(No Model.) 2 Sheets—Sheet 1.

H. C. BUHOUP.

CAR COUPLING.

No. 431,644. Patented July 8, 1890.

Fig. 1.

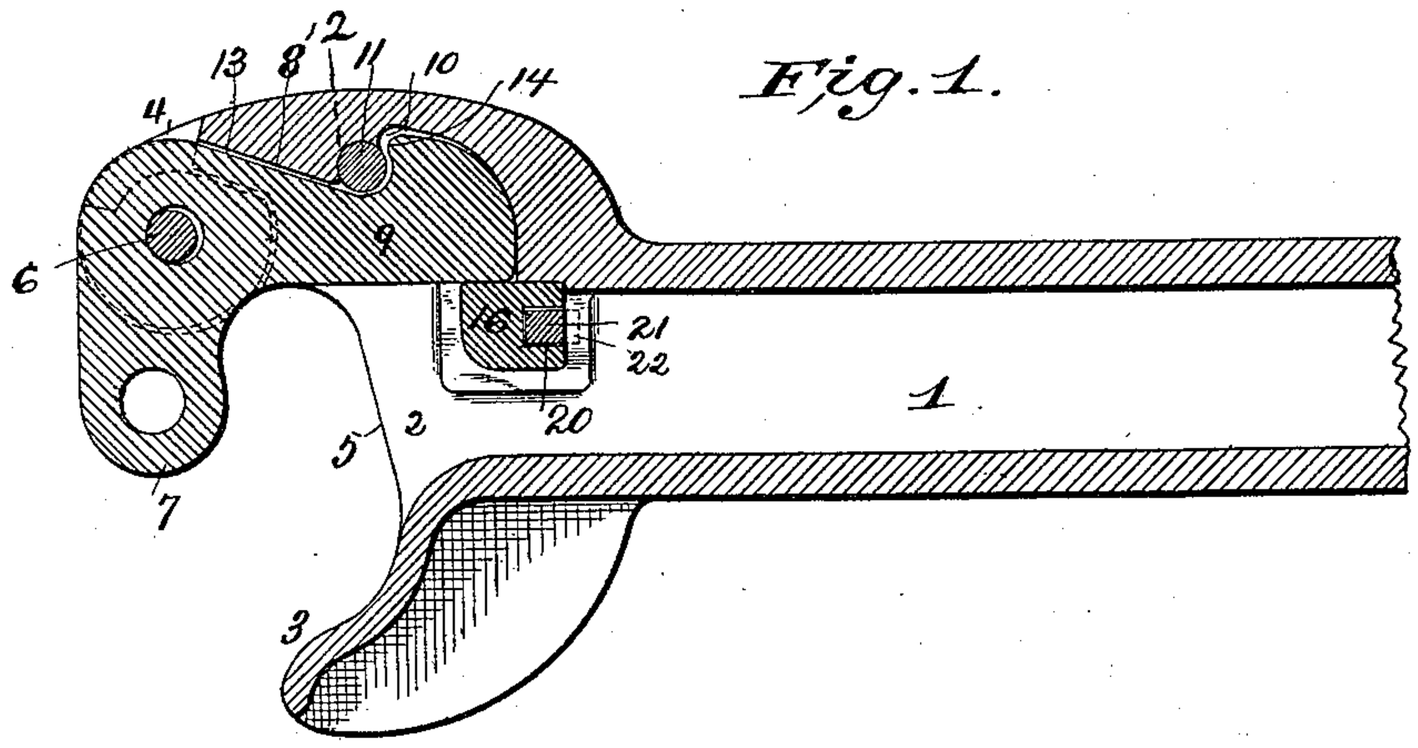


Fig. 2.

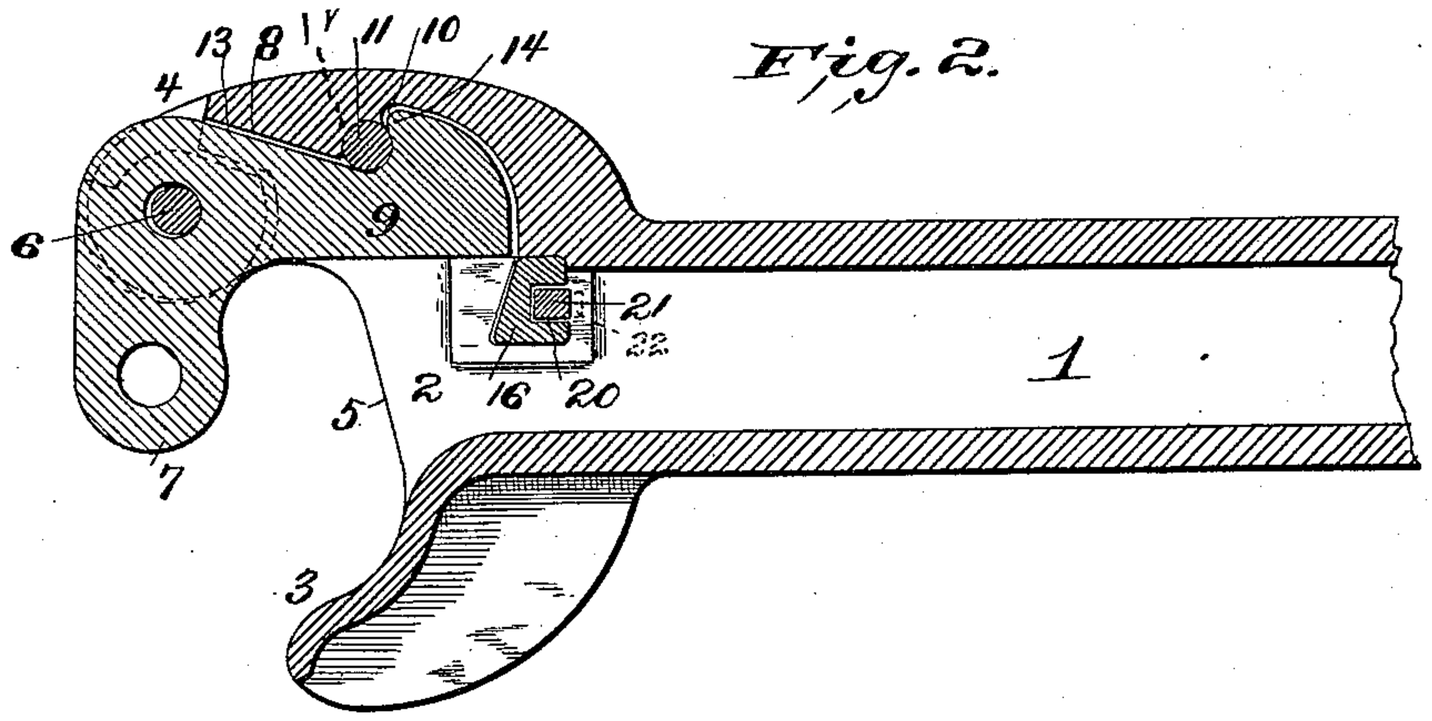
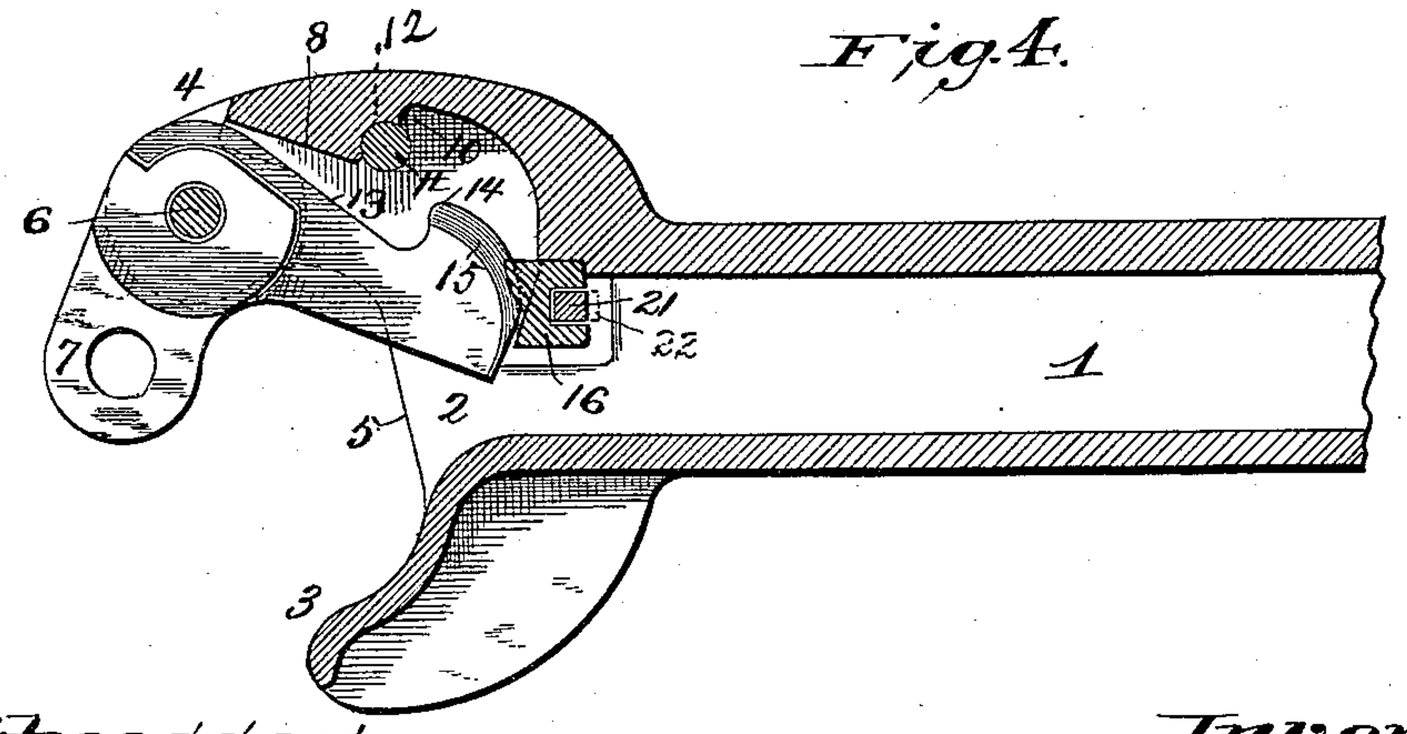


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3

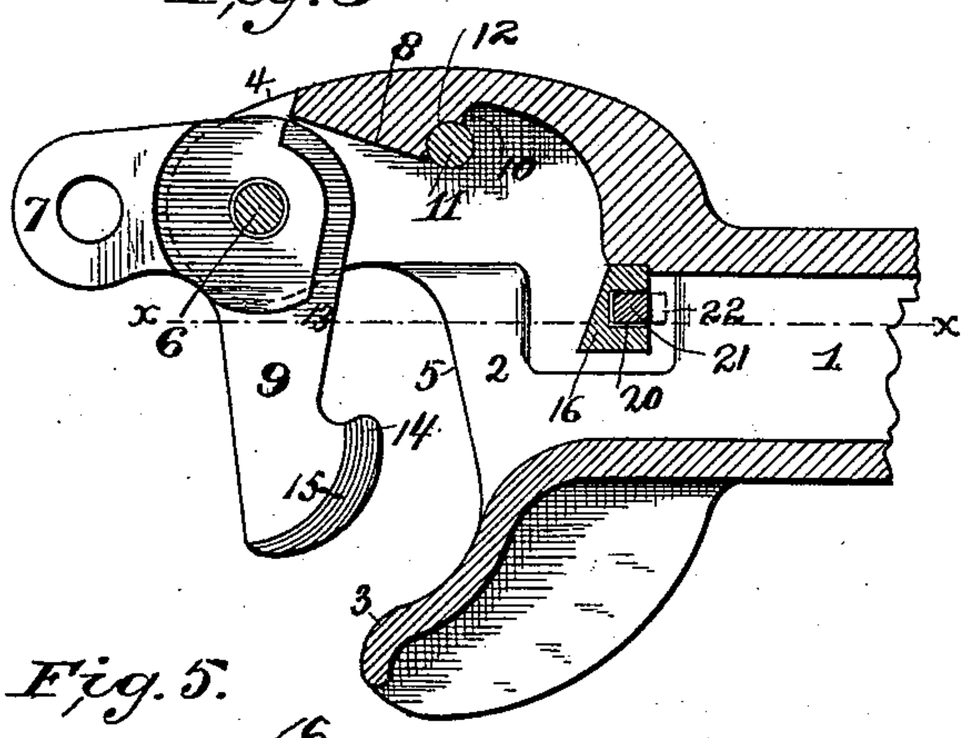


Fig. 5.

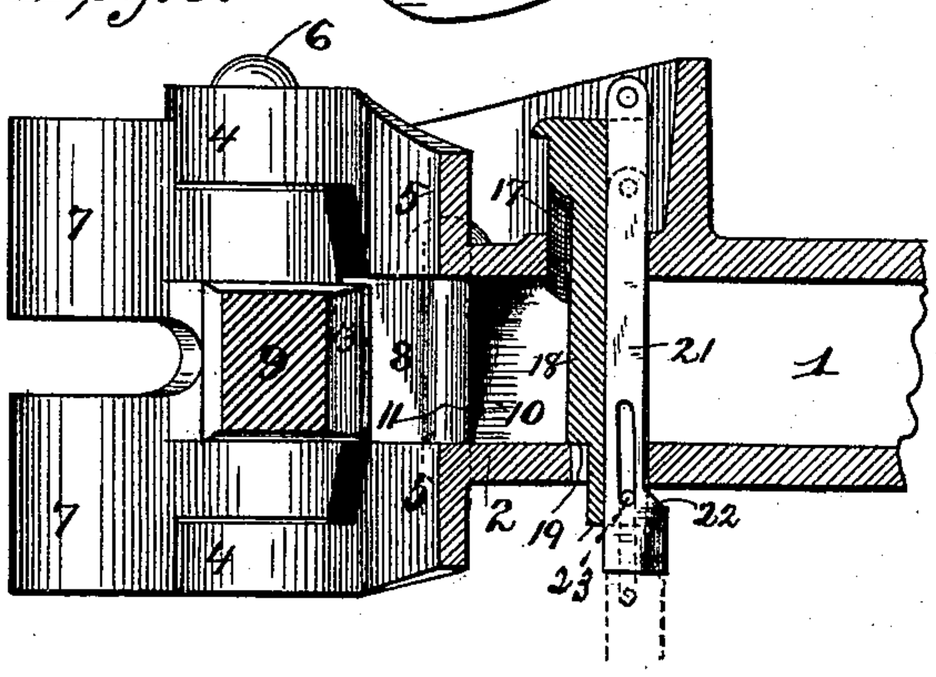


Fig. 6.

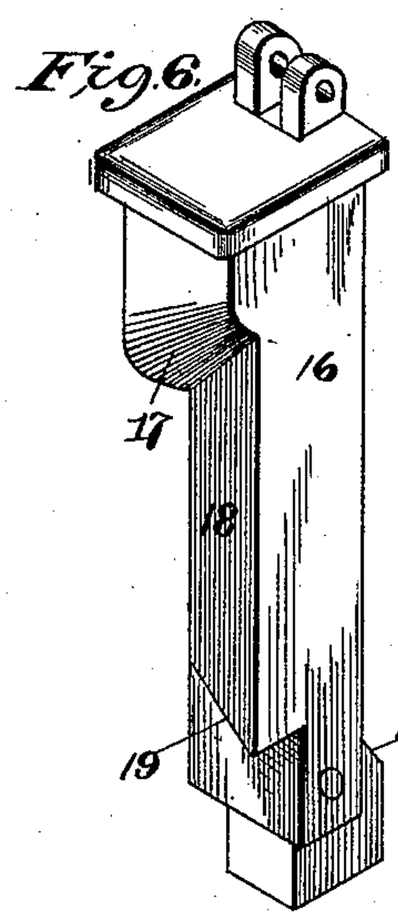
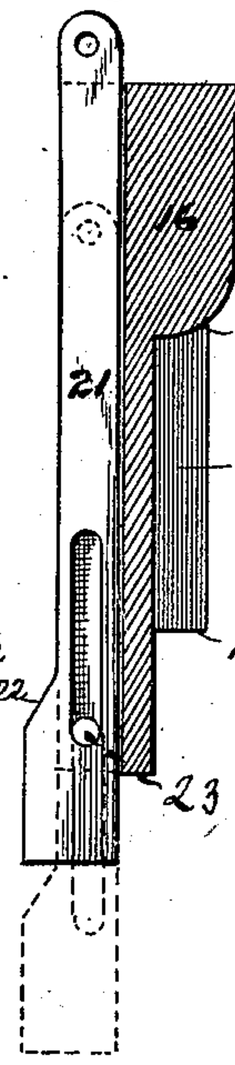


Fig. 7



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UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 431,644, dated July 8, 1890.

Application filed March 20, 1890. Serial No. 344,626. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Car-Couplings; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, wherein—

Figure 1 is a horizontal section of a coupler embodying my invention, the pivoted nose closed and the locking-pin down or in the positions they will occupy when the cars are coupled. Fig. 2 is a horizontal section of the same, the pivoted nose closed, but the locking-pin raised or set to release the pivoted nose in the position the pin will occupy when about to uncouple the cars. Fig. 3 is a horizontal section of the same, the pivoted nose open and the locking-pin down, the parts being in the position they will occupy when uncoupled and when ready for coupling up. Fig. 4 is a horizontal section of the same, the tail-piece of the pivoted nose having engaged and lifted the locking-pin, as in the act of coupling up. Fig. 5 is a vertical section of the same on the line $x\,x$, Fig. 3. Fig. 6 is a detached view of the locking-pin. Fig. 7 is a longitudinal sectional view of the locking-pin.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of that class of couplers commonly termed "twin-jaw" couplers, whether the same have a revolving nose and pivot-pin, as in the Janney type, or a solid journal-bearing, as in the Browning and other well-known couplers, and has for its object to relieve the devices of torsional strains and rupturing force, and in case of the Janney type the pivot-pin of the nose from shearing force.

For purposes of illustration I have chosen the Janney type of coupler, as that form is best known and in most general use.

So far as I am aware the construction which has heretofore been suggested for relieving the pivot-pin of the revolving nose from strain during the draft on the nose has consisted in the application of lugs or shoulders to the tail-piece of the pivoted nose and recesses or shoulders in the head to coact with those on the tail-piece, and sufficient play of the pivot pin or bearing to permit contact of the shoulders and transfer the draft strain thereto. Such shoulders have usually been square or at right angles to the longitudinal axis of the draw-bar or line of draft, though sometimes they have been inclined to obtain a hook purchase. Where the shoulders are square, it is practically impossible to cast the parts so that a little wear will not render them inoperative, and where they are hooked or reversely inclined the general contour of the adjacent parts of the head and the line of force have rendered them practically useless.

The constructions hereinbefore specified have been more or less inefficient for the purposes intended—viz., the preservation and durability of the structure.

My present invention is intended to overcome these several objectionable features and to relieve the shell of the draw-head of splitting and crushing strains.

The main feature of my present invention consists in combining with the draw-head and pivoted nose of a coupler, said pivoted nose having a hooked tail-piece, of a bolt so arranged in the head that the hooked tail-piece of the pivoted nose will engage therewith and operate thereon during the draft.

A second feature of my invention consists in combining, with a draw-head having an inclined bearing-surface on its inner side wall and a recess at the rear end of said incline, of a bolt arranged at the rear end of said incline to coact with a pivoted nose having a hooked tail-piece.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more specifically, so that others skilled in the art to which it appertains may apply the same.

In the drawings, 1 indicates a portion of the draw-bar, which draw-bar is of the usual form; 2, the draw-head having the guard-finger 3, the journal 4, and the usual curved buffing-face 5. The part 4 may be of the usual construction of the well-known "Janney" coupler, with its pivot-pin 6 for the pivoted nose 7; or it may be the solid buttress or journal-bearing of other well-known forms of

coupler, if preferred. The interior side wall 8 of the draw-head adjacent to the journal of the pivoted nose 7, and against which the tail-piece 9 rests when the coupler is closed, I preferably form sloping or in an inclined plane which intersects the axis of the draw-bar 1, and I terminate such incline in a curved or rounded projection with curved recess 10 in rear thereof for the reception of a hooked (or curved) projection on the tail-piece 9. The rounded termination of the incline 8 (which is a wearing-surface) is formed by a through-bolt 11, having a rounded seat 12, and said bolt is capable of rotation so as to change and preserve the bearing, so that it can be easily replaced if broken or when worn. The incline 8, when adopted, also serves to thicken up the head and strengthen it at a point where strain is brought on it.

The pivoted nose-piece 7 is provided with the usual tail-piece 9 at substantially right angles thereto. The rear edge of the said tail-piece I slope or bevel, as at 13, on substantially the same inclined plane as the surface 8, so that when the tail is driven against the incline of the head, as in buffing, the line of force will be in the long axis of the tail-piece and the draw-bar 1, and also so that when the tail-piece 9 is drawn against said incline 8, as in pulling, it will hug the side wall of the head. The incline 13 of the tail-piece terminates in a rearwardly-curved hook 14, adapted to enter the recess 10 in the side wall of the head and bear on the through-bolt 11 or its equivalent, while the tail-piece itself, when the coupling is closed, stands in direct line with the draw-bar 1. The pivot-hole of the pivoted nose (or the bearing thereof) is sufficiently larger than the pivot-pin 6 to allow of certain slack or longitudinal play of the nose and its tail-piece 9, and the tail-piece is preferably, but not necessarily, of such length that its extremity (when closed) will come to a bearing on the draw-head at its point of union with the draw-bar before or by the time the slack between the pin 6 or journal and nose has been taken up in buffing. The rearwardly-curved hook 14 of the tail-piece is also so placed that when the tail-piece is drawn on said hook will come to a bearing on the through-bolt 11 before the lost motion or slack between the nose and pivot-pin 6 (or bearing) has been taken up, so that the pull on the nose 7 and tail-piece 9 will be in a direct line and be exerted on the bolt 11. The upper edge of the tail-piece 9 is beveled off, as at 15, to lift the locking-pin when coupling, as will hereinafter appear. 16 indicates the locking-pin for holding the tail-piece 9 of the pivoted nose. Said pin is located just off the longitudinal central line of the head and draw-bar, and affords the end of the tail-piece a side bearing which keeps the tail-piece in line with the wall of the draw-bar 1. The face of the locking-pin has a vertically-inclined shoulder 17, which enables the beveled end of the tail-piece to operate as a latch and lift the locking-pin on the inward movement of the tail-piece in coupling. It also has a lateral bevel 18 to permit the passage of the tail-piece in both coupling and uncoupling, and is provided near its lower end with a shoulder 19, adapted to support the locking-pin on the edge of the pin-hole within the shell of the draw-head. Locking-pins for this class of couplers have either been suspended by suitable devices or supported by a lip or shoulder near the head of the locking-pin, which shoulder rested on the upper edge of the pin-hole in the draw-head; but in my devices the locking-pin is supported by the edge of the pin-hole at the bottom of the draw-head, and may be set either by a chain secured to the pin in front of its long axis, so that the pin will hang in an inclined position, or, as I prefer, may be positively set by means of a cam (or key) slide, as shown in Fig. 7.

In case the sliding cam is used, a longitudinal groove or channel 20 is formed in the back of the key for the reception of a slotted slide 21, provided with a rearward projection or cam 22, and the slide is secured to the locking-pin by a pin 23, or in any other suitable manner. To the upper end of slide 21 a lifting-chain (not shown in the drawings) is attached.

The construction being substantially that hereinbefore specified, the coupler will operate as follows: When the cars are coupled, the parts will be in the position shown in Figs. 1 and 2, and the strain in pulling will be a little off the longitudinal central line of the coupler, but in the line of the tail-piece 9, which will relieve the parts of torsional strain and will cause the tail-piece 9 to hug the side wall of the head and the hook 14 to come to and maintain a bearing on the bolt 11 before any strain has been brought on the pivot 6. This bolt 11 will rotate to permit the passage and seating of hook 14 of the tail-piece, and such rotation will tend to present fresh bearing-surface to the hook and thus preserve the parts. In buffing the force will, owing to said inclines, be in the line of the tail-piece, and the end of said tail-piece will, if of sufficient length, come to a bearing, so as to transmit the force directly to the draw-bar 1 before any strain is brought on the pivot-pin 6 or on the shell of the draw-head. In uncoupling the locking-pin 16 is raised until its lower shoulder 19 swings over the edge of the pin-hole within the head, or is forced over by the cam-slide 21 22, when, in case the slide 21 22 is used, said slide is allowed to fall, and the locking-pin thus set permits the escape of the tail-piece, the rotation of the pivoted nose, and uncoupling of the cars. This will leave the parts in the position shown in Fig. 3 or ready for coupling up. In coupling up the nose 7 of its fellow strikes the tail-piece 9, and causes it to recede into the head. Said tail-piece, in its movement striking the incline 17, lifts the locking-pin 16, and as soon as the

tail-piece has passed the locking-pin 16 falls and prevents the return movement of the tail-piece.

Having thus set forth the nature, operation, and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a car-coupler, the combination, with a draw-head, of a pivoted nose having a hooked projection or tail-piece, and a bolt arranged in the head to engage the hooked projection of the pivoted nose at the time of draft, substantially as and for the purposes specified.

2. In a car-coupler, the combination, with a draw-head having an inclined bearing-surface on its inner side wall and a recess at the rear end of said incline, of a bolt arranged at the rear end of said incline, and a pivoted nose having a tail-piece, the rear edge of which is inclined to correspond with the incline of the side wall of the draw-head, said tail-piece having a curved or hooked projection at the end of said incline, substantially as and for the purposes specified.

3. In a car-coupler, the combination, with a draw-head having an inclined bearing-surface on its inner side wall and a curved recess at the rear end of said incline, of a bolt arranged at the foot of said incline, a loosely-pivoted nose provided with a tail-piece having its rear edge inclined to correspond with the inclined side wall of the head, and having a curved projection adapted to enter the recess at the foot of the incline of the side wall, the said tail-piece being of such length that it will come to a bearing on the draw-head at its juncture with the draw-bar, and a locking-pin, substantially as and for the purposes specified.

4. In a car-coupling, the combination, with a pivoted nose having a tail-piece, of a locking-pin having a longitudinal channel in the rear thereof, and a slide 21, arranged in said channel, and having on its rear cam 22, adapted to bear on the rear wall of the pin-slot, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 18th day of March, 1890.

HARRY C. BUHOUP.

Witnesses:

PHILLIP HIEN,

WALTER H. PARCELLS.