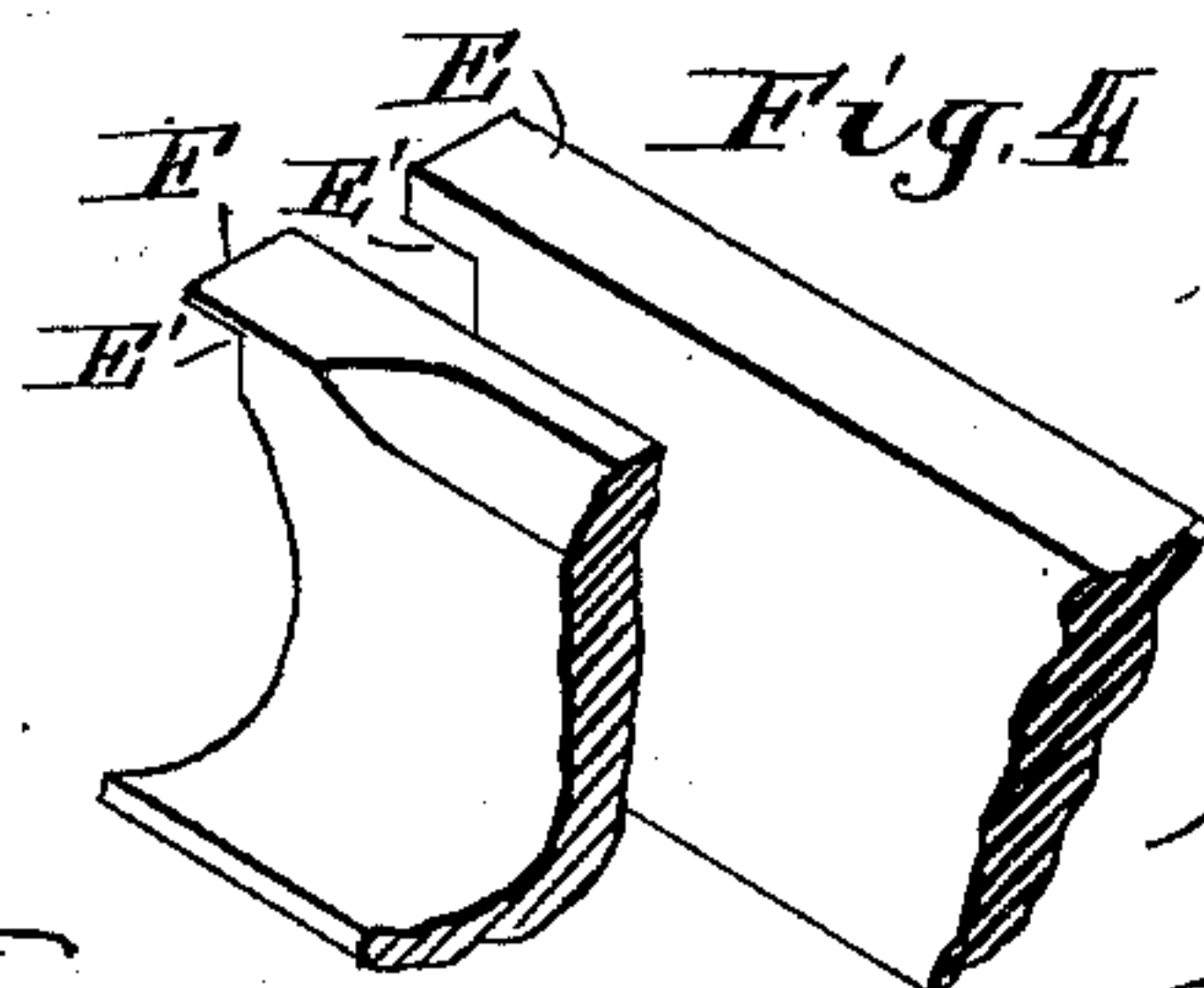
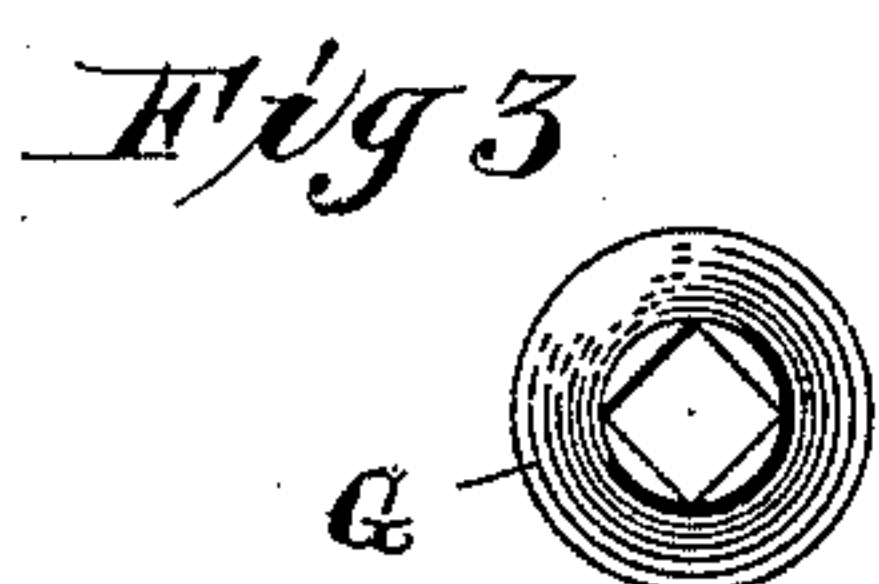
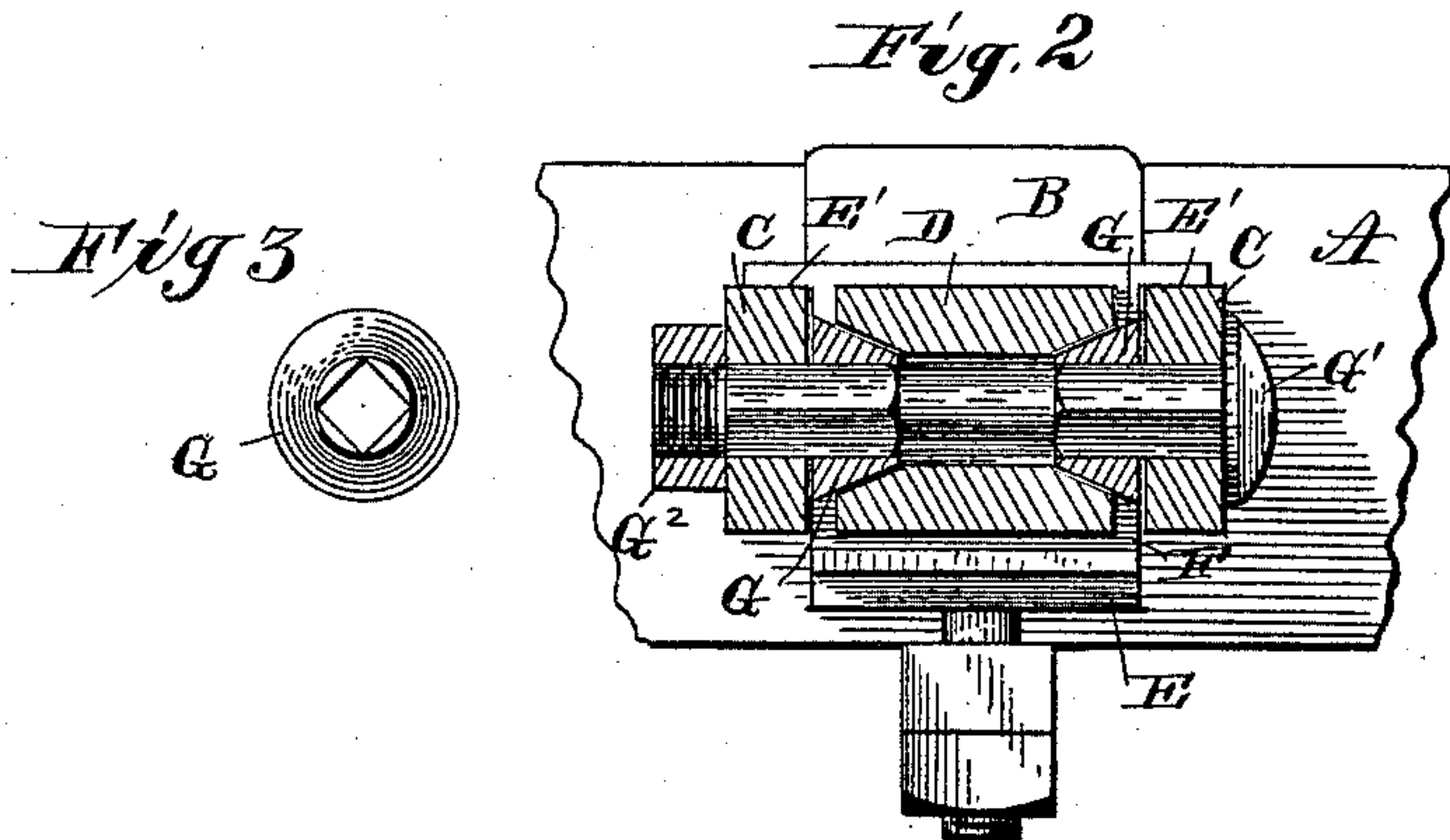
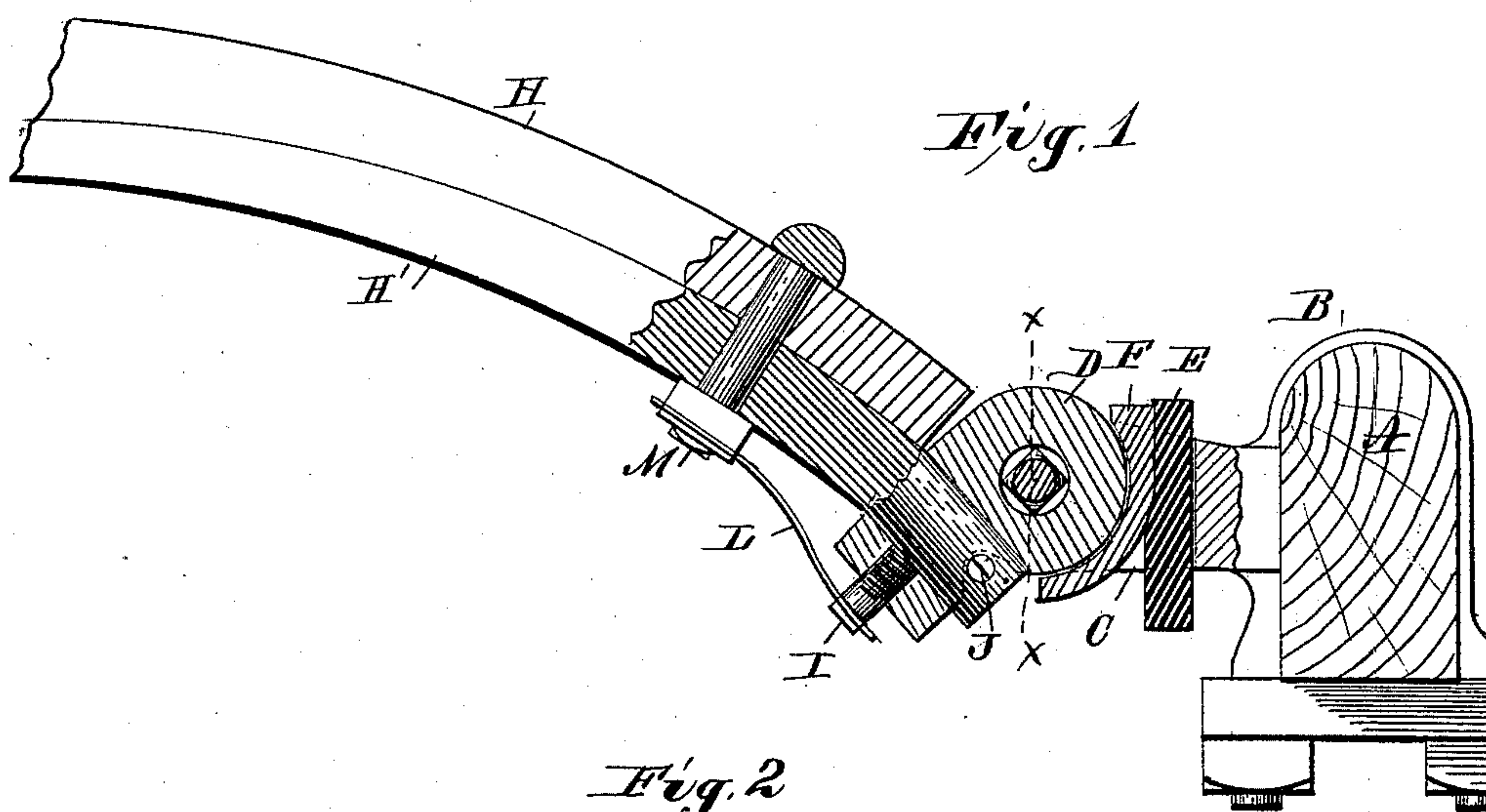
(No Model.)

W. H. BOWMAN.

THILL COUPLING.

No. 397,455.

Patented Feb. 5, 1889.



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# UNITED STATES PATENT OFFICE.

WILLIAM H. BOWMAN, OF SOUTH SOLON, OHIO, ASSIGNOR TO ALEXANDER B. LUKENS, CHARLES T. BOWERS, AND C. P. PANCAKE, ALL OF SAME PLACE.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 397,455, dated February 5, 1889.

Application filed April 26, 1888. Serial No. 271,951. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. BOWMAN, a citizen of the United States, residing at South Solon, in the county of Madison and State of Ohio, have invented certain new and useful Improvements in Thill-Couplings, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in thill-couplings.

The objects of the invention are, first, to provide a thill-coupling in which the shafts or poles can be connected to and detached from the coupling proper without removing the latter from its position on the axle; secondly, to prevent the coupling-bolt from wearing and to take up the wear occasioned by usage in the bore of the device or head which primarily connects the shaft with the bolt, and, thirdly, to prevent rattling between the several parts of the device by the interposition of an elastic block and a metallic plate to withstand the abrasive action incident to the movement between the parts.

In the accompanying drawings, forming a part of this specification, and on which like reference-letters indicate corresponding parts, Figure 1 represents a vertical sectional view of my improved thill-coupling, an axle, and a portion of a shaft. Fig. 2 represents a sectional view on the line *x x* of Fig. 1, showing some of the parts in elevation; Fig. 3, an end view of one of the bushings detached, and Fig. 4 a detail perspective view of the cushion and metallic plate.

The letter A designates the axle, and B the clip, having jaws C, of the usual construction, to receive the head D, which consists of a metallic block having a horizontal and an inclined hole, respectively, to receive the coupling-bolt and the shaft-iron. A metallic bolt, F, and an india-rubber cushion, E, are interposed between the head D and the body of the clip and within the jaws C thereof. These devices are shouldered at E', as seen in Figs. 2 and 4, for the purpose of preventing them from dropping down. The function of the cushion is to force the plate into intimate

contact with the head to prevent any rattling noise, and the function of the metal plate is to save the cushion from the wear and contact of the metallic head D, which contact tends to deteriorate the rubber. The bolt-hole through the head D is countersunk at each end, so as to receive the conical bushings G, mounted upon the bolt G', having a nut, G<sup>2</sup>, by which the jaws C may be drawn slightly toward each other and the bushings projected farther into the head, for the purpose of taking up wear between them and the head. The bushings are held against rotation by constructing them and those portions of the bolt which pass through them with an angular cross-section. This construction preserves the bolt against frictional wear, and hence saves it from losing its strength by reduction of the size, whereby the original strength of the bolt is long preserved. The weight and draft of the shafts or poles are borne by the bushings G directly, and indirectly by the bolt. The non-rotation of the bolt prevents loss of the nut by its unscrewing.

The letter H designates a portion of a shaft, and H' the shaft-iron, which terminates at the rear end in a stout tenon adapted to fit an inclined hole in the head D. It is held in place and prevented from rattling by a set-screw, I. It is also additionally held against drawing out by a pin, J. The screw is prevented from any liability to work out by a spring, L, whose lower end is bifurcated to embrace the sides of the screw-head, the head being angular. By forcing the spring away from the head the screw can be manipulated. The spring is secured to the shaft by a bolt or rivet, M.

It will be observed that to detach the shaft it is simply necessary to manipulate the screw, and in cases where the pin J is used to withdraw the same, when the iron can be removed from the head and a pole substituted for a shaft. It will also be observed that this change does not necessitate the removal of the bolt G'. The result is that there is no liability to lose the small bushing G.

With the device made as herein described, and illustrated in the accompanying draw-



ings, no rattling or looseness in the joints can occur that cannot be readily and quickly cured.

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

1. In a thill-coupling, the combination, with the axle-clip having jaws, of a bolt mounted therein, tapering bushings on the bolt, a head mounted on said bushings and having a hole to receive the shaft-iron, and anti-rattling devices interposed between the clip and the said head, and a shaft whose iron is provided with a tenon adapted to fit said hole in the head, and means to secure the tenon therein.

2. In a thill-coupling, the combination, with the axle-clip having jaws, and a rubber cushion and a metallic plate mounted between said jaws, of a bolt mounted in the jaws and having angular portions, tapering bushings fitted upon said bolt and matching said portions, a head mounted on the said bushings and having a hole to receive the shaft or pole iron and provided with a set-screw, and a shaft or pole iron adapted to fit said hole and to be engaged by said screw.

3. A thill-coupling containing the following instrumentalities: an axle-clip having jaws, an india-rubber block and a curved metallic plate fitted between said jaws, a bolt fitted to the jaws and having angular portions, tapering bushings fitted upon said bolt, a head fitted upon said bushings and having an inclined hole, and a shaft or pole iron constructed with a tenon fitting said hole and provided with a

transverse pin, a set-screw carried by the head and adapted to engage said tenon, and a locking-spring carried by the shaft or pole and arranged to lock said screw.

4. In a thill-coupling, the combination, with a clip having jaws, of a bolt fitted in said jaws and having angular portions, two bushings having angular holes fitted upon said portions, and a head having two holes therein, one of which is horizontal and mounted upon said bushings and the other of which is adapted to receive the shaft or pole iron.

5. In a thill-coupling, the combination, with the clip having jaws, of a bolt fitted to said jaws, a head having a horizontal hole arranged to turn on the said bolt as its axis, and another hole at right angles to the first-named hole, and a shaft or pole iron constructed with a tenon which fits said latter hole, and devices to hold said tenon therein.

6. In a thill-coupling, the combination, with a head having a hole adapted to receive a shaft or pole iron and a set-screw, of a shaft or pole iron constructed with a tenon adapted to fit said hole and to be engaged by the said screw, and provided with a transverse pin, and a spring-lock carried by the shaft or pole and arranged to lock said screw.

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

WILLIAM H. BOWMAN.

Witnesser:

E. B. PANCAKE,

R. V. SNODGRASS.