

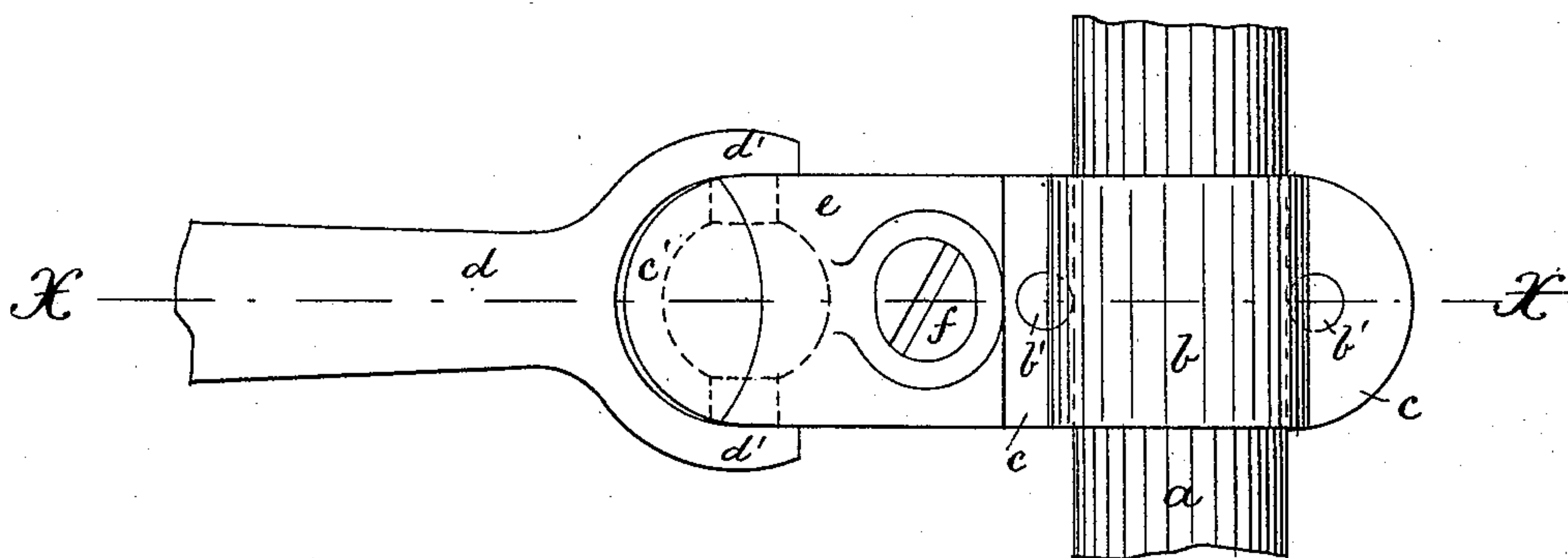
(No Model.)

C. C. MUNROE.  
THILL COUPLING.

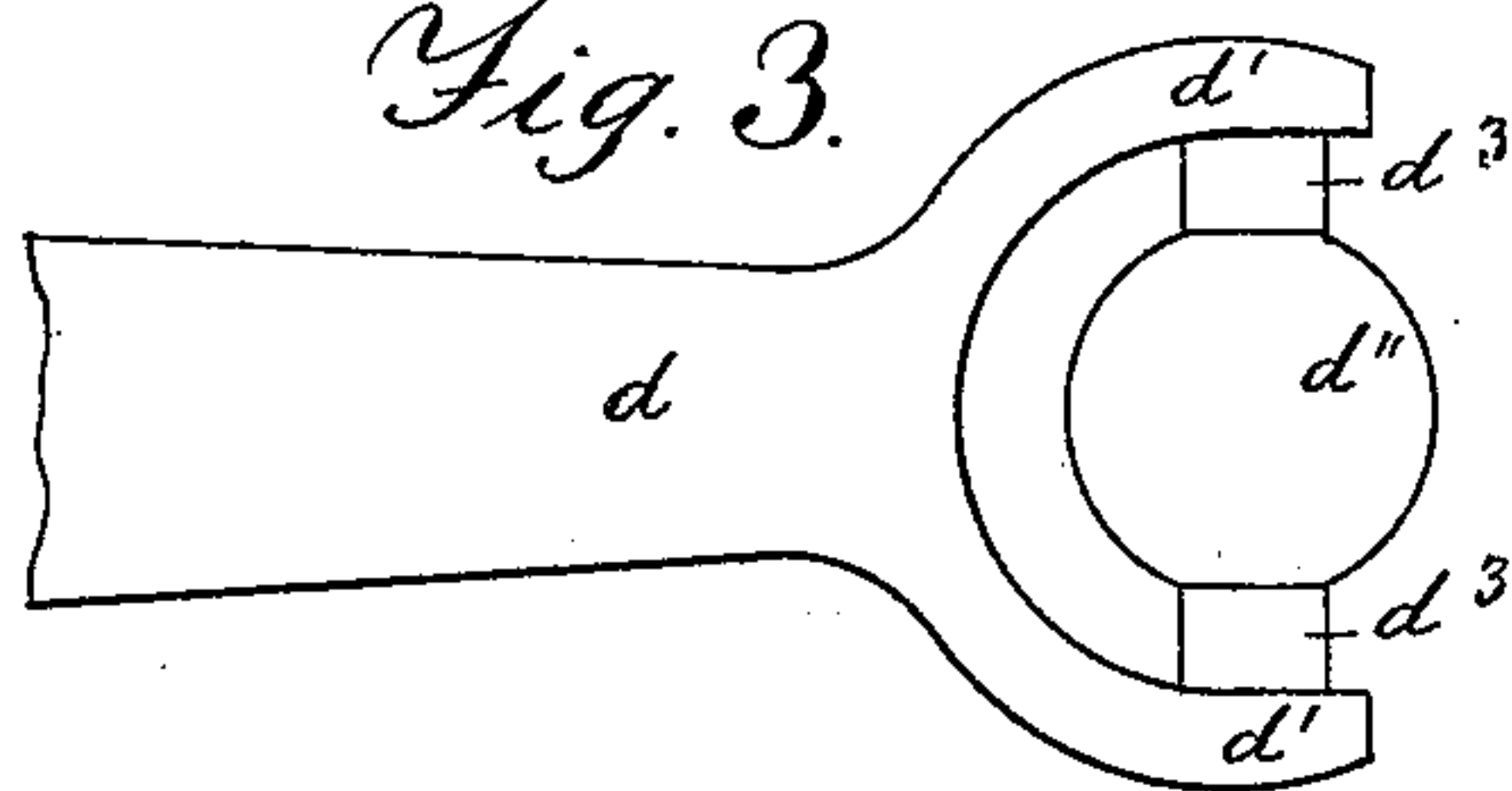
No. 405,108.

Patented June 11, 1889.

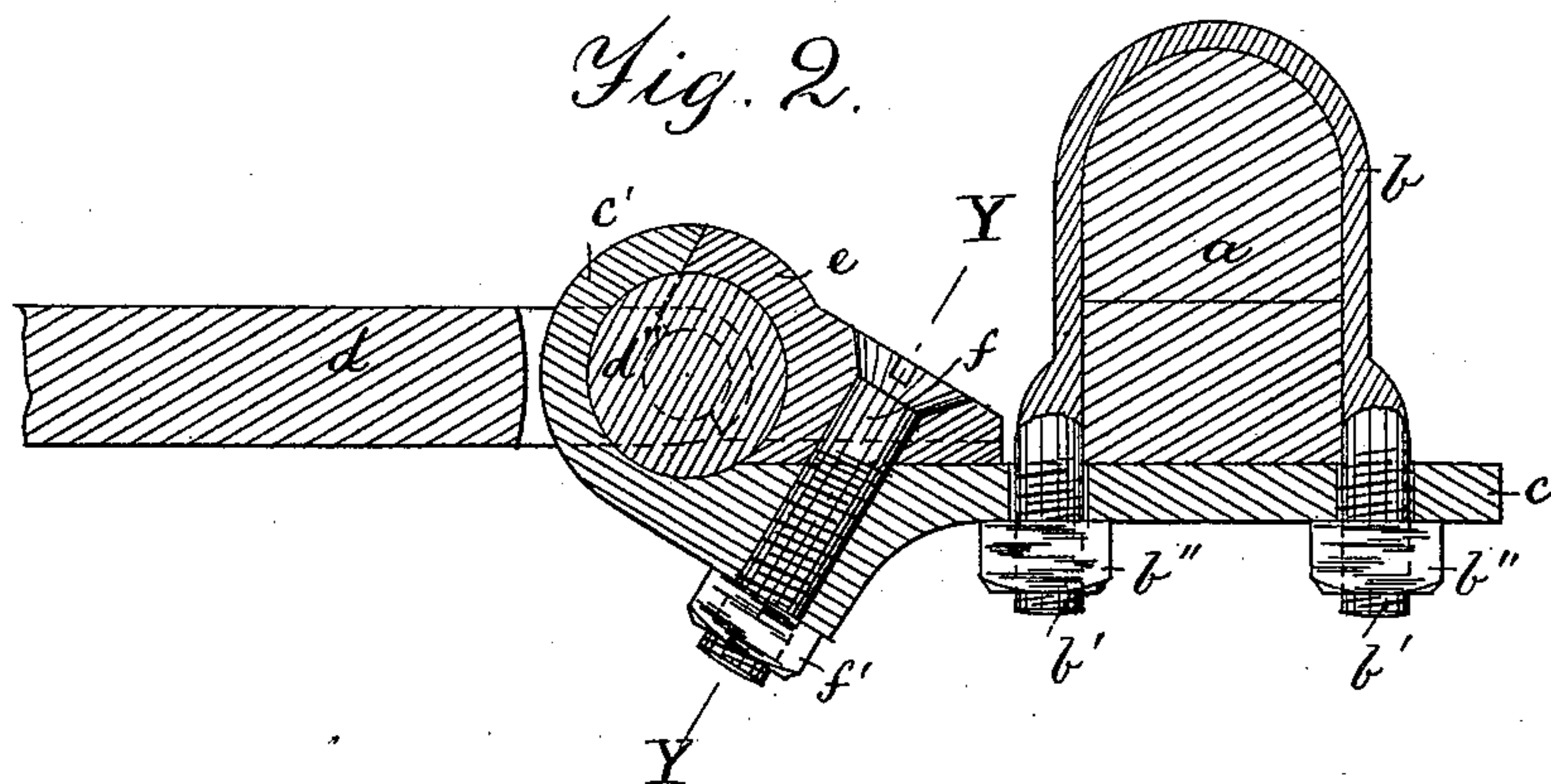
*Fig. 1.*



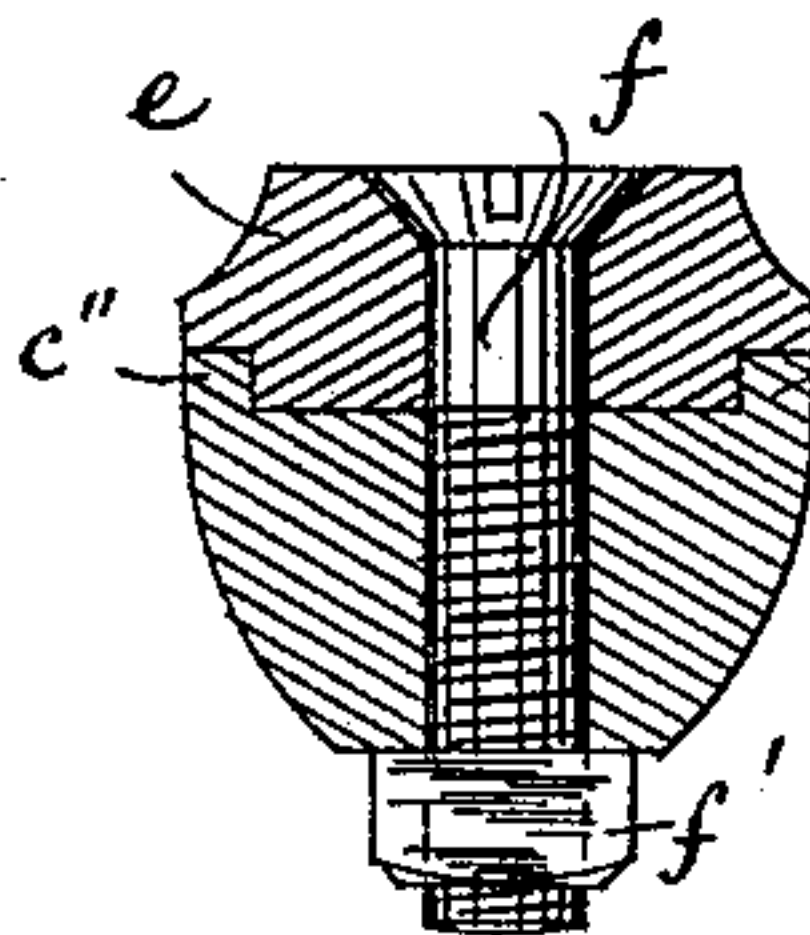
*Fig. 3.*



*Fig. 2.*



*Fig. 4.*



Witnesses.  
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# UNITED STATES PATENT OFFICE.

CIRTHBERT C. MUNROE, OF BOSTON, MASSACHUSETTS.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 405,108, dated June 11, 1889.

Application filed March 30, 1889. Serial No. 305,383. (No model.)

*To all whom it may concern:*

Be it known that I, CIRTHBERT C. MUNROE, a citizen of Canada, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Thill-Couplings, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in thill-couplings; and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a plan view of the invention. Fig. 2 represents a longitudinal section on the line X X shown in Fig. 1. Fig. 3 represents a detail plan view of the shaft-iron, and Fig. 4 represents a cross-section on the line Y Y shown in Fig. 2.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

*a* represents the carriage-axle, as usual, to which is secured the clasp *b*, having the downwardly-projecting screws *b'* *b'*, passing through perforations in the yoke *c* and provided with nuts *b''* *b''*, by means of which the axle, clasp, and yoke are firmly secured together.

*d* represents the shaft-iron, having a forked end *d'*, to which is secured, or made in one piece with, the ball *d''*, as shown in detail in Fig. 3.

*d<sup>3</sup> d<sup>3</sup>* are cylindrical journals or trunnions connecting the said ball *d''* with the forked end *d'* of the shaft-iron *d*, as shown in said Fig. 3.

In one piece with the yoke *c* is made the ball-bearing *c'*, adapted to receive the ball *d''* of the shaft-iron, and *e* is a detachable ball-bearing cap adapted to fit against the rear portion of the said shaft-iron ball *d''*, as shown. Said cap may be made of hard rubber, metal, or other suitable material, without departing from the essence of my invention.

*c'' c''* are guide-ribs on the yoke *c*, between which the under side of the cap-piece *e* is

guided, as shown in Fig. 4. The cap *e* is secured to the yoke *c* by means of the screw-bolt *f*, passing loosely through a perforation in the cap *e* and screwed through the yoke, which at this place is preferably made of increased thickness, as shown in Figs. 2 and 4. *f'* is a check-nut on the lower projecting end of the screw-bolt *f* for the purpose of preventing said bolt from working loose.

The screw-bolt *f* is arranged inclined to the yoke *c*, as shown in Fig. 2, so as to cause the cap *e* to be forced against the rear portion of the shaft-iron ball *d''* with a proper frictional resistance, and thus preventing the coupling from rattling while in use.

By adjusting the position of the inclined screw *f* the wear on the ball and ball-joint may be taken up from time to time as may be needed to prevent rattling and to obtain the necessary frictional resistance between the ball and its ball-bearing.

The invention is very simple in construction, is composed of very few parts, and by its use a proper connection is established between the shaft-iron and the axle and all rattling and consequent unnecessary wear of the jointed parts prevented.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

The herein-described thill-coupling, consisting of the yoke *c*, secured to the carriage-axle and having the ball-bearing *c'* and guide-ribs *c'' c''*, as described, combined with the adjustable cap *e*, the inclined fastening-bolt *f*, and the forked shaft-iron having the ball *d''*, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 11th day of February, A. D. 1889.

CIRTHBERT C. MUNROE.

Witnesses:

ALBAN ANDRÉN,

SELMA R. SCHELIN.