(No Model.)

C. ANDREW.

THILL COUPLING.

No. 493,462. Patented Mar. 14, 1893.

Fig. 1.

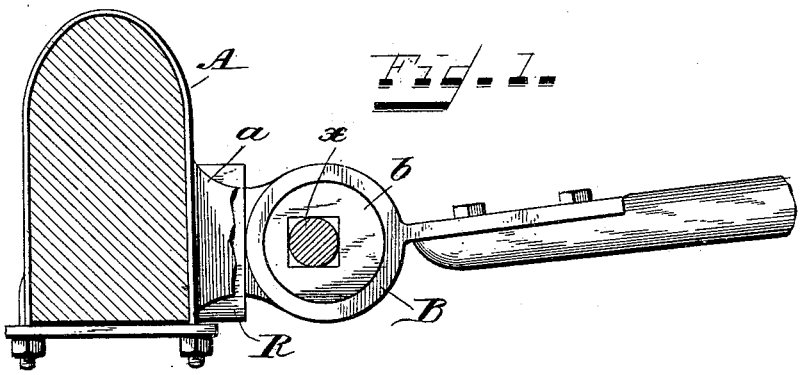


Fig. 2.

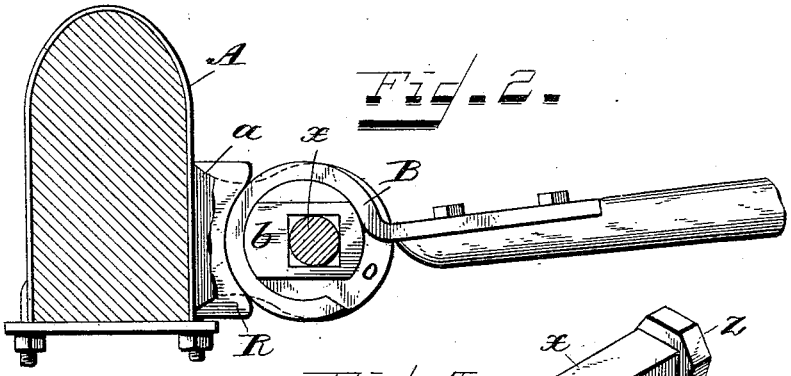


Fig. 4.

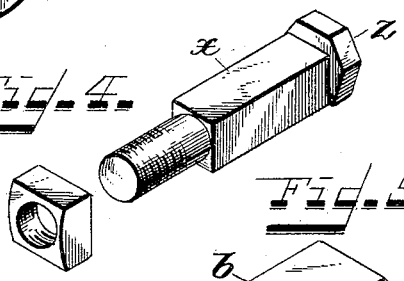


Fig. 3.

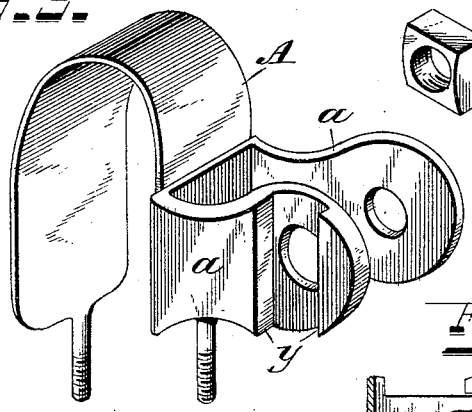


Fig. 5.

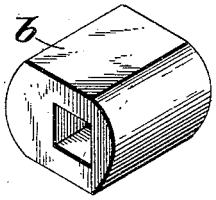
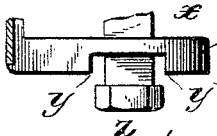


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES ANDREW, OF CINCINNATI, OHIO.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 493,462, dated March 14, 1893.

Application filed September 19, 1892. Serial No. 446,280. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ANDREW, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Thill-Couplings, of which the following is a specification.

My invention relates to thill-couplings: its object being to provide a simple and inexpensive construction and device for taking up in lost motion of the thill-pivot connection in relation to the spring usually employed with the coupling to prevent rattling; and it is also designed to facilitate the interchange of shafts or of tongue and shafts, whereby the usual trouble and delays in that regard are avoided.

My invention is embodied in the accompanying drawings in which,—

Figure 1, exhibits the device in side elevation, in one extreme position of its adjustment and in one constructive form. Fig. 2, exhibits the device in side elevation in the opposite extreme position of adjustment: and in a second constructive form. Fig. 3, is a perspective view of the clip and ears showing the exterior ledges as sides of a recess to receive the head of the bolt. Fig. 4, is a perspective view of the bolt detached; Fig. 5, is a perspective view of the eccentric bushing. Fig. 6, a plan detail showing the relation of the bolt-head to its holding ledges.

Referring now to the drawings:—A, designates the ordinary thill coupling consisting, of a "clip" encircling the shaft, and two jaws *a*, projecting forward between which the loop iron B, of the shaft or tongue is held upon a bolt *x*, passed through the jaws *a*. Between the jaws, *a*, and behind the loop iron, B, it is usual to place a block, R, of rubber or a spring to hold the loop iron firmly against its pivot-bolt and prevent the rattling noise inevitable when the joint is loose.

My invention is adapted to this common form of thill coupling which is universally employed. I enlarge the pivotal opening of the loop iron, B, sufficiently to admit a cylindrical bushing, *b*, eccentrically carried upon the bolt, *x*. The bushing is eccentrically perforated, preferably with a square or angular hole, and the bolt is formed with a correspondingly square or angular shank: so that the bushing is radially fixed in relation to the bolt when upon the latter, but the parts are otherwise loosely connected, and may be readily separated.

By referring to Figs. 1 and 2, showing the bushing in opposite extremes of adjustment, it will be seen that in the first case illustrated, the space behind the loop-iron, B,—that is between it and the connecting plate at the base of the jaws,—is considerably greater than in the second: so that a block of rubber, R, placed behind the loop-iron in its advanced position, is considerably compressed by adjusting the loop iron to its receded position. This adjustment is effected by the following means: At the outer side of the jaw through which the head-end of the bolt passes, is a cross-slot or groove whose side walls constitute parallel ledges *y*, at one or both sides of the bolt head, *z*, standing outward sufficiently to engage the bolt-head to prevent its rotation when the bolt is in position. The slot is shallow however, so that when the bolt is drawn slightly outward, its head clears the ledges, and it may then be freely rotated carrying the eccentric bushing, *b*, to new radial positions in relation to the loop-iron, B. The radial adjustment of the eccentric bushing is therefore made while the bolt is slightly withdrawn, and is held in such adjusted position upon thrusting the bolt longitudinally back to position and engaging opposite faces of its head into the slot between the parallel ledges, *y*.

It will readily be understood from the foregoing description, that an old rubber or spring may be readily taken out by loosening the coupling-bolt, *x*, moving it slightly outward, and rotating it so as to carry the loop iron, B, forward, thus widening the space occupied by the rubber block, R, so that it may be readily removed. Upon inserting a new rubber, it is compressed to any degree required, by turning the polygonal bolt head backward and moving the same endwise to its seat to engage its faces behind the ledges, *y*. By a repetition of these operations requiring no tools but the ordinary wrench, the attendant may easily remove or replace rubbers or springs, or renew their tension; and may with like facility interchange shafts and tongues upon vehicles.

In the construction shown in Fig. 1, the bushing, *b*, is shown as a true cylinder, and the loop iron is shown as a complete loop. In this case, the device offers facilities for the

interchange of shafts only in respect to the ease of disengaging or engaging the springs.

In Figs. 2 and 5, the bushing is shown as a partial cylinder from which opposite segments have been removed, leaving a flattened body with two cylindrical sides. The loop of the shaft iron is cut through as shown at, *o*, (Fig. 2,) by an opening sufficiently wide to permit the bushing, *b*, to pass through when the shafts are depressed and the bushing, *b*, is turned to bring its radius of eccentricity in the center line of the opening—say to a true vertical. In this position, the rubber is partly released, and the shafts may be disengaged or re-engaged without removing the bolt, *x*, or the bushing, *b*, from the jaws. By this construction, shafts and tongues may be made readily interchangeable on the vehicle.

The two improvements herein specified can be used separately: although they may be combined in the same structure to advantage.

I claim as my invention, and desire to secure by Letters Patent of the United States, the following:

1. In a thill-coupling, the combination of a shaft iron; the thill-jaws: the coupling bolt; an eccentric bushing carried non-rotatively by the bolt; and a ledge or ledges projecting at the outside of one of the jaws engaging the coupling bolt head and retaining the bolt and bushing in adjusted radial positions, substantially as set forth.

2. In a thill-coupling, the combination of a shaft iron having a partial loop; the thill-jaws; the coupling-bolt; an eccentric bushing carried non-rotatively by the bolt having flat sides permitting it to pass the opening in the loop of the shaft iron, and a ledge or ledges projecting at the out side of one of the jaws engaging the coupling bolt head and retaining the bolt and bushing in adjusted radial positions, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES ANDREW.

Witnesses:
LIDA HOSEA,
LANDON FREYBLER.