(No Model.)

W. C. FOX.

DETACHABLE THILL COUPLING.

No. 590,099. Patented Sept. 14, 1897.

Fig. 1.

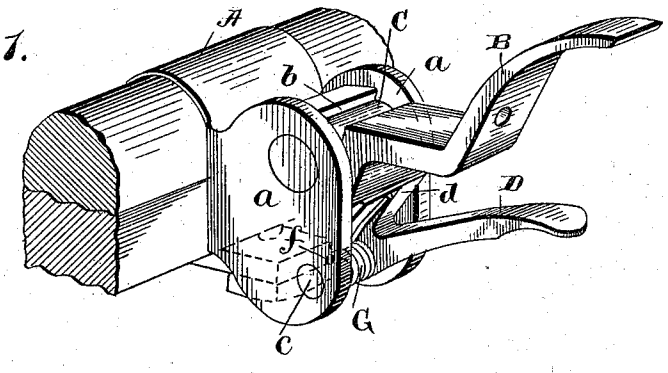


Fig. 2.

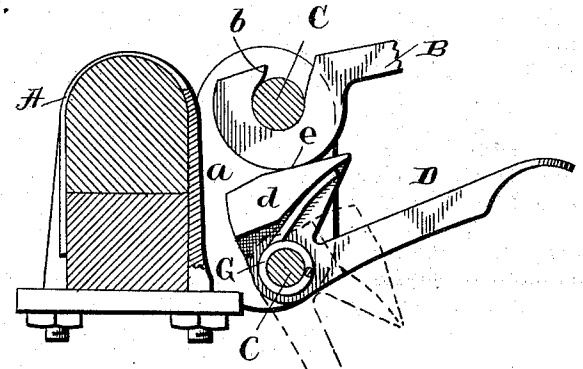
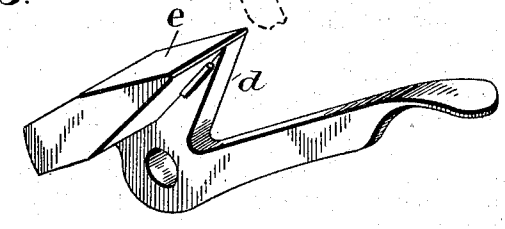


Fig. 3.



Witnesses
Geo. E. Tuck.
Hubert E. Peck

Inventor
William C. Fox,
by Pattison & Mesbit,
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM C. FOX, OF FRONT ROYAL, VIRGINIA.

DETACHABLE THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 590,099, dated September 14, 1897.

Application filed June 3, 1897. Serial No. 639,294. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. FOX, of Front Royal, in the county of Warren and State of Virginia, have invented certain new and useful Improvements in Detachable 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in detachable thill-couplings; and it consists in providing a supporting-lever constructed at one end to engage the under side of the thill and provided with a handle at its opposite and outer end by means of which it can be turned to permit the thill to be either detached or attached, all of which will be fully described hereinafter and particularly pointed out in the claims.

The object of my invention is to facilitate the detachment and attachment of shafts to vehicles of all kinds and avoid the necessity of removing nuts and bolts, as in the ordinary thill-coupling. This result is accomplished in my device by a single mechanical element in the form of a lever pivoted at its lower end below the pivotal point of the thill, the inner end of the lever being so shaped that when its outer handle end is up the thill will be locked upon its pivotal pin, but when the handle of the lever is turned down it will permit the attachment and detachment of the thill. By means of this simple construction the operator places the foot upon the outer end of the lever and depresses it and with the hands places the thill in position, when the lever is released and carried to its locking position by means of a spring, thus making the locking action automatic and so simple that a child can use it.

In the accompanying drawings, Figure 1 is a perspective view of a thill-coupling embodying my invention. Fig. 2 is a vertical longitudinal sectional view of the same, the lever being shown in solid lines in its locking position and in its releasing or unlocking position in dotted lines. Fig. 3 is an enlarged detached perspective view of the locking-lever.

Referring now to the drawings, A indicates the usual clip, which passes around and is secured to the axle in the usual or any other desired manner. Projecting forward and at the front side of the clip are the usual parallel ears *a*, between which the thills B are supported. Spanning the upper portion of the space between and supported by the ears is a pivotal pin or bolt C, which has its ends riveted and sweat into openings in said ears, thus doing away with any nuts which are liable to become loose. The thill-irons B have the upper sides of their upper ends provided with transverse slots *b* sufficiently large to permit the thill to be placed upon and removed from its pivotal bolt, as will be readily seen from the drawings, thus forming hooked ends. The ends are made only slightly hooked, so that the shafts will need to be turned upward only slightly to permit the thills to fall from their pivotal points, but yet sufficiently hooked to hold the shafts in position (should the locking-lever D be turned down in any manner) owing to the pull of the animal upon the shafts. This supporting-lever D is pivotally supported upon a rod or pin *c*, which passes through the lower portions of the ears of the clip and is riveted and sweat into position to prevent the use of nuts, which are liable to become loose. As shown clearly in Fig. 3, this lever is essentially J-shaped in form and has the pivotal opening at its apex, the short and inner end *d* of the lever having a laterally-projecting locking portion *e*, which when the lever is up, as shown in Fig. 1, engages the under side of the thill and holds it in position. A spring G surrounds the pivotal pin of the lever and is situated below the laterally-projecting locking portion of the lever, one end engaging said laterally-extending portion and the other end is passed into an opening *f* of one of the ears. In this manner the coil-spring exerts a tension against the lever and holds its locking portion in engagement with the under side of the thill.

As shown in solid lines in Fig. 2, the lever is in its locking position and its locking portion is shown engaging the thill, so that it cannot fall out. When it is desired to detach the thill for removing the shafts, the operator places his foot upon the projecting handle or operating end of the lever and depresses it

into the position shown in dotted lines in Fig. 2, so that the thill will drop down and can be removed. In placing the thill into position the shafts are taken in the hands of the operator and the locking-lever of one thill is depressed by the foot, and the thill is then readily placed in position therein. The releasing of the lever supports the thill automatically through the medium of its spring, as will be readily understood. One thill of the shafts being in position the other is placed in position in the same way.

Attention is directed to the relative position of the pivotal pins or supports of the lever and thill, whereby one is about in a vertical line above the other. The advantage of this is that the downward pressure caused by the weight of the thill or otherwise does not tend to turn the lever on its pivot, which is very desirable and makes the locking action much safer. It will also be noticed that the upper face of the locking portion is formed on a curve eccentric to the pivotal point of the lever, so that as the lever moves to locking position it gradually tightens upon the under side of the thill until the thill is firmly held in its proper position without any movement whatever. The lever in addition to locking the thill in position also serves as an anti-rattler.

By means of a coupling as above described the shaft can be easily and quickly attached or detached and without the usual troublesome manipulation of nuts and bolts, and by its construction there are no nuts or bolts to become loose, making an absolutely safe attachment, as well as a convenient one.

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

1. A detachable thill-coupling comprising a thill pivotal bolt, a thill detachable therefrom by a downward movement, and a supporting-lever situated below the thill, and having a supporting-surface engaging the thill practically in a vertical line below the thill and movable independently thereof, and an operating-arm, substantially as described.

2. A detachable thill-coupling comprising a thill having an upwardly-opening eye, a draft-bolt therefor, and a supporting-lever intermediately pivoted practically in a vertical line below and movable independently of the thill, one end of the lever having a supporting-surface engaging the under side of the thill and the other end an operating-arm, substantially as described.

3. A detachable thill-coupling comprising a thill-bolt, a thill removable therefrom by a downward movement, a bell-crank-shaped lever pivotally supported in practically a vertical line below and movable independently of the thill, the upper and inner end of the lever having a supporting-surface engaging the under side of the thill, and the other end of the lever projecting outward and forming an operating-handle, substantially as described.

4. A thill-coupling comprising a thill-bolt, a thill having an upwardly-opening eye and removable from the bolt by a downward movement, a lever supported practically in a vertical line below the thill and having an upwardly-projecting eccentric supporting-surface at its inner end engaging the under side of the thill supporting it and movable independently thereof, and a spring for normally holding the supporting-surface in engagement with the thill, substantially as described.

5. A detachable thill-coupling, comprising a thill having an open hook, a pivotal support therefor, a supporting-lever intermediately pivotally supported below said thill, the lever being essentially of a bell-crank shape, the outer end serving as an operating-handle, and a laterally-projecting eccentrically-formed locking-surface at the inner end of the lever, and a coil-spring surrounding the lever-pivot, one end of the spring engaging the lever and the other connected to the ears of the clip, substantially as described.

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

WILLIAM C. FOX.

Witnesses:
HENRY L. COOK,
M. C. RICHARDSON.