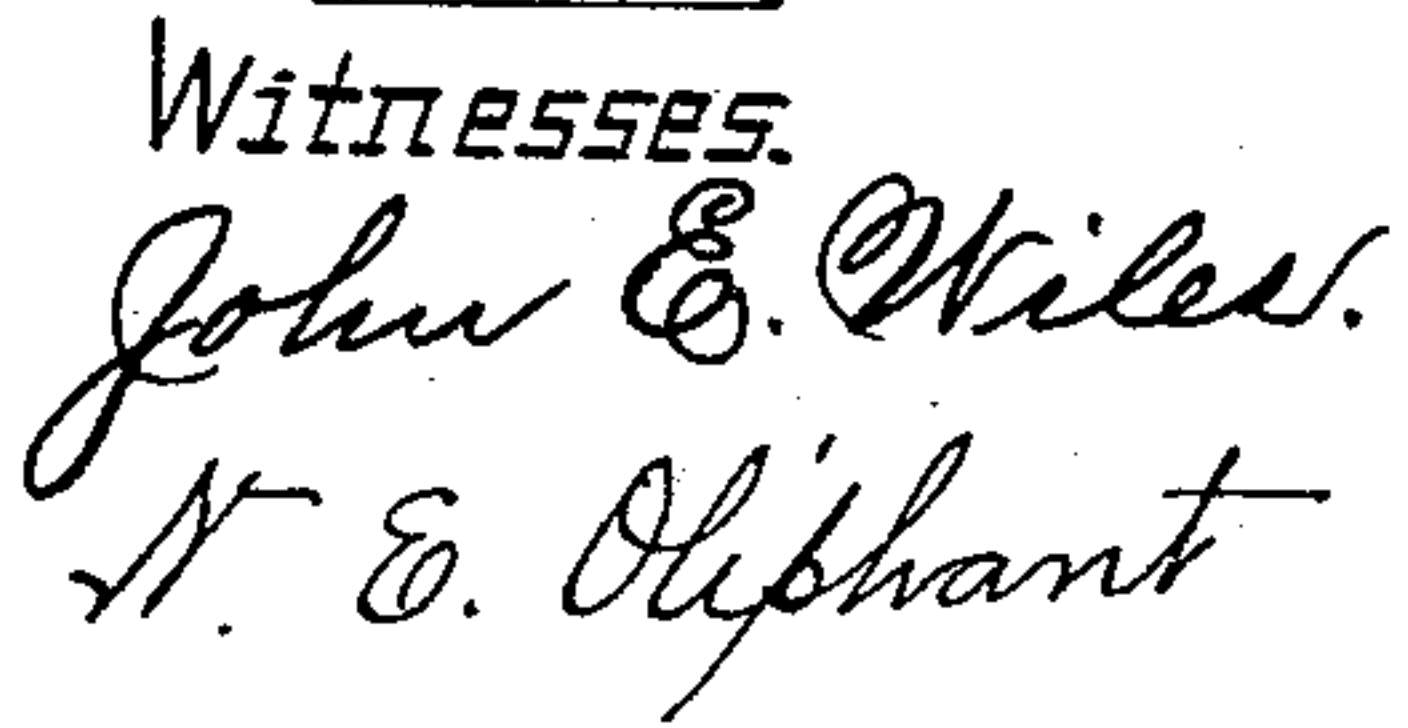


C. THORP.
THILL COUPLING.

Patented Dec. 27, 1892.



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UNITED STATES PATENT OFFICE.

CHARLES THORP, OF TRENTON, WISCONSIN.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 488,782, dated December 27, 1892.

Application filed June 6, 1892. Serial No. 435,633. (No model.)

To all whom it may concern:

Be it known that I, CHARLES THORP, a citizen of the United States, and a resident of Trenton, in the county of Dodge, and in the State of Wisconsin, have invented certain new and useful Improvements in Thill-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to improve the coupling set forth in my previous application Serial No. 421,278, filed February 12, 1892, whereby I prevent any possibility of leverage on the clip-block, when the draft-iron is being joined therewith; insure of the draft being entirely upon the front edge of a bar that is now made to turn and be locked in the furcations at the rear of said draft-iron, provide for ready removal of this bar, and render it ordinarily impossible to detach the aforesaid draft-iron from the clip until said bar is unlocked and free to turn.

A further object of my invention is to facilitate the attachment of an anti-rattler spring to the clip, as well as to provide for an adjustment of this spring for the purpose of regulating its tension.

With the above enumerated objects in view, my invention consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings: Figure 1 represents a side elevation of my coupling partly in section, Fig. 2, a similar view showing the clip and draft-iron detached, Fig. 3, a perspective view of the locking-bar, that in practice, constitutes a portion of the draft-iron, Fig. 4, a plan view of the coupling and Fig. 5, a detail perspective view of a tumbler that forms part of said coupling.

Referring by letter to the drawings, A represents the front axle of a buggy or analogous vehicle, B a clip arranged on said axle and having bolt terminals *b* passed through a base-plate *c* and engaged by nuts *d*, as is usual in the art to which my invention relates. Like in my previous application, above noted, a block C, forms part of the clip and extends forward from the same, this block being cut out to form a circular seat inter-

cepted by a radial slot *e*, the latter extending in from the top of said block to register with a corresponding slot *f* in a tumbler D loosely arranged in said seat, this tumbler being common in various forms of thill-coupling, and in some instances a leather, rubber or other suitable bushing may be substituted for the tumbler.

The draft-iron E forming part of the present coupling is similar to the one set forth in my previous application, so far as concerns a bifurcated rear end having the furcations *g* thereof terminated in circular guards *h* of such diameter as to overlap the ends of the tumbler D in all directions, to thereby prevent this tumbler from working out of its seat in the clip-block, but instead of a rigid bar uniting these draft-iron furcations I now have a bar F that, under certain conditions, may turn freely in said furcations. The bar F in its present form has a slabbed central portion and round ends the latter engaging corresponding openings in the draft-iron furcations, and in order to provide for ready removal of said bar as well as to prevent accidental displacement of the same I screw-thread the inner end of the same and engage it with a corresponding thread cut in the relative draft-iron furcation. In one piece with, or connected to the outer end of the bar F, in any suitable manner, is a spring-arm G, and the adjacent furcation of the draft-iron E has its outer side provided with a retaining seat for the spring-arm, whereby said bar may be locked fast in said draft-iron, this retaining seat being shown as formed by two parallel and beveled lugs *i* a suitable distance apart on said draft-iron furcations, the bevel on each lug being such as will facilitate the engagement of said spring-arm and seat. By having bar F capable of loose play in the draft-iron furcations, I prevent leverage of said draft-iron on the clip-block, when the two are being coupled, as is sometimes the case when said bar cannot yield. The bar E having been inserted in the tumbler D it is locked against play in the draft-iron furcation by engaging the spring-arm G with its retaining seat, above described, and the movement of said spring-arm, necessary to this locking operation, causes said bar and tumbler to turn together, whereby the slot *e* in

the clip-block is closed, independent of movement on the part of the draft-iron, to prevent the latter from uncoupling until the aforesaid bar is unlocked and free to turn in its bearings.

Another advantage of the present construction lies in the fact that the coupling may be made or broken without swinging the thills, or pole, of a vehicle back toward the dashboard of the same, as is ordinarily the case.

In case of fracture, or excessive wear of the bar F, the latter may be readily replaced with another, it being my intention to supply the trade with such bars separate from the draft-irons.

Engaging the bolt terminals *b* of the clip, above the base-plate *c*, instead of below the same, as in my previous application, is the longitudinally slotted rear end of a spring H, that is shown as bent up toward the rear to come above the clip-block C, about as far back as the slot *e* therein, and then recurved to extend down and toward the front in opposition to the draft-iron E when the latter is in its working position. Like in my previous device, the spring has no connection with the draft-iron, and consequently does not have to be manipulated when said draft-iron and clip are being coupled or uncoupled. The spring absorbs vibration to prevent rattle in the coupling, and by a longitudinal adjustment of this spring, I can compensate for weakness therein or increase its tension, as occasion may require, it being observed that whereas only the forward bend *m* of said spring is normally the yielding portion thereof, the rear bend *n* may be brought more or less into play by the longitudinal adjustment, the latter being possible because of the slot in the rear end of the aforesaid spring. The pressure of the spring keeps the front edge of the bar E always against the clip-block C and consequently the draft is always upon this front edge of said bar, and the vibration is absorbed by said spring to prevent rattle in the coupling.

In practice, the thills and pole belonging to a vehicle are provided with draft-irons, such as are herein described, for connection with the clips, also specified in the foregoing, and therefore the substitution of said pole for the thills, or otherwise, is a matter that requires but little time to accomplish.

Having now described my invention, what

I claim as new and desire to secure by Letters Patent is:—

1. A coupling comprising a clip provided with a slotted block, a bifurcated draft-iron, a transverse bar normally loose in the draft-iron furcations and having one of its ends screw-threaded to engage a corresponding thread in the draft iron furcation that is relative thereto, an arm at the other end of the bar, and suitable means for locking the arm to the draft-iron, substantially as set forth.

2. A coupling comprising a suitable clip, a bifurcated draft-iron, a transverse bar normally loose in the draft-iron furcations and having one of its ends screw-threaded to engage a corresponding thread in the furcation draft iron that is relative thereto, a spring-arm at the other end of the bar, and parallel lugs arranged on the draft-iron at a suitable distance apart to form a retaining seat for the spring-arm, substantially as set forth.

3. A coupling comprising a clip, a slotted tumbler loose in a correspondingly slotted extension of the clip, a bifurcated draft-iron, a transverse bar normally loose on the draft-iron furcations a spring-arm at one end of the bar, and retaining seat on the draft-iron for the free end of the spring-arm, substantially as set forth.

4. A coupling comprising a clip having a single forwardly extended block provided with a circular seat intercepted by a radial slot, a slotted tumbler loosely arranged in the seat a bifurcated draft-iron, a transverse bar normally loose in the draft-iron furcations a spring arm at one end of the bar, and a retaining seat on the draft-iron for the free end of the spring-arm, substantially as set forth.

5. A coupling comprising a clip provided with a slotted block, a bifurcated draft-iron, a transverse bar normally loose in the draft-iron furcations, an arm on one end of the bar, suitable means for locking the bar to the draft-iron, and a spring connected to said clip and arranged to bear upon said draft-iron, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Beaver Dam, in the county of Dodge and State of Wisconsin, in the presence of two witnesses.

CHARLES THORP.

Witnesses:

G. F. SAWYER,
H. B. LANDER.