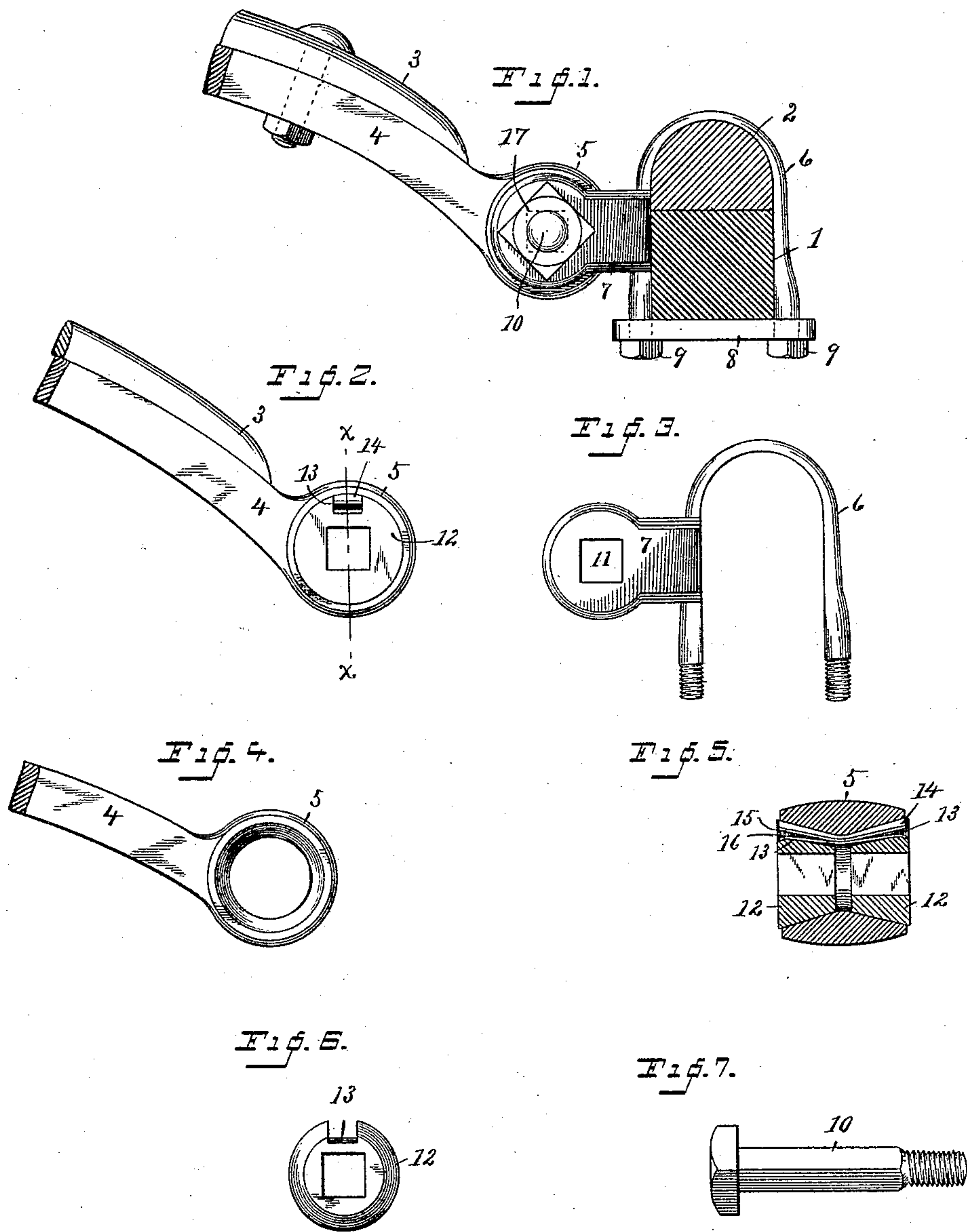


(No Model.)

A. L. STEVENS.
THILL COUPLING.

No. 429,971.

Patented June 10, 1890.



WITNESSES

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UNITED STATES PATENT OFFICE.

ALFRED L. STEVENS, OF DARIEN, ASSIGNOR OF ONE-THIRD TO WILLIAM B. COCHRANE, OF STAMFORD, CONNECTICUT.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 429,971, dated June 10, 1890.

Application filed November 25, 1889. Serial No. 331,433. (No model.)

To all whom it may concern:

Be it known that I, ALFRED L. STEVENS, a citizen of the United States, residing at Darien, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Thill-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to produce a simple, durable, and inexpensive thill-coupling that will permit the ready attachment of a pole or pair of thills, and is so constructed that the wear of the parts may be readily taken up and that all rattling of the parts in use shall be wholly avoided.

With these ends in view I have devised the novel construction of which the following description, in connection with the accompanying drawings, is a specification, numbers being used to denote the several parts.

Figure 1 is a cross-section of an axle showing the clip and coupling in side elevation; Fig. 2, an elevation of a thill-eye with the bushings, spring, and friction-block in operative position; Fig. 3, an elevation of the clip detached; Fig. 4, an elevation of the thill-eye with the bushings, &c., removed; Fig. 5, a cross-section on the line $x x$ in Fig. 2; Fig. 6, an elevation of one of the conical bushings; and Fig. 7 is an elevation of the bolt.

1 denotes the iron portion of the axle; 2, the wood portion; 3, the rear end of one of the thills; 4, the thill-iron, which is provided with an eye 5; 6, the clip provided with ears 7; 8, the cross-piece, and 9 the nuts engaging the threaded ends of the clip below the cross-piece and acting to hold the parts securely in place. These parts may be of the ordinary or any preferred construction.

It will be noticed (see Figs. 4 and 5) that the opening in the thill-eye is narrowest at the center and tapers outward in both directions.

10 denotes the bolt, which is made angular, preferably square, and is held against turning by the angular openings 11 in the ears through which it passes, these openings corresponding in shape, of course, with the bolt.

12 denotes conical bushings having angular, ordinarily square, central openings to adapt them to engage the bolt and prevent their turning thereon, and in one side of each bushing a recess 13. The bottom of this recess is preferably made highest a short distance from the outer end and inclines downward in both directions. The taper of the bushings corresponds with the taper of the openings in the thill-eyes. The bushings are placed in the thill-eyes, as clearly shown in Fig. 5, their outer ends projecting beyond the eye, and the recesses in the two bushings being placed in alignment. Within each pair of recesses I place a friction-block 14, and below this block springs 15 and 16. The lower spring, denoted by 16, is curved downward at the center, so as to engage the inner inclines at the bottom of the recesses, the tendency being to force the bushings outward against the ears of the clip, the outer ends of this spring being curved upward over the highest portions of the bottoms of the recesses and then downward slightly, so as to prevent the spring itself from slipping outward and bearing against either side of the thill-eye. Spring 15 is curved upward at the ends and acts to force the friction-block outward against the inner side of the eye. It will be noticed that the friction-block inclines downward and inward toward the center from each end, so as to correspond with the incline of the eye. It is found, in practice, that square bolts wear much longer than round bolts, which are always apt to turn, so that in practice there is always danger that the nuts will get loose and the bolts slip out from the ears. This has frequently happened with serious results, the dropping of one end of the thills being likely to throw the opposite forward wheel under the wagon, and many times to turn it over.

The parts are assembled as shown in Figs. 2 and 5. The thill-eyes, with the bushings extending from the ends thereof, are then placed between the respective pairs of ears upon the clips and secured there by bolts having nuts 17, one only being shown. It will be noticed that the bolt is held against turning in the ears, and the bushings are held against turning on the bolt, so that in use the

movement of the thill-eyes must be only upon the bushings. The wear upon the bushings, both at the outer ends and on the faces, is taken up by tightening-nuts 17 on bolts 10.

5 The action of spring 15 is to force the friction-block outward at all times against the inner side of the eye, and thus to wholly do away with rattling. This construction, in practice, is found to perfectly secure the re-
10 sults aimed at, and to be very strong and durable.

Having thus described my invention, I claim—

1. In a thill-coupling, the combination, with
15 the ears and a thill-eye having an opening tapering outward from the center, of bushings engaging said opening from opposite sides and provided with recesses adapted to register with each other, a friction-block in
20 said recess, and a spring 15, adapted to force said block outward into engagement with the eye.

2. A thill-eye whose opening is made narrowest at the center and tapers outward in
25 both directions, in combination with conical bushings adapted to engage said opening from opposite sides, and having recesses adapted to register with each other, a friction-block in said recess, and a spring acting to
30 force said block outward into engagement with the eye.

3. The combination, with a thill-eye having a central opening narrowest at the center and tapering outward in opposite directions,
35 of conical bushings adapted to engage said opening from opposite sides and provided

with recesses adapted to register with each other, a friction-block in said recess whose outer face corresponds with the inner face of said opening, and a spring acting to force
40 said block outward into engagement with the eye.

4. The combination, with a thill-eye having a central opening made narrowest at the center and tapering outward in both direc-
45 tions, of conical bushings adapted to engage said opening from opposite sides and having recesses adapted to register with each other, the bottoms of said recesses being lowest at the ends, a spring 16, whose curvature corre-
50 sponds with the curvature of the bottom of the recess, so as to force the bushings outward, at the same time retaining the spring in position, a friction-block, and a spring be-
55 tween said block and spring 16, whereby the block is forced outward, as and for the purpose set forth.

5. The combination, with a clip and the ears of a thill-coupling, of a thill-eye whose opening is made narrowest at the center and
60 tapers outward in each direction, conical bushings engaging said opening and having recesses 13, a friction-block in said recesses, and springs 15 and 16, whereby the block is forced against the eye and the bushings are
65 forced against the ears.

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

ALFRED L. STEVENS.

Witnesses:

A. M. WOOSTER,
ARLEY I. MUNSON.