

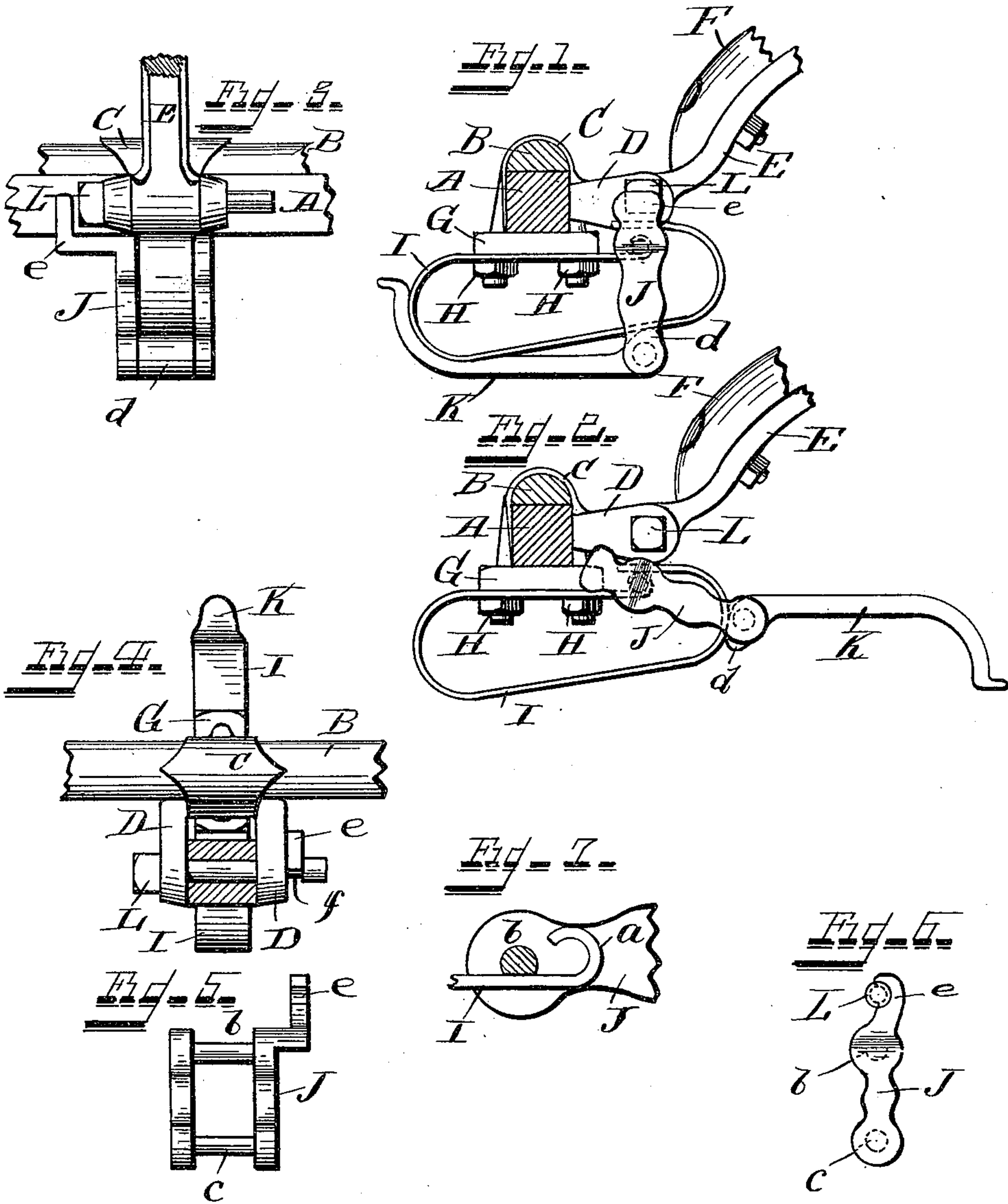
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E. B. SMITH & M. C. WEIGLEIN.
THILL COUPLING ATTACHMENT.

(Application filed Sept. 18, 1899.)

(No Model.)



WITNESS

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EZRA B. SMITH AND MICHAEL C. WEIGLEIN, OF CINCINNATI, OHIO.

THILL-COUPLING ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 637,530, dated November 21, 1899.

Application filed September 18, 1899. Serial No. 730,962. (No model.)

To all whom it may concern:

Be it known that we, EZRA B. SMITH and MICHAEL C. WEIGLEIN, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Thill-Coupling Attachments, of which the following is a full, exact, and clear description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to that class of attachments which in a unitary structure serve both to hold the thill coupling-pin in place and to take up any lost motion or wear between the same and the thill-iron to prevent rattling; and it has for its object the provision of a spring secured to the base of the clip by the nuts which secure the clip in place and having one end formed into a loop to afford a bearing for a swinging link provided at one end with a retaining-shoulder for the coupling-pin to prevent its withdrawal and at its opposite end with a pivoted cam-lever, which when the link is swung around to engage the coupling-pin and is pressed backward conforms to the shape of the spring and puts its free end, which engages the under side of the thill-iron, under tension, so as to hold the coupling from disengagement and by the pressure of the spring to prevent its rattling.

The novelty of our invention will be hereinafter more fully set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional side elevation of a thill-coupling embodying our invention in its closed or operating position. Fig. 2 is a corresponding view with the lever thrown open and the link thrown back to permit the withdrawal of the coupling-pin. Fig. 3 is a front elevation of Fig. 1, looking to the left thereof. Fig. 4 is a plan view, partly in section, representing a modification in the construction. Fig. 5 is an elevation of the link of Fig. 4. Fig. 6 is an end elevation of Fig. 5, looking from the left. Fig. 7 is a detail sectional side elevation of the engaging end of the link and of the spring.

The same letters of reference are used to indicate identical parts in all the figures.

A represents the metal part of an ordinary vehicle-axle, and B is its rounded and orna-

mental wooden cap-piece, both of which are surrounded by the usual clips C, carrying perforated ears D for the reception between them of the usual thill-iron E, to which the thill F is bolted or secured in the usual manner.

G is the base-plate of the clip, through whose perforations the lower threaded ends of its legs extend and have screwed upon them the securing-nuts H in the usual manner.

Interposed between the base-plate G and the nut H is the flattened upper end of a flat spring I, having perforations through which the legs of the clip pass. This spring extends forward of the base-plate G and has its end coiled up and backward, as seen at *a*, Fig. 7. Its opposite end extends rearward of the base-plate G, is curved downward, thence forward beyond the ears D of the clip, and finally upward and backward until it bears under the perforated eye of the thill-iron E, against which it bears.

Pivoted in the curved looped end *a* of the spring I is a cross-bar *b*, having one side flattened, as seen in Fig. 7, for its ready introduction into the curved loop *a*. This cross-bar connects the two upper sides of a link J, straddling the spring I, and whose lower ends are connected by a second cross-bar *c* on the lower side of the spring and upon which is pivoted the rear end of a lever K, whose end surrounding the pivot is formed into a cam *d*, bearing against the under side of the spring I. The lever K extends rearward, and when pressed up conforms to the shape of and snugly embraces the under side of the spring I, thereby causing its cam *d* to press up the spring I and to exert pressure upon the under side of the eye of the thill-iron, and thereby cause its pivotal pin or bolt L to be bound in its bearings to prevent any rattling. At the same time when the lever and link are in the position just above indicated and illustrated in Fig. 1 the upwardly-projecting side piece *e* on one side of the link comes opposite to and engages the head of the pivot pin or bolt to prevent its withdrawal and to secure it in place, as clearly indicated in Fig. 3.

The above construction affords a very simple and secure fastening for the thill-coupling bolt or pin and at the same time so presses upon the eye of the thill-iron as to

cause it to bind and prevent rattling, as will be readily understood.

By having the lever K conform to the contour of the rear part of the spring and extend upward upon the rear side thereof there is no liability of the lever being accidentally tripped in backing the vehicle among high weeds or other obstructions, as would be the case if the rear end of the lever had a downward projection beneath the bottom of the spring, as will be readily understood.

At the same time should it be desired to uncouple the shafts from the vehicle for any purpose—as, for instance, where it is desired to substitute a pole in the place of the shafts—it would be only necessary to draw down and forward the lever K to the position shown in Fig. 2, whereupon the link J would be swung forward to cause the projecting end *e* thereof to clear the head of the pivot pins or bolts and at the same time to release the pressure upon the spring I. With the parts in this position the pivot pins or bolts L can be instantly drawn out, thus freeing the thill-irons and permitting the shafts to be removed and their place substituted by a pole, as desired, as will be readily understood. Upon reinserting the pivot pins or bolts L and pressing back the link J and lever K to the position shown in Fig. 1 all of the parts become instantly relocked and a toggle-joint is effected between the link J and the cam *d* of the lever K, which, under the pressure of the spring, serves to hold the parts locked together.

As a modification of our construction the offset *e* of the link might be on the opposite side of the same, as seen in Figs. 5 and 6, and might be made in hook form, so as to partially engage a circumferential groove *f*, cut in the pivot pin or bolt L, whereby a locking engagement would be formed to prevent the withdrawal of the bolt until the link and lever K were thrown forward, as will be readily understood.

Having thus fully described our invention, we claim—

1. In a thill-coupling, the combination of the clip with fixed jaws, the perforated thill-iron embraced by said jaws, a pivot-pin uniting the parts, a spring secured to the under side of the axle and bent in loop form forwardly and upwardly with its free end bearing on the under side of the thill-iron, a pivoted link embracing the forward looped end of the spring and having a shoulder to engage the pivot-pin, and a lever pivoted to the under side of the link and provided with a cam adapted when the lever is thrown back to put the spring under tension and to form a toggle-joint to lock the parts, substantially as described.

2. In a thill-coupling, the combination of the clip with fixed jaws, the perforated thill-iron embraced by said jaws, a pivot-pin uniting the parts, a spring bolted to the clip-tie and having its forward end looped, its rear

end extending in rear of the axle thence bent downwardly, forwardly and upwardly, with its free end engaging the under side of the thill-iron, a link embracing the forward looped end of the spring and pivoted to its forward projecting end and having a shoulder to engage the pivot-pin, and a lever pivoted to the under side of the link and provided with a cam adapted when the lever is thrown back to put the spring under tension and to form a toggle-joint to lock the parts, substantially as described.

3. In a thill-coupling, a spring secured to the axle for exerting pressure upon the under side of the thill-iron, a link embracing said spring and provided with a retaining-shoulder for the coupling-pin, and a lever for operating said link pivoted thereto and extending rearward and upward on the under side of the spring so as to conform to the contour of the same, substantially as described.

4. In a thill-coupling, a spring secured to the axle for exerting pressure upon the under side of the thill-iron, a link embracing said spring and provided with a retaining-shoulder for the coupling-pin, and a cam-lever for operating said link pivoted thereto and extending rearward and upward on the under side of the spring so as to conform to the contour of the same and extend upward beyond its lower rear part, substantially as described.

5. In a thill-coupling attachment, the combination of the spring I with both ends looped and its free ends coming in close proximity to each other, the link J pivoted to and straddling the free ends of the spring, a pivot-pin provided with a groove, a shoulder *e* on the link engaging said groove, and the lever K pivoted to the link on the under side of the spring and provided with a cam projection which when the lever is thrown back to snugly embrace the under side of the spring puts the free end of the spring under tension and forms a lock to hold the parts from accidental disengagement, substantially as described.

6. In a thill-coupling attachment, the combination of the spring I with both ends looped and its free ends coming in close proximity to each other, the link J pivoted to and straddling the free ends of the spring and provided with a shoulder *e*, and the lever K pivoted to the link on the under side of the spring and provided with a cam projection which when the lever is thrown back to snugly embrace the under side of the spring puts the free end of the spring under tension and forms a lock to hold the parts from accidental disengagement, substantially as described.

7. In a thill-coupling attachment, the combination of the spring I, with both ends looped and its free ends coming in close proximity to each other the lower of said ends being provided with the turned-back loop *a*, the link J having cross-bars *b c* the former of which is adapted to engage the loop *a* said link also having a projection or shoulder *e* and straddling

5 dling the forward end of the spring, and the lever K pivoted to the cross-bar *c* of the link on the under side of the spring and provided with a cam projection *d* which when the lever is thrown back to snugly embrace the under side of the spring puts the free end of the spring under tension and forms a lock to hold

the parts from accidental disengagement, substantially as described.

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