(No Model.)

D. F. MacCARTHY.

CAR COUPLING.

No. 441,499. Patented Nov. 25, 1890.

Fig. 1.

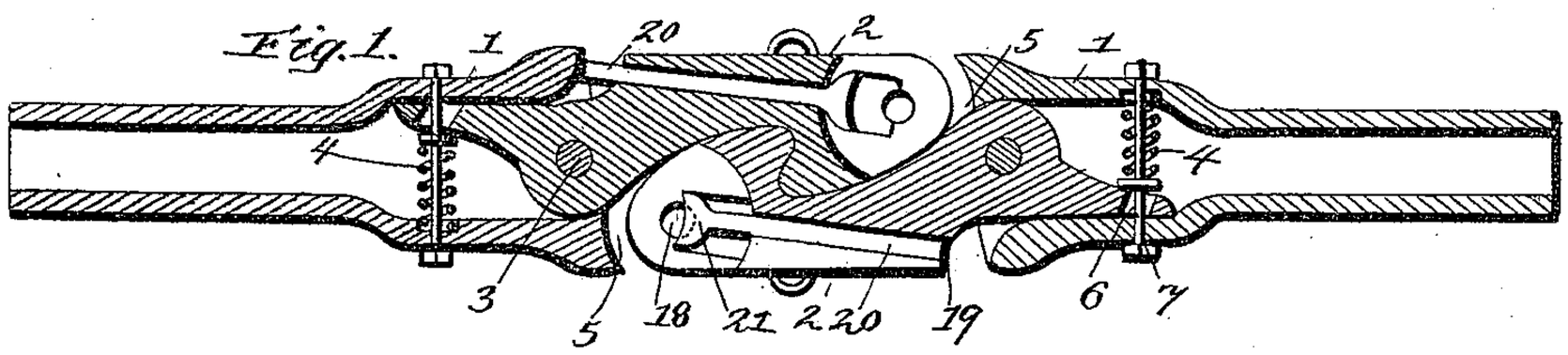


Fig. 2.

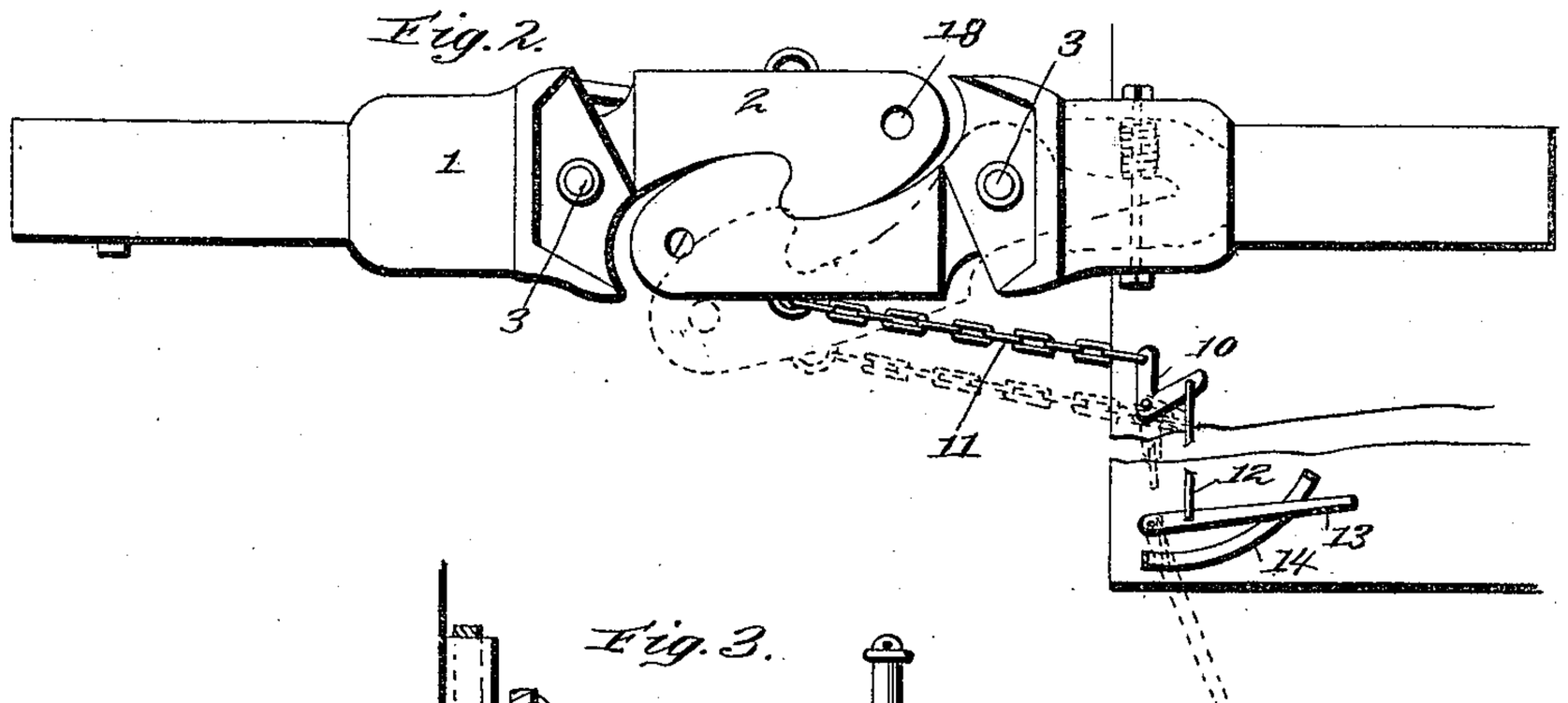


Fig. 3.

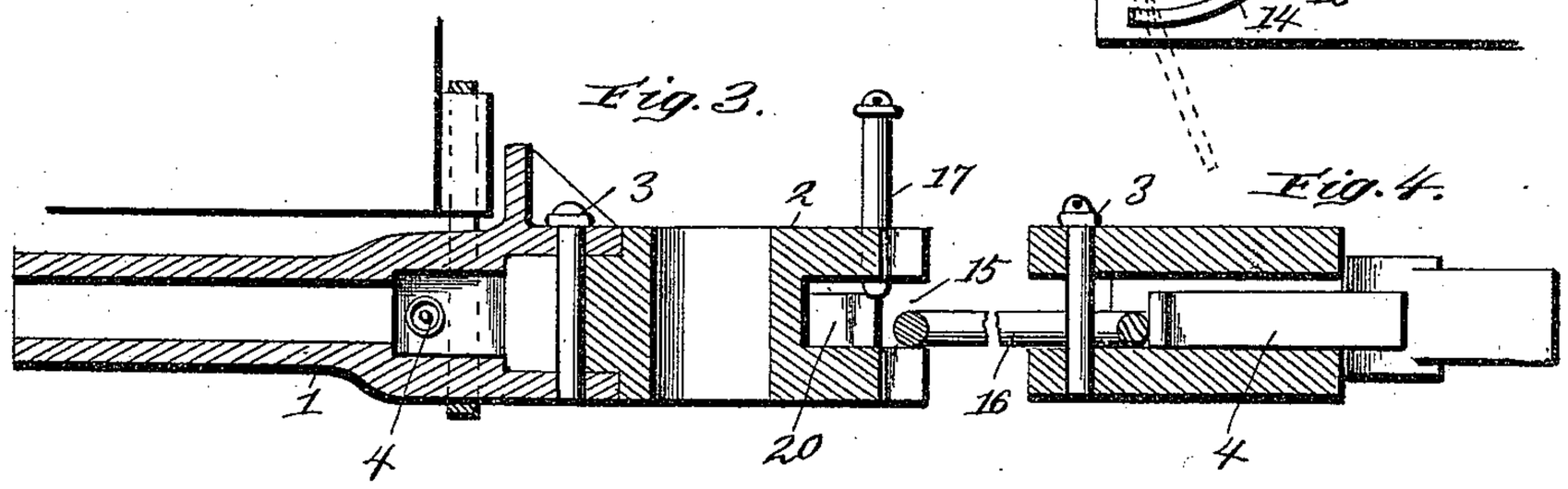


Fig. 4.

Fig. 5.

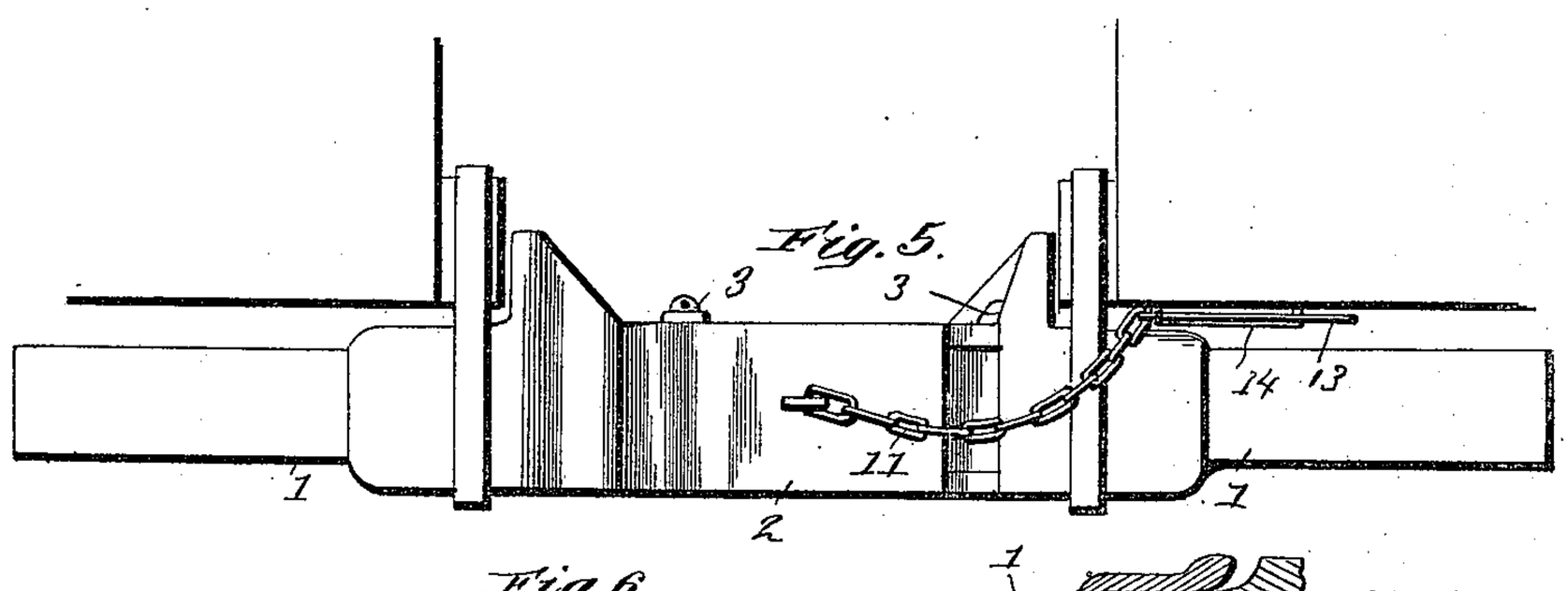


Fig. 6.

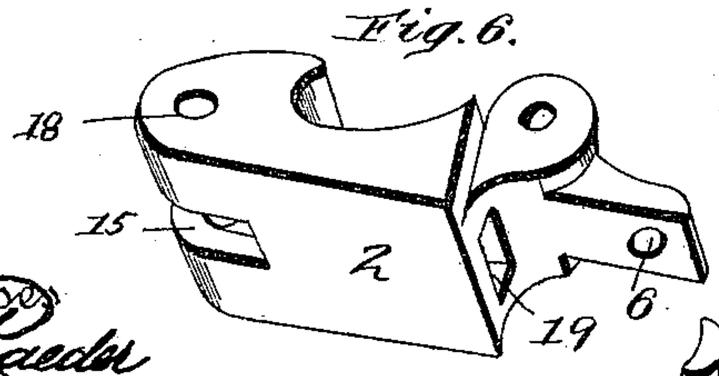


Fig. 8.

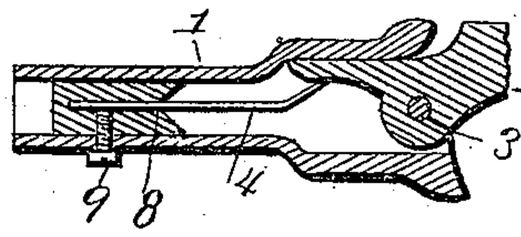
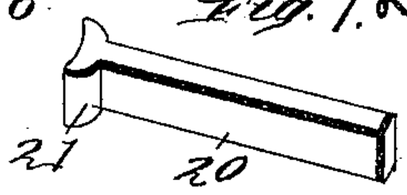


Fig. 7.



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UNITED STATES PATENT OFFICE.

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

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 441,499, dated November 25, 1890.

Application filed February 24, 1890. Serial No. 341,500. (No model.)

To all whom it may concern:

Be it known that I, DANIEL F. MACCARTHY, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Automatic Car-Couplers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to car-couplers; and it consists in the improved construction and combination of parts of coupler as shall make it simple, durable, and efficient, as will be hereinafter more particularly set forth.

In the accompanying drawings, Figure 1 is a horizontal longitudinal sectional view of my improved coupler. Fig. 2 is a top plan view. Fig. 3 is a vertical longitudinal sectional view showing my improved coupler receiving an ordinary link-coupler. Fig. 4 is a similar view showing the link-coupling completed. Fig. 5 is a side view of my coupler. Fig. 6 is an enlarged perspective view of one of the jaws of the coupler. Fig. 7 is a similar view of a bar that fits within the same and engages with the pin when used with an ordinary link; and Fig. 8 is a horizontal longitudinal sectional view of a draw-head, the foot of its jaw showing a different spring.

Referring briefly to the drawings, in which the same reference-numerals indicate corresponding parts in each of the views, 1 indicates the draw-head; 2, the jaw, which is pivotally secured in the end of the draw-head by means of the pin or bolt 3, and 4 is the spring which engages with the inner end or foot of the jaw and holds the outer end in position for engaging with a similar jaw upon the car to be coupled, each car being provided with a jaw at each end. The front end of each of the jaws is provided with a hook 5, which fits into a corresponding recess in the side of the jaw of the car to which it is coupled. The points of the jaws are blunt or rounding, so they will slide past each other when coming together, and not be broken or damaged, as might occur if they were not thus constructed. The facing sides of the jaws are also made inclined and curved, so that as the cars are coming together the jaws will be forced back until the points of the hooks pass each other and then enter the recesses in each other and effect the coupling. The points of the hooks and the recesses are each made curved or rounding, so as to permit of the free lateral movement of the cars without danger of breaking off the point. By pivoting the jaw to one side of the direct line of draft the pull upon the coupling only causes the jaws to be drawn more firmly together, which, with the pressure exerted by the spring 4 in the same direction, prevents the jaws from becoming separated accidentally, as by the swaying motion of the cars or in passing around curves, &c. The face or front end of each draw-head is formed into an ogee curve, which thus forms a cavity or pocket 5, into which the end of the jaw is driven when the cars come together with any considerable amount of force, and thus causes a greater portion of the draw-head to bear the shock than would be done otherwise, and it also prevents the ends of the jaws from being forced to one side to such an extent as to break them, as might be done if there were nothing to prevent the draw-heads from approaching each other too closely.

I have shown two styles of spring for engaging with the foot of the jaw and holding the outer end in position for coupling—a coiled spring, as shown in Figs. 1 and 2, held in position by a rod 7, passing through a hole in the foot of the jaw, and also a flat spring secured at one end in a notch 8 by means of a set-screw 9. In either case the result is the same. The spring is compressed or deflected by the outward movement of the jaw in coupling, which reacts as soon as the points of the hooks of the jaws pass each other and forces them together.

To uncouple the cars, it is only necessary to draw the jaws back from each other sufficiently to let the points of the hooks pass each other and hold them in that position until the cars are separated or drawn apart. This can be done in any convenient manner, although I have shown a bell-crank lever 10, pivoted to the end of the car, having a chain 11, connecting one arm with the jaw, and a rod 12, connecting the other arm with a handle or le-

ver 13, which is located at one side or on top of the car, thus enabling the attendant to disengage the jaws without passing in between the cars. The lever 13 may engage with a stop or catch upon a guard 14 on the side of the car, and thus permit of the jaws being held apart as long as desired without the care of an attendant; but when it is desired to effect a coupling the lever is disengaged, so as to permit of the jaws standing in their normal position to make the act of the coupler completely automatic.

As it will sometimes be necessary to make a coupling with cars which are not provided with my improved coupler—as, for instance, with the ordinary link and pin—I have provided the end of each jaw with a horizontal slot 15, within which the end of a link 16 can be secured by the pin 17, passed down through the hole 18 in the ordinary manner. I further provide the jaw with a longitudinal hole or opening 19, in which fits a bar 20, one end of which is preferably provided with a head or enlargement 21, and supports the end of the pin before the coupling is effected, as shown in Fig. 3. As soon as the link enters the slot and strikes the end of the bar it drives the bar back from under the end of the pin, and thus lets it fall through the link and make the coupling, and at the same time it drives the opposite end of the bar back against the end of the draw-bar, as shown in Fig. 1, and thus causes it to steady the hook by preventing its being driven back in that direction.

As above described, it will be seen that my improved coupler can be easily applied to cars that are now in use by taking out the draw-bars and putting mine in their places, and that when thus equipped the cars can be coupled automatically, and consequently without the danger that is incurred with the ordinary link and pin.

The parts are all made strong and substantial to withstand the shock of the cars coming together, and by placing the spring within the draw-head it is not exposed to the action of the weather. When a coupling has been made, it will not come apart until released by hand.

The inner end of each jaw is provided with a round shoulder 22, which fits within a corresponding recess within the draw-head and takes up the jar or shock of the cars when coming together, and thus relieves the pin 3 to that extent. By making it curved it permits of the jaw swinging on the pin and still taking up the shock in any position.

Having described my invention, what I claim is—

1. In a car-coupler, the combination, with the draw-head having its face provided with the curve 5, of a jaw pivotally secured therein having its outer end rounded, whereby its abutment with the curved face of the draw-head will insure a locking of the jaw, said jaw also having its outer end provided with a longitudinal opening, and a transverse slot and a bar arranged within the opening and adapted to engage the locking-pin, substantially as specified.

2. In a car-coupler, a pivoted locking-jaw having its forward end slotted horizontally to receive a link and vertically to receive a pin, and also having a hole or slot leading rearwardly from the horizontal slot, in combination with a movable bar adapted to sustain the coupling-pin, substantially as specified.

3. In a car-coupler, the combination, with a draw-head, of a jaw pivotally secured therein, the outer portion of which is provided with a longitudinal opening and a transverse slot, and a bar within the opening, one end of which engages with a pin within a hole in the end of the jaw, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL F. MACCARTHY.

Witnesses:
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E. A. DOUGLASS.