THOMAS RAY.

Improvement in Car-Couplers.

No. 115,104. Patented May 23, 1871.

Fig. 1

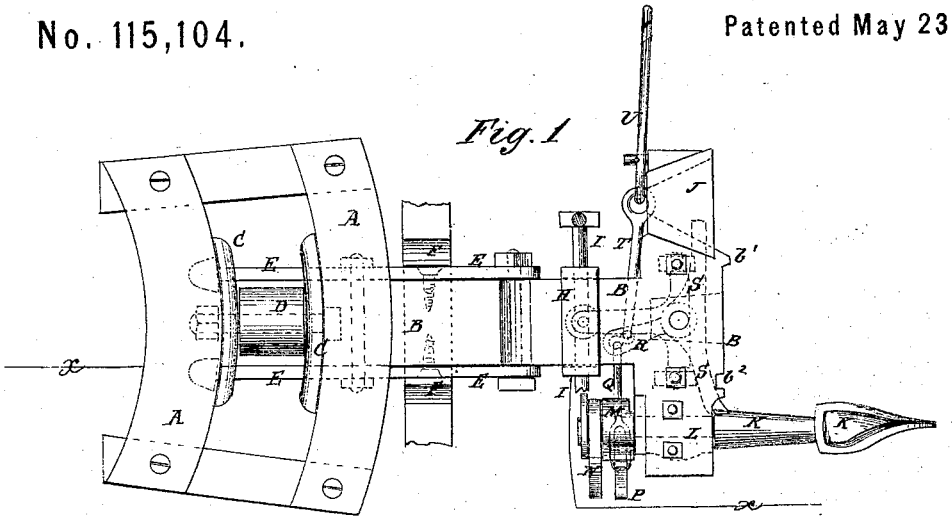


Fig. 2

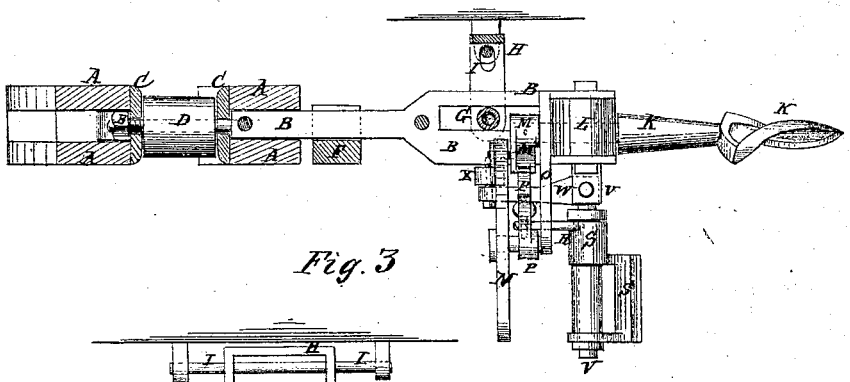


Fig. 3

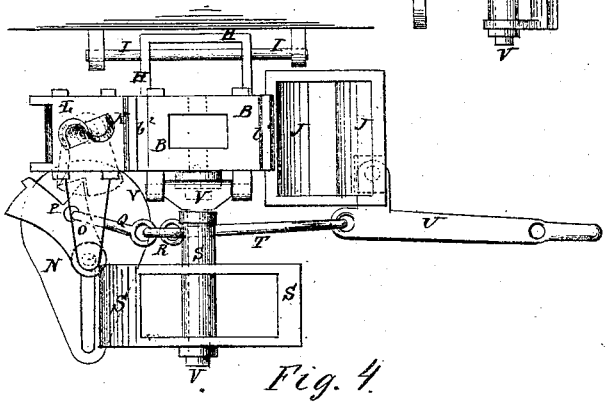
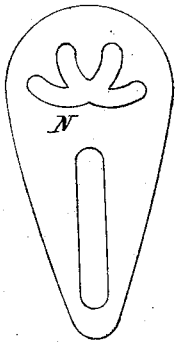


Fig. 4



Witnesses:

A. W. Almqvist

L. S. Mabee

Inventor:

T. Ray

Per Munn & Co

Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS RAY, OF PELHAM, CANADA.

IMPROVEMENT IN CAR-COUPLERS.

Specification forming part of Letters Patent No. 115,104, dated May 23, 1871.

To all whom it may concern:

Be it known that I, THOMAS RAY, of Pelham, in the county of Welland, Province of Ontario and Dominion of Canada, have invented a new and useful Improvement in Self-Acting Car-Coupling; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 is a top view of my improved car-coupling. Fig. 2 is a side view of the same, partly in section, through the line *x x*, Fig. 1. Fig. 3 is a front view of the same. Fig. 4 is a detail view of the cam-weight.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved car-coupling, which shall be so constructed and arranged as to be self-coupling when the cars are run together, which may be easily and conveniently uncoupled from the platform or top of the cars, even when under a great draft strain, and which will always remain over the center of the track, even when the train may be passing around the sharpest curves; and it consists in the construction and combination of the various parts of the coupling, as hereinafter more fully described.

A are two pairs of curved bars, which are securely bolted to the car-body. The bars A of each pair are held at such a distance apart as to receive the rear end of the buffer-bar B between them by the interposition of blocks or bars. The bars A are curved upon the arc of true circles, having a common center at the pivot-bolt of the car-truck. C are curved plates, through which the rear end of the buffer-bar B passes, one of said curved plates C resting against the forward edges of the rear pair of curved bars A. D is a rubber or other spring, placed upon the rear part of the buffer-bar B between the curved plates C. E are the draw-bars, which have heads formed upon their rear ends, which pass through the curved plates C, and the forward parts of which are securely bolted to the side edges of the buffer-bar B. F is a guide or keeper attached to the truck-frame, and between the end flanges of which the buffer-bar B passes, so that as the trucks turn in passing around a curve they may carry the buffer-bar B with them, so that the coupling will be always kept over the center of the track. The forward part of the buffer-bar B is slotted longitudinally to receive the roller G, through which passes the bolt that connects the lower ends or arms of the stirrup H, through the upper part of which the long rod or bolt I passes, the ends of which are secured to the frame of the car-body by eyebolts or other equivalent means, so that by raising and lowering the said bolts the forward end of the buffer-bar B may be raised and lowered as may be required. This construction supports the forward part of the coupling, and at the same time allows it to move freely laterally and longitudinally, as may be necessary in drawing or pushing the cars, or in passing around curves. Upon one side of the face of the buffer B is formed a flange, b^1, and upon the other side is formed a groove, b^2, which correspond with a corresponding groove and flange in the buffer of the adjacent car, and which serve to break the oscillations of the cars. The central part of the face of the buffer B is recessed, and the said buffer has a vertical hole formed through it to receive an ordinary coupling-link and pin, so that a car with my improved coupling attached to it may be coupled with a car having the ordinary coupling when necessary. To one side of the forward end of the buffer-bar B, or to a boxing attached to said buffer, is attached a box, J, the sides of which are inclined or hopper-shaped, so as to leave a narrow vertical opening or slot between their rear edges to receive the coupling-screw, the rear edges of said inclined sides or plates being beveled off to correspond with the bevel or inclination of the shoulders of the coupling-screw that sustains the draft. If desired, the inclined sides of the coupling-box J may be faced with detachable steel plates. K is the coupling-screw, which is made with two threads or flanges, each flange making a quarter of a turn, as shown in Figs. 1, 2, and 3, the bases or rear ends of the said flanges or threads terminating in inclined shoulders, as shown in Fig. 2. The shank of the screw K is swiveled to a box or bearing, L, secured to the side of the buffer B opposite to the box J. Upon the rear end of the shank of the screw K is formed, or to it is attached, a block or crank, M, having a tooth or shoul-

der formed in its lower end to receive the dog, and to which is pivoted the cam-weight N, which should be of such a weight as always to bring the screw K, when left free, back into the proper position for coupling the cars and drawing them. The cam-weight N is pivoted to the block M by two bolts or pins, which pass through two semicircular slots in said cam-weight N, as shown in Fig. 4. The lower end of the cam-weight N is kept in its proper position and guided in its up-and-down movement by a pin or bolt formed upon or attached to an arm, O, projecting downward from the box L or boxing of the buffer B. P is the dog, which is pivoted to the pin or bolt of the arm O, and to its inner edge, or to a lug formed upon its inner edge, is pivoted the outer end of the bar Q, the inner end of which is pivoted to the short slotted arm R formed upon or rigidly attached to the hub of the wings S. To the slotted arm R is also pivoted the inner end of the bar T, the outer end of which is pivoted to the angle of the bent lever U, the end of the short arm of which is pivoted to a pivot attached to the box J. The long arm of the lever U may be provided with a rod or chain extending up to the platform or top of the car for convenience in operating said lever to uncouple the cars.

The long arm of the lever U should be made so heavy that its own weight, when released, will push back the dog P from the block or crank M, leaving the screw free to take its ordinary position when the cars have been run apart.

By this construction, as the cars are run together the point of the screw K of each car enters the slot between the inclined bars of the box J of the other car; the pressure of the said bars upon the sides of the flanges of the said screws K partially revolves the screws, so that the screws may pass through the said slot.

As the bases or shoulders of the flanges of the screws K pass between the bars J, the cam-weight N revolves the screws K back to their former positions, with their shoulders across the said slot and resting against the beveled edges of the bars J, ready to sustain the draft strain.

In uncoupling the cars the lever U of either car is raised. This brings the dog P against the block or crank M, which partially revolves the screw K, bringing the shoulders or bases of the flanges of the screw K into a line with the slot of the box J, the cam-weight N holding it there until the cars are run apart. At the same time the movement of the lever U partially rotates the wings S, which rest against the wings of the other car, which partially rotates them, and thus partially rotates the screw of the other car.

As the cars are drawn apart the pressure of the bars J upon the flanges of the screws K brings the said screws back into their former position, ready to again couple the cars as they are run together.

V is the spindle upon which the hub of the wings S work, upon the upper end of which is formed a cross-head, the ends of which are pivoted to lugs formed upon or attached to the under side of the buffer B. Upon the rear side of the cross-head of the spindle V is formed an arm, W, the rear end of which is connected with the under side of the buffer B by a bolt, a rubber block or other spring, X, being interposed between the said arm W and the said buffer-bar B to give the necessary yield to the wings S. This construction also enables the said wings to be conveniently adjusted as required.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the curved bars A, curved plates C, and keeper F with the buffer-bar B and draft-bars E, for connecting the coupling to the body and truck-frame of the car, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the roller G, stirrup H, and long rod or bolt I with the slotted forward part of the buffer-bar B, substantially as herein shown and described, and for the purpose set forth.

3. The flange b^1 and groove b^2 formed upon the opposite sides of the forward end or face of the buffer B, substantially as herein shown and described, and for the purpose set forth.

The above specification of my invention signed by me this 6th day of September, 1870.

THOMAS RAY.

Witnesses:

WM. P. RAY,

JAMES T. GRAHAM.