(No Model.) 2 Sheets—Sheet 1.

H. SCHAEFFER.

CAR COUPLING.

No. 462,589. Patented Nov. 3, 1891.

Fig. 1.

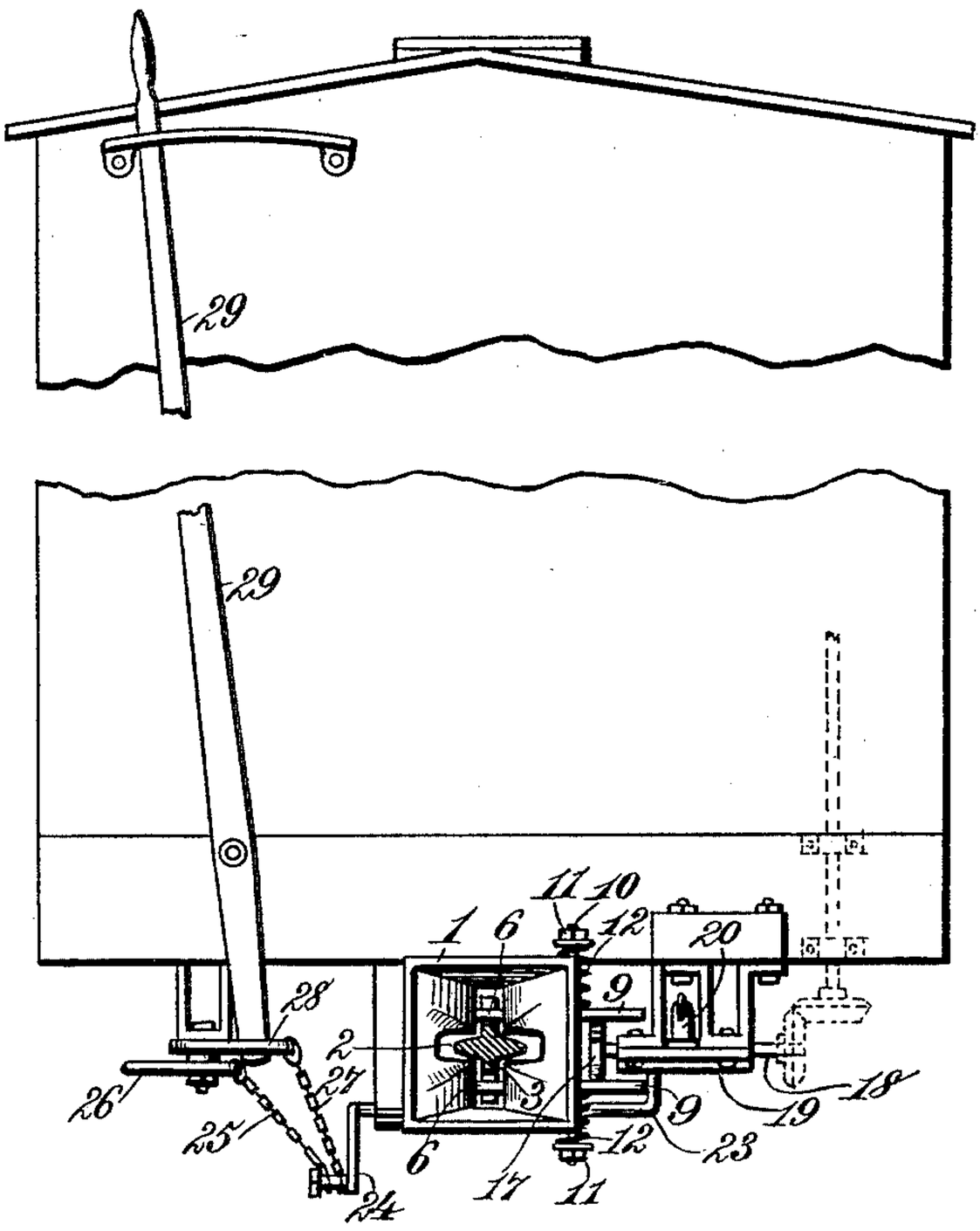


Fig. 2.

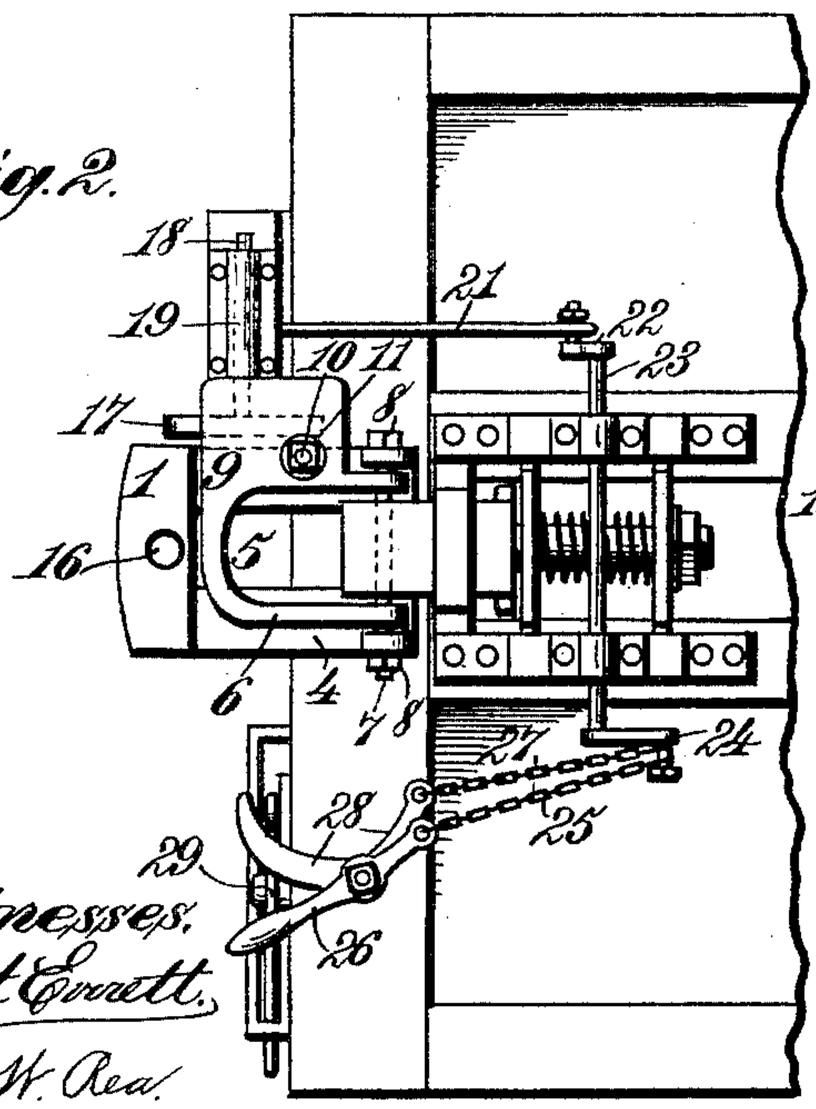
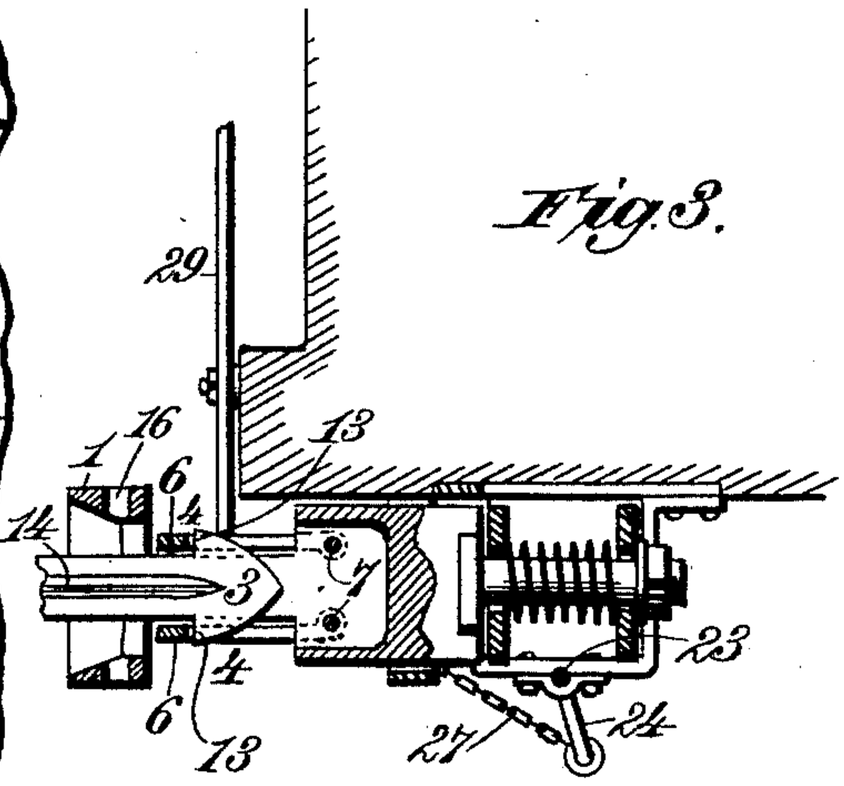


Fig. 3.



Witnesses.
Robt Ewett.
Geo. W. Rea.

Inventor.
Henry Schaeffer.
By James L. Norris.
Atty.

(No Model.) 2 Sheets—Sheet 2

H. SCHAEFFER.

CAR COUPLING.

No. 462,589. Patented Nov. 3, 1891.

Fig. 4.

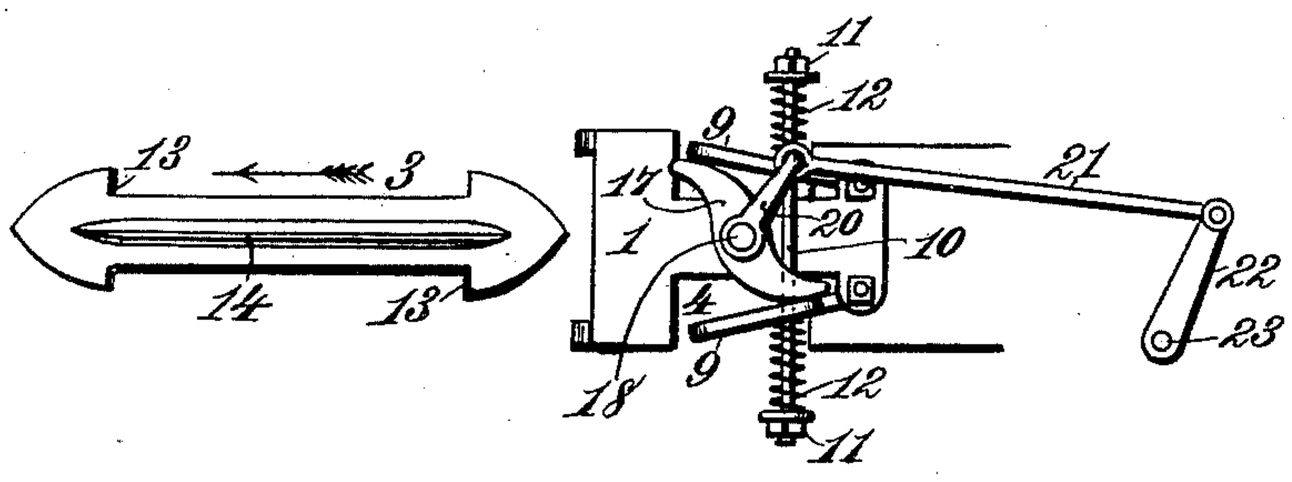


Fig. 5.

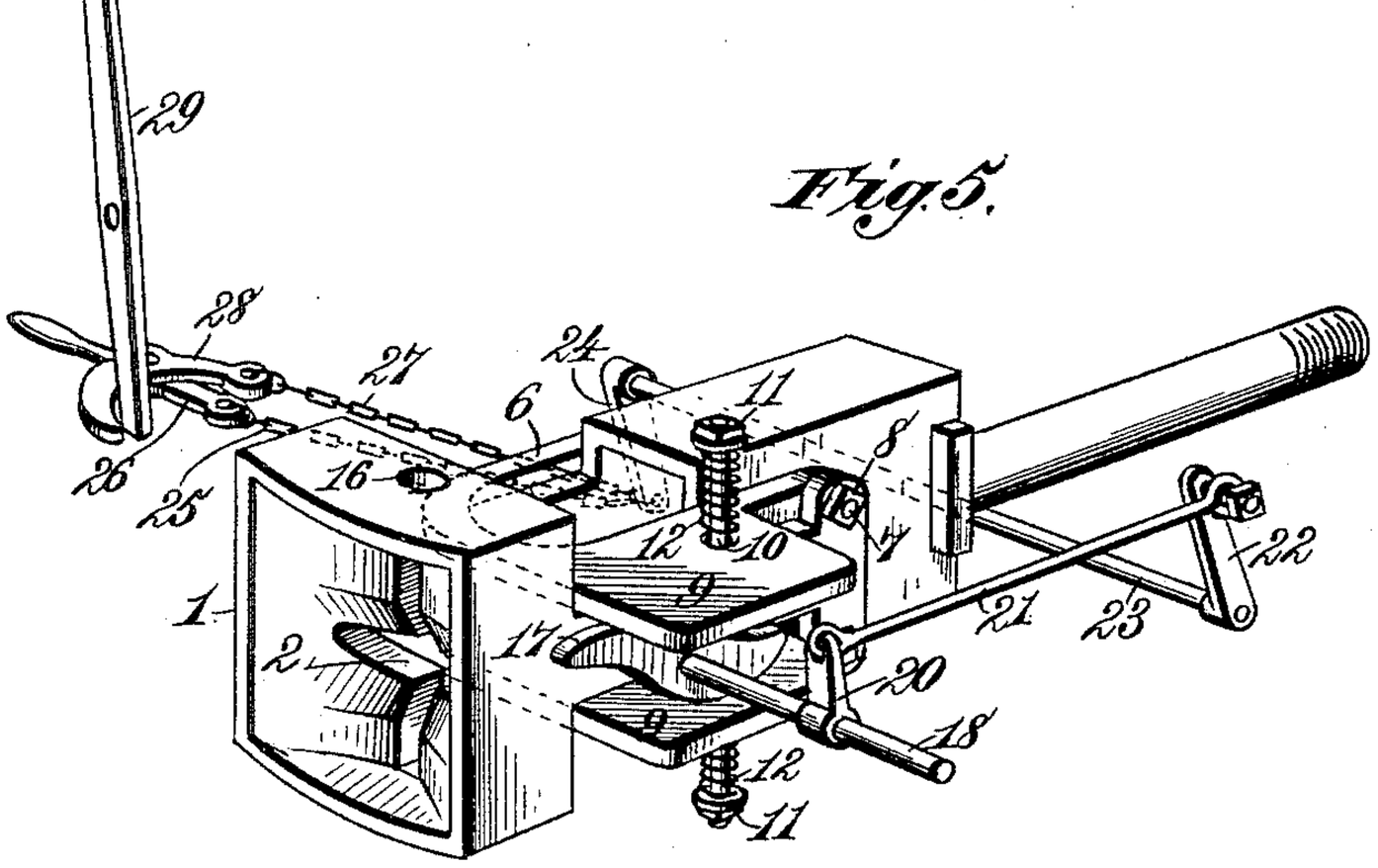


Fig. 6.

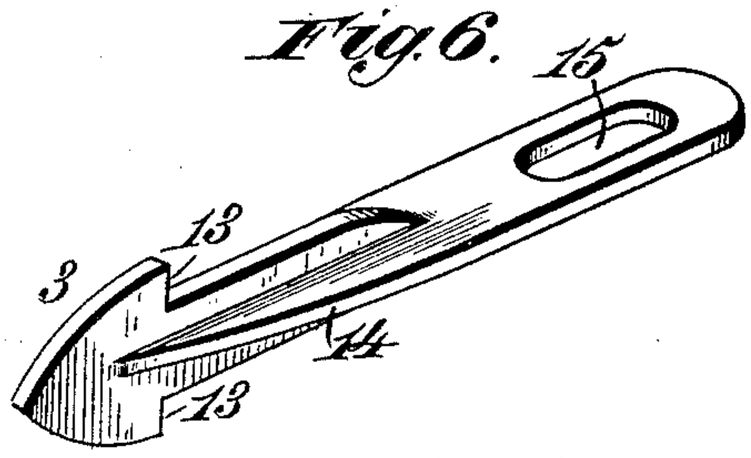
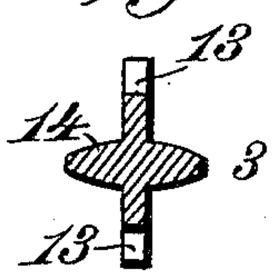


Fig. 7.



Witnesses.
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Inventor.
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UNITED STATES PATENT OFFICE.

HENRY SCHAEFFER, OF RIDGWAY, COLORADO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 462,589, dated November 3, 1891.

Application filed July 18, 1891. Serial No. 399,942. (No model.)

To all whom it may concern:

Be it known that I, HENRY SCHAEFFER, a citizen of the United States, residing at Ridgway, in the county of Ouray and State of Colorado, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

This invention relates to that class of automatic car-couplings which employ an arrow-head link; and it consists in the peculiar features of construction and in the combination and relative arrangement of devices, as hereinafter more fully set forth.

In the annexed drawings illustrating the invention, Figure 1 is an end elevation of a car provided with my improved coupling devices. Fig. 2 is a bottom plan of the same. Fig. 3 is a vertical longitudinal section of the coupling. Fig. 4 is a detail side elevation of a portion of the coupling, showing the manner of releasing the link for the purpose of uncoupling. Fig. 5 is a perspective of the principal parts of the car-coupling. Fig. 6 is a view of a link having an arrow-shaped head at one end to engage with my improved coupling devices and provided at its other end with an eye or slot to engage the pin of an ordinary coupling. Fig. 7 is a transverse section of my improved coupling-link.

Referring to the drawings, the numeral 1 designates the draw-head, which is provided with a flaring, concaved, or beveled mouth having a cross-shaped aperture 2 for passage of an arrow-headed link 3, that is cross-shaped in transverse section, as shown in Figs. 1 and 7. The upper and lower surfaces of the draw-head 1 in rear of its forward end are formed with recesses 4, that extend at their outer ends entirely across the draw-head and communicate by longitudinal slots 5 with its interior. These recesses 4 afford accommodation for a pair of vertically-swinging yokes 6, Figs. 2, 3, and 5, that are pivoted at their rear ends on removable horizontal pivot-pins 7, provided with nuts 8, by which the said parts are held in place, so as to be readily detached and replaced when necessary. One of these vertically-swinging yokes 6 is arranged in each recess 4 above and below the draw-head, and each yoke is provided on one side with a horizontally-projecting plate 9, Fig. 5, that is perforated to permit its movement along a vertical rod 10, having nuts 11 on its upper and lower ends and surrounded outside said plates by spirally-coiled springs 12, that bear against said plates and nuts, and thereby hold the plates in a normally horizontal position with their attached yokes 6 parallel to each other in the recesses 4 of the draw-head. By means of the nuts 11 the springs 12 can be readily adjusted when required. In their normally parallel and horizontal position the yokes 6 are pressed by the springs 12 in close contact with the upper and lower surfaces of the draw-head and extend across the slots 5 and upper and lower arms of the cross-shaped aperture 2 in position to engage the shoulders 13 of the arrow-shaped link 3 when two cars are brought together in proper position for coupling. It will be seen that the convexed or beveled arrow-shaped heads of the link 3 enable it to pass readily into the aperture 2 and between the upper and lower yokes 6, gradually forcing said yokes apart against the action of the springs 12 until the arrow-shaped head of the link has entered sufficiently far to clear the yokes, when they are immediately forced toward each other by the tension of the springs 12, and are thus caused to engage the shoulders 13 of the link, thereby coupling the cars automatically.

In order to provide for a free lateral and vertical play of the link 3, and at the same time prevent any liability of its turning and thereby becoming disengaged from the yokes 6, the said link is provided on each side with a longitudinal rib 14 at right angles to the arrow-shaped head and the main web of the link, which is thus made cross shape in transverse section to correspond with the cross-shaped aperture 2 of the draw-head. By this construction the coupling is rendered very safe and secure, and a sufficient play of the link is afforded for readily turning curves and for permitting the convenient coupling of cars of unequal height.

For the purpose of enabling the cross-shaped arrow-head link 3 to be used with a

car having a draw-head provided with the ordinary link-and-pin openings, the arrow-headed link may be provided at one end with a slot or eye 15, Fig. 6, for engagement with the usual vertically-movable coupling-pin. This link having the eye 15 enables cars provided with my improved coupling devices to be readily connected with cars in which the draw-heads are adapted only for use with the ordinary pin-coupling. I may also provide the forward end of the draw-head 1 with a vertical opening 16, to adapt it for use with the ordinary pin-and-open-link coupling when necessity requires.

Between the plates 9 of the swinging yokes 6 is arranged a cam 17, Figs. 4 and 5, that is mounted securely on one end of a transverse shaft 18, supported in suitable bearings 19 at the end of the car. The shaft 18 may be provided with an arm 20, to which is attached one end of a connecting-rod 21, the other end of which is connected with an arm 22 on one end of a rock-shaft 23, that is mounted transversely in suitable bearings at the rear or inner end of the draw-head. On the other end of the rock-shaft 23 is an arm 24, which may be connected by a chain 25 with a horizontally-swinging hand-lever 26, by which the rock-shaft 23 and its connections with the cam-shaft 18 can be actuated so as to rock the cam 17, and thereby cause it to spread or swing apart the plates 9 against the action of the springs 12, as shown in Fig. 4, so as to disengage the yokes 6 from the shoulders 13 of the link 3, and thus uncouple the cars. The rock-shaft arm 24 may also be connected by a chain 27 with a horizontal lever 28 that is arranged to be acted on by a vertical laterally-swinging hand-lever 29, which may be extended to the top of the box-car. By means of the levers 26 and 29 the cars can be readily and safely uncoupled from either the side or the top of a car, as occasion may require.

Instead of the hand-levers 26 and 29 and their connections with the cam-shaft 18, I may connect with the outer end of said shaft 18 a suitable miter-gearing and vertical rotary shaft, as shown by dotted lines in Fig. 1, whereby the cam 17 can be actuated by means of a hand-wheel on the top or platform of the car. This is a convenient arrangement when the described coupling devices are attached to a passenger-car.

The several parts of the coupling are of simple and durable construction, effective and reliable in operation, and may be readily repaired when required without incurring any large expense.

What I claim as my invention is—

1. In a car-coupling, the combination, with a slotted draw-head having a mouth provided with a cross-shaped aperture, and a link that is cross-shaped in transverse section and provided with an arrow-shaped head, of a pair of vertically-swinging yokes pivoted horizontally above and below the draw-head and normally in contact therewith in position to engage the shouldered ends of the link, substantially as described.

2. In a car-coupling, the combination, with a slotted draw-head having a mouth provided with a cross-shaped aperture and a link that is cross shape in transverse section and provided with a shouldered arrow-shaped head, of a pair of vertically-swinging yokes pivoted horizontally above and below the draw-head and provided with laterally-projecting plates, and springs arranged to bear on said plates and hold the yokes normally in position to engage the shouldered ends of the link, substantially as described.

3. In a car-coupling, the combination, with a slotted draw-head having a mouth provided with a cross-shaped aperture and a link that is cross shape in transverse section and provided with a shouldered arrow-shaped head, of a pair of vertically-swinging yokes pivoted horizontally above and below the draw-head and provided with laterally-projecting horizontal plates, springs arranged to bear on said plates and hold the yokes normally in position to engage the shouldered ends of the link, a cam mounted between said plates to spread the yokes apart and thereby release the link, and mechanism for actuating said cam, substantially as described.

4. In a car-coupling, the combination, with a longitudinally-slotted draw-head having its upper and lower surfaces recessed, of a pair of vertically-swinging yokes pivoted horizontally above and below the draw-head and normally in contact with the said recessed surfaces thereof, horizontal laterally-projecting plates attached to said yokes, springs arranged to bear on said plates and hold the yokes normally in position to engage a shouldered link, a cam mounted between said plates to spread the yokes apart and thereby release the link, and mechanism for actuating said cam, substantially as described.

5. In a car-coupling, the combination of the recessed and longitudinally-slotted draw-head having a mouth provided with a cross-shaped aperture, a link that is cross shape in transverse section and provided with a shouldered arrow-shaped head, a pair of vertically-swinging yokes pivoted horizontally above and below the draw-head in position to normally engage the shouldered ends of the link, springs to hold said yokes in engagement with the link, and a cam and its actuating mechanism for spreading the yokes vertically apart to release the link and uncouple the cars, substantially as described.

6. In a car-coupling, the combination, with a draw-head having a mouth provided with a cross-shaped aperture, of a link that is cross shape in transverse section, whereby it is prevented from turning when engaged in said draw-head, and mechanism for interlocking with said link to couple the cars to which it is attached, substantially as described.

7. In a car-coupling, the combination of a draw-head having a mouth provided with a cross-shaped aperture, a link that is cross shape in transverse section, automatic mechanism for engaging and interlocking with said link, and means for releasing and disengaging the link, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY SCHAEFFER.

Witnesses:
JOHN KINKAID,
C. E. CRISWELL.