(No Model.)

R. D. PATTON.

THILL COUPLING.

No. 480,622. Patented Aug. 9, 1892.

Fig. I.

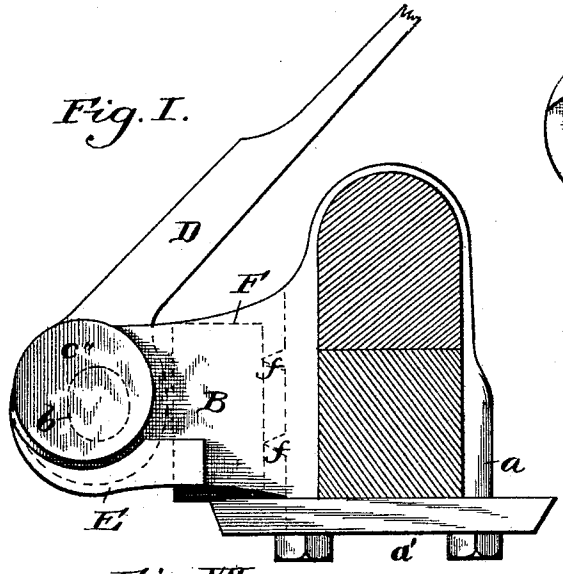


Fig. VI.

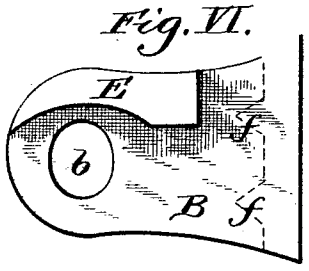


Fig. IV.

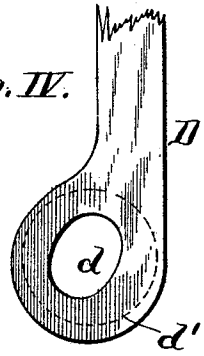


Fig. VII.

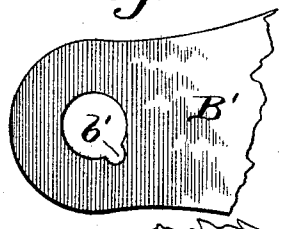


Fig. II.

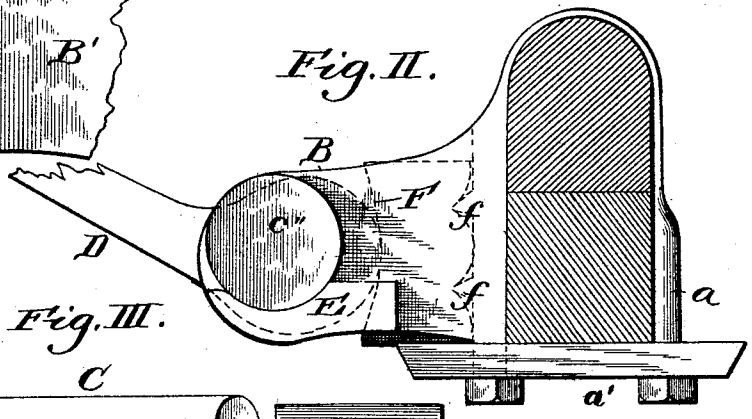


Fig. III.

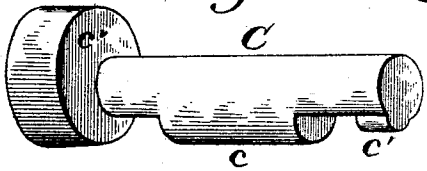
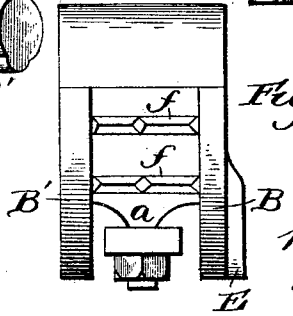


Fig. V.



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By his Attorneys,
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UNITED STATES PATENT OFFICE.

RUFUS D. PATTON, OF KANSAS CITY, MISSOURI.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 480,622, dated August 9, 1892.

Application filed December 2, 1891. Serial No. 413,806. (No model.)

To all whom it may concern:

Be it known that I, RUFUS D. PATTON, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, 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 relates to improvements in thill-couplings; and the object is to facilitate the operation of changing from thills to pole and to provide a safe and practically rigid coupling which shall be free from noise and rattling.

With these ends in view my invention consists of a clip having its lower ends connected by a yoke and provided with an elliptical hole or opening in one ear, a thill-iron having an enlarged head with a cam-surface on one side and an elliptical hole, and the coupling-pin elliptical in cross-section at its center and fitted tightly in the opening in the thill-iron. This coupling-pin is further provided with recesses at or near each end to receive the forwardly-projecting ears of the clip, and the extreme end of the pin has a lug or key on one side thereof, which passes through a slot communicating with the opening in one ear and serves to lock the pin in place. The yoke of the clip extends in rear of the same, and a cushion of rubber or other flexible material is inserted between the thill-iron and the clip, which rests on said yoke, the anti-rattler thus being forced against lugs on the front face of the clip by the cam-surface of the thill-iron. The coupling-pin is also provided with an enlarged round or elliptical-shaped head, which is eccentrically secured thereon and adapted to bear on a projection formed on the outer face of the clip-ears to force the coupling-pin up against the top of the openings in the ears, and consequently cause the elliptical-headed thill-iron to impinge firmly against the anti-rattler.

My invention further consists of certain details of construction and arrangement of parts, as will more fully appear hereinafter.

I have illustrated my invention in the accompanying drawings, in which—

Figure I is a side elevation showing the thill elevated. Fig. II is a similar view showing the arrangement of parts when the thill is lowered and in position for use. Fig. III is a detail view of the coupling-pin. Fig. IV is a view of the thill-iron. Fig. V is a front view of the clip without the thill and coupling-pin to show the lugs or spurs on the face thereof. Fig. VI is a side view of the clip, showing the projection above the pin-opening; and Fig. VII is a detail view of one ear.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the clip, having the downwardly-extending ends *a* thereof joined in the usual manner by a yoke *a'*, which fastens the clip on the axle. This clip has the customary forwardly-extending ears B B', in one of which B is an elliptical pin-opening *b*, and the other ear B' has a circular opening, with a slot *b'*, which communicates with said opening.

The coupling-pin C has an elliptical-shaped middle portion *c* and a lug or projection *c'* at the end thereof. The coupling-pin is provided, also, with an enlarged head *c''*, which may be round or any desired shape, and it is eccentrically secured on the pin. The lug *c'* is adapted to pass through the slot *b'* in the ear B', and when the thill is lowered the lug will not come into alignment with the slot, and the elliptical portion *c*, also being out of alignment with opening *b*, will therefore prevent the coupling-pin from being accidentally detached. The thill-iron D has an elliptical-shaped opening *d* and a cam-surface *d'*, and the enlarged portion *c* of the coupling-pin is adapted to fit into said opening *d* and support the thill rigidly thereon.

On the outer face of one or both of the ears B B' is a projection E at one side of the pin-openings therein. This projection is so arranged that when the coupling-pin is properly inserted in place and the thill is lowered the head *c''*, being eccentric with relation to the pin, will impinge firmly against the projection E, which forces the pin upward and prevents it from falling below its proper horizontal position, and at the same time the cam-surface of the thill-iron will be forced against a rubber cushion F, arranged between said iron and the clip.

The rubber or other elastic block F, which

forms the cushion, is placed between the thill-iron and the front face of the clip, which is provided with a number of lugs or spurs *f*, adapted to take into the block F when forced against them by the thill-iron and retain said block in position. The yoke *a'* extends in front of the clip a sufficient distance to support the block F and prevent it from falling out when the thill is elevated and the pressure exerted by the cam-surface of the thill-iron is removed.

By this construction it will be readily seen that when the thill is lowered the coupling-pin will turn, also, to bring the lug *c'* out of alignment with the slot *b'*, and the cam-surface of the thill-iron will force the rubber block F firmly against the front face of the clip, and the spurs thereon will take into said block. At the same time the eccentric head of the coupling-pin will impinge against the upper face of the projection E and coact with the block F to form a firm elastic coupling.

The operation of connecting a thill to the axle with my improved coupling consists in arranging the thill-iron in an elevated position, as shown in Fig. 1, so that the pin-openings therein will align, and then inserting the coupling-pin. While in this position the rubber block F is inserted in place, and then the thill is lowered, which brings the cam-surface of the thill-iron and the eccentric head of the pin in close contact with the block F and projection E. When the thill is lowered, the lug *c'* is out of alignment with the slot *b'* and the elliptical portion *c* is out of alignment with opening *b*, and when the thill is elevated the pin can be removed readily, as is obvious.

The projection E may be arranged on one or both of the ears B B', and it may also be above, below, or on either side of the pin-openings, and in Fig. VI I have shown it above the opening *b*, in which case the opening is made nearer the lower edge of the ear than when the projection is below the opening.

I am aware that changes in the form and proportion of parts and details of construction may be made without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such changes as fairly fall within the scope of the same.

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

1. In a thill-coupling, the combination, with the clip having the ears and pin-openings, of the thill-iron having an elliptical pin-opening and a cam-surface on one side thereof, the coupling-pin adapted to pass through the openings in the thill-iron and clip-ears and having an enlarged central portion elliptical in cross-section to fit in the thill-iron opening, and the eccentric head of said coupling-pin adapted to impinge against the cam-surface on the clip-ear, substantially as described.

2. In a thill-coupling, the clip having the forwardly-extending ears and the projection on the outer face of the ear, combined with a coupling-pin having an enlarged eccentric head adapted to impinge against said projection, substantially as described.

3. In a thill-coupling, a coupling-pin having the enlarged central portion elliptical in cross-section, the lug at the end thereof, and the enlarged head eccentrically arranged on the pin and adapted to impinge against a cam-surface on the clip, in combination with a clip, a thill-iron, and a cushion, substantially as described.

4. In a thill-coupling, a clip having the forwardly-extending ears, the yoke, the elliptical opening in one ear and the pin-opening in the other ear, having a slot communicating therewith, combined with the thill-iron having an elliptical pin-opening and a cam-surface, the coupling-pin having an enlarged central portion adapted to fit tightly in the pin-opening in said thill-iron and arranged to operate in the openings in the clip-ears, the projection on the face of the ear, and enlarged head on the coupling-pin adapted to impinge against said projection, the spurs on the front face of the clip, and the elastic block fitted between the clip and thill-iron and adapted to be forced against the spurs by the cam-surface on said thill-iron, substantially as described.

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

RUFUS D. PATTON.

Witnesses:
J. P. KEOUGH,
FRANK S. PATTON.