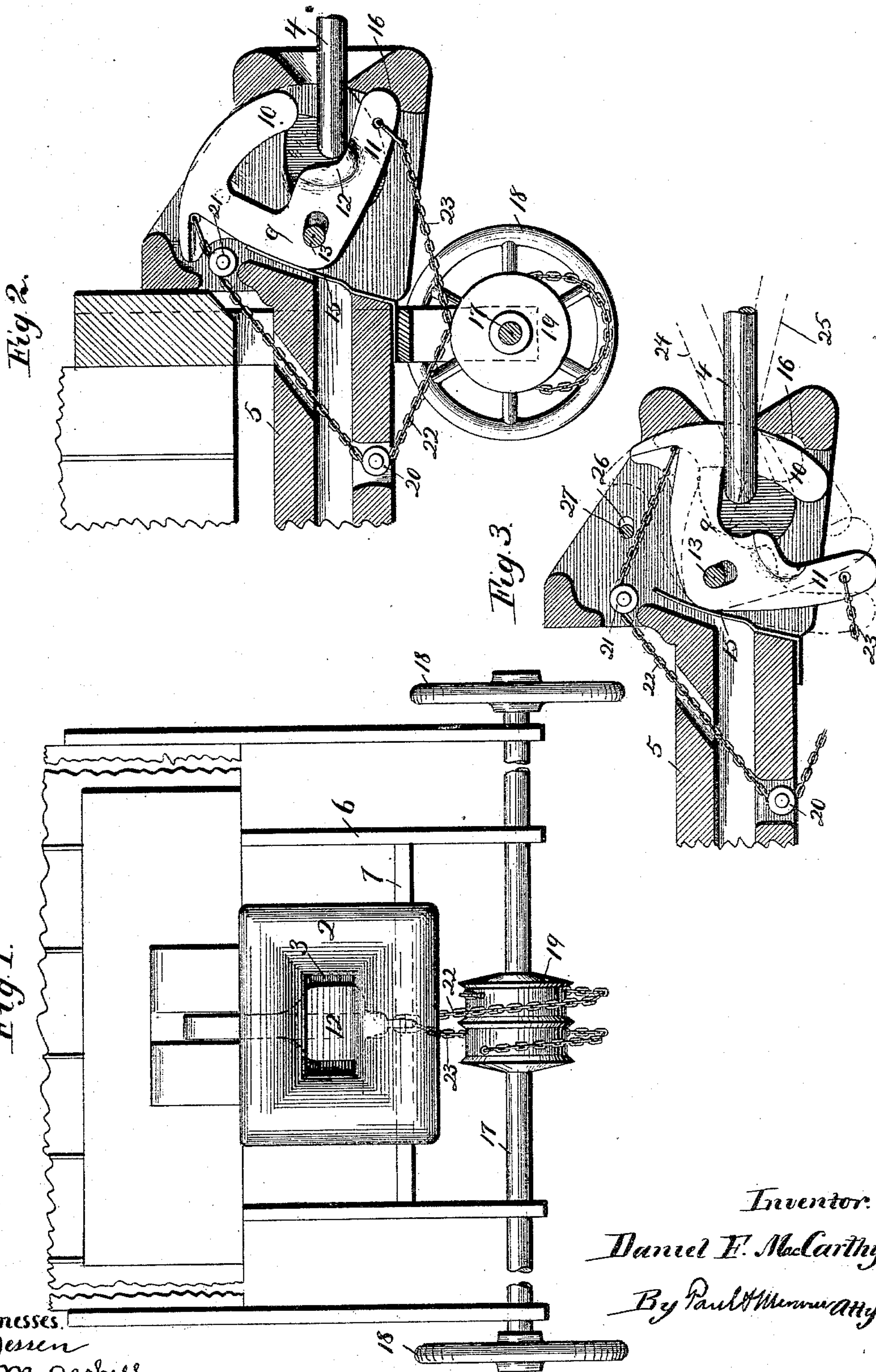


(No Model.)

D. F. MACCARTHY.  
CAR COUPLING.

No. 411,819.

Patented Oct. 1, 1889.



**Witnesses.**

Jessen  
a.m. Gashell

*Inventor:*

*Daniel F. McCarthy*

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# UNITED STATES PATENT OFFICE.

DANIEL F. MACCARTHY, OF ST. PAUL; MINNESOTA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 411,819, dated October 1, 1889.

Application filed July 22, 1889. Serial No. 318,245. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL F. MACCARTHY, of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Automatic Car-Couplers, of which the following is a specification.

My invention relates to improvements in couplers for ordinary railway freight-cars, its object being to provide means for automatically engaging an ordinary coupling-link without using a coupling-pin; and it consists, generally, in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of my improved coupler shown attached to a section of a car. Fig. 2 is a vertical longitudinal section of the coupler, showing a link entering the head; and Fig. 3 is a similar section showing the coupling-latch engaging the link.

In the drawings, 2 represents the coupler-head of ordinary outward form and having the throat or slot 3 to receive the link 4.

5 is the draw-bar, preferably supported underneath the car-body by means of the straps 6 and the cross-bar 7 and with suitable rear support as ordinarily constructed. The coupler-head has a suitable interior recess and a slotted opening through the upper and lower walls of the same for the play of the coupling latch or hook 9. Pivoted near the rear of said recess and a little above the level of a link entering said head is the coupling-hook or latch 9, having the hook 10 and the arm 11, provided with the enlarged and rounded shoulder 12, which is interposed in front of the opening 3 when the latch is in its raised position to receive a link. The hole 14 in the catch receiving the pivot 13 is preferably elongated into a short slot in the direction of the throat of the coupler-head when the latch is in its raised position, as shown in Fig. 2. This is to allow longitudinal movement of the latch, as hereinafter described.

Rigidly secured to the rear wall of the coupler-head recess is the spring 15, bearing against the latch and forcing it into a forward position, and in the interior front wall of the coupler-head recess, beneath the link-

opening or throat, is provided a slight recess 16, of suitable size and form to receive the rounded end of the arm 11, wherein the arm is supported as pressed forward by the spring 15, so that the latch is held, as shown in Fig. 2, with its hook 10 raised above the throat of the coupler-head, so as to allow a link to enter. The enlargement or shoulder 12 of the arm 11 when the latch is in this position stands immediately in front of the opening 3, so that a link entering the head in any position or angle will strike upon it, and, forcing the latch back against the tension of the spring 15, will force the arm 11 downward and the hook 10 into engagement with the link, thus completing the coupling and placing the parts in the position shown in Fig. 3. This action of coupling is wholly automatic, as the link is forced into the draw-head by the momentum of a car carrying the same. In order, however, to readily perform the operation of car-coupling by hand, I prefer to provide the mechanism hereinafter described.

Arranged beneath the draw-bar, slightly back of the coupler-head and transversely of the car, is the shaft 17, preferably journaled in the straps 6 and having hand-wheels 18 on either side of the car. Rigidly secured upon said shaft, directly underneath the draw-bar, is the double drum 19. Secured by one end to said drum and passing upward through the draw-bar and over the sheaves 20 and 21, journaled therein, and by its other end attached to the hook 10 of the latch, is the chain 22. Attached to the other side of said drum and led therefrom in an opposite direction around said drum from the chain 22 is the chain 23, attached by its other end to the arm 11 of the latch. These chains have sufficient slack to allow freedom of movement of the latch in automatic coupling without movement of the shaft 17; but when it is desired to move the latch in either direction the shaft 17 is turned by one of the hand-wheels in the necessary direction to pull whichever one of the chains 22 or 23 is required to be operated to give the desired movement to the latch.

One valuable feature in my invention is the means for elevating or depressing the outer end of a link coupled in the head to any desired angle to guide the link into an opposite coupler-head of different height from the



one in which it is carried. This is done by a slight pull upon the chain 23 by means of the shaft 17 when the latch is in the position shown in Fig. 3, whereby the link is tilted to the angle shown by the dotted lines 24, or by a similar pull upon the chain 22 the latch is raised slightly, and the overbalancing-weight of the outer end of the link tilts it downward into the position shown by the dotted lines 25.

10 In order to prevent the accidental uncoupling of cars by any unusual jar or shock, a transverse hole 26 may be arranged in the draw-head above the hook part of the latch, into which a pin 27 may be inserted to hold the latch in engagement with the link. The space between the hook and arm of the latch is sufficient to allow the same flexibility in the coupling and play of the parts as in the ordinary link-and-pin coupling. In the case of the breaking loose of the draw-bar from the car the chain 22 will act automatically to raise the latch and uncouple the cars, which is a great advantage in case of the train breaking in two. This form of coupling is much stronger than the ordinary link-and-pin coupling, and has the advantage of having no detachable parts, excepting the link. The spring 15 serves also to always keep the latch in position in readiness to couple with a link.

30 In addition to the automatic action of the coupler and its operation by means of the shaft and hand-wheels the operations of uncoupling may, if necessary, be performed by hand by raising the hook of the latch by means of the projecting point 26, which is readily grasped by the hand.

I claim—

1. The combination, with a coupler-head, of a coupling-latch pivoted therein above its medial line, having a slotted pivot-hole allowing forward and backward movement of the latch in the head, and having a downwardly-projecting hook for engaging the coupling-link, and a forwardly-projecting arm beneath said hook, arranged when the latch is raised to be interposed in front of the opening in the coupling-head and to be struck by an entering link, a socket in the coupler-head to receive the end of said arm and support it in its raised position, and a spring arranged behind said latch and bearing upon the same, and adapted to force said latch forward in the coupler-head, substantially as described.

55 2. In a car-coupler, the combination, with the coupler-head 2, provided with a suitable recess and a vertical longitudinal slot through the same, of the latch 9, pivoted in said recess above the center of the head, having an elongated pivot-hole and provided with the

hook 10, and the arm 11, having the shoulder 12, the recess 16, arranged in the front wall of the interior of the coupler-head beneath the link-opening and adapted to receive the arm 11, and the spring 15, secured to the interior rear wall of the coupler-head and bearing against said latch, substantially as and for the purposes set forth.

3. The combination, with a coupler-head having a suitable vertically-slotted interior recess, and socket 16 in the front wall thereof beneath the link-opening, of the pivoted latch 9, having the elongated pivot-hole 14, the hook 10, the arm 11, and the shoulder 12, the spring 15, arranged in the rear of the coupler-head recess and bearing against said latch, the drum-carrying shaft 17, arranged transversely underneath the draw-bar, and the chains 22 and 23, each secured by one end to said drum and wound oppositely thereupon, and having their other ends secured, respectively, to the hook 10 on the arm 11 of the coupling-latch, substantially as described.

4. The combination, with a coupler-head having a vertically-swinging pivoted latch adapted to engage a coupling-link and by its pressure upon the end of said link to raise and lower the projecting end of the link to any desired angle, of a drum-carrying shaft journaled transversely underneath the draw-bar, chains running from said drum to said latch and adapted as the drum is rotated in one direction to raise the latch, and when rotated in the opposite direction to lower said latch, substantially as described.

5. The combination, with a coupler-head, of a latch loosely pivoted therein having a downwardly-projecting link-hook, and a forwardly-projecting arm underneath said hook provided with a shoulder arranged to be interposed in front of the link-opening in the coupler head when the latch is in its raised position, a spring adapted to force said latch forward in the head, and a socket in said head to receive and support said arm as forced forward by said spring, by means of which an entering link will strike upon the shoulder of said arm and force said arm backward from the socket, bringing the hook into engagement with the link, which by its pressure upon the same supports the outer end of said link at any desired angle, substantially as described.

In testimony whereof I have hereunto set my hand this 13th day of July, 1889.

DANIEL F. MACCARTHY.

In presence of—

T. D. MERWIN,  
BESSIE BOOTH.