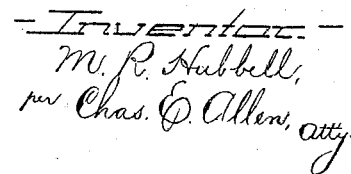


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UNITED STATES PATENT OFFICE.

MYRON R. HUBBELL, OF WOLCOTT, VERMONT.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 344,780, dated June 29, 1886.

Application filed November 21, 1885. Serial No. 183,548. (No model.)

To all whom it may concern:

Be it known that I, MYRON R. HUBBELL, a citizen of the United States, residing at Wolcott, in the county of Lamoille and State of Vermont, have invented certain new and useful Improvements in Automatic Car-Couplings, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in automatic car-couplers in which a double-mouth draw-head, with its respective bumpers, is employed, the links being so arranged that they are always in proper position for rapid reliable automatic coupling; and the objects of my invention are, first, to reduce to a minimum the dangerous effect of the lateral swaying motion, especially of loaded cars, by equally dividing the draft without causing any extra or undue strain on either of the coupling devices; second, to effectually prevent the cramping and kinking of the car-connection, particularly when they are violently thrown together on curves, by reason of the use of peculiarly-constructed side as well as central buffers; third, to prevent the loss of links, so often incidental to the use of pin-and-link couplings; fourth, to facilitate the operation of coupling by having the links always in position to connect with another draw-head of similar or even ordinary construction; fifth, to double the strength of the car-connection, and thereby promote the safety of trains, by the use of two links on a swiveled draw-head; sixth, to greatly reduce, if not wholly obviate, the dangers incident to coupling and uncoupling cars, and, seventh, by reason of its advantages over the ordinary coupling, its introduction and use would prove both convenient and profitable. I attain these objects by the mechanism illustrated in the accompanying drawings, in which similar letters indicate like parts.

In the drawings, Figure 1 is a vertical section of a car-coupling which embodies my invention. Fig. 2 is a plan view. Figs. 3, 4, 5, 6 are detail views.

A A' are two or double-mouth draw-heads rigidly connected together, so as to form practically a single one. They are so swiveled to the end of the draw-bar B, which is provided with suitable springs to sustain the force of

the direct bumping shock, that they are thereby also enabled to successfully withstand any side-pressure upon either of the draw-heads A A', by reason of the side buffers, C C', immediately in the rear of each of the draw-heads. Thus arranged, the objectionable effect of any swaying motion of the cars is avoided, and the liability of the cramping and kinking of the couplers on track-curves obviated, inasmuch as the corresponding inner buffers on the side toward the center of the curve of the road-bed receive and easily sustain the greater part of the increased pressure of the draw-heads, thereby preventing the cars from being forced outward on a line tangent to the curve, and thus off of the track, as is the tendency of the cars nearest the center of the train where central buffers only are employed, for the reason that on curves this portion of the train is thrown outward by the pressure of the cars at each end of the train in the direction of the center of the train. By the use of double buffers, also, the draft at all times is equally divided between the links, inasmuch as the draw-heads take the place of an evener to divide the pull, as well as to deaden the blow.

Each of the draw-heads is provided with a balance-weight, D, which swings on trunnions *d d* on its ends, which are designed to slide within vertical grooves or recesses in the sides of the interior of the draw-head. This weight naturally hangs so as to present a flat vertical face to the opening or mouth of the draw-head, its rear face being rounded to allow it to be partly rotated by the pressure against the lower or exposed portion of its front face of the end of the link E as it enters the draw-head.

b is a concaved recess, which extends transversely across its upper face and directly below the orifice *d'*, which is designed for the passage of the link-pin F of the draw-head. It is made to receive and support the lower extremity of the coupling-pin F when in position ready for coupling. At the bottom of its rear end is a pocket, *e*, with side grooves, *f f*, which extend diagonally upward toward the center and nearly to the top face of the balance-weight D. Into these grooves are inserted the trunnions of the latch or roller G, so that as the weight D is rotated by the pressure against it of the end of the link E as it

enters the draw-head A the upper or top face of the weight D becomes the front face, and the coupling-pin F, its bearing being removed, at once drops through the groove *b*, and also the link E, into the lower part of the orifice *d* in the under division of the draw-head, thus effectually and automatically coupling the cars together. At the same moment the tipping downward of the grooves *f f*, caused by the partial rotation of the weight D, allows the latch G to roll forward against the coupling-pin F. While the latch is in this position, should it be desired to disconnect the car when the train is stationary, and still allow the link to remain in the draw-head, ready to again perform its work without special adjustment, the pin F is raised sufficiently to allow the latch G to roll forward as far as the side grooves, *f f*, will permit, and thus automatically provide a seat for the lower end of the pin F until an additional pressure of the link of the car to be coupled against the weight D unseats the pin F, and allows it to fall through the link into the orifice *d* below, and thus complete the coupling of the cars. By this arrangement is removed all necessity of any person remaining by the car to hold the pin F in place until the cars are separated, and then readjusting the coupling-pin on the balance-weight D, inasmuch as the pin is left in position on the rolling latch, ready for coupling when so required, and the movement of the balance-weight D is in no way limited or restrained.

In the companion draw-head A' the coupling-pin F' is secured to the draw-head after being passed through its link E', so that the latter is always held in position for coupling with the corresponding draw-head of the adjacent car.

The coupling-pins F F' are connected by a cross-lever, H, so pivoted to their tops at *h h'* that by elevating the end of the lever which is pivoted to the movable pin F its link E is released. A similar movement of the cross-lever H' of the adjacent car uncouples the opposite end of the link E', and the two cars are at once disconnected.

The mechanism employed to raise the cross-levers H and H' of the adjacent cars, and thereby uncouple them, consists of a bifurcated support, I, which is secured to the ends of the car-platforms. It is made to project forward over the center of the double draw-heads A A'. Between the two forks of the support I is pivoted at *g* the spiral lever J, the outer edge of which is grooved to receive a cable or chain, one extremity of which is attached to the top of the spiral lever, and thence passing down and around the pulley K on the horizontal shaft L, it extends to the lower end, *h*, of the spiral lever, to which it is secured. The design of this mechanism is to project forward the lower end, *h*, of the spiral lever J, by revolving the fixed pulley K by means of cranks M on the ends of the shaft L at the sides of the car-platform. If preferred, the shaft L can be rotated from the top or end of the car by

means of a rod or chain in connection with suitable gearing.

O is a curved finger, which is so pivoted to the lower end, *h*, of the spiral lever J that when this end is projected forward to the face of the draw-heads the finger O extends beneath the cross-levers of the two adjacent cars. Continuing the rotation of the shaft L, the end *h* of the spiral lever J is elevated, raising with it the finger O, thereby lifting the free end of the cross-lever of the adjacent car, and thus raising the coupling-pin F', to which it is attached, out of its link E'. At the same time the inner extremity of the pivoted extension-piece *i*, which is made to project somewhat beyond the rear end of the finger O and lies in a slotted recess in the top of the finger, is brought in contact with the under side of the cross-lever H, thereby raising the free end of the cross-lever, and with it the coupling-pin F, from the link E. The links E E' being thus released by the raising of their respective coupling-pins, in the manner described, the operation of uncoupling is completed, and both links being held in a horizontal position, and both pins resting on their respective balance-weights, the draw-heads of each car are ready for again coupling automatically, as before. As soon as the grasp on the crank-handles is released, the spiral lever J at once returns to place, drawing in with it automatically the finger O, ready to be again extended for the operation of uncoupling when desired.

To enable the draw-heads A A' to couple with the ordinary single draw-head, a single link, P, is so pivoted within the recess *j*, between the draw-heads, that by projecting forward under the link P the sliding bar R on the lower side of the draw-bar B and double draw-heads the link R is raised to a horizontal position in front of the center of the double draw-heads, ready for coupling. The sliding bar R is operated by means of side levers, *r r*, pivoted to the under side of the car at *s s*, and connected with the inner end of the bar by a bolt, which passes through slots in their inner ends, and is rigidly attached to the rear end of the bar R. These levers are operated from the sides of the car-platform.

From the foregoing description the operation of the several parts of my invention, as well as different objects suggested and desired to be accomplished, will be readily understood.

It is evident that slight changes in the construction and relative arrangement of parts may be made without departing from the spirit of my invention, and hence I would have it understood that I do not restrict myself to the exact construction and arrangement of parts shown and described; but,

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

1. A car-coupling consisting of a double-mouth draw-head swiveled to the central

draw-bar and provided with side buffers, for the purpose of limiting the swaying motion of the cars and evening the draft, substantially as described.

5 2. In a car-coupling, the double draw-head A A', swiveled to the draw-bar B, in combination with the side buffers, C C', and coupling-pins F F', substantially as described, and for the purpose set forth.

10 3. In a car-coupling, the combination of the two side buffers, C C', the double-mouthed draw-head A A', and the draw-bar B, to which the draw-head is swiveled, substantially as set forth.

15 4. In a car-coupling, the combination of the draw heads A A', the balance-weight D, hung on trunnions *d d*, and having groove *b* in its upper face, the pocket E, and the diagonal grooves *f f* in the sides of the pockets, with
20 the latch G, balance-weight D, link E', and stationary coupling-pin F', the two pins being pivoted to cross-lever H, substantially as and for the purpose described.

5 5. The balance-weight D, having a vertical front face and a rounded rear face, and trunnions *d d*, and having a transverse recess in its top face, in the rear of which is the pocket *e*, in combination with the latch G, having trunnions adapted to roll in the side grooves, *f f*,
30 of the pocket *e*, substantially as described, and for the purpose set forth.

6. The roller-latch G, having end trunnions adapted to move readily in the diagonal side grooves, *f f*, of the pocket *e* in the recess *b* of
35 the balance-weight D, substantially as described, and for the purpose specified.

7. In a car-coupling, the coupling-pins F F', the latter being stationary, in combination with the cross-lever H, so pivoted to the upper extremities of the coupling-pins F F' as
40 to allow the movable pin F to be raised above the link, substantially as described.

8. The combination of a double-mouth car-coupling having the stationary link secured to one mouth of the draw-head with the cross-lever H, for the purpose of disconnecting the
45 link from the mouth of the draw-head, in

which the link is detachable, the lever H being attached in such a manner that it may be operated by another lever, which extends from
50 the adjacent car to the lever H, so that this lever may be operated from the adjacent car, substantially as shown.

9. In a double draw-head, the pivoted link P, in combination with the sliding bar R and
55 operating side levers, *r r*, for the purpose of raising the link in a horizontal position, ready for coupling, substantially as described.

10. In a car-coupler, the spiral lever J, pivoted to the bifurcated support I, so that its
60 lower extremity may be projected forward by rotating the pulley K, to which it is connected by an operating-cable on its outer or grooved edge, substantially as and for the purpose described.
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11. In a car-coupler, the spiral lever J, having pivoted to its lower extremity the curved finger O, with rear extension-piece, *i*, in combination with the support I, pulley K, operating cable-pulley shaft L, and cranks M N,
70 substantially as described, and for the purpose set forth.

12. The combination, with the double-mouth draw-head and the link permanently secured to one mouth of the draw-head, of the balance-weight D, substantially as shown.
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13. In a car-coupling having the double-mouth draw-head and the link permanently secured to one mouth thereof, the combination, with the other mouth of the same draw-head,
80 of the movable coupling-pin and swing-pin support, substantially as set forth.

14. In a car-coupling, the double-mouth draw-head swiveled centrally between the two points of draft attachment to the draw-bar,
85 for the purpose of dividing the draft between the two draft attachments, substantially as described.

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

MYRON R. HUBBELL.

Witnesses:

CHARLES E. ALLEN,
H. F. WOLCOTT.