(No Model.)

D. L. RICHARDS.

CAR COUPLING.

No. 483,945. Patented Oct. 4, 1892.

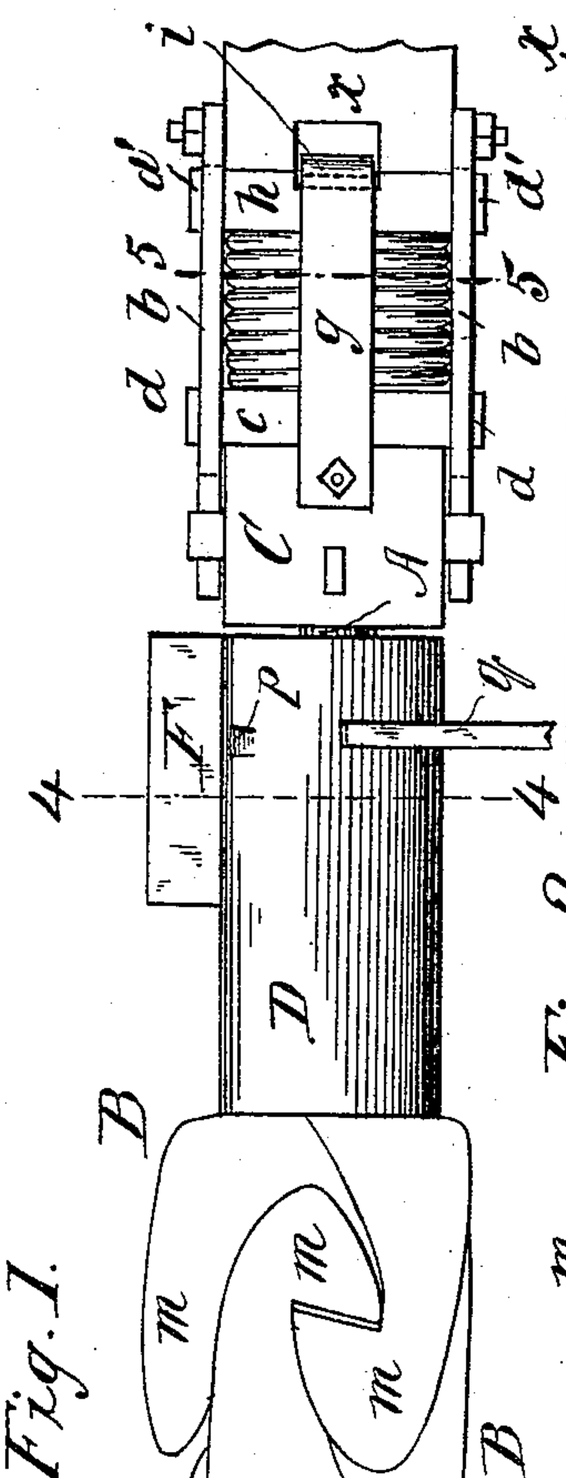

Fig. 1.

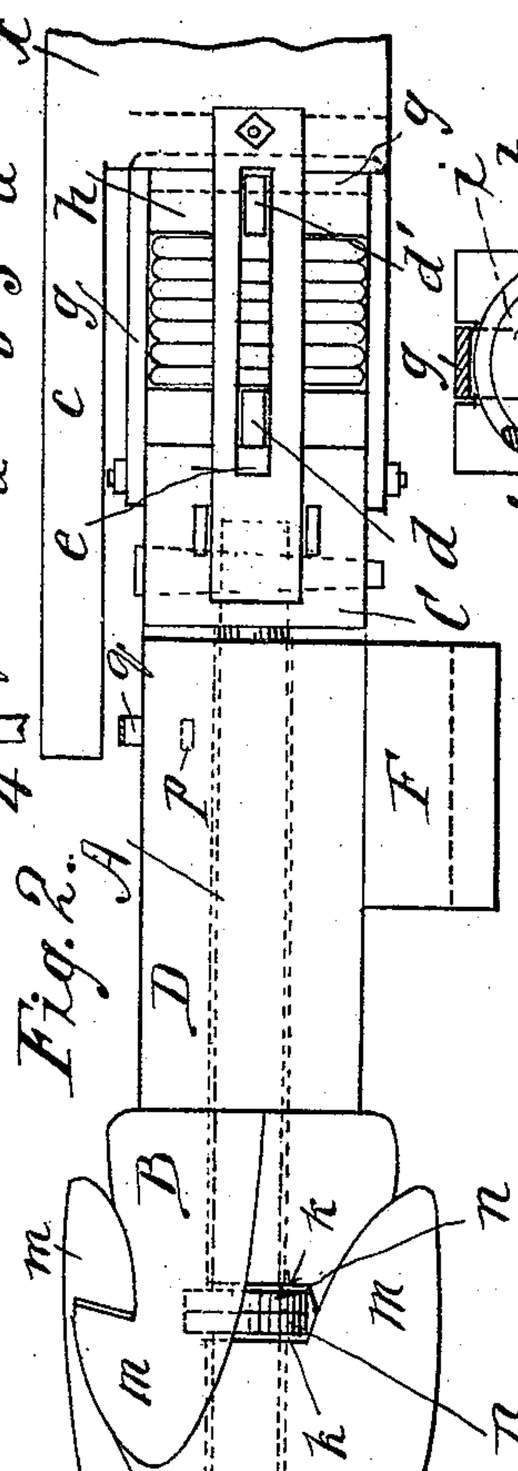

Fig. 2.

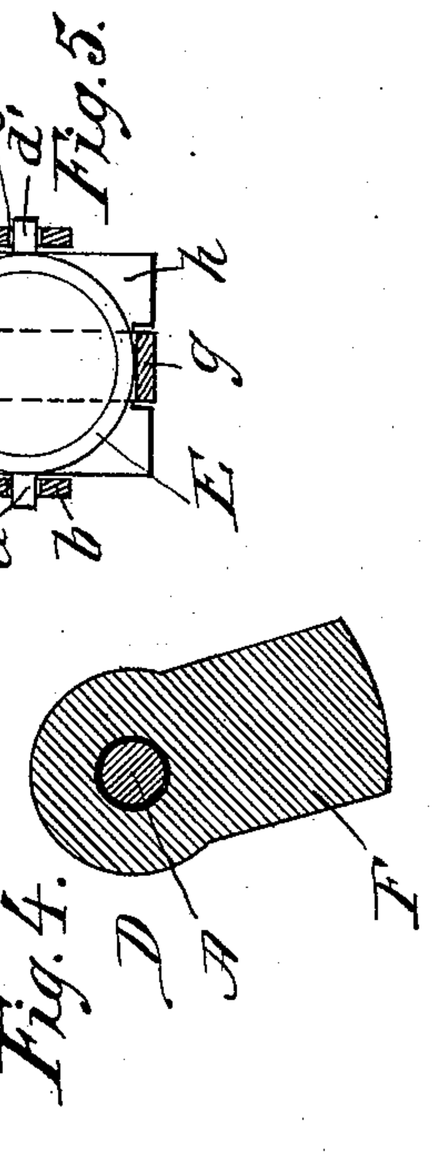

Fig. 5.

Fig. 4.

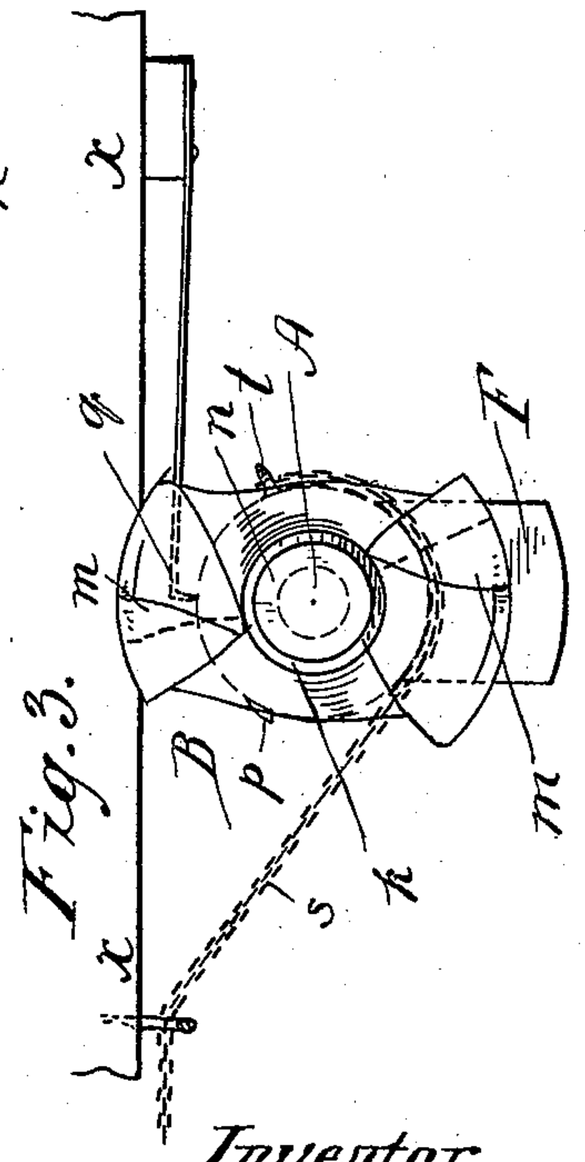

Fig. 3.

Witnesses:
Marion E. Brown.
Mary A. Stover.

Inventor,
David Lawson Richards
by his Attorneys
Brown Bros.

UNITED STATES PATENT OFFICE.

DAVID LAWSON RICHARDS, OF ST. JOHN, CANADA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 483,945, dated October 4, 1892.

Application filed March 23, 1891. Serial No. 386,114. (No model.)

To all whom it may concern:

Be it known that I, DAVID LAWSON RICHARDS, a subject of Her Majesty the Queen of Great Britain, and a resident of the city and county of St. John, in the Province of New Brunswick, Dominion of Canada, have invented certain new and useful Improvements in Automatic Car-Couplings, of which the following is a full, clear, and exact description.

This invention relates to car-couplings of that class wherein are comprised heads which are capable of partial rotation on a supporting-rod which is provided therefor, each of said heads also being provided with forwardly-extending interlocking cam-formed and hooked jaws.

The objects of the invention are several, chief among which may be mentioned the capability of the coupling, whereby the heads thereof, while susceptible of all their necessary movements for coupling and uncoupling, are relieved from the effects of violent impact at the time of coupling, and also whereby each head will normally be automatically retained in its coupling position.

Other objects which are attained by the invention will be hereinafter made manifest.

The invention essentially embodies in a car-coupling the combination, with a coupling-head having a suitable opposing pair of forwardly-projected cam-formed and hooked jaws or projections, whereby the head of the coupling may be properly engaged or become interlocked with that of another coupling, of a rod suitably mounted and spring-cushioned and capable of yielding longitudinally, and on which rod said head is mounted for a partial rotation, and means comprised in or applied with relation to said head whereby the latter will normally remain, so far as the rotational movements are concerned, in its position for coupling.

The invention may be further said to consist in the combination, with a spring-cushioned draw-rod, of the coupling-head mounted on the draw-rod and through and beyond the forward portion of which head the said draw-rod extends, said head being provided with the cam-formed hook-shaped jaws and the said rod constituting a buffer for receiving the impact at the time of coupling.

This invention otherwise and further consists in the construction and combination of parts, all substantially as will hereinafter more fully appear, and be set forth in the claims.

Referring to the accompanying drawings, in which the present improvements are illustrated, Figure 1 is a plan view of a pair of couplings shown as in their coupled relations. Fig. 2 is a side elevation of the same. Fig. 3 is a front end view of one of the couplings. Fig. 4 is a cross-section on the line 4 4, Fig. 1. Fig. 5 is a cross-section on the line 5 5, Fig. 1.

The draw rod or bar A of the coupling is mounted on and engaged with the car in a usual or any approved manner, and, as shown, the rear end of the draw-rod is keyed or otherwise connected to a block C, which is adapted to slide longitudinally therewith and of the car, said block being supported and guided on the horizontal and longitudinal bracket arms or bars *b b* of the car, a slight portion of which latter is indicated at *x*. Behind the said block *a* is a follower-piece *c*, which is provided with lugs *d*, that play in slots *e* of said supporting-bars *b b*, and behind the said follower is the spring E, which by being resisted at its rear portion acts when no force is applied rearwardly against the draw-rod to force and maintain the follower *c*, the block, and the draw-rod forward.

g represents a rigid strap which is secured to the block *a* by its extremities, and, projecting rearwardly therefrom beyond the spring, by its transverse portion *i* has an engagement when the draw-rod is in its most forward disposition with the follower-block *h*, which is shown as provided at the rear of the spring and upon which the spring directly bears. This block also has lugs *d'*, which engage with the slotted bracket-bars.

B represents the coupling-head, which is at the forward end of the draw-rod. The said coupling-head is provided with diametrically-opposing forwardly-extending cam-sided and hooked jaws *m m* and comprises or has formed

thereon a rearwardly-extended shank portion D. The said head and its rear or shank portion is provided with an axial bore or passage and is mounted on the forward portion of the draw-bar, the forward extremity *k* of the latter being projected beyond the forward end of the head proper and provided with a head or enlargement *n*. The coupling-head at its said shank portion D is provided with a radially-extended weight member F. The head from its forward portion *k* to the rear end of its shank is of a length less than the distance between the forward end of the block C and the head *n* on the draw-rod, so that on desiring to uncouple there will be no bind on the ends of the coupling-head to prevent its ready rotation on the draw-rod. The said weight member F of the coupling-head is so positioned relative to the coupling-jaws that as the head is set up on the draw-rod at the time the parts are uncoupled the weight member will by exerting its gravity swing into or nearly into a vertical position and the jaws, as indicated in the front end view, Fig. 3, will stand with their points one above the other. Of course as the coupling-heads of two cars come together they partially rotate a certain distance as the inclined sides of the jaws on one head act on those of the other end, and at the time the heads have so approached and been turned that they interlock the weight member will stand obliquely, about as indicated in the sectional view, Fig. 4. As the cars come together the block C at the rear of the draw-bar, which bar, acting as a buffer, first receives the impact, bears upon the follower *c*, forcing the same back, compressing the spring, and the strap at this time retreats back from contact with the rear follower *h*. Now as the coupled cars draw the one from the other the forward part *k* of each head is brought to contact with the head *n* of its draw-bar and the same is now drawn forward, and the strap *g*, which moves as one therewith, bringing up against the rear follower *h*, draws the same forward, compressing the spring from the rear, the follower-block *c* then moving forwardly until its lugs *d* contact with the forward ends of the slots in the side bars *b b*, when of course the draft is had on the car.

p represents a catch-lug on the shank D of the coupling-head, and *q* represents a hook or detent for engaging the same under the proper conditions, the same being supported on the car. The object of these parts is to insure a means for maintaining the head in its turned position for uncoupling. It is to be noted that the drawings Figs. 1 and 2 represent the heads of the two couplings as first having been brought together, the heads swung in to interlock, and the draw-rods acting as buffers and forcing rearwardly on their springs. This position is also the same as is assumed by the parts when the train is slacked up and the couplings permitted to come together. Now the lug *p* is so located on the shank of the coupling-head that as the couplings are in the position described it is in the same plane transversely of the car as the said detent, and therefore while the cars are slacked or such relations as indicated in the drawings are maintained on properly rotating one of the heads the lug and detent will come into engagement and so remain, holding the head in its disengaging position, until the one car draws away from the other. Then the spring E, reacting forwardly and forcing the draw-bar and also the coupling-head forward, of course carries the lug *p* on the latter longitudinally of the car and slides same out of contact with the catch-hook or detent *q*, and the weight will then return the coupling-head into its normal position and in readiness to be automatically coupled on the next occasion therefor.

In Fig. 3 is indicated a convenient means for securing the rotation of the head for coupling, consisting of the chain or flexible connection, which engages a radial lug *t* on the coupling-head shank and extends therefrom, being suitably supported and guided to the side of the car.

Having thus described my invention, what I claim, and desire to secure, is—

1. In a car-coupling, the combination, with the draw-rod provided with the block or enlargement C at its rear portion and the head *n* at its forward end and supporting and spring-cushioning appliances for said draw-rod, of the coupling-head having hooked and cam-sided jaws and comprising the shank portion D, with the weight member F, as described, said head being mounted on the draw-rod for rotational movement and having a length less than the distance between the draw-bar head and the enlargement C, as and for the purpose set forth.

2. In a car-coupling, in combination, the supporting-bars *b b* of the car, provided with ways or slots, the draw-rod provided with the forward head *n* and having on its rear portion the block or part C, provided with the strap, the followers *c* and *h*, each having the guiding-lugs *d d'*, and the spring intermediate the coupling-head, having the cam-formed and hooked jaws and the extended rear shank with the weight member thereon and mounted for rotation on the said rod and movable longitudinally along same, substantially as and for the purposes set forth.

3. In a car-coupling, in combination, the car-supported bars *b b*, having the slots, the draw-rod provided with the forward head *n* and having thereon the block or enlargement C, the strap *g*, carried on the latter, the follower-blocks *c h*, having the lugs *d d'*, engaging said slots, and the intermediate spring, the coupling-head having hooked and cam-formed jaws and the rear shank with the weight member F and the catch-lug *p* and mounted for rotation and also a slight end-

wise movement on the draw-rod, the detent *q*, supported on the car and coacting with said lug in the manner set forth, and a device for securing the partial rotation of the coupling-head, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DAVID LAWSON RICHARDS.

Witnesses:
WM. S. BELLOWS,
MARY W. STORER.