

## Car-Coupling.

*Patented Jan. 7, 1868.*



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## IMPROVED CAR-COUPLING.

Specification forming part of Letters Patent No. 73,140, dated January 7, 1868.

*To all whom it may concern:*

Be it known that we, JACOB N. VANDEGRIFT, STEPHEN T. VANDEGRIFT, SMITH D. FRENCH, and ELIAS S. STONE, all of Wabash, in the county of Wabash and State of Indiana, have invented a new and useful Car-Coupler for Railroad-Cars, whereby cars may be self-coupled when brought together on the track, and whereby cars may be uncoupled at will, whether in motion or at rest, and whereby cars will be uncoupled when run off the track; and we 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, which make a part of this specification.

The cars are brought together and united by a link entering into bumpers, the link and the bumpers, in general form and connection with the car, being such as are in general use now.

Figure 3 represents the bumper, with the external parts attached, in perspective. Fig. 1 represents a longitudinal section of the bumper, the space embraced within the dotted lines *a, b, c, d, e,* and *f* being the cavity in which the external parts, C, D, E, and *t*, are adjusted and work. Fig. 2 represents a forked lever firmly fixed to the shoulder of the bumper, or the under side by the bolt L, on which it works. Fig. 4 represents the coupling-bolt, with its attachment, the attachment being fixed and kept in place by the pivot *f*, on which it tilts. Fig. 5 represents the head of the bumper, V W W being the cavity or mouth, the bottom of the cavity being an inverted ox-yoke, as shown in the diagram, so that when the link has entered the cavity it drops by its own gravity into the grooves W W, thus standing forward and horizontal.

The several parts, together with their construction and uses, are the following:

First. E, which is adjusted and tilts on the pivot *f*, consists of the coupling-bolt D at one end, which is attached and plays by the bolt or screw P, and at the other end fixed in it the frame H E, in which the small caster I revolves by the pivot H in the circular or disk end of the forked lever at O. By the tilting of E the coupling-bolt is raised or depressed.

Second. *b t* is a spring fixed into the bottom

of the cavity at *b c* and against E, so that when the coupling-bolt is depressed at P the spring will throw it up again.

Third. C, of the shape represented, with the notch *w* in it. It is fixed and tilts by the pivot *g*, working against the straight spring S, fixed on top of the bumper, by the bolt Q, so that when the coupling-link has entered the bumper, and passed the coupling-bolt D to its place in the notch *u*, the link will have room to play according to any irregular motion of the car. Its motion is limited by the spring S.

Fourth. The forked lever F G, having a hinge in it by and at the pivot *h*, so that the fork F can be moved up and down, but not laterally, and hanging down by its own weight when not in use. In the fork F a slot is made, into which a spring, in the shape of the letter U, is inserted at *i*, as shown in the drawing, Fig. 2, so that when the fork of the coupler of the car to be attached has been turned up past the spring *i i*, it will then rest on it. The other end of the forked lever is a disk, rising behind the shoulder of the bumper at G, and hollowed out between its two sides at O, forming inclined planes, on which the wheel I rises and falls as the lever turns on its pivot L to the right or to the left.

Fifth. The external compound lever, U m T, Fig. 3, the parts U m and m T of which are united to each other by the pivot *m*, the part U m being fixed to the bumper by the screw U, and the part m T being attached to E by the screw T, so that when the handle of the lever is drawn up the coupling-pin is forced down through the coupling-link, setting the link free. *k* is a button on the bumper, so that the lever will stop and stand at it. A rope or chain, R, is connected with the handle of the compound lever, and carried to the top of the car, where it is worked with a brake or otherwise.

In using our invention, it is supposed that this coupler is fixed on the bumper of each of the cars brought together or connected, and the operation then is as follows: For coupling, the link, resting in the grooves W W of one of the couples, and thus kept straight forward and horizontal, is pushed into the mouth of the other bumper till it strikes the beveled point of the coupling-pin. This force presses



down the coupling-pin, and the link passes into the notch *u*, when the coupling-pin springs up, and the link is now fast in the notch *u*, being prevented from drawing by the coupling-pin. For uncoupling at will, whether the train is in motion or at rest, it is necessary to draw upward the lever *U m T*, which may be done from the ground by hand, or from the top of the car by means of the rope or chain *R*. This draws down the coupling-bolt and sets the link free. For uncoupling, when either car is run off the track, it is necessary, after the cars have been first brought together and linked, to turn up one of the forks, *F*, of the forked lever, making the fork turned up straddle the other fork past the spring *i* till it rests on top of it. Now, so long as the cars follow each other on the rail, the forked lever is not moved; but as soon as the line of motion is suddenly broken, as by the car being thrown off or lopped down, the forked lever works sidewise by that motion, and by crowding the wheel *I* upon the inclined plane of the disk at large, *O*, depresses the coupling-pin and sets the link free.

We expressly disclaim any invention of the bumper, either in its shape or mode of attachment to the car, the link by which the cars are united, and all other matters not here specifically claimed.

We claim as our invention—

1. The method and means described for self-coupling cars of a railroad-train—to wit, by forcing the link held by the coupling-bolt of the bumper of one car up to and past the bev-

eled coupling-bolt *D* of the bumper of the other car, which coupling-bolt is fixed by a rivet, *P* *P*, to an attachment, *E*, which tilts as the coupling-bolt rises and falls, and which attachment is kept in place by the spring *b t*.

2. The method and means above described for uncoupling and detaching railroad-cars at will, whether the cars are in motion or at rest—viz., by the use of a cord or chain, *R*, in reach of the conductor, and attached to a compound lever, *U m T*, affixed at *U* to the side of the bumper, and at *T* to the attachment by which the coupling-bolt is raised or depressed, so that the coupling-bolt may be raised and depressed at will.

3. The method and means above described for uncoupling and detaching railroad-cars when run off the track—viz., by using corresponding couplers, as above described, on the bumpers of each car, and so that when the forked lever *F* of the bumper of one car rests on top of the spring *i* of the forked lever on the bumper of the other car, and, being moved laterally, pushes the wheel *I* at the end of the attachment of the coupling-bolt against the inclined planes *O* of the forked lever, the effect will be to depress the coupling-bolt and detach the cars.

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