

Patented Jan. 29, 1884.

[illegible]

**FIG. 4.**

FIG. 5

A diagram of a screw thread on a cylindrical surface. The thread is represented by a series of parallel lines. The pitch is labeled  $f$  and the lead is labeled  $f'$ . The diagram also shows the thread profile on the front and back views, labeled  $G$ ,  $G'$ ,  $H$ , and  $H'$ .

**FIG. 5.**

**FIG. 6.**

A diagram showing a cross-section of a beam with a diagonal crack. The crack is labeled  $I'$  and  $I$ . The beam is labeled  $B$ . The crack is labeled  $i$  and  $b$ . The crack is labeled  $I'$  and  $I$ .

**FIG. 4.**

**FIG. 8.**

**FIG. 9.**

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# UNITED STATES PATENT OFFICE.

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PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 292,564, dated January 29, 1884.

Application filed January 27, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES G. McCORMICK, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention comprises sundry improvements in those car-couplings whose draw-heads are adapted to rotate on the draw-bars in such a manner as to cause a pair of jaws or hooks of one head to interlock with the jaws or hooks of the adjacent head.

The first part of my invention consists in providing the housing of the coupling with reversely-inclined bearings, which bearings, in connection with a block having reversely-inclined guides, serve to preserve the draw-head in a perfectly level position, and yet allow it to rise or fall, so as to automatically adjust itself to correspond with the adjacent head, said leveling-block being traversed transversely by the draw-bar, as hereinafter more fully described.

The second part of my invention consists in attaching a bar to the draw-head neck, the outer end of said bar being adapted to engage with a peculiarly-constructed hanger depending from the car, the arrangement of this bar and hanger being such as to allow the head to act automatically, or to lock said head either in its open or closed position, as hereinafter more fully described.

The third part of my invention consists in passing the inner portion of the draw-bar through a fulcrum-block whose ends or trunnions play in slots in the housings, so as to permit the proper vertical oscillation of said bar, the buffer-spring being interposed between this fulcrum-bearing and the leveling-block, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a sectionized elevation of a pair of disengaged car-couplings. Fig. 2 is a sectionized plan of the same, the draw-heads being interlocked with each other. Fig. 3 is an enlarged horizontal section through one of the heads. Fig. 4 is a perspective view of the self-leveling block.

Fig. 5 is an elevation of portions of the two opposite sides of the housing. Fig. 6 is a section of the hanger and the outer end of the rod that operates the draw-head. Fig. 7 is an enlarged front elevation of said hanger, the web of the rod being sectioned. Fig. 8 is a vertical section of the hanger, the rod being locked thereto. Fig. 9 is a horizontal section of the hanger.

A A' represent portions of the platforms of two cars, said platforms having secured to them coupling-housings consisting of side plates, B B', and end plates, C, the latter being slotted at *c*, to permit vertical play of the draw-bar. Side plates, B B', are slotted longitudinally at *b b'*, which slots are rounded at their inner ends to receive the semi-cylindrical journals or trunnions *d d'* of a fulcrum-block, D, this block being bored transversely to permit free play of the draw-bar E.

*e* is a pin driven down through a groove in the rear side of block D, and thence through the bar E.

*e'* is another pin, driven into a horizontal groove, *f*, of another block, F, and then through the bar E. Block F, as seen in Fig. 4, is bored transversely at *f'* to permit free play of bar E, and is provided at one end with two reversely-inclined guides, G G', and at the opposite end with another pair of reversely-inclined guides, H H'. These guides G G' H H' ride, respectively, on the reversely-inclined bearings I I' and J J' of the side plates, B B', which bearings are situated at the front ends of openings *i j* in said plates, the other slots, *b b'*, communicating with these openings, as more clearly seen in Fig. 5.

K is the buffer-spring surrounding that portion of the draw-bar E situated between the blocks D and F. The outer end of this bar terminates with an annular flange or collar, L, that secures the draw-head N in position, said head having two jaws or hooks, *n*, whose front ends are chamfered off at *n'* to afford a flaring mouth. Furthermore, the head has a long rearward extension or neck, O, that bears against the pin *e'*, a lug, *o*, of this neck serving for the attachment of a rod, P, the outer end of which terminates with a handle or pull, *p*, projecting from a disk, R, as seen in Fig. 6.



S is a flat vertical web connecting the disk R with another one, s, of somewhat less diameter, said web being adapted to slide up and down within the slot *t* of hanger J, which latter depends from the car and near one side of the same. Slot *t* communicates with a circular eye, *t'*, of said hanger, to the inner side of which latter is applied a washer, U, adapted to play vertically, but restrained from lateral play by side lugs or ears, *u u'*, as more clearly seen in Figs. 7 and 9. Washer U is retained in place by a spring, V, coiled around the rod P and bearing against a fixed collar, *p'*, of said rod, which latter plays freely in a central hole of said washer.

When my coupling is at rest, the spring K exerts its pressure against the two blocks D and F, and as the guides G G' H H' of the latter bear against the reversed inclined planes I I' J J', it is evident these devices G G' H H' I I' J J' serve to centralize the bar E within the housings B B'. Consequently the draw-bar is normally maintained in a horizontal position, but is free to be shifted either up or down, as will presently appear. The free end of rod P being now shifted upwardly, its disk *s* is drawn into the eye *t* of hanger T on account of spring V exerting its pressure against washer U *u u'* and collar *p'*, as represented in Fig. 6. Furthermore, this stress of spring V maintains the draw-head N *n n'* in the erect position seen in Fig. 1, while at the same time the spring will compress and allow the rod P to shift a sufficient distance to permit said head to turn on the bar E in the act of coupling. The spring also holds the heads in their coupled condition.

If the car A should be lower than the car A', it is evident that when the two are brought together the upper chamfer *n'* of the head attached to car A will come in contact with the lower chamfer *n'* of the head of the other car, A', and therefore the two draw-bars will so swing by the aid of their fulcrum-blocks D *d d'* as to assume a proper position for the interlocking of the jaws or hooks *n n'*, the pins *e* causing said blocks to move in unison with the bars. Furthermore, this provision of the fulcrum-blocks enables the draw-bars to maintain their proper horizontal position, no matter how much vertical vibration the cars may be subjected to. If it should be desired to lock the heads in their coupled condition, it can readily be done by simply forcing the web S of rod P down into the slot *t* of hanger T, as seen in Fig. 7, when the disks R *s* will then bear, respectively, against the front and rear of said hanger, and thereby prevent the rod P shifting in either direction.

To uncouple the cars, the rod P is elevated until the web S occupies an axial position within the eye *t'*, and the handle *p* is pulled, so as to draw said web and its disk *s* out of the eye, as seen in Fig. 9, which act turns the draw-head and disengages its hooks *n n'* from the hooks of the opposite head. To lock the head in its open position, the rod P is now pushed down to cause its disk *s* to bear against the outer face of hanger T, as seen in Fig. 8. It will thus be seen that the devices seen in Figs. 6, 7, 8, and 9 can be used either for allowing the heads to couple automatically or for locking said heads either in their open or closed conditions. By providing the head N with the elongated bearing or neck O, said head is always preserved in its proper axial position with reference to the draw-bar E, and is not liable to sag down either to the right or left. Again, by coupling this head directly to the draw-bar E the full strength of the latter is made use of, the extended collar of which, L, sustains all the pull of the train.

In Figs. 2 and 3 the heads are shown provided with circular openings, to admit an ordinary pin when it becomes necessary to couple to a car having an old-fashioned link-connection.

I claim as my invention—

1. In combination with the housings B B' of a car-coupling, having reversely-inclined bearings I I' J J', the self-leveling block F *f*, provided with reversely-inclined guides G G' H H', and traversed by the draw-bar E, as and for the purpose herein described.

2. The combination, in a car-coupling, of housings B B', reversely-inclined bearings I I' J J', self-leveling block F *f* G' G' H H', slots *b b'*, fulcrum-block D *d d'*, draw-bar E, and spring K, which spring preserves both of said blocks in their proper positions, as herein described.

3. The combination, in a car-coupling, of draw-bar E and the fulcrum-block D, which latter is provided with journals *d d'*, that play in the slots *b b'* of the housings B B', as herein described.

4. The combination of rod P *p*, fixed collar *p'*, disks R *s*, web S, hanger T *t t'*, washer U, and spring V, which rod P is attached to the draw-head *n n'*, as and for the purpose specified.

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

CHARLES G. McCORMICK.

Witnesses:

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