(No Model.)

R. BIGNEY.

CAR COUPLING.

No. 275,880. Patented Apr. 17, 1883.

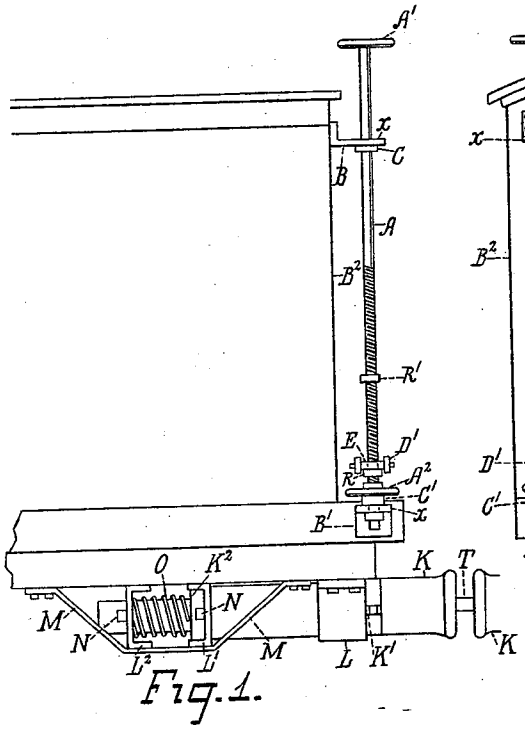


Fig. 1.

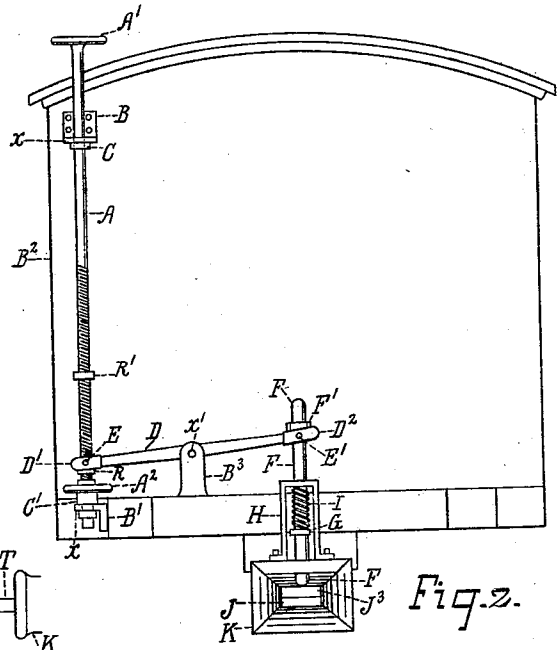


Fig. 2.

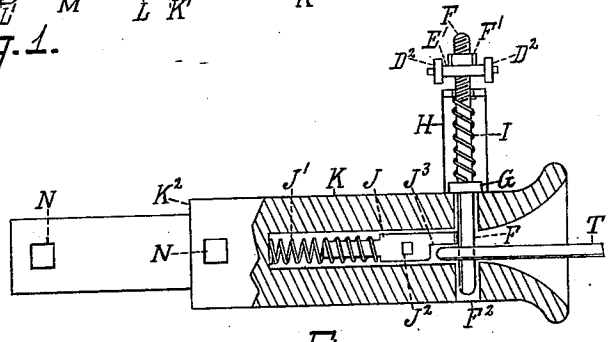


Fig. 3.

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UNITED STATES PATENT OFFICE.

ROBERT BIGNEY, OF COPLESTON, ONTARIO, CANADA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 275,880, dated April 17, 1883.

Application filed January 22, 1883. (No model.) Patented in Canada January 29, 1883, No. 16,214.

To all whom it may concern:

Be it known that I, ROBERT BIGNEY, engineer, a subject of the Queen of Great Britain, and a resident of Copleston, in the county of Lambton, in the Province of Ontario, Canada, have invented a new and useful Self-Coupler for Coupling Railroad-Cars together, of which the following is a specification.

This invention relates to a coupler for automatically coupling railroad-cars together, which is simple and durable in construction and reliable in operation, and one which can be adjusted and set instantly by the operator at the side or top of the car in such a manner that the cars will couple when they come together, or allow them to come together and part without coupling, as required, and, the operation of adjusting and setting the coupler to couple or uncouple being performed out from between the cars at the side or top, the operator is not exposed to any danger from accident of any kind whatever when adjusting and setting my improved coupler.

The construction and operation will be more particularly explained with reference to the accompanying drawings, wherein—

Figure 1 is a side elevation of part of a car, showing a side view of the draw-bar and adjusting-screw. Fig. 2 is an end view of a car, showing my improved coupler. Fig. 3 is a sectional view of the draw-bar.

A designates an upright adjusting-screw. A part of the stem of the screw A, near the upper and lower end, is plain, and turns free in the collars *x x* at the outer ends of the arms B B′, which are rigidly secured to the car B^2.

A′ A^2 are wheels rigidly secured on the screw A for the purpose of readily and easily turning the screw A, either to the right or left, as required, from the top or side of the car B^2.

C C′ are collars rigidly secured on the screw A, which prevent said screw from raising or lowering.

D is a lever fulcrumed on a pivot-bolt, *x′*, supported in a forked arm, B^3, rigidly secured to the car B^2. This lever D is provided with forked ends D′ D^2, and in the prongs of these forks D′ D^2 the collars E E′ are pivoted. The collar E is pivoted at two opposite sides in the prongs of the fork D′, and on the inner face of this collar E a screw-thread is cut, which engages with the thread on the screw A. By turning the screw A either to the right or left it raises or lowers the collar E, and with it the outer end, D′, of the lever D.

F is a coupling-pin the end of which projects through the collar E′, which is pivoted at two opposite sides in the prongs of the forked end D^2 of the lever D. On the upper end of this coupling-pin F a screw-thread is formed, with which a screw-nut, F′, engages and prevents the coupling-pin F from falling out of the collar E′ when raising the inner end, D^2, of the lever D.

G is a collar on the coupling-pin F, which regulates the distance that the coupling-pin F enters the pin-hole F^2 of the draw-bar K.

H is a guide rigidly secured to the draw-bar K, and is for the purpose of guiding and holding the coupling-pin F in an upright position.

I is a coil-spring encircling the coupling-pin F, which acts between the collar G on the coupling-pin F and the guide H to force the coupling-pin F down instantly when coupling.

J is a spring-bolt which is projected longitudinally in the draw-bar K by the spring J′.

J^2 is a key which projects through the bolt J. The ends of this key move back and forth in slots K′ in the sides of the draw-bar K, which allows the spring J′ to project the bolt J out only sufficient to bring the flange J^3 under the lower end of the coupling-pin F. The draw-bar K is supported under the car B^2 by the collars L L′ L^2, rigidly secured to the bed-frame of the car. The rigidity of the collars L′ L^2 is further secured by braces M M, the ends of which are rigidly secured to the bed-frame of the car B^2 at each side of the draw-bar.

N N are keys or bolts which project through the draw-bar K at the inner end, and engage with the collars L′ L^2 and prevent the draw-bar K from being drawn out from the collars L L′ L^2.

O is a coil-spring encircling the reduced inner end of the draw-bar K. This spring O acts between a shoulder, K^2, on the draw-bar K and the collar L^2, and diminishes the jar of the draw-bars K K when they strike together. When the coupling-pin F is in the position shown in Fig. 3 of annexed drawings in both the draw-bars K K the cars are coupled.

To uncouple the cars, turn the screw A to

the left, which lowers the collar E, and with it the outer end, D′, of the lever D, until the collar E comes in contact with the stop R, which raises the inner end, D^2, of the lever D, and with it the coupling-pin F. The lower end of the coupling-pin F is raised up clear above the coupling-link T to the position shown in Fig. 2 of annexed drawings, which allows the cars to separate. As this coupling-pin F is raised the coil-spring I is compressed between the shoulder G and guide H, and as the cars B^2 separate and the coupling-link T is drawn out the bolt J is projected outward by the spring J′ until the flange J^3 comes under the lower end of the coupling-pin F, the distance the bolt J is projected outward being regulated by the length of the slot K′ in the draw-bar K, in which the ends of the key J^2 move back and forth. If the coupling-pin F in one draw-bar K is adjusted as shown in Fig. 2 of annexed drawings, and the draw-bar K of the adjacent car as shown in Fig. 3, if these draw-bars K K were to strike together the link would enter the opposite draw-bar, but the cars would part again without coupling. As the coupling-link T is withdrawn the spring J′ would project the bolt J and flange J^3 under the lower end of the coupling-pin F.

If it is required to couple the draw-bar of the car in which the coupler is adjusted as shown in Fig. 2 to a car in which the coupler is adjusted as shown in Fig. 3 of annexed drawings, the screw A is turned to the right until the collar E is raised, and with it the outer end, D′, of the lever D, until the collar E comes in contact with the stop R′. This lowers the inner end, D^2, of the lever D, but not the coupling-pin F, as it remains stationary, the lower end resting on the flange J^3 of the bolt J. If a draw-bar K, with the coupling-pin F adjusted as shown in Fig. 3, were to strike this draw-bar when in this position, the thrust of the coupling-link T would force the bolt J back and release the coupling-pin F from the flange J^3, and the instant the coupling-pin F is released from the flange J^3 the coil-spring I shoots the coupling-pin F down instantly in the link T and couples the draw-bars K K of the cars together. The mouth of the draw-bar K is tapering, and is constructed in this manner for the purpose of guiding the coupling-link T in proper position under the coupling-pin F.

The flange J^3 of the bolt J not only supports the end of the coupling-pin F on its upper side, but the lower side of the flange J^3, resting on the end of the coupling-link T, retains it in a horizontal position directly opposite the mouth of the opposite draw-bar, so that the operator is not required to go in between the cars and enter the end of the coupling-link T in the mouth of the opposite draw-bar K when coupling the draw-bars K K of the cars together. These stops R R′ are provided with screw-threads on their inner faces, and are adjusted up and down on the screw-thread of the screw A for the purpose of regulating the distance to which the collar E and outer end of the lever D are to be raised or lowered to couple or uncouple the draw-bars.

Having thus described my invention, I claim—

1. The combination of the adjusting-screw A, provided with wheels A′ A^2 and collars C C′, arms B B′, lever D, collars E E′, stops R R′, arm B^3, coupling-pin F, provided with shoulder G, nut F′, spring I, guide H, draw-bar K, provided with slots K′, spring J′, and spring-bolt J, provided with flange J^3, and key J^2, constructed substantially as shown and described, and for the purpose specified.

2. The combination of the draw-bar K, keys N N, collars L L′ L^2, coil-spring O, and braces M M, constructed substantially as shown and described, and for the purpose specified.

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

ROBERT BIGNEY.

Witnesses:
P. J. EDMUNDS,
A. EDMUNDS.