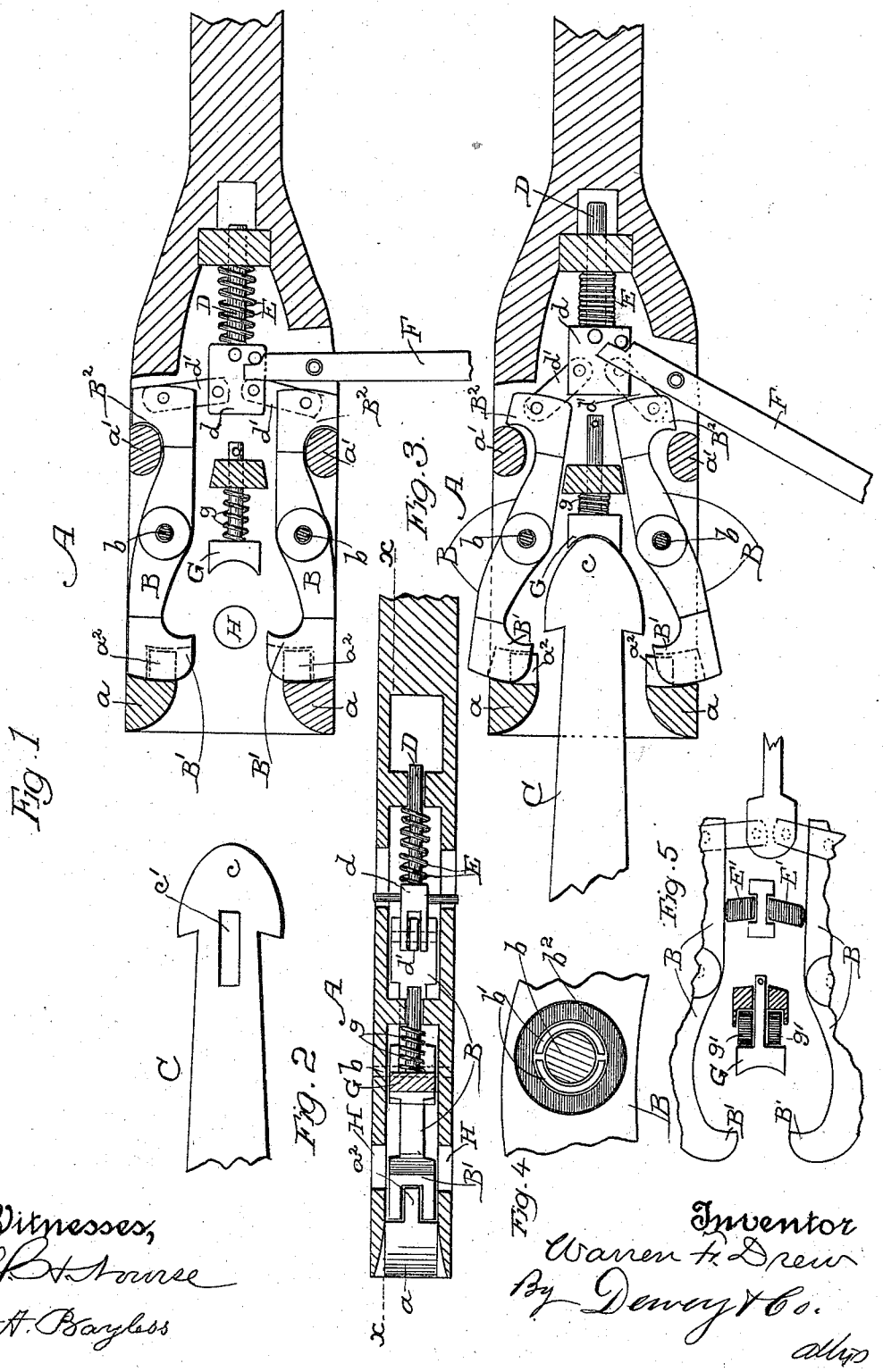
(No Model.)

W. F. DREW.

CAR COUPLING.

No. 526,303. Patented Sept. 18, 1894.



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UNITED STATES PATENT OFFICE.

WARREN FRANCIS DREW, OF SACRAMENTO, CALIFORNIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 526,303, dated September 18, 1894.

Application filed April 25, 1894. Serial No. 509,012. (No model.)

To all whom it may concern:

Be it known that I, WARREN FRANCIS DREW, a citizen of the United States, residing at Sacramento, county of Sacramento, State of California, have invented an Improvement in Car-Couplings; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of car couplings in which the head of the draw-bar enters between and is automatically engaged by spring-controlled hooks within the draw-head.

My invention consists in the novel construction and arrangement of the draw-bar-engaging hooks, the means for controlling them and the means for ejecting the draw bar when freed from the hooks, all of which I shall hereinafter fully describe and specifically claim.

The object of my invention is to provide an automatic coupler of the general hook class, which, by reason of its construction, can be made small and yet with sufficient strength and durability, and which can be uncoupled from the top or side of the car, and used in connection with the link and pin of the old styles, when required.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a horizontal longitudinal section of my car coupling showing the parts in position ready to receive the on-coming draw bar. Fig. 2 is a vertical longitudinal section. Fig. 3 is a horizontal section, showing the parts uncoupling. Fig. 4 is a horizontal section of the yielding bushing around lever pivots *b*. Fig. 5 is a modification showing the use of rubber instead of spiral springs.

A is the draw head, in the chamber of which at the front, are the bearing lugs *a*, and at the back, the bearing lugs *a'*. The walls of the draw head at the front and the inner surfaces of the front bearing lugs *a* are properly rounded out to form the entrance or mouth of the draw head chamber which receives and guides the draw bar to its place.

Pivoted at *b*, between the top and bottom of the draw head, are the levers B which have at their forward ends the hooks B'. These hooks extend toward each other in the draw head chamber, and they bear directly against the rear sides of the lugs *a*. From these lugs project backwardly guide pieces a^2 over which the hooks are slotted and play. These pieces serve to guide the draw bar head when being withdrawn and to protect the rear sides of the lugs *a* so that the head of the draw bar will not catch upon them. The forward inner edges of the hooks B' are rounded as shown, to properly receive and allow to pass the rounded head *c* of the draw bar C. The levers B may be straight at their rear ends and have no other bearings, but for the sake of greater strength, I prefer to form said rear ends with hooks B^2 which bear behind the rear lugs *c'* of the draw head.

In the extreme rear of the draw head chamber is a sliding rod D, with the head *d* of which are connected the links *d'* which are themselves connected to the rear ends of the levers B. A spring E serves to hold the rod forward and thereby to normally straighten the links into approximate alignment and substantially at right angles to the levers, in which position the hooks B' are held normally closed, ready to receive the draw-bar. A lever F engages a stud on the head of the rod D, whereby the rod may be forced back, thereby separating the hooks B', to permit the withdrawal or ejection of the draw bar. This lever may extend to the top or to the side of the car, or there may be three such levers, one extending to each side and one vertically to the top of the car.

Within the draw head chamber is the ejector head G, the sliding stem of which passes through a suitable guide and is fitted with a spring *g* which normally throws and holds the ejector head forward. The face of this head is shaped to conform to the face of the draw bar head so that it fits it nicely.

In the act of coupling, the head of the draw bar C enters the flaring mouth of the draw head, and meeting with the rounded faces of the hooks B', separates said hooks, until having passed them, the latter spring inwardly and engage the bar behind its head. The end of the bar, in thus entering, comes in contact with and forces backwardly the ejector head G, which, when the bar is seated, bears against

the latter and holds it steady in its place between itself, the hooks and the walls of the draw head. Thus the draw bar is held level and accuracy in coupling is secured. The strain of the pull, when drawing, does not fall upon the pivots of the levers B, but upon the bearing lugs *a*; or where rear bearing lugs such as *a'* are also used, then the strain of pulling falls upon them as well as upon the front lugs. To effect this bearing on the lugs, the pivotal centers of the levers are loose enough to permit the hooks to fit up snugly to the lugs, and still, on account of the said pivotal centers being out of line with the bearing points of the draw bar and hooks, the latter can turn outwardly freely away from the shoulders of the draw bar head and from the bearing lugs.

To uncouple, the lever F is operated to pull back rod D, whereby the hooks B' are separated; whereupon the draw bar will pull out, or it will be forced out by the ejector head G.

In order to adapt the coupling for use with the old style link and pin coupling, I can make a vertical hole H down through the draw head walls. Through this hole an ordinary pin may be dropped, in order to engage an ordinary link which may be introduced into the draw head; or, if desired, the draw bar C may have an elongated slot *c'* made in it to receive the pin to be dropped through hole H.

I do not confine myself to the employment of metallic springs for the control of the hook levers, or of the ejector-head, for as shown in Fig. 5 rubber springs E' and *g'* may be used, arranged as shown, or otherwise, to effect the same result. The pivot pins *b* of levers B are embraced by a split metallic ring *b'* which is encircled by an elastic bushing or cushion b^2, which construction, while affording all the freedom necessary to permit the strain on the hooks to be borne by the lugs *a* and *a'* take up all lost motion and rattling, and frees the hooks of the lugs when the strain is removed, so that the hooks may be easily operated.

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

1. In a car coupling, the combination of a draw head to receive a draw bar, swinging levers within the draw head chamber having hooks adapted to engage the draw bar, a spring-controlled sliding rod in the back on the draw head chamber, links connecting the rod with the rear ends of the hook levers whereby the latter are controlled, and connections for operating the sliding rod, substantially as described.

2. In a car coupling, the combination of a draw-head having in the front of its chamber the bearing lugs *a*, the swinging spring-controlled levers with hooks for receiving and engaging a draw-bar, said hooks bearing against the lugs *a*, and suitable connections for separating said hooks to release the draw-bar comprising a sliding rod in the back of the draw-head chamber having a link connection with each of the levers, and means for operating the sliding rod, substantially as herein described.

3. In a car coupling, the combination of a draw-head having in the front of its chamber the bearing lugs *a*, the swinging spring-controlled levers with hooks for receiving and engaging a draw bar, said hooks bearing against the lugs *a*, and suitable connections for separating said hooks to release the draw bar, consisting of the slide rod, the spring thereon, the links connecting the rod with the rear ends of the hook levers and a lever for withdrawing the rod, substantially as herein described.

4. In a car coupling, the combination of a draw head having in the front of its chamber the bearing lugs *a* and in the back the bearing lugs *a'*, the pivoted spring-controlled levers having the front hooks for receiving and engaging a draw bar, said hooks bearing against the lugs *a*, and the back hooks bearing against the lugs *a'* and connections for swinging said levers to release the draw bar from the front hooks substantially as herein described.

5. In a car coupling, the combination of a draw head having in the front of its chamber the bearing lugs *a* and in the back the bearing lugs *a'*, the pivoted spring-controlled levers having the front hooks for receiving and engaging a draw bar, said hooks bearing against the lugs *a*, and the back hooks bearing against the lugs *a'* and connections for swinging said levers to release the draw bar from the front hooks consisting of the slide rod, the spring thereon, the links connecting the rod with the rear ends of the levers and a lever for withdrawing the rod, substantially as herein described.

6. In a car coupling, the combination of the draw head, having bearing lugs in its chamber, spring-controlled swinging levers with hooks bearing against said lugs and adapted to receive and engage a draw bar, and the spring-controlled steadying and ejector head within the draw head chamber adapted to bear against the draw bar head, substantially as herein described.

7. In a car coupling, the combination of a draw head the swinging spring-controlled levers with their draw bar engaging hooks, and the spring-controlled steadying and ejector head between said levers and bearing on the draw bar head, substantially as herein described.

8. In a car coupling, the draw head having the bearing lugs *a* in front, with the inwardly extending guide and protector pieces a^2 in combination with the spring-controlled swinging hooks within the draw head chamber bearing against the lugs, the draw bar, the head of which is engaged by the hooks and guided by the pieces a^2, and a slidable device in the rear of the draw head chamber having a link

connection with the levers, and means for operating said device substantially as herein described.

9. In a car coupling, the combination of the draw head having bearing lugs, the swinging spring-controlled levers with hooks adapted to bear against said lugs, the pivot pins upon which said levers are freely pivoted, and the yielding bushing about said pins, substantially as herein described.

In witness whereof I have hereunto set my hand.

WARREN FRANCIS DREW.

Witnesses:
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