(No Model.)

T. L. McKEEN.

CAR COUPLING.

No. 539,287. Patented May 14, 1895.

Fig. 1.

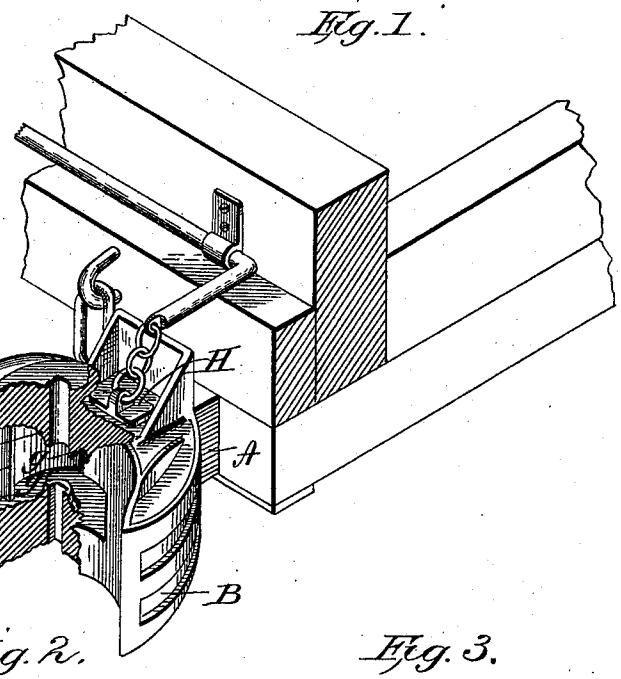


Fig. 5.

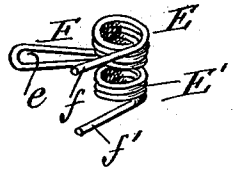


Fig. 2.

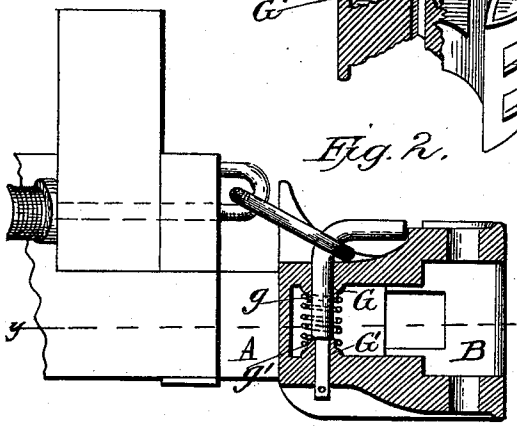


Fig. 3.

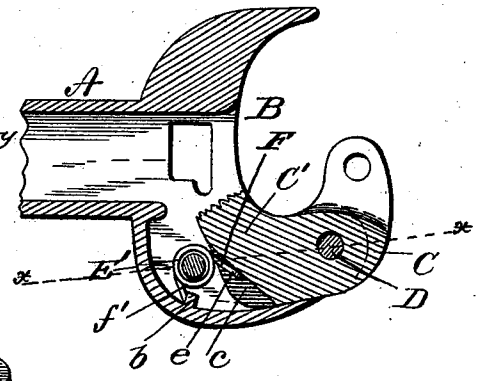
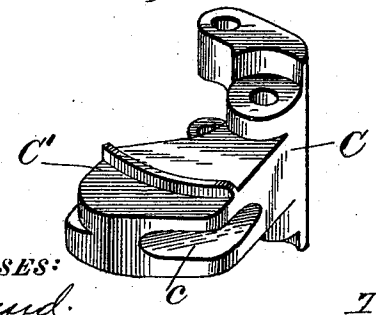


Fig. 4.



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

UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 539,287, dated May 14, 1895.

Application filed March 9, 1895. Serial No. 541,166. (No model.)

To all whom it may concern:

Be it known that I, THOMAS L. McKEEN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of the draw-head of a car-coupling embodying my improvement, the knuckle having been removed and part of the body of the draw-head broken away. Fig. 2 is a sectional view through the draw-head recess on the vertical plane indicated by the broken line marked *x x* in Fig. 3. Fig. 3 is a sectional view through the draw-head on the horizontal plane indicated by the broken line marked *y y* in Fig. 2. Fig. 4 is a detail view of the rear end of the pivoted knuckle, showing the recessed or grooved tail which engages the free end of the knuckle-spring; and Fig. 5 is a detail view of said knuckle-spring removed from the draw-head recess into which it is inserted and within which it works.

Like letters of reference designate corresponding parts in all the figures.

My invention relates to car-couplings of the so-called "Master Car Builders'" pattern, provided with a so-called "knuckle," pivoted in a recess within the drawhead and provided with a tail, working within the recessed drawhead, while the opposite end of the knuckle, or lip, projects beyond the recess, and is adapted to engage or interlock with the corresponding lip of another drawhead of the same pattern appertaining to another car. Some couplings of this type are provided with springs for automatically adjusting the knuckle in its position for coupling; and my invention consists in an improved construction of this spring; in the manner of fastening it within the recess of the drawhead; and in its combination with the recessed draw-head and the grooved tail of the knuckle; substantially as will be hereinafter more fully described and claimed.

On the accompanying drawings, the reference-letter A denotes the drawbar, and B the drawhead of one of my improved couplings; the knuckle, C, of which is pivoted, as usual, upon a stout fulcrum-pin, D.

On referring to Fig. 4, it will be seen that the tail, C′, of this knuckle is provided with a groove or recess, *c*, adapted to receive the lip, *e*, of a spring, of the peculiar construction illustrated in Fig. 5. By reference to this figure, it will be seen that the spring is made by twisting and bending a piece of properly annealed spring-wire into two coils, viz: an upper coil, E, and the lower coil, E′, leaving the ends of each coil to project at the top and bottom, as shown at *f* and *f′*, respectively; while the middle part, between the spring-coils, E and E′, forms a tongue, F, terminating in the lip, *e*, which, as we have seen, is adapted to fit within the groove, *c*, in the tail of the knuckle, after the knuckle has been pivoted in its recess in the drawhead, in its working position illustrated on Fig. 3 of the drawings. This peculiarly-constructed spring is placed within the recess of the drawhead, in the chamber back of the knuckle, and may be held in place by a bolt or pin inserted vertically through the coils, E and E′, and through registering apertures in the top and bottom of the drawhead. I prefer, however, to fasten the spring by the means illustrated more clearly in Fig. 2; *i. e.*, I cast the drawhead with two interior bosses in vertical alignment with each other, viz: an upper boss, G, and a lower boss, G′; each of these bosses having an offset or annular shoulder, as shown at *g* and *g′*, respectively. By compressing the spring vertically, it may readily be inserted into the drawhead recess from the front side, placing it between the two bosses, G and G′; and by then releasing the vertical pressure, the spring will expand vertically so that its upper coil, E, will slip up upon the offset or shoulder, *g*, while the lower coil, E′, will simultaneously and similarly be seated upon the lower offset, *g′*. In other words, the two bosses, G and G′, with their reduced ends, *g* and *g′*, will form seats for the centrally in-

serted spring, the tongue of which, F, will then be in position to bear against the free end of the knuckle-tail, with its lip, *e*, projecting into the groove, *c*, in the tail. In order to maintain the spring in this proper operative position, and prevent its free arms or ends, *f* and *f'*, from being in the way, by displacement of the spring upon its seat, I cast the interior of the drawhead with a rib or web, *b*, projecting from the inner wall of the drawhead-recess, one on side of the seat-bosses, G G', so that the free ends of the spring-arms, *f* and *f'*, may be inserted in the recess formed back of this vertical web, *b*, as illustrated in Fig. 3. In this simple manner, the spring may be secured firmly in its proper operative position within the drawhead recess, and yet in such a manner that it can be easily and instantly removed for repairs, or if it is desired, at any time, to substitute a new spring. The spring itself can be made at very small expense from ordinary spring-wire, and will be found, owing to its peculiar construction, not only to retain its elasticity for a very long time and under all circumstances; but it will be found durable in an extraordinary degree, so that it is not liable to be snapped or broken, however violent the concussion may be to which the drawhead-knuckle may be subjected.

The gravity-latch, shown at H, and other operative parts of the coupling, form no part of my present improvement, and may be of any desired construction, according to the particular style of knuckle-coupling to which my improved spring is to be applied.

On the drawings, I have shown a coupling of the "Thurmond" style, of the "Master Car Builders'" pattern; but it will be obvious that my improvement is applicable to, and may advantageously be applied to, all knuckle-couplings of the same general pattern, involving the combination with a recessed drawhead of a spring-actuated self-coupling knuckle.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a knuckle coupling, the combination with the recessed drawhead formed with a rib or web *b*, and the knuckle formed with a recess *c*, of the duplex or double coiled spring comprising the two coils E and E', connected by the intermediate tongue F and terminating at opposite ends in laterally projecting arms *f*, *f'*, and the pin passing through said coils and through registering apertures in the drawhead, substantially as described.

2. In a knuckle coupling, the combination with the recessed drawhead formed with a rib or web *b*, and the knuckle formed with a recess *c*, of the duplex or double coiled spring comprising the two coils E and E', connected by the intermediate tongue F and terminating at opposite ends in laterally projecting arms *f* and *f'*, substantially as described.

3. The combination with a pivoted knuckle having a grooved tail, C', of the recessed drawhead cast with the interior spring-seats, G G', terminating in reduced ends or shoulders, *g g'*, and provided with the vertical rib or web, *b;* and duplex spring comprising the wire-coils, E E', intermediate tongue, F, terminating in the rounded lip, *e*, and laterally-projecting parallel arms, *f f';* substantially as and for the purpose shown and set forth.

4. The recessed drawhead, B, cast with the interior opposite bosses, G and G', of the shape shown and described, in vertical alignment with each other; and with the vertical laterally-projecting rib or web, *b;* substantially as and for the purpose herein shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

THOMAS L. McKEEN.

Witnesses:
J. H. REILLY,
JOHN A. PORCHER.