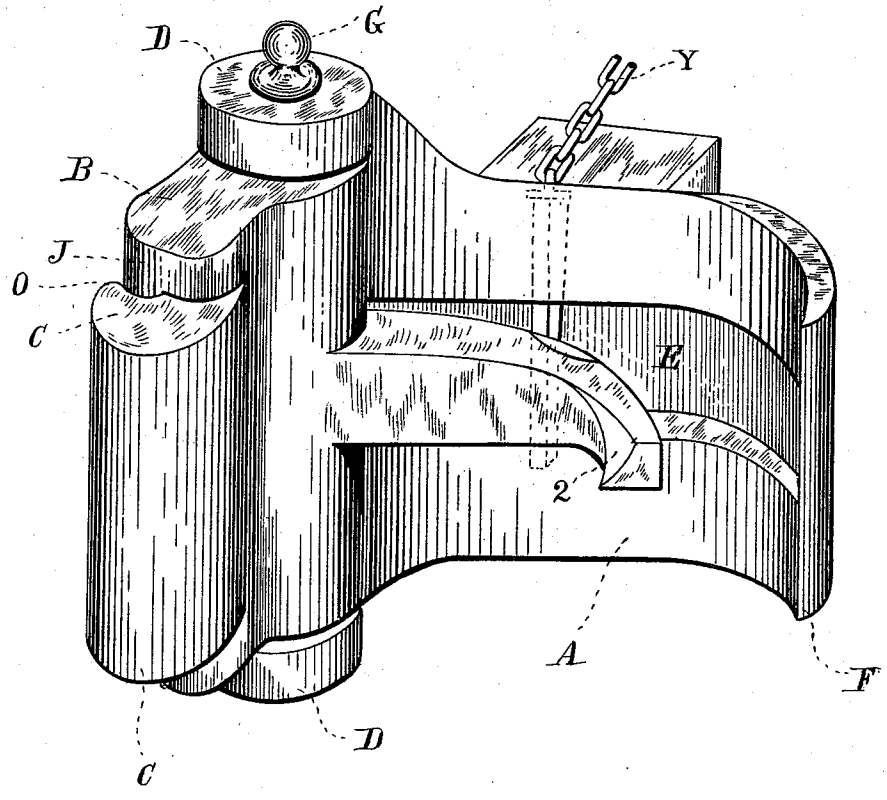
(No Model.) 4 Sheets—Sheet 1.

W. B. DINSMORE, Jr.

CAR COUPLING.

No. 536,191. Patented Mar. 26, 1895.

Fig. 1.



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ATTORNEYS.

(No Model.) 4 Sheets—Sheet 2.

W. B. DINSMORE, Jr.

CAR COUPLING.

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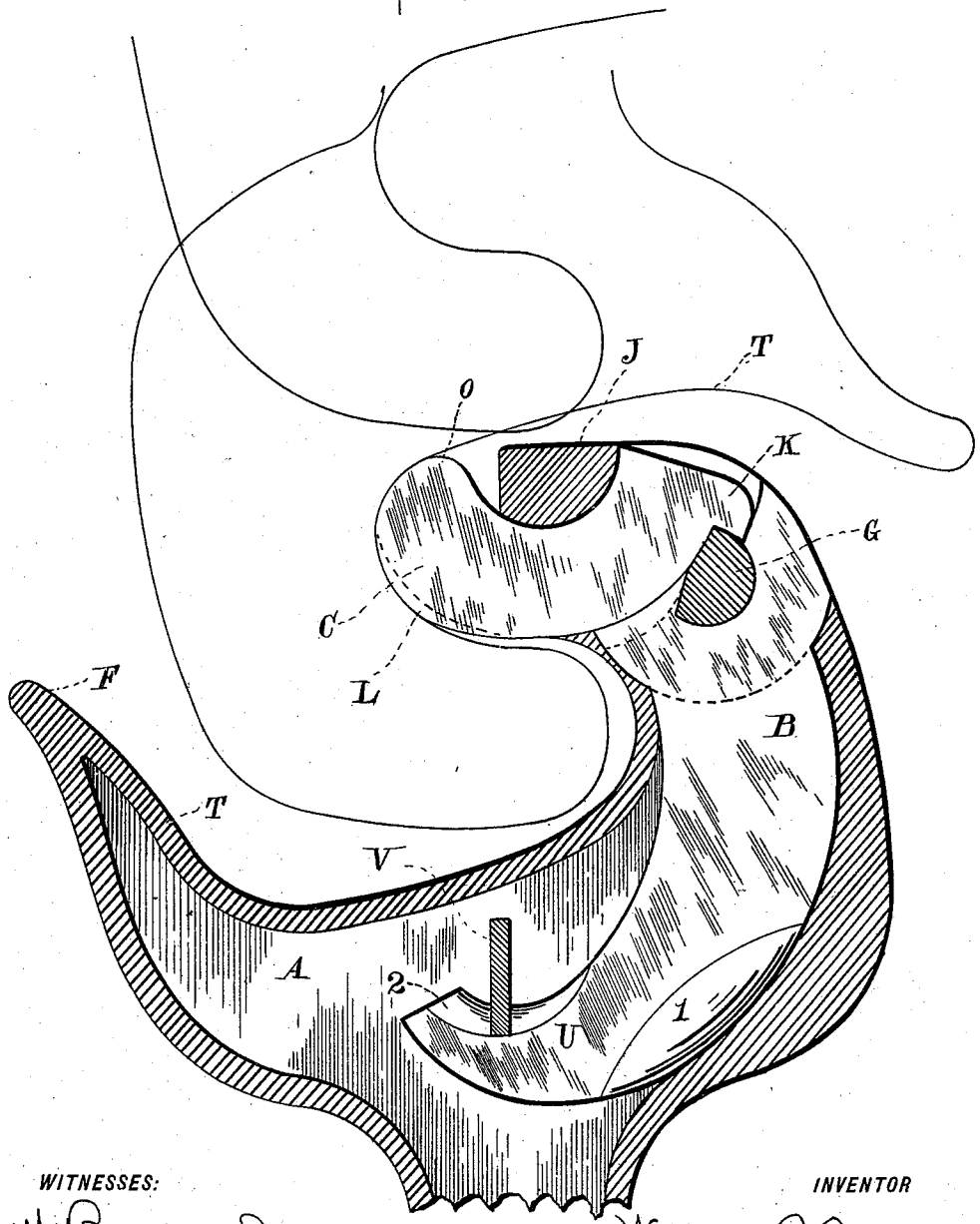
Fig. 2.



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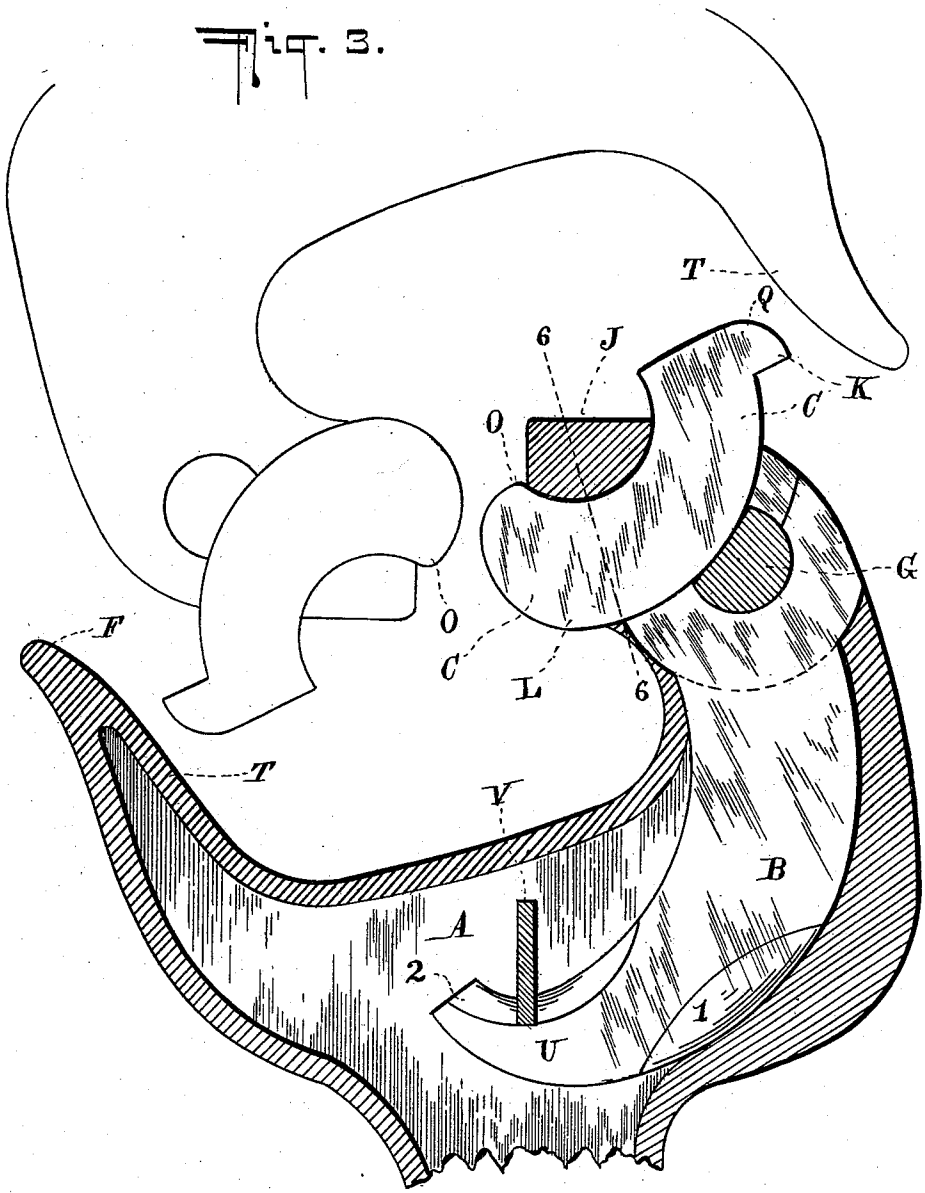
W. B. DINSMORE, Jr.

CAR COUPLING.

No. 536,191. Patented Mar. 26, 1895.

Fig. 3.



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(No Model.) 4 Sheets—Sheet 4.

W. B. DINSMORE, Jr.

CAR COUPLING.

No. 536,191. Patented Mar. 26, 1895.

Fig. 5.

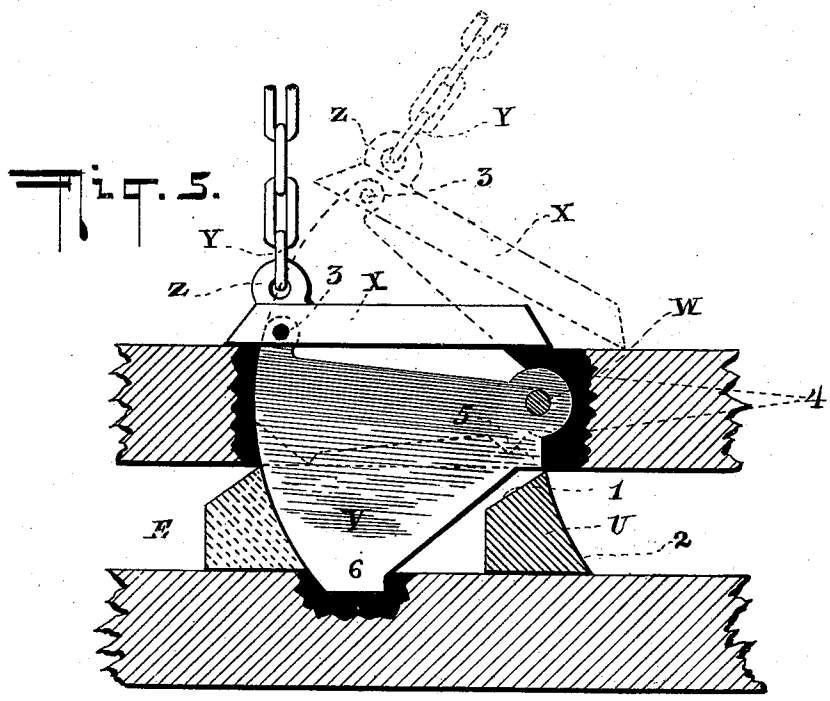


Fig. 6.

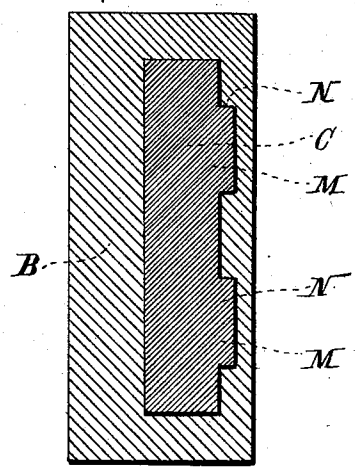
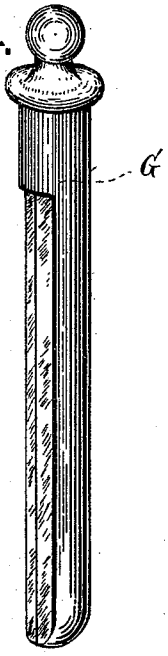


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM B. DINSMORE, JR., OF STAATSBURG, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 536,191, dated March 26, 1895.

Application filed January 16, 1895. Serial No. 535,061. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BROWN DINSMORE, Jr., a citizen of the United States, residing at Staatsburg, in the county of Dutchess, State of New York, have invented certain new and useful Improvements in Car-Couplers, of which the following is a full, clear, and accurate description, reference being had to the accompanying drawings, wherein similar letters and numerals refer to like parts in the several figures.

One object of my invention is to provide an improved car coupler adapted to couple with an opposing coupler which also embodies my invention, no matter in what position the hooks of both couplers may be at the moment of coupling, whether the hooks of one or both couplers be opened or closed, or partially opened or partially closed.

I am aware that car couplers have been suggested in which the swinging hook has been of such shape, and so mounted in the drawhead, that it has been possible to cause such hook to engage with another coupling hook if one or both of the hooks are in a fully opened position, and that couplers have been suggested having means to retain, or to open and retain, swinging-hooks in a favorable position—fully opened, or nearly so; but I am not aware that there has heretofore been described a car coupler having a swinging hook provided with a coupling-arm combined therewith in such form that it will yield to the arm of an opposing coupler similarly patterned if both couplers be in a position unfavorable for coupling—fully closed, or nearly so. I attain this very important result, in car couplers, by providing the swinging-hook with a yielding coupling arm, constructed and operating in the manner hereinafter described.

In all of the couplers heretofore suggested, so far as I am aware, grave defects in construction and operation have been noticeable. Although it has been common to provide an arrangement of chains and cranks on the car to lift a locking dog, or equivalent means, so as to release the swinging hook, when desiring to couple with an opposing coupler, it has been necessary for the workmen to pull the hook by hand into its open position, because the hooks become rusted or frozen in the draw-head, even when the couplers are provided with means to open the swinging hook, or to open and retain it in the favorable position. By using my invention, it is not necessary that the workmen shall touch the coupling arm at all, the arm being so combined with the swinging hook that it will permit an opposing coupling arm, similarly patterned, whether opened or closed, to readily pass, and being also provided with means whereby it may be automatically returned to its coupling position.

Another object of my invention is to provide, in a car coupler having a swinging hook provided with a tail, a lock which engages the tail of the hook when in a closed position, at about the central line of the drawhead, and so combined that the pulling strain upon the coupler is distributed upon the pivotal pin of the swinging-hook and the tail thereof.

A third object of my invention is to provide, in a car coupler, a novel locking dog, which assures the locking of the swinging hook in the closed position.

Referring to the accompanying drawings, in which my invention is shown as applied to a coupler of the Janney type, Figure 1 is a perspective view of my coupler with the swinging hook in the open position. Fig. 2 is a sectional view of my coupler in a closed position. Fig. 3 is a sectional view of my coupler in a closed position, showing the position of the coupling arm while coupling. Fig. 4 is a view of the pivotal pin. Fig. 5 is a detail view of my improved locking device. Fig. 6 is a sectional view of my coupler, on the line 6—6, of Fig. 3.

A is the draw-head, B the swinging hook, and C the yielding coupling arm. The draw-head may be constructed in any of the usual forms, but preferably has the bifurcated jaws, D D, the recess E, for the tail of the hook, and the extended guiding portion, F, for the opposing coupler. The swinging hook, B, is preferably of the form shown in the accompanying drawings, but may be modified without departing from my invention. It is held in position between the jaws, by a pin, G, passing through openings in said jaws and through an opening in the swinging hook. The swinging hook is provided, at its forward end, with a yielding coupling arm, C, adapted to swing therein and guided in a circular

opening from the front to the rear of the forward portion of the hook, being retained therein and guided by the bar or pin, G, at the extreme forward point of the hook. The yielding coupling arm, C, is provided with a stop, K, at its rear end, to prevent its being drawn too far forward. It is also provided with a slightly swelled portion, L, to prevent its being thrown too far backward, when struck by an opposing coupler. The pin, G, heretofore referred to, is preferably cut away, as shown in Fig. 4, and serves to guide the yielding coupling jaw. The pin, when placed at the point indicated in the drawings, also serves to act as the abutment for the limiting stops, K, L, of the yielding arm. To prevent rocking of the yielding arm, the swelled portion, L, is provided with ribs, M. M., (Fig. 6,) which, when the coupling arm is swung back, fit into grooves, N, N, in the swinging hook.

The operation of my improved coupler is as follows: If it is desired to couple two cars both of which are provided with couplers having yielding arms, the cars are merely brought together so that the yielding coupling arms of the opposing couplers will strike at the parts, O, thereof. The coupling arms will thus be swung back in the heads of the swinging hooks, sufficiently far to to allow them to pass each other, and, when they have passed, the portions, T, of the opposing couplers will strike the ends, Q, of the yielding coupling arms and throw them back to their normal position. The two couplers will then remain locked. For the purpose of coupling cars, it is not necessary, when my improvement is used, to unlock the swinging hooks of either car. In Fig. 2, I have shown the position of the parts just previous to and just after coupling with an opposing coupler, and in Fig. 3 I have shown the position of the parts just after the yielding coupling arm has been thrown back to its extreme position. When desiring to uncouple cars, the swinging hook is unlocked, so as to permit it to be swung out, in the ordinary way.

I have found it very desirable, in car-couplers, to have the tail of the swinging hook locked at substantially the central line of the draw-head, and to have the locking dog and the tail of the swinging hook so combined that the tail of the hook will embrace the lock, whereby the pulling strain upon the coupler is distributed, in my coupler, so as to be upon the pivotal pin of the swinging-hook and upon the lock at the central line of the draw-head. I prefer that the tail, U, of the swinging-hook shall be so shaped as to embrace the locking dog, and prefer that it shall be hook-shaped. By this arrangement of lock and tail, I am enabled to distribute the pulling strain upon the pivotal pin and upon the tail of the hook, more evenly than heretofore, and in the event of the breaking of the pivotal pin, G, the swinging-hook cannot be drawn out from the draw-head, and the train broken, but the tail of the hook and engaged lock will still properly perform the work required. I consider this a very important part of my invention, and I am not aware that there has been suggested a car coupler having the tail of the hook so engaged with a lock therefor that the hook will not be pulled from the draw-head, when the pivotal pin is broken.

In connection with car couplers, I have found it very desirable to use a locking-dog, which is horizontally pivoted in the draw-head in such manner as to readily permit the tail of the hook to pass when locking, but to securely hold it in locking position when opposing couplers are engaged with each other. I also so mount the horizontally pivoted dog in the draw-head that the strain upon the lock will be a crushing strain rather than a bending strain, so that there is less liability of injury to the parts.

The particular form of locking device which I preferably employ, and which is shown in detail in Fig. 5, is as follows: V is a flat plate of metal, preferably of the form shown in the drawings. This plate is pivoted at W, in the draw-head above the recess E, and is provided with the cover piece, X, to prevent moisture from entering into the draw-head. A chain, Y, which may be raised by a lever preferably operated from the side of the car, and connected to the ring, Z, of the cover, X, is used to lift the dog V.

In order to avoid any weakening of the draw-head, to accommodate the cover when the dog is lifted, and also to provide a cover which will, in connection with the horizontally pivoted dog, positively exclude moisture and dust, I have hinged the cover-piece, X, to the upper free end of the dog, as at 3. When constructed in this manner, it is not necessary to cut the draw-head to accommodate the end of the cover nearest the pivot when the dog is lifted, nor is it necessary to cut that end of the cover to permit the swinging of the dog, the doing of which permits moisture to enter between the lock and the draw-head. The position of the end of the cover nearest the pivot, in my construction, is shown by the dotted lines above the cover when the lock is in a locking position.

Fig. 5 shows the swinging hook as it is being closed, and the tail, U, just before it lifts the locking dog. The position of the parts, after the tail has passed the dog, is shown, by the dotted lines, at the left of the dog.

The operation of my improved locking mechanism is as follows: When desiring to unlock engaged couplers, the chain Y is pulled, and the dog, V, lifted from the path of the tail of the hook. The coupler may, also, if desired, be provided with means for throwing the hook into open position. When the hook is closed by an opposing coupler, the tail, U, lifts the dog V from its path. The tail may be beveled at 1, if desired, to facilitate the lifting of the dog, and may also be concave at 2 to conform to the shape of the latch.

The tendency of the strain of the tail of the

hook is to crush the plate V against the metal of the draw-head at the pivot of the dog, as upon points, 4, and the crushing strain may be distributed upon other parts of the draw-head, and the pivotal points somewhat relieved, if the dog be formed substantially as shown, with the shoulder 5, fitting snugly in the draw-head, and with the base, 6, fitting in a depression in the lower part of the draw-head. I aim, however, to have the strain a crushing strain, in contradistinction to the bending strain common to prior couplers.

My improved horizontally pivoted locking device may be modified, without departing from my invention.

While I have herein described and shown one practical form of my invention, yet I desire it to be understood that the form and arrangement of the parts may be varied without departing from my invention.

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

1. A car coupler, comprising a head, a swinging hook provided with a coupling-arm adapted to yield to an opposing coupler while coupling, means for locking the swinging hook and means for releasing the same, substantially as described.

2. A car coupler comprising a head, a swinging hook provided with a coupling arm adapted to swing in the hook while coupling with an opposing coupler, means for locking the swinging hook and means for releasing the same, substantially as described.

3. A car coupler comprising a head, a swinging hook, means for locking the swinging hook and means for releasing the same, the swinging hook being provided with a yielding coupling arm, part of which is projected from the swinging hook by an opposing coupler while coupling, and which part is returned to its normal position by the opposing coupler as the coupling is effected, substantially as described.

4. A car coupler comprising a head, a swinging hook, means for locking the swinging hook and means for releasing the same, the swinging hook being provided with a coupling arm adapted to swing therein, and part of which is projected from the swinging hook by an opposing coupler while coupling, and which part is returned to its normal position by the opposing coupler as the coupling is effected, substantially as described.

5. A car-coupler comprising a head, a swinging-hook provided with a coupling-arm adapted to yield to an opposing coupler while coupling, and provided also with a tail, means for locking the swinging-hook by locking the tail at substantially the central line of the draw-head, the said tail being formed to embrace the locking means, whereby the pulling strain is distributed upon the pivotal pin of the swinging-hook and upon the lock, and there being means for releasing the swinging-hook, substantially as described.

6. A car-coupler comprising a head, a swinging-hook, means for locking said hook and means for releasing the same, the said swinging hook being provided with a coupling arm adapted to yield to an opposing coupler while coupling, the coupling arm having means to limit its movement in either direction, substantially as described.

7. A car coupler comprising a head, a swinging-hook, means for locking said hook and means for releasing the same, the said swinging-hook being provided with a coupling arm adapted to yield to an opposing coupler while coupling, the coupling arm having means to limit its movement by abutting against the pivotal pin of the swinging hook, substantially as described.

8. A car coupler comprising a head, a swinging-hook, means for locking said hook and means for releasing the same, the said swinging-hook being provided with a coupling arm adapted to yield to an opposing coupler while coupling, and to swing past the pivotal pin of the swinging-hook, and in a recess of said pin, and provided with means to limit its movement by abutting against the said pin, substantially as described.

9. A car coupler, comprising a head, a swinging-hook provided with a coupling arm adapted to yield to an opposing coupler while coupling, means for locking or releasing said hook consisting of a dog horizontally pivoted in the draw-head and adapted to be lifted by the tail of the hook while locking and to be lifted by a chain when unlocking, substantially as described.

10. A car-coupler, comprising a head, a swinging-hook provided with a coupling arm adapted to yield to an opposing coupler while coupling, the swinging-hook having a tail, means for locking the swinging-hook by locking the tail at substantially the central line of the draw-head, the said tail being formed to embrace the locking means, whereby the pulling strain is distributed upon the pivotal pin of the swinging-hook and upon the lock, the lock consisting of a dog horizontally pivoted in the draw-head and adapted to be lifted by the tail of the hook while locking and to be lifted by a chain when unlocking, substantially as described.

11. A car-coupler, comprising a head, a swinging-hook provided with a coupling arm adapted to yield to an opposing coupler while coupling, means for locking or releasing said hook consisting of a dog horizontally pivoted in the draw-head and adapted to be lifted by the tail of the hook while locking and to be lifted by a chain when unlocking, the tail of the hook adapted to bear upon the dog when locked, so as to exert a crushing strain thereon, substantially as described.

12. A car-coupler, comprising a head, a swinging-hook provided with a coupling arm adapted to yield to an opposing coupler while coupling, the swinging-hook having a tail, means for locking the swinging hook by lock-

ing the tail at substantially the central line of the draw-head, the said tail being formed to embrace the locking means, whereby the pulling strain is distributed upon the pivotal pin of the swinging-hook and upon the lock, the lock consisting of a dog horizontally pivoted in the draw-head and adapted to be lifted by the tail of the hook while locking and to be lifted by a chain when unlocking, the tail of the hook bearing upon the dog when locked so as to exert a crushing strain thereon, substantially as described.

In witness whereof I have hereunto signed my name this 14th day of January, 1895.

W. B. DINSMORE, JR.

In presence of—
W. H. BERRIGAN, Jr.,
JAMES J. COSGROVE.