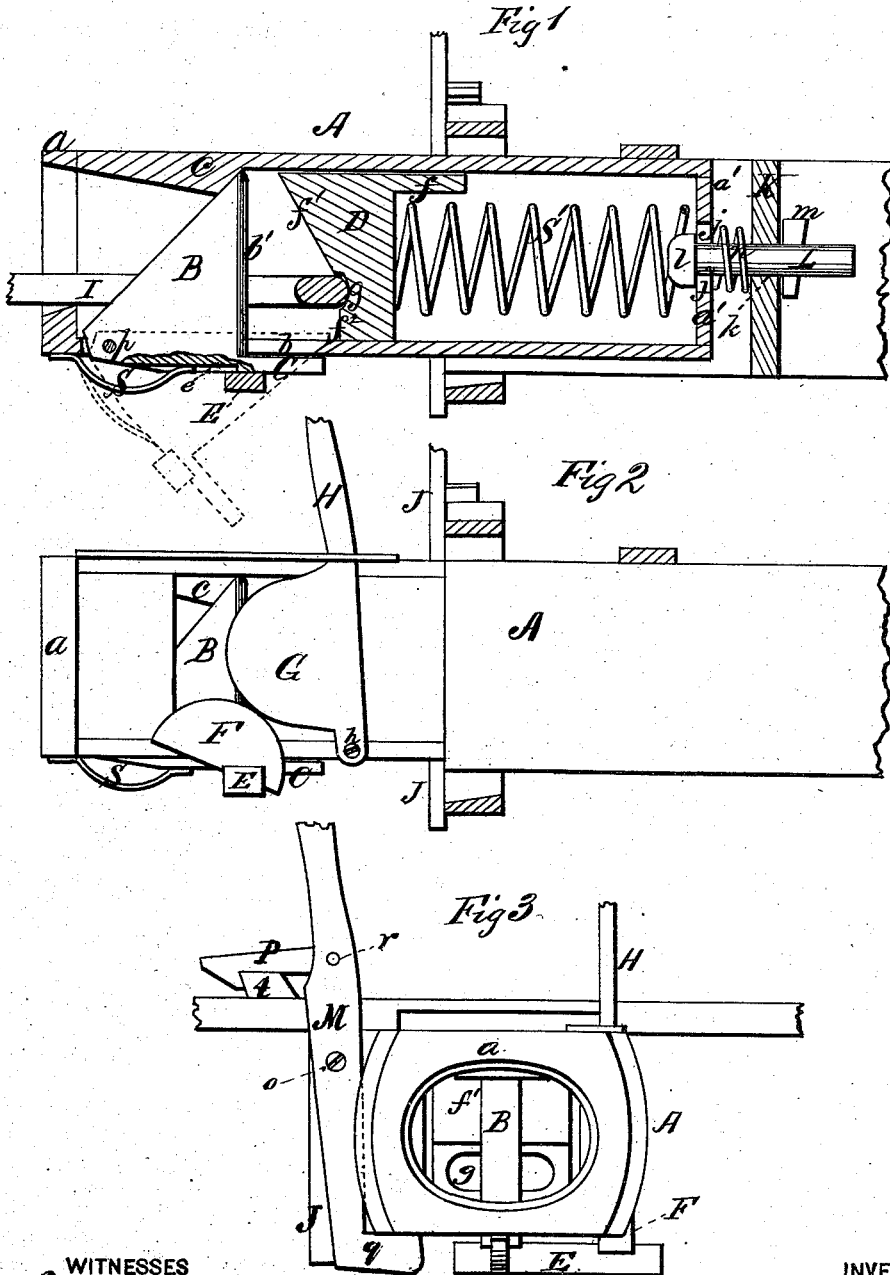


D. BOWER.
Car-Coupling.

No. 161,096.

Patented March 23, 1875.



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IMPROVEMENT IN CAR-COUPINGS.

Specification forming part of Letters Patent No. 161,096, dated March 23, 1875; application filed January 16, 1875.

To all whom it may concern:

Be it known that I, DAVID BOWER, of Lebanon, in the county of Lebanon and State of Pennsylvania, have invented a new and valuable Improvement in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical section of my car-coupler. Fig. 2 is a side view of the same, and Fig. 3 is an end view.

This invention has relation to car-couplers which operate automatically to effect a coupling; and the nature of the invention consists in the combination of the parts, as will be hereinafter more fully set forth.

In the annexed drawings, A designates a hollow draw-bar, preferably of rectangular form, and provided with the usual well-known slotted bunter or face-plate *a*, in connection with which I propose to show the construction, application, and mode of operation of my improved coupler and uncoupler. B designates a vertically-vibrating angular coupler, arranged in the front portion of draw-bar A, pivoted at its lower front angle to the floor of the same, and playing freely through a longitudinal slot, *b*, cut in the floor of the said draw-bar, as shown in Fig. 1. The upper end of this coupler abuts against a shoulder, *c*, forming a part of the ceiling of the chamber of the draw-bar A, and is thereby braced and prevented from being drawn outward when subjected to strain, and its rear edge *b'* is designed to be vertical, or nearly so, to the floor of the draw-bar, the said edge being preferably rounding, as shown in Fig. 1. C designates a projection extending rearwardly from the lower edge of coupler B beyond the rear wall of slot *b*, and resting, when the said coupler is in position, against the under surface of the draw-bar, as shown in Fig. 2. By means of shoulder *c* and projection C the pivot *p* of coupler B is relieved of all strain, and its function is reduced to preventing the said coupler from falling through slot *b*, and to allowing it to vibrate freely thereon for the purpose effecting a coup-

ling and uncoupling. S designates a metallic spring of suitable strength, rigidly secured at its front end to the corresponding end of the draw-bar, extending thence rearwardly under coupler B, engaging with which it is prevented from lateral displacement by means of a groove, *e*, in its lower edge. This spring serves to hold the angular coupler up into the draw-bar shown in Fig. 2; also to cause, by its reaction, the return of the same to this position when it has been vibrated downward in the act of effecting a coupling or an uncoupling. D indicates an endwise-movable and, preferably, metallic block, arranged within the hollow of the draw-bar in rear of the coupler, and S' a suitable helical spring, arranged in the rear of the said block, and bearing against the rear wall of the draw-bar, as shown in Fig. 1. The upper rear edge of this block is provided with a flange, *f*, for the purpose of guiding block D in its movements in the draw-bar, and its front surface *f'* inclined downwardly and rearwardly, a notch, *g*, being cut transversely across its front at the angle of junction of the said incline with the lower straight part *f''* of the front of the said block, for a purpose hereinafter explained. E designates a bar rigidly secured to the lower edge of coupler B, in a position transverse thereto, and extending beyond the lateral walls of the draw-bar, as shown in Fig. 3, where it is provided with a cam, F, the same being rigidly secured thereto in any suitable manner. This cam is adapted to be borne down upon by a second cam, G, forming a part of a vertically-vibrating lever, H, which is pivoted at *h*, to the lower lateral edge of draw-bar A, as shown in Fig. 2.

When two cars to be coupled are brought together, a coupling-link, I, being arranged in one of their draw-bars with its end engaged in notch *g* of endwise-movable block D for the purpose of holding it in a horizontal position, the free end of this link will be directed against the upwardly-inclined face of vibrating coupler B, whence it will be guided upward against the downwardly-inclined lower surface of shoulder *c*, causing the coupler B to vibrate backwardly, thereby allowing the end of the said link to penetrate into the interior of the draw-head against the incline *f* of movable block D. The approximation of the cars still

continuing, block D will be forced back into the draw-bar until coupler B assumes the position shown in dotted lines, Fig. 1, when the reaction of the spring S will force it up through the slot of the link into the position shown in Fig. 1, the link itself being directed downwardly, by incline *f* of block D, to an engagement with notch *g*. To effect an uncoupling, the power end of lever H is thrust downward, thereby forcing its cam against that upon bar E, thereby causing the coupler to vibrate downwardly into the position shown in dotted lines, Fig. 1, and allowing the cars to be separated.

With a view to adapting my improved draw-bar to be used in cars of different heights from the ground, I have devised the following: The draw-bar A is supported by means of a rectangular frame, J, of the same width as, but of greater vertical height than, the draw-bar, so that it is allowed a degree of vertical play in the said frame, which frame depends from the body of the car. The rear wall or end *a'* of the draw-bar is hinged to a beam, K, rigidly secured in any suitable manner to the framework of the car by means of a strong bolt, L, having an enlarged head, *l*, which bolt is passed through a slot, *j*, cut in rear wall *a'* of the draw-bar, into a perforation, *k*, of beam K, where it is secured by means of a key, *m*, a helical spring, *n*, being arranged between the end of the draw-bar and the beam

K upon bolt L, for the purpose of softening the shock of two cars coming in contact. Draw-bar A is raised or lowered by means of an angular lever, M, pivoted at *o* to the end of the car, with its end *q* extending under and across the lower surface of the draw-bar, so that when the power end of the said lever is thrust down such actuation will raise the draw-bar; and when a pawl, P, pivoted at *r* to lever M, is disengaged from a rack, *t*, upon the end of the car, the said draw-bar will be lowered, thereby adapting it to be used in connection with cars of varying altitudes from the ground.

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

1. The pivoted coupler B, provided with the transverse bar E and the spring S, in combination with cam-lever G and cam F attached to the transverse bar E, substantially as described.

2. The combination, with a draw-bar, A, having slot *b* and shoulder *c*, of the vertically-vibrating coupler B, having projection C, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DAVID BOWER.

Witnesses:

A. STANLY ULRICH,
SAM. H. BENTZ.