

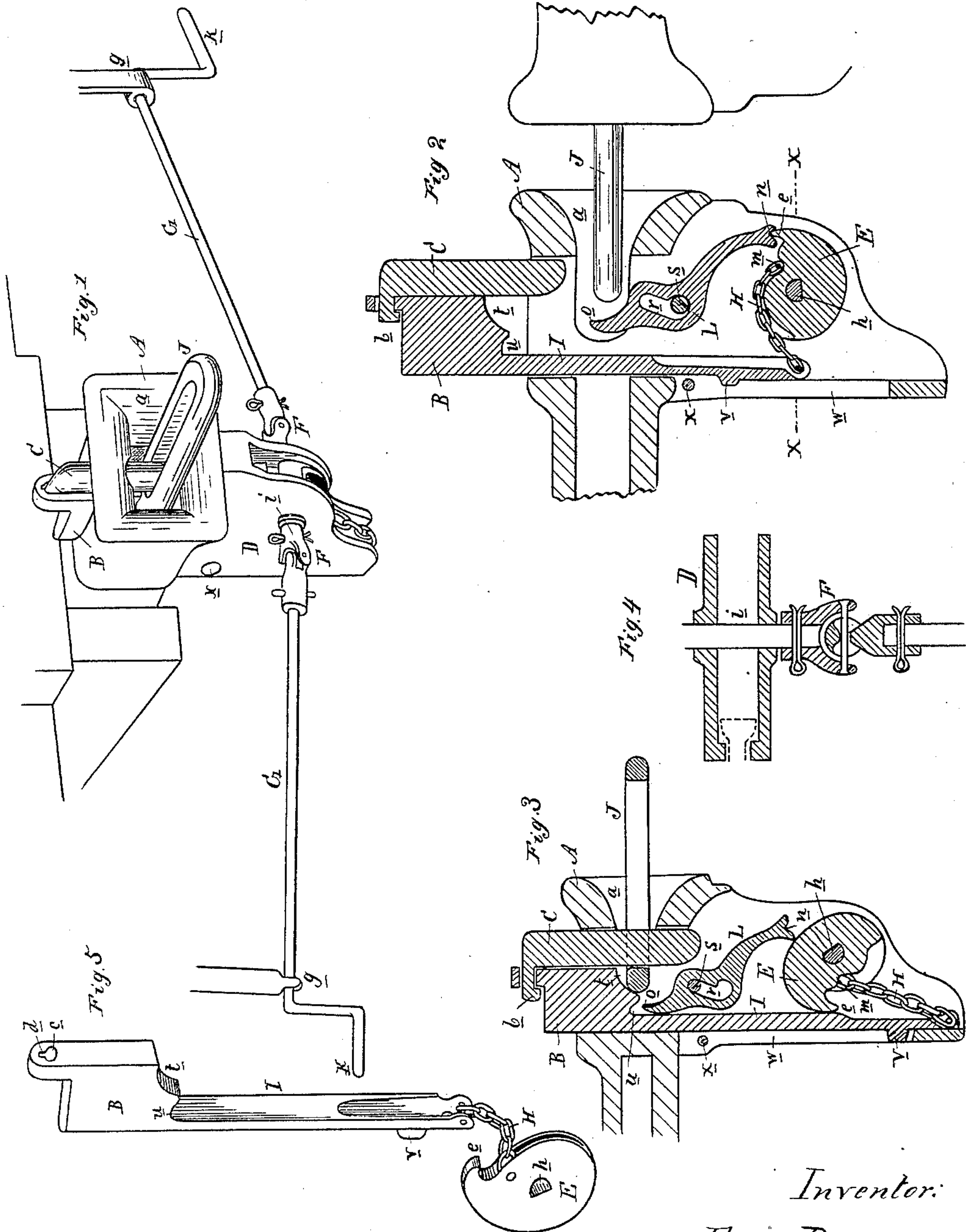
(No Model.)

E. RANSOM.

CAR COUPLING.

No. 325,114.

Patented Aug. 25, 1885.



Attest:  
John Schuman.  
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by his Att'y  
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# UNITED STATES PATENT OFFICE.

EZRA RANSOM, OF FLINT, MICHIGAN, ASSIGNOR OF ONE-HALF TO CHARLES M. PUTNAM, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 325,114, dated August 25, 1885.

Application filed June 4, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, EZRA RANSOM, of Flint, in the county of Genesee and State of Michigan, have invented new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in that class of car-coupling devices which may be termed "automatic" in their action, and which do not require, for the purposes of coupling, a yard-man to go between the cars for the purpose of guiding the link or dropping the pin, and which may be uncoupled from outside the line of the cars. The great desiderata required in a perfect device for this purpose are, first, certainty of coupling when the cars are brought together; second, certainty of uncoupling when desired by the operator standing outside the line of cars; third, certainty of remaining coupled when in operation, against all ordinary positions which the cars may assume upon rough roads; and, fourth, a certainty that the coupling device, when the cars are uncoupled, is always in position to secure certainty of coupling when they are brought together, and such an arrangement of the parts that no ordinary accident can prevent this latter action.

The invention consists in so constructing and arranging the various parts as to meet the above requirements, and in the peculiar construction of the parts and their combinations, as more fully hereinafter described.

Figure 1 is a perspective view of my improved device as attached to the end of a section of a freight-car. Fig. 2 is a vertical central longitudinal section through the device, as shown in Fig. 1, ready for coupling. Fig. 3 is a like view showing the coupling completed. Fig. 4 is a cross-section on the line  $x$  in Fig. 2. Fig. 5 is a detached perspective view of the pin-carrier and its attachments.

In the accompanying drawings, A represents a cast-iron draw-head, having the usual flaring mouth,  $a$ , and the usual vertical pin-hole in rear of the mouth, through which the pin passes to engage with the link, such parts be-

ing of the ordinary construction, except that the pin-hole is elongated to the rear, thereby forming a slot through the draw-head for the vertical operations of the pin-carrier B and pin C, the latter of which is removably secured to the former by means of the hooked-shaped pintle  $b$ , passing through a hole,  $c$ , having an elongation or slot,  $d$ , at its upper edge, through which the hook end of the pintle passes by raising the pin with its point upward until the engagement takes place, when the pin being left will fall to its vertical position with the point projecting downward, the hook end of the pintle then forming a lock to prevent accidental disengagement of the pin from its carrier. Should the pin at any time become broken, the broken one may be removed and a new one inserted without difficulty.

A box, D, to inclose the hereinafter-described operating parts, is cast integral with the draw-head and pendent below the same, or it may be made separately and secured to such draw-head in any convenient manner. This box has closed sides, as shown distinctly in Fig. 1, with an open front, such front conforming, for the purpose of saving weight, to the general conformation of the parts which it incloses.

E is a wheel, nearly round, having a hook,  $e$ , formed upon its periphery; and this wheel has a central aperture,  $h$ , which fits upon the rod  $i$ , which latter passes through and is journaled in the two sides of the suspended box D, and has its two ends connected, by what may be termed "universal joints" F, with the rods G, the outer ends of which are supported from the sill of the car in suitable journals,  $g$ , and terminate in crank-handles  $k$ , by means of which from outside the line of the cars the wheel E may be rotated at pleasure. Secured at  $m$  to the periphery of the wheel E is a chain, H, the other end of which is secured to the lower end of the bar I, of which the pin-carrier B forms the head.

It will be seen that so far as is above described the turning of either of the handles  $k$  in one direction will have a tendency, when the parts are in the position shown in Fig. 3, wherein the pin C is shown as being engaged



with the link J, to raise the pin-carrier and pin until the latter is disengaged from the link, as shown in Fig. 2. When in this latter-described position, if the pressure upon the  
 5 crank is removed, the weight of the pin and its carrier would reverse the motion of the wheel and allow the pin and carrier to drop back to the original position, as shown in Fig. 3. Therefore it is necessary, in order to  
 10 retain the position in Fig. 2, that some means shall be adopted for holding the carrier and its pin in such a position ready to engage again with the entering link J. This I accomplish by means of a dog, L, the lower end of  
 15 which is provided with a notch, *n*, and its upper end terminates in a latch-shaped projection *o*. This dog has an oblong slot, *r*, formed in it, which is somewhat L-shaped, as shown clearly in Fig. 3, and through this slot  
 20 and the sides of the box D a pin, *s*, passes, which supports the dog in place. This dog is so constructed that its lower end rests against the periphery of the wheel E when the cars are coupled or the device is in operation, as  
 25 shown in Fig. 3; but when the wheel E is rotated in a proper direction for uncoupling or raising the carrier and its pin the notched end of the dog will engage with the point or hook *e* upon the periphery of the wheel E,  
 30 and this changes the pivotal point of support from the upper end of the slot, as shown in Fig. 3, to near the central point of said slot, until the link J is withdrawn, when the pivot-point is further changed down to  
 35 the foot of the slot, thereby forming a lock which holds the dog in the position shown in Fig. 2, with its upper end presented forward and at some little distance from the rear end of the recess for the link, so that the entering  
 40 link striking this end of the dog forces it backward, releasing its lock upon the point *e* on the wheel, when the gravity or weight of the pin-carrier and pin forces them down and rotates the wheel in the opposite direction to  
 45 the point shown in Fig. 3. The pin-carrier is cut away, as shown at *t*, to form a curved face to partially embrace the end of the link when the cars are coupled, and this curvature is for two purposes—first, that of preserving, when  
 50 the link is in place, its level by the weight of the pin-carrier and pin, and, secondly, that if a great concussion is brought to bear upon the end of the link by two adjacent cars coming together with such great force as might  
 55 have a tendency to cause injury to the parts, the link has a tendency to travel along the rear curvature and raise the carrier with its pin sufficiently to prevent such injury. In the rear of this cut-away place in the pin-carrier head there is formed a recess, *u*, to receive and loosely embrace the upper end, *o*, of the dog, and this is made somewhat necessary in order to get the dog into its proper position and form a sufficient chamber in the rear of  
 60 the link when engaged to provide the necessary slack.

Although I do not consider it absolutely

necessary, still for the purpose of greater safety I provide a lug, *v*.

Upon the rear face of the arm I of the pin-carrier, which travels in a slot, *w*, in the rear wall of the box D, and near the top of such box, a pin, *x*, passes through the box, against which the lug will strike and prevent an accidental throwing up too far of the pin-carrier and its pin. Should it be necessary from  
 70 any cause to remove the pin C, this pin *x* is driven out, which allows the pin-carrier to be raised sufficiently far as to allow the pin S to be turned into its vertical opposite position  
 75 from that shown and disengaged from the carrier. This may be found necessary if by any accident the pin should be broken while the cars are in motion, in which case an ordinary pin may be employed for the coupling in order  
 80 to get the train to its terminal point, when a new pin may be procured and put in place.

In practice I have a little slack to the chain H when the parts are in either of the positions shown in Figs. 2 and 3, and this, with the cut-away part *t* of the carrier, enables me to use  
 90 a thicker or thinner link, the wear upon the curve *t* being compensated by a corresponding wear upon the chain and its connections, and the necessary slack in rear of the entered end  
 95 of the link allows the operator, by turning the cranks in the proper direction, to slightly raise the carrier and pin, which will allow the outer end of the link to drop to facilitate its entering the mouth of a draw-head upon an  
 100 adjacent and lower car.

When the link is entered and engaged with the pin, its end rests against the curve *t* in the carrier, and the weight of the carrier and pin resting upon the end of the link will hold the  
 105 same with sufficient force that the opposite end of the link entering the next draw-head will trip the dog in that draw-head and allow the pin to drop. It will be readily noticed that should such force exerted by the weight  
 110 of the pin and its connections be overcome by the impact with an adjoining car, such link will secure a proper slack by forcing, by back-pressure against such curve, the pin and its attachments to rise. It will also be noticed  
 115 that I have in this device all the slack necessary to allow the link to couple cars of unequal heights.

What I claim as my invention is—

1. In an automatic car-coupling device, a  
 120 pin-carrier actuated from without the line of the car to which the coupler is attached and having a coupling-pin removably secured thereto by a horizontal pivot, whereby said pin cannot be raised without raising the car-  
 125 rier, substantially as described.

2. In an automatic car-coupling device, a pin-carrier having a coupling-pin removably secured thereto and actuated for the purpose of uncoupling by means of a chain connecting  
 130 the lower end of said carrier with a wheel and its connections, as described, extending beyond the line of the car to which the coupler is attached, substantially as specified.



3. In an automatic car-coupling device, the combination of a rotating wheel, a chain connecting said wheel with the shank of a pin-carrier, a coupling-pin removably secured to the head of said carrier, and a coupling-link, the parts being constructed and arranged with relation to a draw-head, substantially as and for the purposes set forth.

4. As a means of uncoupling an automatic car-coupling device, the combination of the rotating wheel, a chain connecting said wheel to the shank of a pin-carrier, a coupling-pin removably secured to the head of such carrier, a shaft upon which the wheel is secured, such shaft being journaled in the sides of a pendent support from the draw-head, and the crank-rods secured to the ends of such shaft, the parts being constructed, arranged, and operating substantially as described.

5. In a car-coupling device constructed and operating substantially as described, the dog supported upon a pivot-pin passing through

an L-shaped slot in such dog, whereby a movable fulcrum is obtained as a means of locking the parts in position when not engaged in coupling cars together, and forming a trip actuated by the impact of the entering link, which compels the coupling by the gravity of the coupling-pin and its attachments, substantially as described.

6. In a car-coupling device, a pin-carrier having a lug upon its rear face, in combination with a removable stop-pin, substantially as and for the purposes specified.

7. A car-coupling device wherein the draw-bar A, the carrier B, pin C, pendent box D, wheel E, shaft i, chain H, crank-rods G, universal joints F, and dog L are constructed, combined, and operate substantially as and for the purposes set forth.

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Witnesses:

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