L. R. CROTTY.

Thill-Coupling.

No. 209,234. Patented Oct. 22, 1878.

Fig. 1.

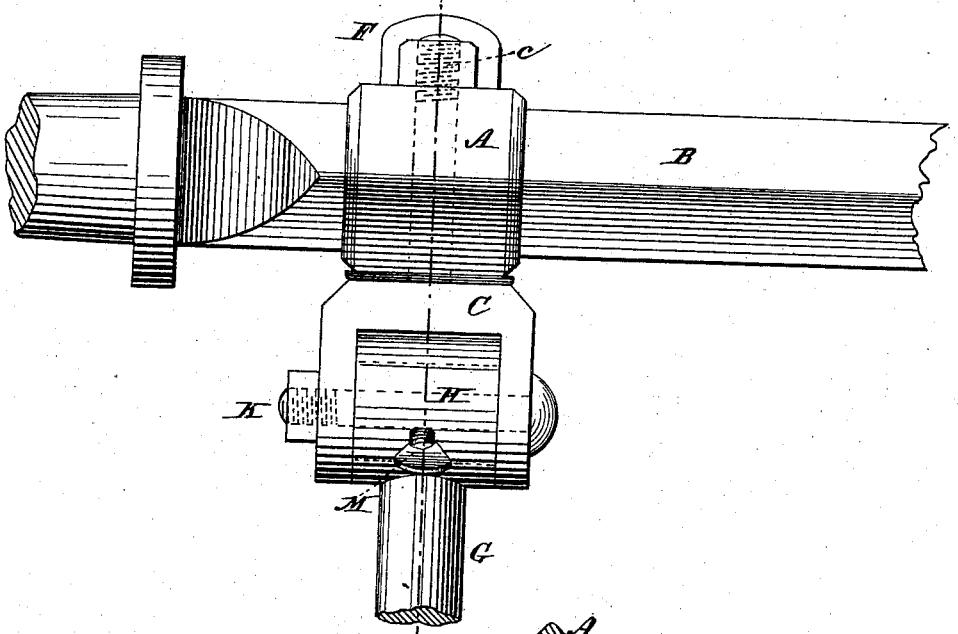


Fig. 2.

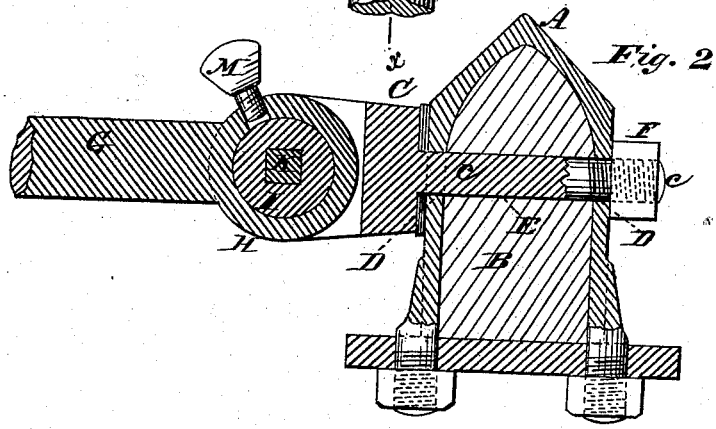
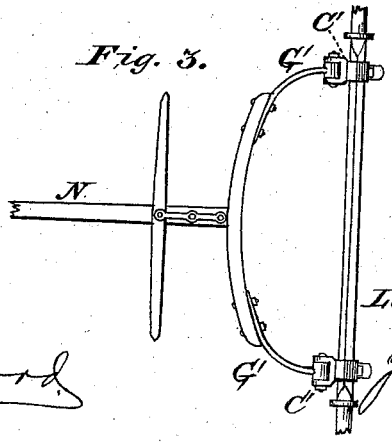


Fig. 3.



Witnesses:

T. C. Brecht.

J. A. Rutherford.

Inventor:

Lawrence R. Crotty.

James L. Norris.

Attorney.

UNITED STATES PATENT OFFICE.

LAWRENCE R. CROTTY, OF WATERLOO, IOWA.

IMPROVEMENT IN THILL-COUPLINGS.

Specification forming part of Letters Patent No. **209,234**, dated October 22, 1878; application filed September 2, 1878.

To all whom it may concern:

Be it known that I, LAWRENCE R. CROTTY, of Waterloo, in the county of Black Hawk and State of Iowa, have invented certain new and useful Improvements in Thill-Couplings, of which the following is a specification:

This invention relates to an improved thill-coupling for vehicles; and it has for its object to provide a device by means of which the thill-iron may be attached to or detached from the clip with the greatest possible convenience, and which will possess greater security and durability than the thill-couplings in ordinary use.

To this end my invention consists in the combination, with a clip constructed to embrace the axle, and having apertures in its two arms to coincide with a transverse opening through the axle, of a socket-head provided with a screw-threaded shank, adapted to pass through the apertures in the clip and axle, and having a nut on its projecting end for securing the shank in position, as will more fully hereinafter appear.

In the drawings, Figure 1 represents a top view of one end of a carriage-axle with my improved thill-coupling attached thereto. Fig. 2 represents a sectional view of the same on the line *x x* of Fig. 1; and Fig. 3 represents a view showing the method of attaching a carriage-pole by means of the improved thill-coupling.

The letter A represents a clip, which embraces the carriage-axle B, and is confined thereon in the ordinary manner. C represents a socket-head, provided with a cylindrical shank, *c*, which extends through the apertures D in the clip and a corresponding aperture, E, in the axle, and is screw-threaded at its rear for the reception of a screw-nut, F, by which it is confined in place.

The letter G represents the thill-iron, and H its eye, the bore of which is accurately made somewhat larger than usual, and is provided with a loosely but neatly fitting bushing of soft or anti-friction metal, I, which has a rectangular opening, through which passes the rectangular bolt K, which passes through rectangular openings in the side of the socket-head, by means of which the bolt is prevented from turning.

The thill-iron is provided with an opening with a screw-stop, M, for more conveniently oiling the same.

By making the socket-head removable, as shown, the couplings are rendered applicable to shaft or pole vehicles, all that is necessary being to provide the pole N with thill-irons, as shown in Fig. 3, having the socket-heads secured thereto in the same manner as shafts, and when it is desired to change from shafts to a pole it is simply necessary to remove the socket-heads of one and secure those of the other to the clip—an operation that can be conveniently and readily performed. Besides this advantage, the soft-metal bushing renders the coupling more durable, and consequently free from the disagreeable noise attendant upon the wear of the parts.

What I claim is—

The combination, with the clip A, constructed to embrace the axle, and having apertures D in its two arms to coincide with a transverse opening through the axle, of a socket-head, C, provided with a screw-threaded shank, *c*, adapted to pass through the openings in the clip and axle, and provided with a nut, F, all substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

LAWRENCE R. CROTTY.

Witnesses:

C. W. MULLAN,

H. H. SAUNDERS.