No. 610,768. Patented Sept. 13, 1898.

H. A. MOYER & C. J. GRAF.

THILL COUPLING.

(Application filed Nov. 22, 1897.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1

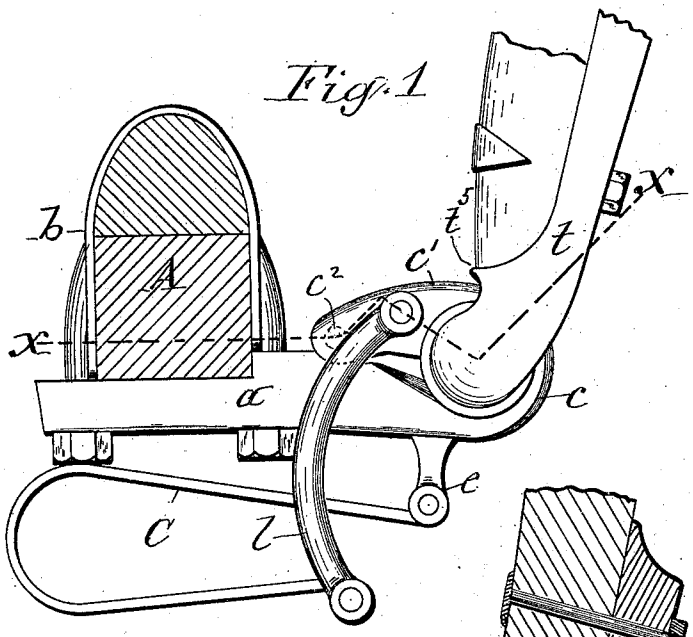
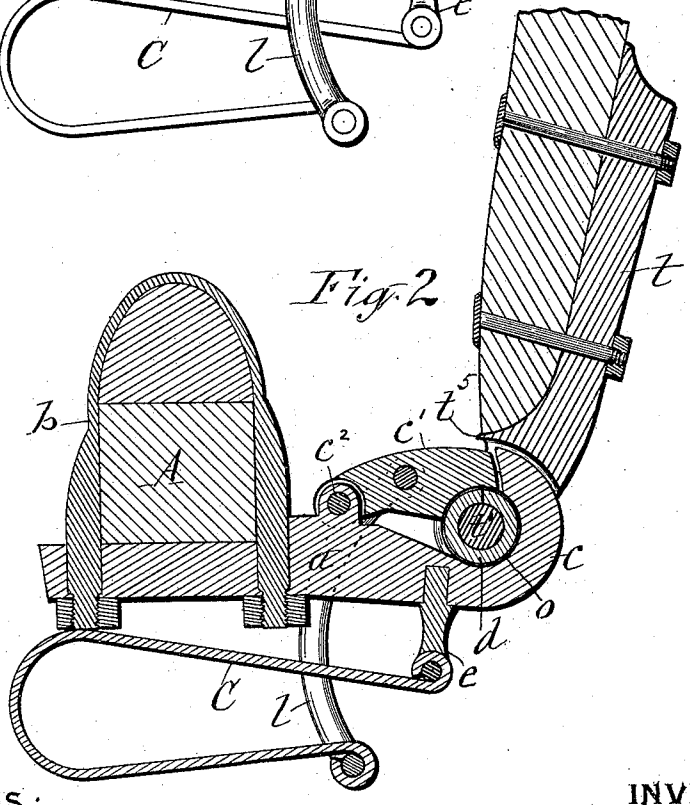


Fig. 2



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Fig. 3

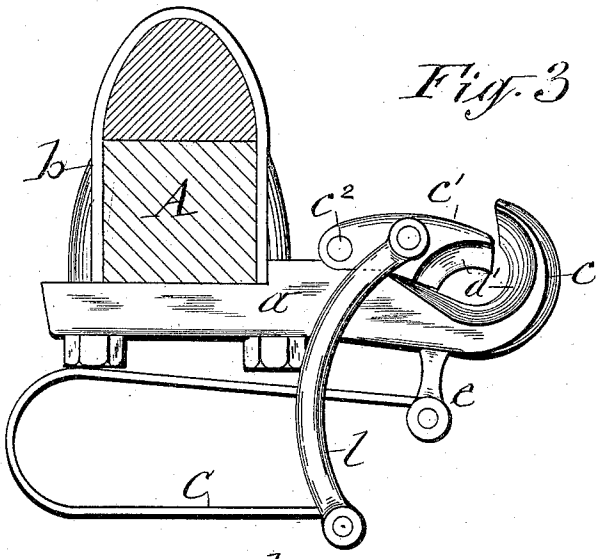


Fig. 9

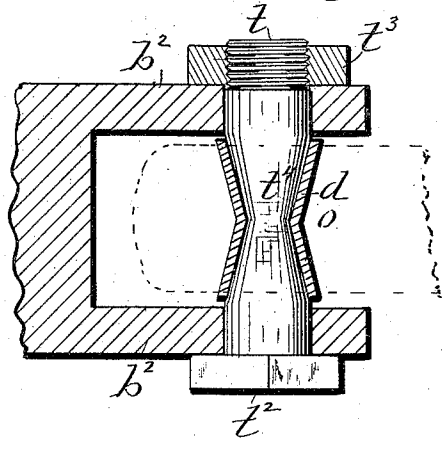
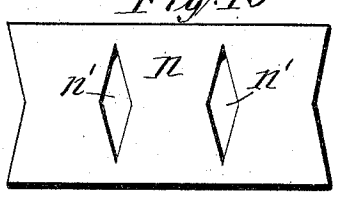


Fig. 10



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Fig. 4

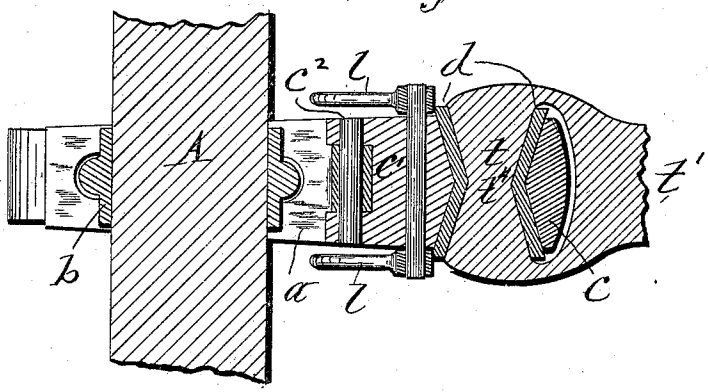


Fig. 5

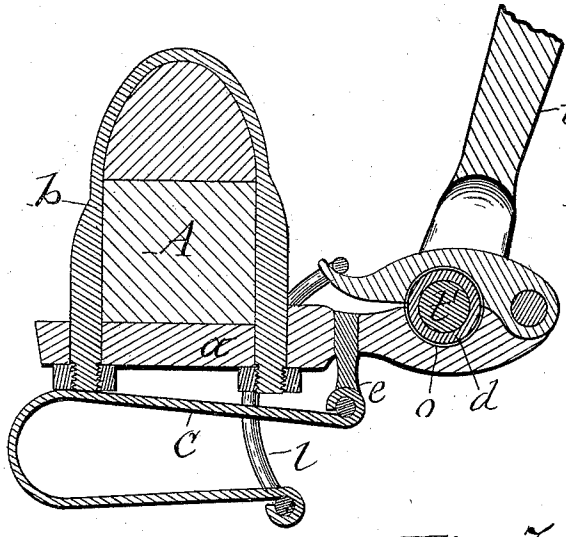
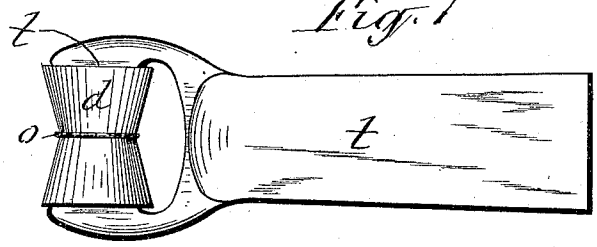


Fig. 7



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Fig. 6

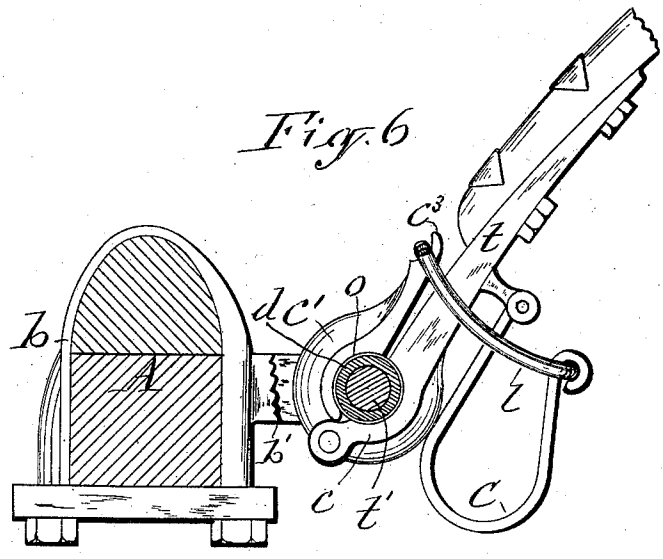
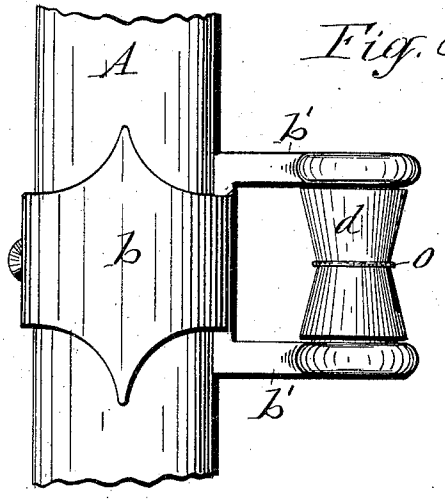


Fig. 8



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UNITED STATES PATENT OFFICE.

HARVEY A. MOYER AND CHARLES J. GRAF, OF SYRACUSE, NEW YORK; SAID GRAF ASSIGNOR TO SAID MOYER.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 610,768, dated September 13, 1898.

Application filed November 22, 1897. Serial No. 659,361. (No model.)

To all whom it may concern:

Be it known that we, HARVEY A. MOYER and CHARLES J. GRAF, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Thill-Couplings, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of thill-couplings termed "quick-shiftable" and are designed to facilitate the attachment and detachment of the thills to and from the vehicle; and the invention has more particular reference to the thill-coupling shown in our Letters Patent, No. 591,561, dated October, 12, 1897.

The object of our present invention is to render the coupling safer and more free from liability of rattling when in use; and to that end the invention consists in the improved construction and combination of parts hereinafter described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a side view of our improved thill-coupling. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a side view of that part of the coupling which is attached to the axle. Fig. 4 is a horizontal longitudinal section on line X X in Fig. 1. Figs. 5 and 6 are longitudinal sectional views of modifications of our invention. Figs. 7 and 8 are plan views of the coupling-bolt, showing its attachment with different parts of the coupling. Fig. 9 shows the coupling-bolt formed separate from the coupling members, and Fig. 10 is a plan view of the blank from which the bushing for the coupling-pin is formed.

In referring to the drawings, A represents the axle, to which the thills or the pole are to be attached.

a denotes the draft-iron or draft-bar, which is attached to the under side of the axle by the clip *b* in the usual manner and extends forward therefrom and terminates with the hook-shaped stationary jaw *c* of the shackle.

c' denotes the movable jaw, between which and the stationary jaw the coupling-pin *t'* is grasped. Said movable jaw is pivoted to the draft-bar *a* back of the stationary jaw, as shown at c^2, and terminates with its free end immediately back of the stationary jaw. The adjacent end faces of said jaws are curved in an arc described from the pivot c^2 or otherwise disposed at such an angle in relation to each other as to allow said end of the hinged jaw to freely pass across the free end of the stationary jaw and beyond its normal gripping position, as shown in Fig. 3 of the drawings, and thus permit the hinged jaw greater freedom to conform to the thickness of the interposed coupling-pin *t'* and continuously press on said pin.

For operating the hinged jaw *c'* to engage and release the coupling-pin *t'* we prefer to employ the same means shown in our Letters Patent, No. 591,561, dated October 12, 1897, and consists of the C-shaped spring C, which has one end extending beyond the other and pivotally connected to the under side of the draft-iron *a*, as shown at *e*. The shorter end of said spring is connected by a link *l* to the jaw *c'*, so that by reversing said spring endwise it is caused to either throw said jaw up and back from the stationary jaw *c* or throw it forward and draw it down onto the coupling-pin *t'*, interposed between the jaws.

Our present invention relates partly to the construction of the coupling-pin *t'* and its bushing *d*, which effectually prevents lateral play and side rattling of the shackle. Said coupling-pin may be formed integral with either the thill-iron *t*, as shown in Figs. 1 and 7, inclusive, or the ears *b' b'*, projecting from the clip *b*, as shown in Figs. 5, 6, and 8 of the drawings, or said pin may consist of a bolt formed separately from either of the aforesaid parts and provided with a head t^2 on one end and screw-threaded on the opposite end and provided with a nut t^3, as represented in Fig. 9 of the drawings. In either case, however, the portion t^4 of the pin which is to be grasped between the jaws *c c'* is tapered from opposite ends to the center, and a correspondingly-shaped bushing *d* closely embraces said portion of the pin. The tapers of said pin and its bushing from the ends to the center cause the jaws *c c'* to be retained central on the coupling-pin, and thus effectually prevent side rattling of the shackle.

To form the bushing d, of leather or other suitable flexible material, and to conform it to the double taper of the pin without wrinkling or crimping, and thus thickening the portion of the bushing which embraces the central portion of the pin, we form said bushing of a rectangular blank n, provided in its central portion with transverse excisions or slots n', which are tapered from the centers of their lengths to opposite ends, as shown in Fig. 10 of the drawings. This blank we make of a width corresponding to the length of the pin t', and the longitudinal edges of said blank are of such a length that when the blank is bent lengthwise into cylindrical shape it is formed into a sleeve of an internal diameter corresponding to the diameters of the ends of the pin t'. In applying the described bushing to the pin we wrap the blank n around said pin, which is thus inclosed in a cylindrical sleeve. We then compress circumferentially the central portion of said sleeve by means of a string or fine wire or other suitable binder o, drawn tightly around said portion of the sleeve, so as to cause it to conform to the tapers of the pin and closely embrace it.

This form of the coupling-pin and its bushing is to be used with coupling-jaws which have their grasping-faces beveled, as shown at d', to correspond to the tapers of the bushing and incased coupling-pin, so that when said jaws grasp the bushing the pin t' is securely retained in its central position in the jaws, and the side rattling of the shackle is positively prevented.

When the coupling-pin is formed integral with the ears b' b' on the clip b, as shown in Fig. 8 of the drawings, or formed separately and applied to perforated ears b^2 on the clip, as represented in Fig. 9 of the drawings, the jaws c c' are to be applied to the thill-iron t, as shown in Fig. 6 of the drawings, and in that case the link l is detachable from an extension c^3 of the hinged jaw. However, in our preferred construction, which has said jaws on the draft-bar a and the coupling-pin t' integral with the thill-iron t, we form the thill-iron with a rearwardly-projecting lip t^5, which extends directly over the free end of the hinged jaw c' when in its closed position, as shown in Figs. 1 and 2 of the drawings. Said lip forms a bearing and shield for the end of the wooden thill and imparts a finished appearance to the thill and also performs the function of a guard which prevents the free end of the jaw c' from liberating the pin t' in case the spring C or link l is is accidentally broken while the vehicle is in use. Said guard thus performs its function independent of the means which primarily lock the hinged jaw in its closed position.

What we claim is—

1. In combination with the draft-iron, the stationary hook-shaped jaw on said bar, the coöperating jaw hinged to said bar back of the stationary jaw, the coupling-pin grasped between said jaws, and means for locking the hinged jaw in its closed position, the thill-iron formed with an integral rearwardly-projecting lip extending directly over the free end of the hinged jaw to arrest the accidental rising of said jaw to its open position, independent of the aforesaid locking means as set forth.

2. In combination with the draft-bar formed with an integral hook-shaped jaw, the coöperating jaw hinged to the draft-bar back of the hook-shaped jaw, and means for locking said hinged jaw in its closed position, the thill-iron formed in one piece with the coupling-pin and with a tongue extending over the free end of the hinged jaw as set forth.

3. In a thill-coupling having the draft-bar formed with a hook-shaped stationary coupling-jaw and a coöperating coupling-jaw hinged to said draft-bar back of the stationary jaw, and terminated immediately back of the free end of the latter jaw, the adjacent end faces of said jaws disposed at an angle in relation to each other to permit the free end of the hinged jaw to pass across the end face of the stationary jaw and beyond the normal gripping position of the hinged jaw to invariably bear on the coupling-pin grasped between said jaws as set forth.

4. The combination with the coupling-pin formed tapering from its ends to its center, a flexible sheet provided in its central portion with slots disposed in parallel lines, said sheet being wrapped around the coupling-pin with the slots lengthwise of the pin to allow the central portion of the sheet to be compressed around the central portion of the pin, and jaws grasping said sheet with the inclosed pin and beveled corresponding to the tapers of the compressed sleeve as set forth.

5. The within-described blank for bushing for a double-tapered pin, which blank is rectangular-shaped and provided in its central portion with transverse excisions which are tapered from the centers of their lengths to the ends of the excisions as set forth and shown.

In testimony whereof we have hereunto signed our names this 16th day of November, 1897.

HARVEY A. MOYER. [L. S.]
CHARLES J. GRAF. [L. S.]

Witnesses:
J. J. LAASS,
H. B. SMITH.