

Q. RICE.
THILL-COUPLING.

No. 175,301.

Patented March 28, 1876.

Fig. 1.

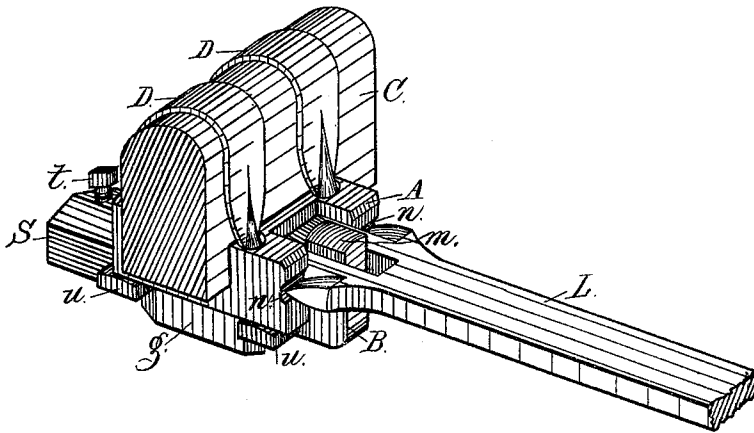


Fig. 2.

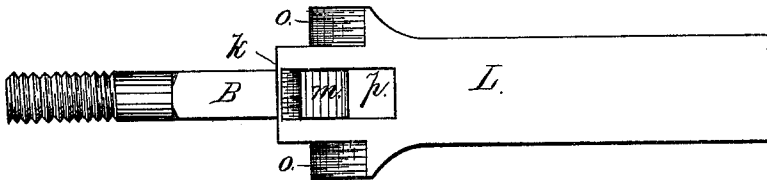
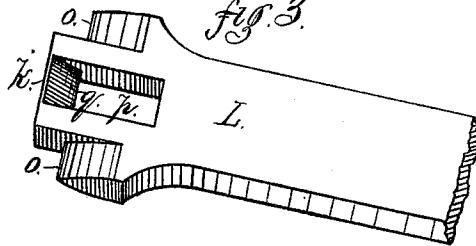


Fig. 3.



Witnesses.

George T. Smallwood Jr.
John Robey Jr.

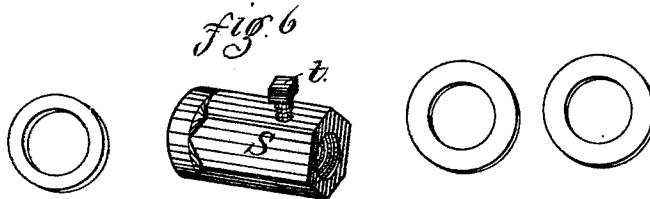
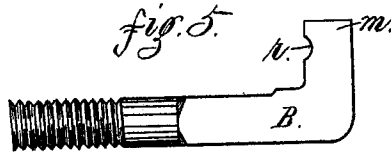
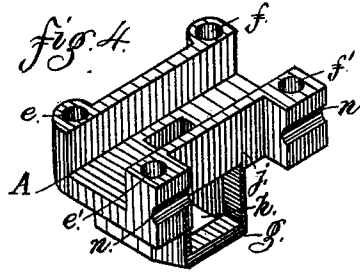
Inventor.

Quartus Rice.
By John F. Maister,
per Atty.

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UNITED STATES PATENT OFFICE.

QUARTUS RICE, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN THILL-COUPPLINGS.

Specification forming part of Letters Patent No. **175,301**, dated March 28, 1876; application filed September 17, 1875.

To all whom it may concern:

Be it known that I, QUARTUS RICE, of the city and county of Washington, District of Columbia, have invented certain Improvements in Thill Couplings for Vehicles; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My improvements consist in a peculiar plate to which the clips are secured; in a peculiar open-eyed bolt to which the thill-irons are coupled; and in a peculiar construction of the thill-irons, whereby all the bearings between them and the plate or bolt are open, and no bolt-pin required; and in certain other details hereinafter named.

In the drawings, which illustrate one form of construction embodying my invention, Figure 1 is a perspective of my devices applied to an axle of a vehicle; Fig. 2, a plan of the bolt hooked to the thill-iron; Fig. 3, a perspective view of the thill-iron detached, showing its three-edge bearings; Fig. 4, a perspective view of the clip-plate and bolt-supporter detached; Fig. 5, the hook-shaped bolt in elevation and its arched bearing; and Fig. 6 a locking-nut for adjusting and securing the bolt, and washers for the same.

The plate A, which receives the hook-bolt B, is made broad enough to be secured to the axle C by means of two clips, D D, through two pairs of holes, *e e'* and *f f'*, and at its central lower part has a projection, *g*, with an opening, *h*, to receive the bolt B, as shown. It also has two forward projections, between which is a recess, *j*, to receive the rearmost end *k* of the thill-iron L and the hook *m* of the bolt; and it is further provided with curved open bearings *n n* to receive and support the sharp-edged bearings *o o* of the thill-irons.

The thill irons or straps, which may be made of steel, or with steel or hardened parts for its sharp or bearing-edges, are made with an opening, *p*, large enough to permit it readily to be slipped upon the bolt or released therefrom whenever it is desired to attach or detach these parts; and, beside its two bearing-edges, *o o*, which are upon its outside, it has also an inner and similar edge, *q*, within

the opening *p*, and pointing in a direction opposite that of *o o*, these three edges, *o o* and *q*, being all in one and the same straight line, that they may serve as an axial line on which the part L may be free to swing as exigencies may require in the open bearings *n n* of the plate, and the similar curved open bearing *r* of the bolt.

The bolt B, at its rear end, is threaded to receive a locking-nut, S, which is secured to any position to which it may be adjusted by means of a screw, *t*, or any equivalent fastening device, such, for instance, as a key adapted for holding the bolt securely to its position. Suitable washers of metal, rubber, or leather, or any of these combined, are used between the locking-nut S and the plate A. Ordinary nuts *u u* serve to hold the plate A to the clips and to hold the clips to the axle.

If desired, a pin or other device may be applied to the bolt B, at the rear of the locking-nut, as an additional security against any possible accidental separation of these parts. But, as the bolt does not turn and the nut is tightly held by the screw *t*, such device would rarely, if ever, be needed.

If desired, the bearings of the strap L need not be sharp-edged, but may be rounded or semicircular at their edges.

From the above construction it will now be seen that when the bolt is inserted through the plate, the strap L can instantly be put to place by simply hooking the opening *p* over the hook *m*. And upon then screwing the locking-nut upon the rear of the hook, and thus tightening up these parts, the edges *o o* and *q* are drawn respectively into their corresponding curved or concave bearings *n n* and *r*, and the coupling is completed. The strap L is now free to swing vertically to any required extent without possibility of loosening any of the parts, and in such swinging movement it turns on its sharp edges as centers, so that there is little or no wear or friction at these points. And the better to secure this end, I make the forward square part of the opening *h* slightly larger than the square part of the bolt which enters it, so that if the sharp edges *o o q* should not be mathematically in line, (as might be the case if imperfectly made,) then there would be room for a

slight vertical play of the bolt, which would compensate for any such imperfect workmanship and prevent the sharp edges from slipping in their resting-places, and thus wearing. When correctly made, however, there is no such slipping.

The entire device is very strong and secure, as well as durable, and materially lessens the liability of accidents, as it is almost impossible for a thill of my construction to become detached, except when purposely loosened and removed.

I claim—

1. The plate A, constructed with the two concave open bearings *n n*, recess *j*, and bolt-hole *h*, substantially as and for the purpose described.

2. In combination with the plate A, the bolt B, constructed substantially as described, and serving with its nut to tighten the thill and take up the wear.

3. The thill piece or strap L, constructed with the three bearings *o o* and *g*, and with the opening *p*, substantially as and for the purpose set forth.

4. The combination of the plate A, the thill piece or strap L, both constructed as described, the hook-bolt B, having an open concave bearing, *r*, and a device for fastening and adjusting the hook.

QUARTUS RICE.

Witnesses:

JOHN J. HALSTED,
JOHN ROBESY, Jr.