

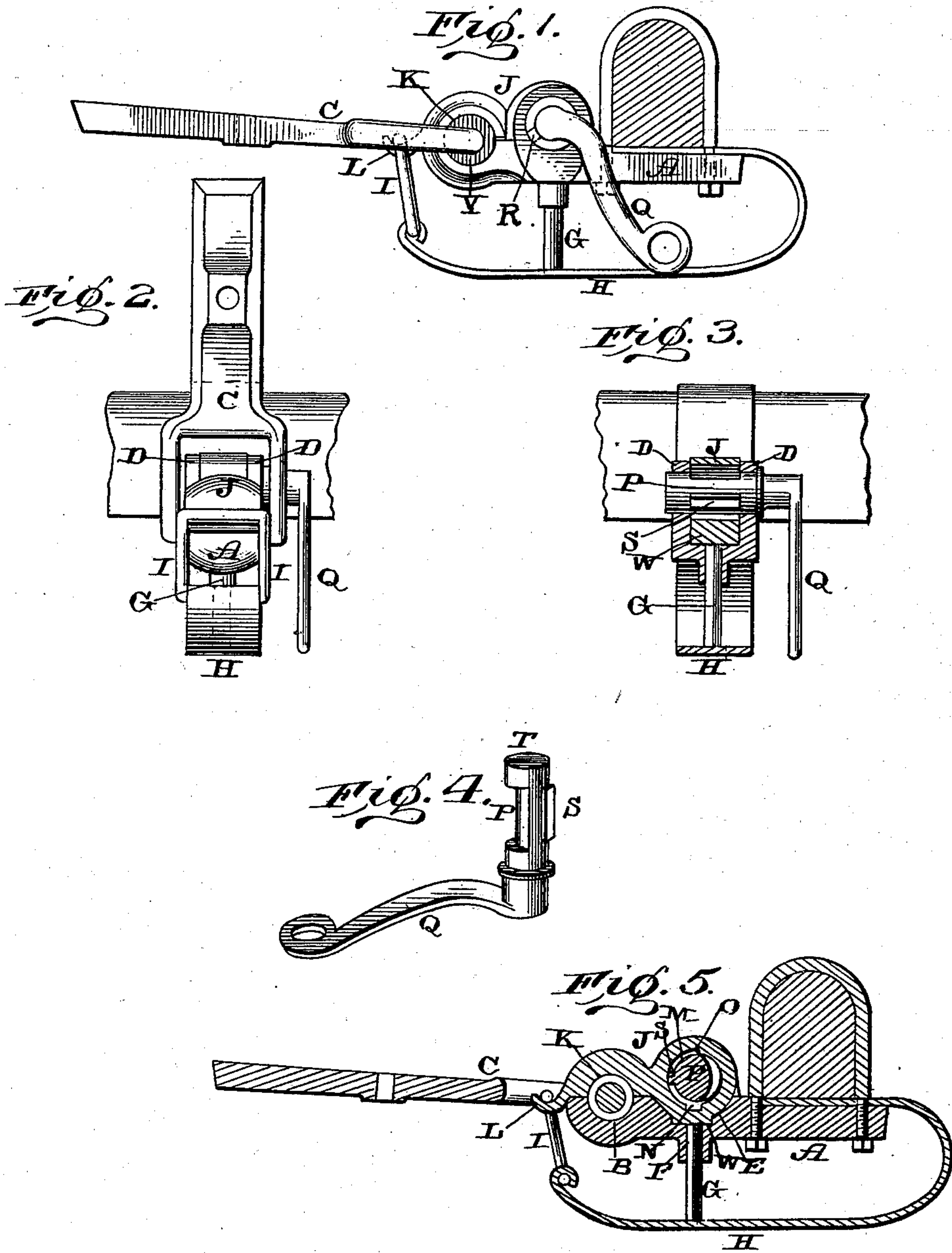
No. 654,704.

Patented July 31, 1900.

H. J. BIERHART.  
THILL COUPLING.

(Application filed June 5, 1900.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 654,704, dated July 31, 1900.

Application filed June 5, 1900. Serial No. 19,116. (No model.)

*To all whom it may concern:*

Be it known that I, HERMAN J. BIERHART, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, 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 an improvement in thill-couplings, and has for its object to provide a coupling which will prevent rattling while the vehicle is in motion, which cannot possibly become accidentally detached, and in which there are no bolts to work loose and become lost.

My invention consists in the bar which forms the lower part of the clip and which projects forwardly in front of the axle and a spring secured to the rear end of the bar by the clip, combined with an eye loosely attached to the front end of the spring, an operating-lever provided with a cam or eccentric, and a cap which catches over the top of the thill and secures it to the bar and which cap is provided with a hook at its front end for engagement with the spring and an eye or opening through its rear end and through which the cam or eccentric passes.

It still further consists in a bar secured to the under side of the axle by the clip, a spring secured to the rear end of the bar and provided with an eye at its front end, and an operating-lever provided with a cam or eccentric, combined with a cap provided with an eye at its rear end and through which the cam or eccentric extends and a projection on its under side for engaging with the upper end of a rod or pin, which is forced downwardly by the cap when the lever is turned into a locking position, so as to force the rod down against the spring, and thus regulate its tension, all of which will be more fully described hereinafter.

In the accompanying drawings, which illustrate my invention, Figure 1 is a side elevation of my invention complete. Fig. 2 is an end view showing the thill-iron in a raised position. Fig. 3 is a vertical section taken at right angles to Fig. 1 through the eye of the cap. Fig. 4 is a detached view of the oper-

ating-lever. Fig. 5 is a vertical longitudinal section taken through the coupling.

A represents the bar, which is applied to the lower side of the axle and held in position by the clip. The front end of this bar projects forwardly any desired distance in front of the axle and has a socket B formed in its front end to receive one-half of the thill-iron C in the usual manner. Formed upon the top of this bar, just in advance of the front side of the axle, are two perforated ears D, and in between these two ears is formed the recess E. Through the bottom of the bar, extending from the bottom of this recess E, is formed an opening F, through which extends the vertical rod G, which has its lower end to bear upon the spring H. This spring is secured to the rear end of the bar by one of the bolts of the clips, and it is curved downwardly and forwardly, as shown in Fig. 1, and turned up slightly at its front end, and to this front end is loosely connected the eye I, which catches over the hooked front end of the cap J. This cap J is provided with a socket K in its under side, so as to catch over the top of the rear end of the thill-iron, and is provided with a hook L at its front end, over which the eye I, connected to the front end of the spring, catches. The rear end of the cap has a circular opening M made therethrough, and through the bottom of this opening is made the horizontal groove N, and upon the opposite side of the eye is formed the shoulder or stop O. The rear end of this cap fits between the two ears D, and through the opening in the ears and the opening in the cap the operating cam or eccentric P of the operating-lever Q passes. One of the ears also has a groove R formed through its lower rear edge, which allows the passage of the fin on the eccentric when inserting same in place. The fin or flange S prevents any lateral movement of the eccentric, which can only be removed when the fin meets the groove R.

The operating-lever Q may either be of the shape here shown or any other that may be preferred and has its inner end turned at right angles, and this end is cut away or grooved, so as to form the cam or eccentric P. On the opposite side from the cam or eccentric P is formed the fin or flange S, while the extreme inner end T forms simply a bearing



which catches in the ear on the opposite side of the bar A, through which the lever is inserted. Upon inserting this cam or eccentric the fin or flange S passes through the groove R in the ear D upon the side of the bar from which the lever is inserted, and this flange then bears against the inner side of the opening M through the cap. When the lever has its operating end turned backward toward the axle, this fin or flange engages with the socket N in the eye M and locks the cap and lever rigidly in position. When the front end of the operating-lever is turned forwardly in about a horizontal position, this fin or flange leaves the cap free to be opened to allow the thill-iron to be inserted into or removed from position. Also formed through the opening M of the cap on the opposite side from the shoulder or stop O is a groove or seat N the size of the fin or flange S. The eye M is made considerably larger than the cam or eccentric P, and when the cap is depressed or locked by turning of eccentric the fin or flange S upon the eccentric P catches in this groove N, the rear end of cap being normally held in a slightly-raised position by the upward pressure of the spring upon the rod G and the downward pressure on the hooked forward portion of the cap. Thus when the eccentric is turned to lock or depress the cap, the fin S gradually depresses the rear end of the cap and finally snaps into the groove N, thus firmly locking the cap and lever. The squared lower end W of the cap being snugly seated in a corresponding socket E, the cap would still be locked even if the loop should become detached from the forward end of same. Upon the outer lower side of the inner end of the cap is formed a shoulder or projection W, which fits in the bottom of the recess E when the cap is in a closed position, and which shoulder or projection strikes against the upper end of the rod G, which extends down through the opening F in the bar A, and which rod has its lower end supported by the spring H. When the cap is closed and locked in position, this shoulder or projection bears down upon the head of the rod and tightens the hold of the spring upon the front end of the cap. When the locking-lever is turned forwardly, the eye or opening M through the rear end of the cap being considerably larger than the cam or eccentric, the cap can raise sufficiently to allow this shoulder or projection to rise out of the seat or socket E, and thus the pressure of the rod is taken from the spring and the eye I can be readily freed from the front end L of the cap.

The rear end of the thill-iron is provided with a washer or covering of leather or other suitable material Y, which serves to prevent the thill-iron from rattling while the vehicle is in motion. The tension of the spring holds the cap tightly down upon this thill-iron, and as the washer or leather Y also catches against the outer sides of the rod and cap the thill-iron is prevented from moving laterally at the same time by the turned-up ends of the washer.

Having thus described my invention, I claim—

1. In a thill-iron, a bar secured to the axle, and a spring secured to this bar at one end, combined with a cap upon which the spring exerts its tension for holding it closed, the thill-iron, an operating-lever for locking and unlocking the cap, and a rod operated by the cap, and which bears at one end against the spring for the purpose of increasing its tension upon the cap, substantially as shown.

2. In a thill-coupling, the iron bar secured to the axle by the clip, and which bar is provided with perforated ears, and has a socket in its front end to receive the thill-iron, combined with an operating-lever having a cam or eccentric, the cap having an opening through its rear end to receive the cam or eccentric, a socket to catch over the thill-iron, and means for engagement upon its front end with the spring, the operating-lever being provided with a fin or flange and a groove formed upon the inner side of the eye or opening through its inner end, substantially as described.

3. In a thill-coupling, the bar which is secured to the under side of the axle by the clip, and which is provided with a socket at its front end to receive the thill-iron, the ears, and the socket or recess E formed between the ears, and having an opening through it extending from the bottom of the recess, the spring secured to the bar at one end and provided with an eye at its front end, combined with the cap having an opening through its rear end, and a shoulder or stop inside of the opening, and a shoulder or projection W formed upon its lower side, the operating-lever provided with a cam or eccentric, and the thill-iron; the parts being arranged and combined to operate, substantially as set forth.

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

HERMAN J. BIERHART.

Witnesses:

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