

No. 646,531.

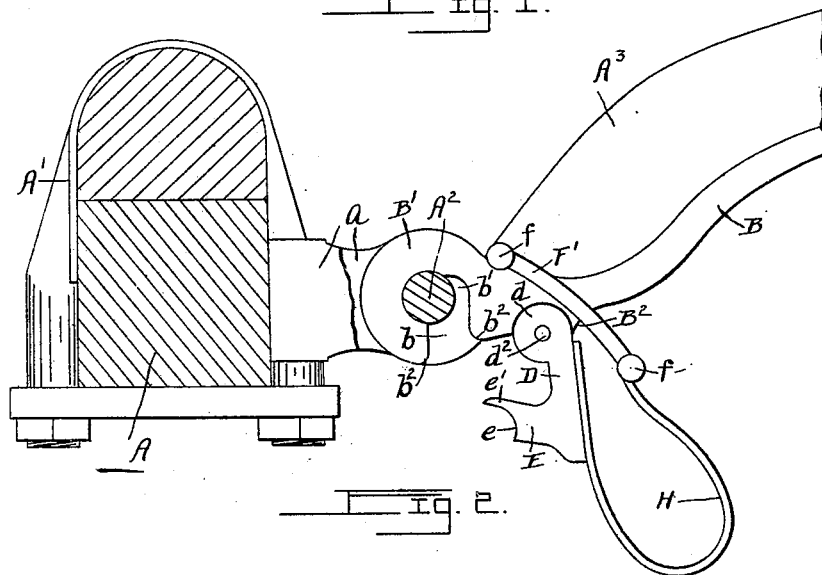
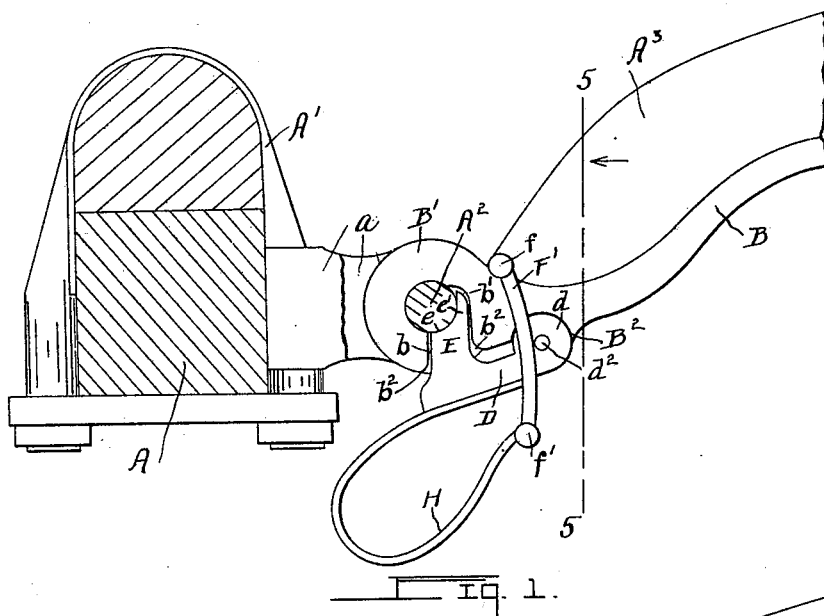
Patented Apr. 3, 1900.

A. H. WORREST.
THILL COUPLING.

(Application filed Sept. 6, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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By Attorney
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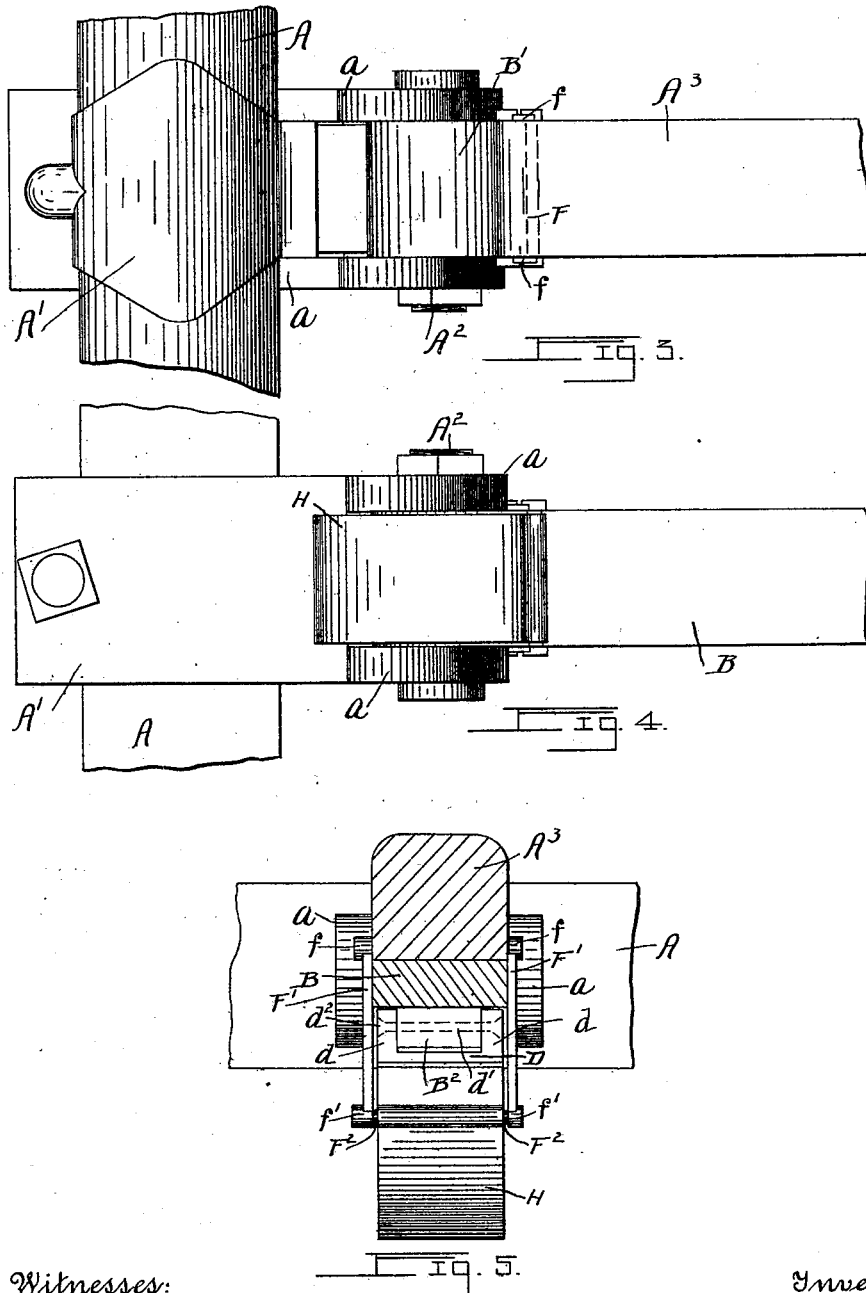
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UNITED STATES PATENT OFFICE.

ALFRED H. WORREST, OF LANCASTER, PENNSYLVANIA.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 646,531, dated April 3, 1900.

Application filed September 6, 1898. Serial No. 690,271. (No model.)

To all whom it may concern:

Be it known that I, ALFRED H. WORREST, a citizen of the United States, residing at Lancaster, county of Lancaster, State of Pennsylvania, have invented certain Improvements in Thill-Couplings, of which the following is a specification.

This invention relates to improvements in that class of couplings employed in connecting thills and tongues with the fore parts of vehicles; and the objects of the improvements are, first, to produce a "quick-shifting" coupler that can be used with the ordinary axle-clip and bolt; second, to automatically take up the wear of the coupling without the use of packing, and, third, to secure the thill-iron to the bolt by a special device, which is not subjected to any influence from the strain exerted by the thill on the coupling-bolt.

The invention consists in the construction and combination of the various parts, as hereinafter fully described and then pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of one of my couplings, showing the thill locked to the coupling-bolt, a jaw of the axle-clip being cut away to fully expose the operating mechanism; Fig. 2, a similar view, also with a jaw of the axle-clip cut away and showing the locking device in an open position; Fig. 3, a top plan view of the coupling and a portion of an axle; Fig. 4, a similar bottom plan view, and Fig. 5 a vertical section on broken line 5 5 of Fig. 1.

Similar letters indicate like parts throughout the several views.

Referring to the drawings, A indicates the axle; A', the clip; *a*, the jaws of the clip; A², the coupling-bolt, and A³ the thill.

B is the thill-iron, having on the inner end a hook-eye B', in the lower part of which and in front of the center is a slot *b*, the front part of said slot being carried up in the front wall of the hook-eye above the center, as shown at *b'*. The jaws of the hook-eye B' are beveled at the opening to slot *b*, as seen at *b*², to afford unobstructed passage to the dog, to be described.

B² is a transverse lug formed on the under side of thill-iron B and in front of hook-eye

B'. The ends of this lug are embraced by jaws *d*, constructed as eyes on opposite sides of the inner end of a lever D, hinged to lug B² by a hinge-bolt *d'*, passing through openings in said lug B² and in the two jaws *d*. This hinge-bolt is shown by broken lines in Fig. 5 and has its heads *d*² countersunk in the outer faces of jaws *d*.

On the inside of the outer end of lever D is a dog E, adapted to enter slot *b* and having a concave outer end *e*, constructed to fit closely around the part of coupling-bolt A² engaged thereby, and on the upper or forward side of the end *e* of dog E is a finger *e'*, which passes up into the upper part *b'* of slot *b* and which also has a concave inner face constructed to fit closely around the part of coupling-bolt A² engaged thereby, the concave portion of finger *e'* extending up as high as the center of said coupling-bolt A². By the construction of the dog and the hook-eye described as the parts wear away both horizontal and vertical play of said hook-eye about the coupling-bolt are prevented.

In a transverse opening through the upper part of the inner end of thill A³ where it abuts against hook-eye B' is a hinge-pin F, to the bosses *f* on the ends whereof are rigidly secured downwardly-extending arms F', adapted to swing outside of jaws *d*, being curved somewhat to the rear from their upper to their lower ends, terminating in bosses *f'*, in which is secured a cross-bar F². (Shown in Fig. 5.) To this cross-bar F² and to the back of lever D are secured the ends of a flat spring H, which forms a long oval-shaped loop, the ends of the spring by reason of the relative location of cross-bar F² and the lever D being much closer together than the opposite sides of the body of said loop, as shown in Figs. 1 and 2.

To couple the thills with the vehicle, referring to one side, the operation being precisely similar with the other, hook-eye B' is engaged with coupling-bolt A², as seen in Fig. 2, the other parts occupying the positions also shown in that figure. Then lever D is swung backward until dog E is forced into and through slot *b*, so that it bears against the coupling-bolt, as shown in Fig. 1, by which movement arms F' are also moved into the position shown in that figure, whereby spring

It is so placed that it exerts a continuous upward pressure on dog E, thus taking up all wear of the parts. To uncouple the thills, the operation just described is reversed. By this construction, as will be seen, tension on the thills exerts no strain on the dog, the spring, or the arms F'.

I do not restrict myself to the details of construction herein shown and described, as it is obvious that many alterations may be made therein without departing from the principle and scope of my invention.

Such other features of novelty as are herein shown and described, but not claimed, form a part of the subject matter of an application filed March 13, 1900, Serial No. 8,428.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a thill-coupling, the combination, with a coupling-bolt, of a hook-eye connected with a thill, a pivoted lever, a dog on the lever and adapted to engage the opening in the wall of the hook-eye and bear against the coupling-bolt, and a spring having one end bearing against the free end of the lever and the other end connected with the thill back of the free end of said lever, the spring forming a loop between its ends, for the purpose specified.
2. In a thill-coupling, the combination, with a coupling-bolt, of a hook-eye connected with a thill, a pivoted lever, a dog on the lever and adapted to engage the opening in the wall of the hook-eye and bear against the coupling-bolt, a spring having one end bearing against the free end of the lever, and a device adapted to swing with the lever and carrying the other end of said spring, for the purpose specified.
3. In a thill-coupling, the combination, with a coupling-bolt, of a hook-eye connected with a thill, a lever, a dog on the lever and adapted

to engage the opening in the wall of the hook-eye and bear against the coupling-bolt, arms having a hinge connection with the thill, and a spring having one end bearing against the free end of the lever and the other end supported by the swinging ends of said arms, said spring forming a loop extending beyond the free end of the lever, for the purpose specified.

4. In a thill-coupling, the combination, with a coupling-bolt, of a hook-eye connected with a thill, a lever, a dog on the lever and adapted to engage the opening in the wall of the hook-eye and bear against the coupling-bolt, arms having a hinge connection with the thill and inside of the fulcrum of the lever, and a spring having one end bearing against the free end of the lever and the other end supported by the swinging ends of said arms, said spring forming a loop extending beyond the free end of the lever, for the purpose specified.

5. In a thill-coupling, the combination, with a coupling-bolt, of a hook-eye connected with a thill, a lever, a dog on the lever and adapted to engage the opening in the wall of the hook-eye and bear against the coupling-bolt, a hinge-pin in the inner end of the thill and behind the fulcrum of the lever, depending arms on the ends of said hinge-pin, a cross-bar connecting the swinging ends of the depending arms, and a spring having one end bearing against the free end of the lever and the other end supported by said cross-bar, said spring forming a loop extending beyond the free end of the lever, substantially as and for the purpose specified.

ALFRED H. WORREST.

Witnesses:

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