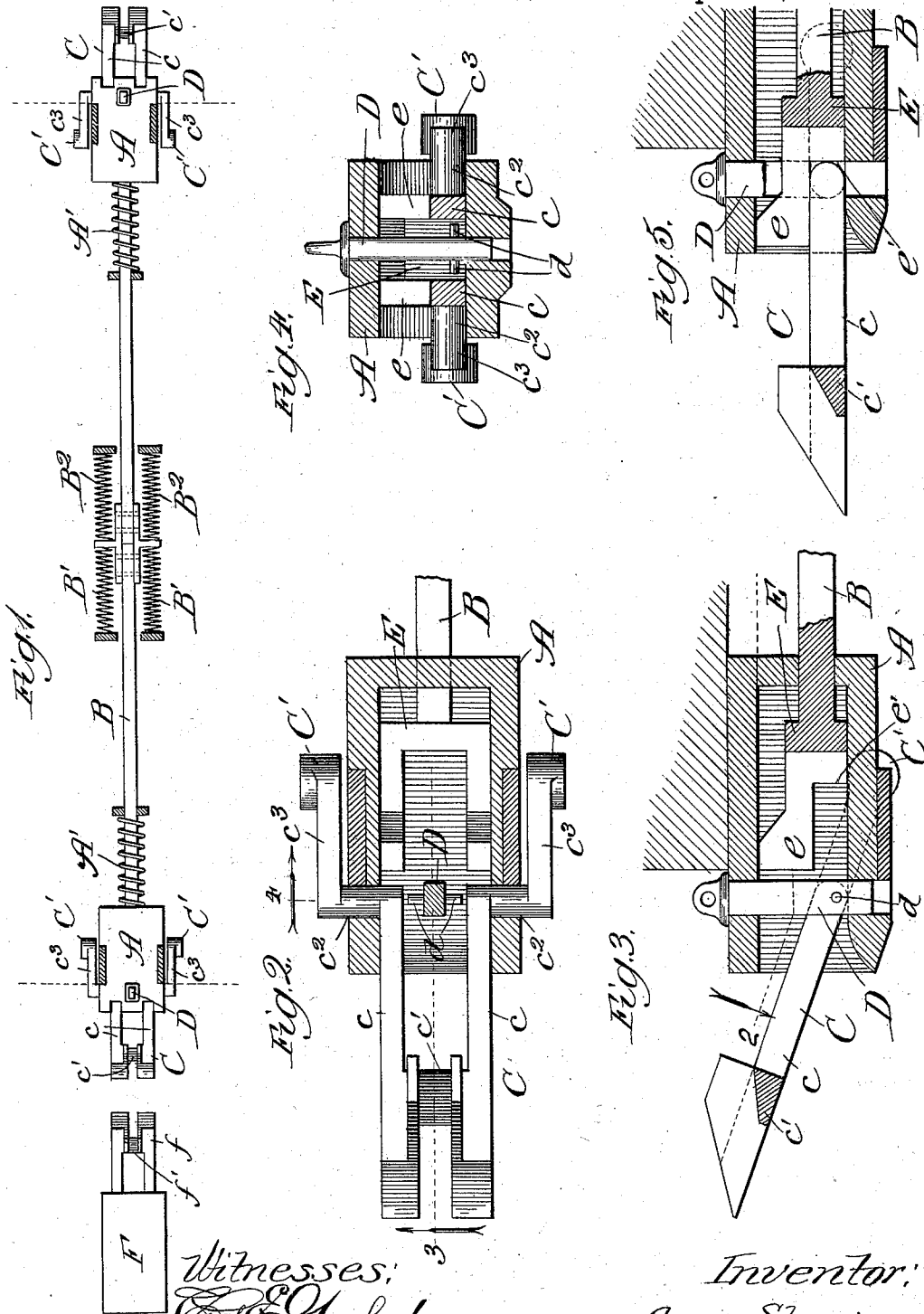


(No Model.)

A. SHAPIRO.
CAR COUPLING.

No. 558,116.

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Witnesses:
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UNITED STATES PATENT OFFICE.

AARON SHAPIRO, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-THIRD TO
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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 558,116, dated April 14, 1896.

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To all whom it may concern:

Be it known that I, AARON SHAPIRO, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

The object of my invention is to make a simple and efficient automatic coupling device for railway-cars; and my invention consists in the features and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of the coupling device of one car removed therefrom and showing one coupler upon an adjacent car or engine; Fig. 2, a sectional elevation of one of the coupler-boxes, taken on line 2 of Fig. 3; Fig. 3, a sectional elevation on line 3 of Fig. 2, looking in the direction of the arrow; Fig. 4, a cross-section on line 4 of Fig. 2, looking in the direction of the arrow; and Fig. 5, a longitudinal sectional elevation of one of the coupler-boxes, showing the position of the connector or coupler changed from an inclined to a horizontal position.

In constructing my car-coupling device I make what I shall hereinafter term "coupler-boxes" A A, similar in construction and containing the same mechanism, one of which boxes is arranged at each end of a car and supported thereby in any desirable manner. Behind each box I arrange suitable buffer-springs A' A' in the usual and well-known manner. Extending longitudinally and centrally under the car is a coupling-rod B, which is kept in normal position by means of the two sets of springs B' B², working in opposition to each other, so that the ends of the coupling-rod will be kept out of contact with both of the connectors hereinafter to be described.

The parts arranged in each coupler-box are similar in construction and operation, so that a description of one will pertain to all. Pivoted in the sides of the box is a coupler or connector C, consisting of two parallel bars c c, each of which is wedge-shaped (see Figs. 3 and 5) and connected together by a cross-piece c'. The right-angled pieces c², bearing in the sides of the box, are provided with parallel arms c³ c³, which are located outside of

the box. Upon the free end of these arms are arranged gravity-weights or counterbalances C'. (See Fig. 2.)

As shown in Figs. 3, 4, and 5, a locking-pin D extends through the top of the box, while its lower free end preferably enters a hole in the bottom of the box, formed to accommodate the same, to relieve the locking-pin of most of the stress. Near the end of the pin is one or more points or shoulders d, which may be, if desired, simply a short pin extending through the locking-pin.

Each end of the coupling-rod B which extends into the box is bifurcated or provided with a U-shaped piece or yoke E, adapted to reciprocate within the box. The lower front face of the yoke is cut away to form a projecting piece e and an abutting shoulder e', sliding upon the bottom of the box. The function of the yoke is to force the connector C to a horizontal position when the coupling-rod B is moved in one direction in the act of coupling, which will be hereinafter explained.

The coupling device on the engine is made rigid and positioned horizontally instead of being pivoted in the box, as is the case of those upon the cars. Otherwise such stationary connector f is similar in form and construction.

My coupling device being constructed as hereinbefore set forth operates as follows: When the engine is moved up to a car, the straight connector enters in below the car-connector C, which is, of course, in a normally-inclined position, as is also the one on the opposite end. The connector f having entered the box, the nose or wedge shaped point thereof causes the locking-pin to be automatically raised, the shoulders d thereof riding upon the inclined portion. After the connector is forced in sufficiently the locking-pin will fall by gravity behind the cross-piece f', which is, of course, similar to c'. Simultaneously the forward end of the straight connector abuts the shoulder e', forcing the yoke and coupling-rod B to the right, Fig. 1, moving the projecting portion e of a similar yoke at the opposite end of the car against the inclined connector at that point, thus causing the same to assume a horizontal position similar to the stationary connector on the engine. The connector thus

forced to a horizontal position enters the front box of the second car. The springs B' and B^2 serve to keep the coupling-rod B in the normal position shown, and the movement to the right, Fig. 1, in the act of coupling, as just described, compresses the springs B^2 , which will restore the rod to proper position upon removal of the connector from the box. To uncouple the cars, the locking-pin is elevated in any well-known manner, but preferably by means of a crank and lever arm extending to the side of the car, (which device is now commonly employed,) and the connectors may then be withdrawn, when all the pivoted ones will be restored to their normal or inclined position by means of the gravity-weights.

Although I have described more or less precise forms and details of construction, I do not intend to be understood as limiting myself thereto, as I contemplate changes in the form, the proportion and position of the parts, and the substitution of equivalents as circumstances may suggest or render expedient and without departing from the spirit of my invention.

I claim—

1. In a car-coupling, the combination of connectors pivotally mounted at each end of a car, means for normally holding the same in an inclined position, locking-pins adapted to retain and lock the connectors of adjacent cars and a coupling-rod extending between the connectors and adapted to be moved in either direction, whereby the connector contacted as the rod is moved in its direction is thereby forced to a substantially horizontal position.

2. In a car-coupling, the combination of connectors pivotally mounted at each end of a car, means for normally holding the same in an inclined position, locking-pins adapted to retain and lock the connectors of adjacent cars, a coupling-rod mounted under the car and in alinement with the connectors and adapted to reciprocate, means for holding the rod in a normal state of rest out of contact with the connectors.

3. In a car-coupling, the combination of connectors C pivotally mounted at each end of a car, means for normally holding the same in an inclined position, mechanism for forcing the connector at each end of a car to a horizontal position independent of the other connector, and locking-pins provided with lateral projections, the front of each connector being wedge-shaped and adapted to elevate the locking-pin automatically by pressure of the wedge under the pin projections.

4. In a car-coupling, the combination of connectors pivotally mounted in coupler-boxes secured to each end of a car, each connector comprising pieces c extending into the box and having a wedge-shaped outer end, right-angled bearing portions c^2 , outside parallel portions c^3 , and weights or counterbalances C' at the end of said last-named portions adapted to normally hold the connectors in an inclined position, a locking-pin in each box

and mechanism for forcing one of said connectors in a horizontal position in the act of coupling and independent of the connector at the opposite end of the car.

5. In a car-coupling, the combination of connectors pivotally mounted in coupler-boxes secured to each end of a car, each connector comprising portions c extending into the box and having a wedge-shaped outer end, right-angled portions c^2 forming pivots for the connectors upon the box, outside arms c^3 and weights C' at the end of the arms and adapted to normally hold the connectors in an inclined position, a locking-pin in each box, a coupling-rod B extending longitudinally under the car with its ends entering the boxes but contacting neither connector, sets of springs B' B^2 acting on said rod to normally keep it out of contact with the connectors whereby as a horizontal connector of an adjacent car enters the coupler-box at one end of the car the coupling-rod G will be thrust forward in the opposite box to lower the connector thereof so as to enter the box of the next succeeding car.

6. In a car-coupling, the combination of connectors pivotally mounted in coupler-boxes secured to each end of a car, each connector comprising portions c extending into the box and having a wedge-shaped outer end, right-angled portions c^2 forming pivots for the connectors, outside arms c^3 and weights C' at the end of the arms and adapted to normally hold the connectors in an inclined position, a locking-pin D in each box and provided with lateral projections d whereby as an adjacent connector is inserted, the projections d will ride upon the wedge-shaped end and raise the locking-pin, a coupling-rod B beneath the car and with its ends entering the boxes but contacting neither connector, each end of the coupling-rod having a projecting portion e and a shoulder e' , said portion e adapted to contact the connector to force it to a horizontal position when reciprocated in that direction and means for holding the rod in a normal position out of contact with both connectors.

7. In a car-coupling, the combination of connectors pivotally mounted at each end of a car and normally in an inclined position, locking-pin and means for forcing one of the connectors to a horizontal position independent of the other connector whereby when the cars are coupled each alternate connector will be in a horizontal position to form the coupling medium while the other connectors are in an inclined position and out of service.

8. In a car-coupling, the combination of a coupler box or frame arranged at each end of a car, a connector pivoted to the box and normally in an inclined position, a vertical locking-pin provided with a shoulder or projection and adapted to be raised automatically by the engagement of said shoulder with the inclined surface of the connector of an adjacent car and to lock the same after the

cars have come together, means for raising the pin to release it from engagement to uncouple the cars, a coupling-rod extending under the car from one box to the other and provided at each end with a projection and adapted to contact the pivoted connectors as it is reciprocated in one direction or the other and springs bearing against the coupling-rod and adapted to keep the same normally out of engagement with either connector.

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Witnesses:

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