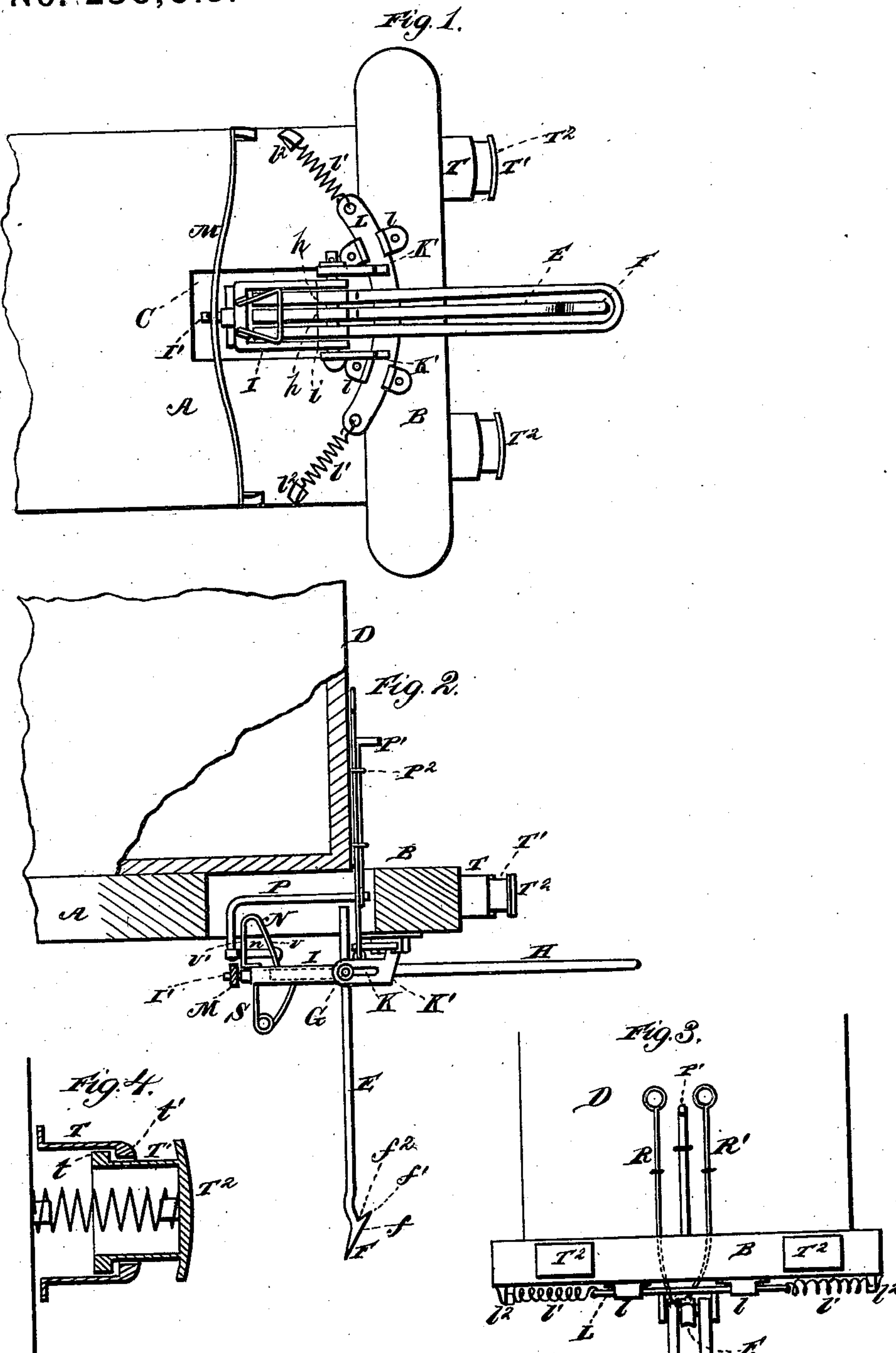


(No Model.)

C. R. HOWARD.
Car Coupling.

No. 230,015.

Patented July 13, 1880.



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CYRUS R. HOWARD, OF HUNTINGDON, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 230,015, dated July 13, 1880.

Application filed June 1, 1880. (No model.)

To all whom it may concern:

Be it known that I, CYRUS R. HOWARD, of Huntingdon, in the county of Huntingdon and State of Pennsylvania, have invented certain
5 new and useful Improvements in Car-Couplers; 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
10 a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a bottom view of my car-coupler. Fig. 2 is a longitudinal sectional view. Fig. 3 is a front
15 view, and Fig. 4 is a sectional detail view.

My invention, which relates to car-couplings, consists in the features of construction and combination hereinafter fully described, and particularly pointed out in the claims.

20 In the drawings, A designates the draft-timber of a car, and B a cross-bar which is secured to the forward end of the draft-timber.

A mortise, C, is made through the draft-timber at its forward end, and upon the upper
25 side of the draft-timber is secured the car-front D, the purpose of which will be presently explained.

In place of the ordinary coupling-pin I employ a coupling-bar, E, which is formed with
30 a triangular-shaped end, F, the base or longest side f of which is at an angle to the said bar, so that a link in striking against this side, which constitutes a guide, will be guided thereby, and thus readily slide up and over
35 the point f' , and then drop into the notch f'' , which is formed by reason of this enlarged triangular-shaped end of the rod. The rod E is fulcrumed upon a pin, G, upon which is also fulcrumed a link, H, consisting of a rod
40 bent so as to pass along the sides and around the forward end of the rod E. Both the rod E and the link H have hubs h , through which the pin G passes; and the said rod and link have also short arms, all of equal length, and
45 extending rearwardly from their respective hubs.

A rectangular three-sided frame, I, has hubs i , through which the pin G passes, the said frame being arranged to inclose the short
50 arms of the rod and link, as herein shown.

The ends of the pin G are arranged to work

in slots K of the plates or bearings K' , which are formed with or secured to a curved bar, L. This curved bar is arranged to slide in guides l , and to its ends are connected springs l' ,
55 which are also secured to brackets l'' on the under side of the draft-timber.

M represents a long spring-bar arranged across the under side of said draft-timber, and I' is a pin or bolt which connects the rear side
60 of the frame I with this spring.

N is a V-shaped spring-plate, which is secured by a flange to the frame I, so that while one side of this spring is held firmly to the frame its other side is free to be drawn toward
65 or to spring away from the side which is secured to the frame, as will be more fully illustrated farther on. A pin, n , is secured to the free side of this spring-plate, and this pin passes through an opening made in the side
70 of the V-shaped plate, which is fastened to the frame I. This pin works freely through this fastened side of the spring, and connects at its rear end with a bent rod, P, which extends forward and connects with a vertical
75 rod, P', by which it is operated.

The rod P' extends up alongside of a vertical face-plate of the car-front D, and passes through a guide, P², secured to said plate. The upper end of the rod P' has a suitable
80 handle, whereby it can be readily operated. Alongside of this rod P' are two rods, R R', which also pass through guides secured to said plate of the car-front, the rod R being connected at its lower end with the link H, and
85 the rod R' being connected at its lower end with the coupling-rod E.

To the under side of the frame I is secured a spring, S, which bears against the short arms of the coupling-rod E and the link H.
90

T T are boxes secured to the bar B, and T' are boxes arranged to work in the boxes T. The boxes T' have heads T² and shoulders t , and the outer boxes have shoulders t' , which, when the outer boxes are thrown out by the springs,
95 abut against the shoulders of the inner boxes. Coiled springs are arranged in the inner boxes, so that they will constitute elastic bumpers to obviate jars produced by two cars coming together.
100

The operation of the several parts of this coupler is as follows: When two cars are to

be coupled which are of the same height the coupling-bar will be in the position shown in the drawings in Fig. 1, but the link will be in a vertical position—that is, in a position similar to that of the bar E in Fig. 2—and the link on the opposite car will be in a horizontal position, as shown in Fig. 2, and will be passed over and caught by the triangular end of the coupling-bar. The coupling-bar is held in this position by the free side *v* of the V-shaped spring, which is upon one side of the frame I and the short arms of the bar and link, and it is likewise held by the spring S, which bears against the other sides of said bar and guard.

When the cars are of unequal heights, however, it may become necessary to elevate or depress the forward ends of the coupling-bar E and the link H of the opposite car. In order to depress them the brakeman first depresses the vertical rod P', which, in turn, actuates the rod P, so as to draw the pin *n* through the secured side *v'* of the V-shaped spring sufficiently to bring the side *v* toward the side *v'* and clear it from the link and coupling-rod, thereby allowing them to be vibrated upon the pin which passes through their hubs. In order to vibrate the coupling-rod and the link, or the coupling-rod alone, the brakeman operates the rods R R', or but one of them, as the case may be. By drawing the rods R R' upward with sufficient force to overcome the resistance of the spring S the forward ends of the coupling-rod and link will be raised.

While the train is in motion, or during the start, the spring M will prevent any breakage of parts from jars or shocks, and the slots in

the bearing-plates admit of free play of the pin which carries the link, coupling-rod, and the frame I. These last-named parts have also a sufficient side movement to prevent breakage by side jolts of the cars, by reason of the curved bar L, to which the slotted bearings K' of the pin G are secured, the return of said bar to its proper position after any side movement of the parts being insured by the resiliency of the springs U.

By this construction each car is provided with a link and coupling-bar, and there is no danger of either becoming detached or lost in ordinary use.

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

1. In a car-coupler, the combination of the coupling-bar E with the link H, frame I, and spring N, substantially as herein set forth.

2. In a car-coupler, the combination of the coupling-bar E with the link H, frame I, spring N, pin *n*, rod P, rod P', guide P², and rods R R', substantially as set forth.

3. A car-coupler provided with a vibrating coupling-bar having a triangular-shaped end, in combination with a vibratory link, H, a frame, I, and a curved bar with springs attached to its ends, as set forth.

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

CYRUS R. HOWARD.

Witnesses:

SEWELL H. STEWART,
J. OLIVER CUNNINGHAM.