No. 830,548. PATENTED SEPT. 11, 1906.

C. D. WHITING.

CAR COUPLING.

APPLICATION FILED MAR. 3, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

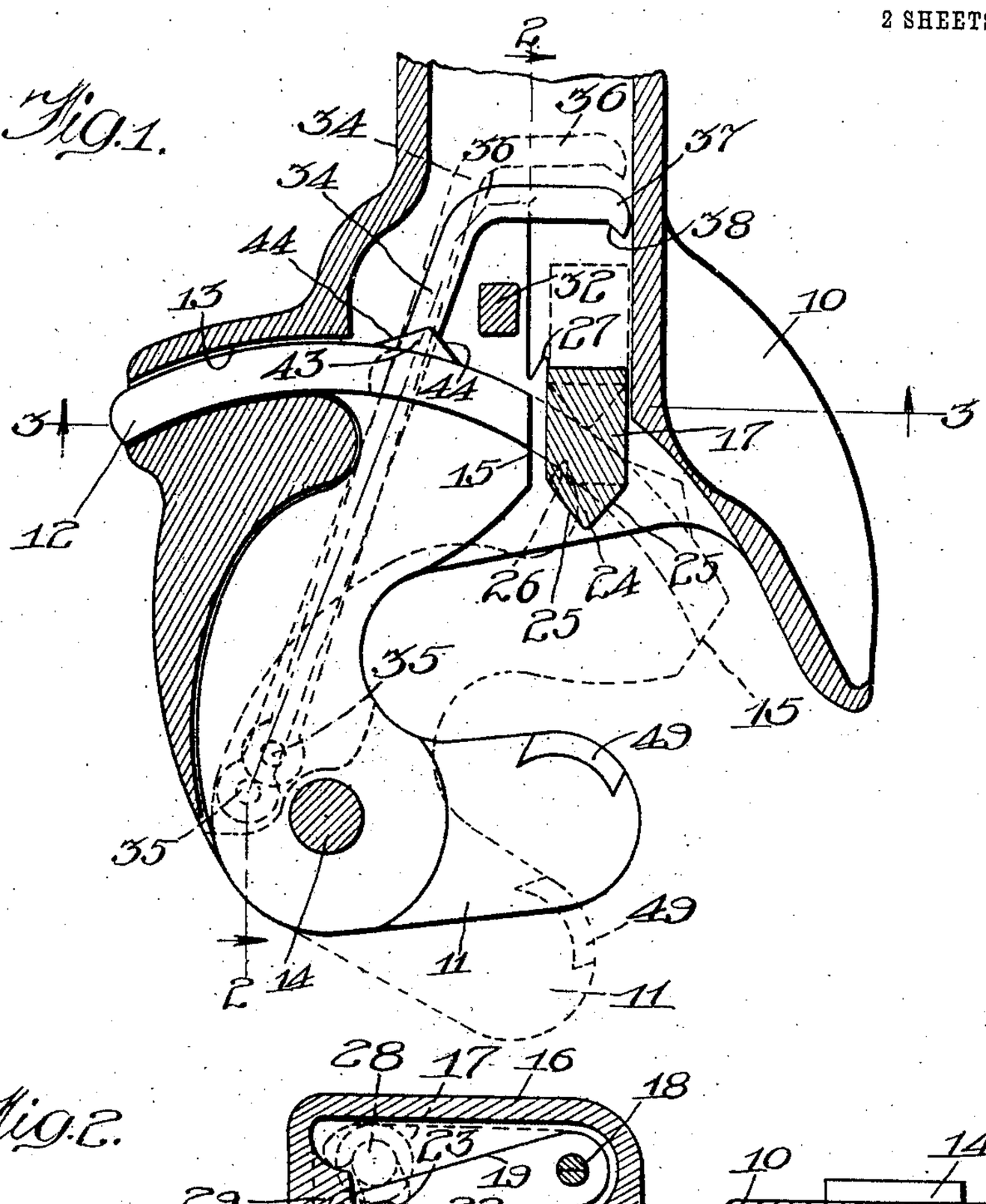
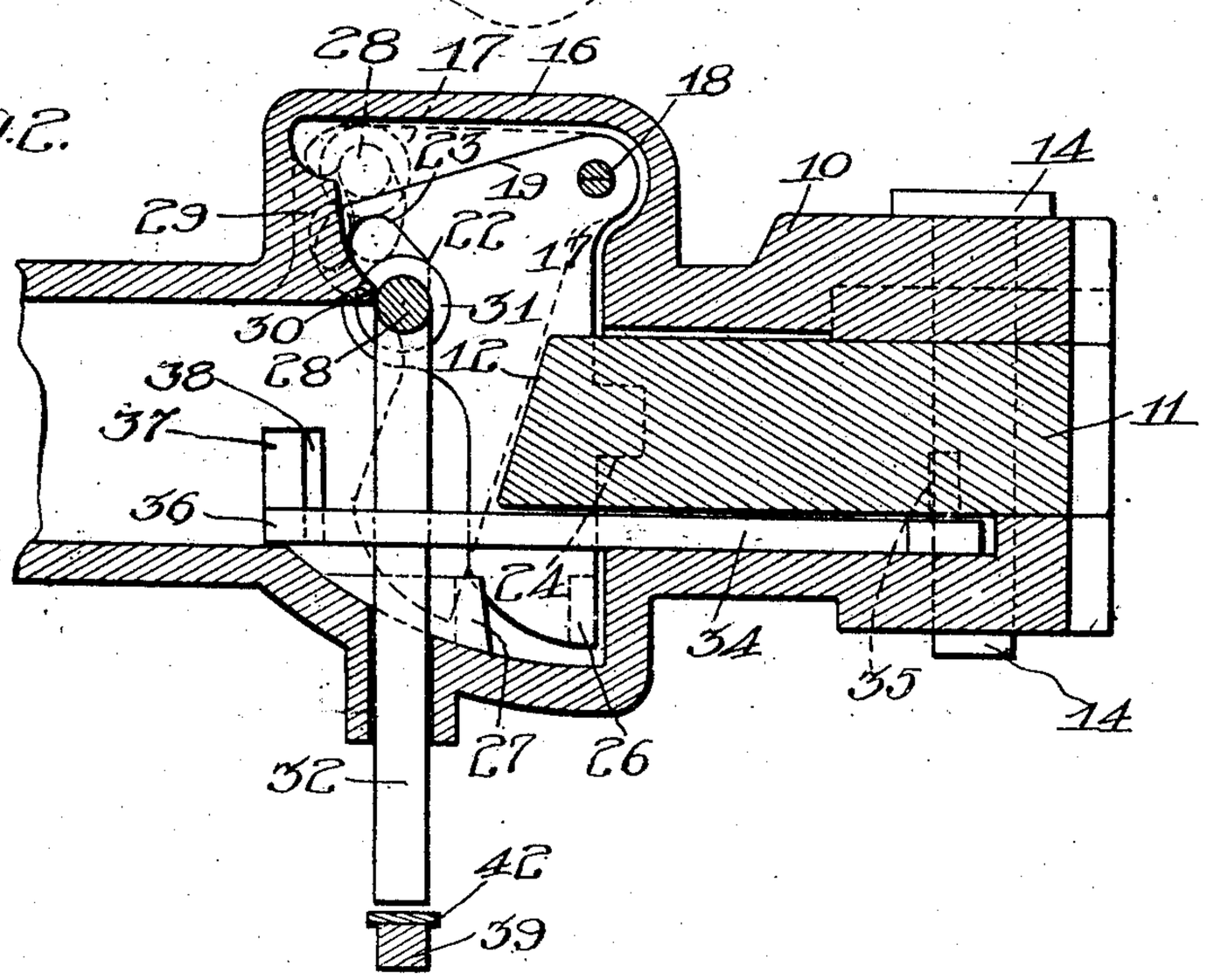


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

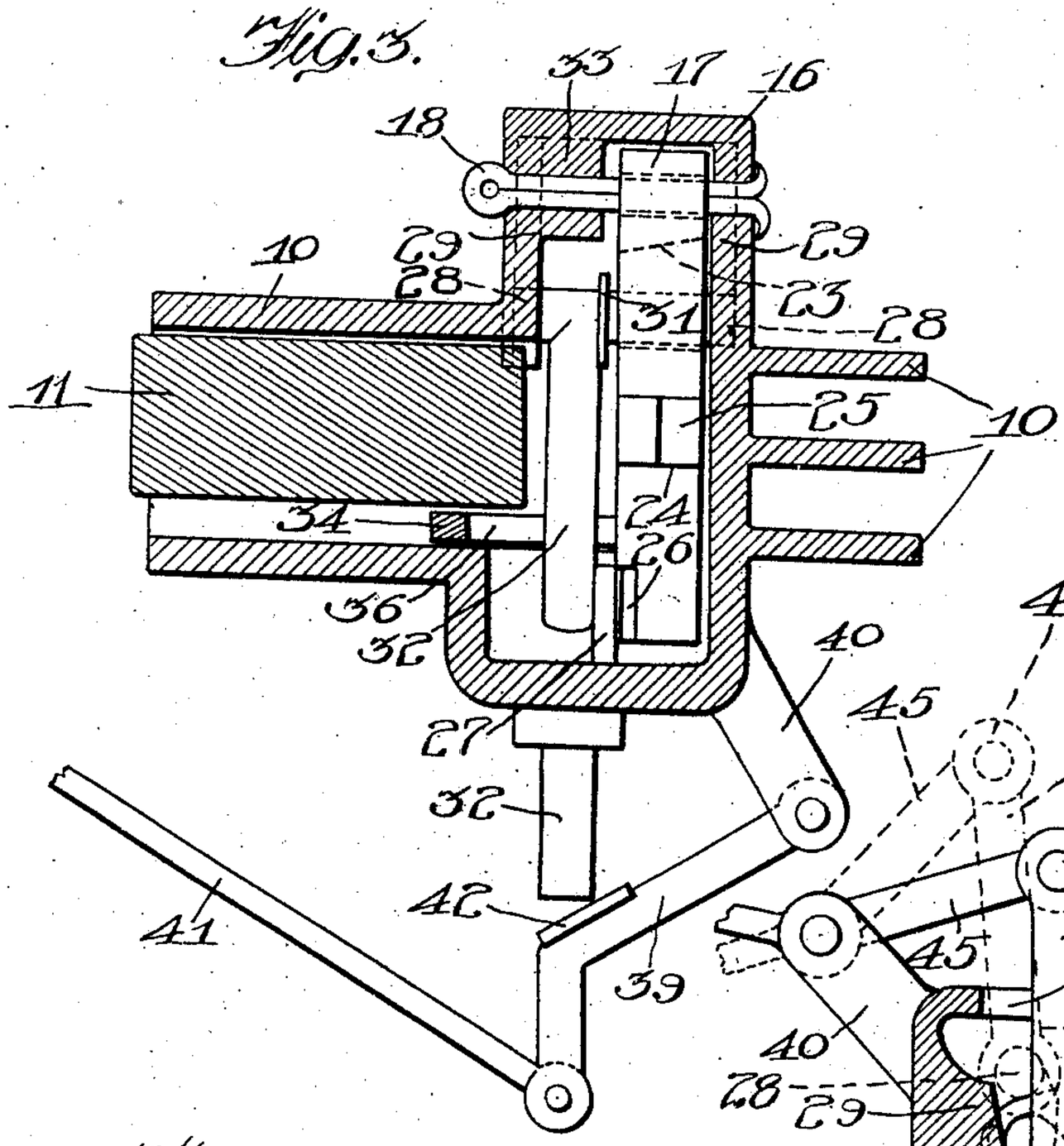


Fig. 4.

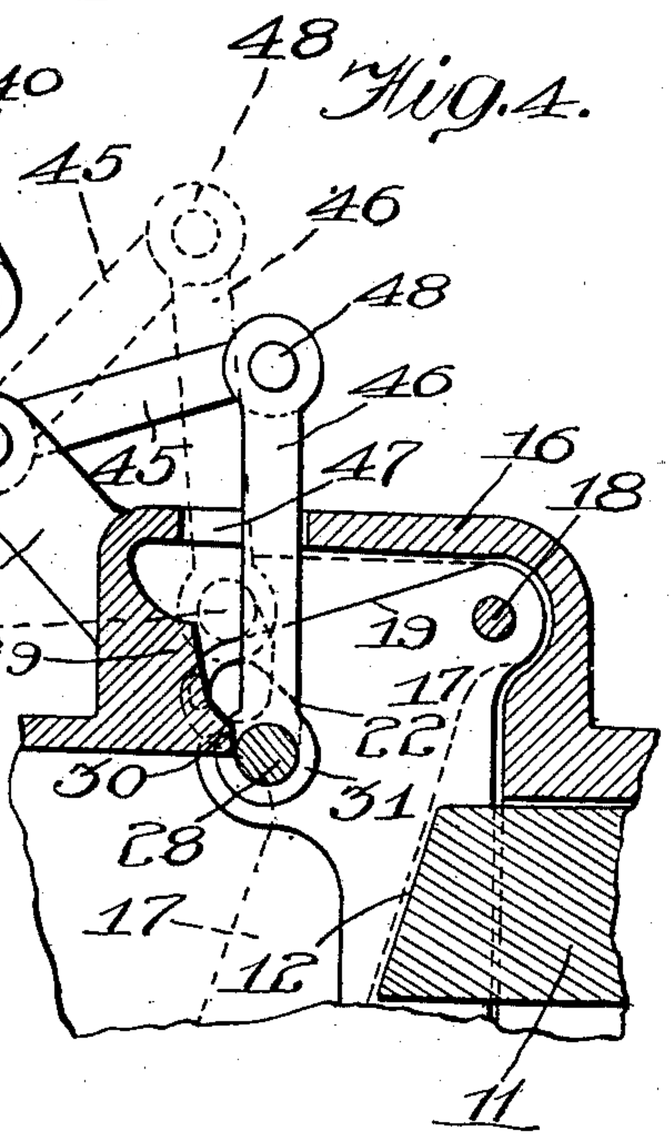


Fig. 5.

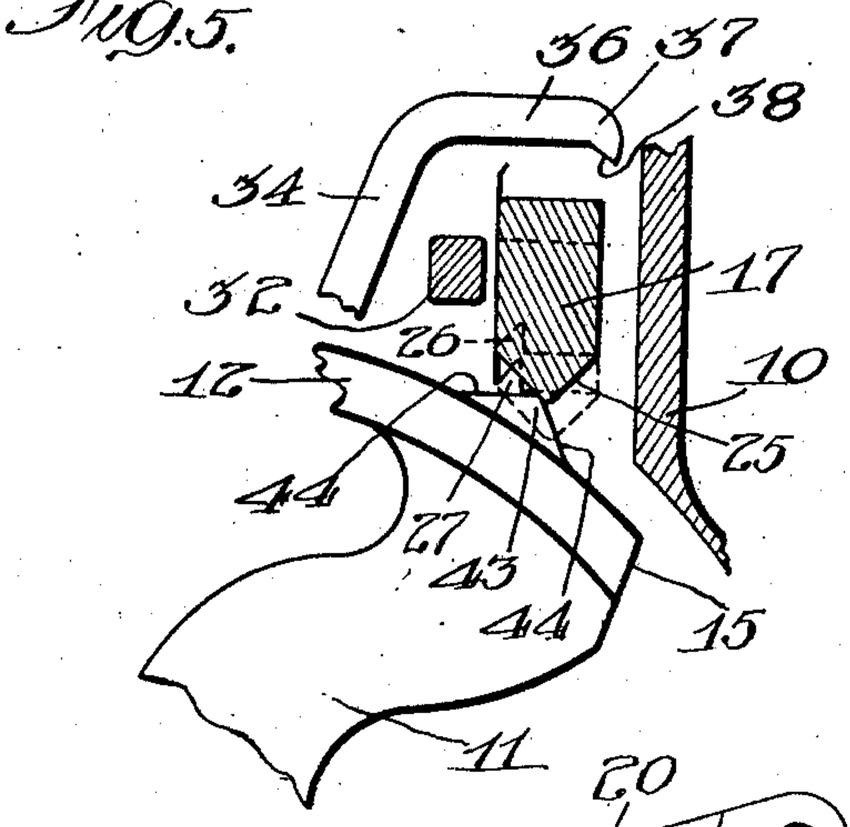
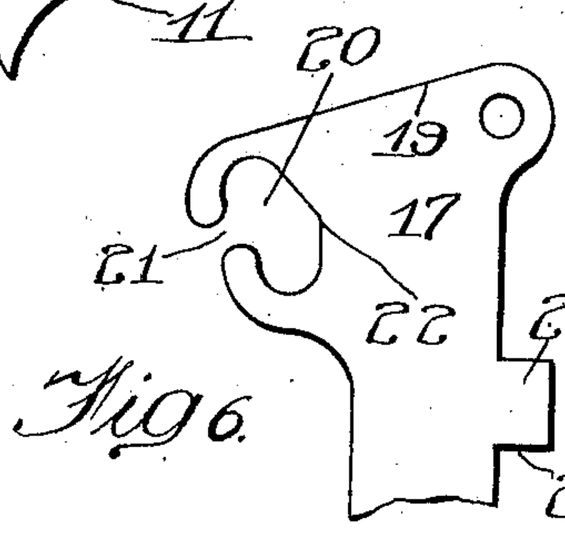


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES D. WHITING, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO THOMAS J. MURPHY, OF ST. PAUL, MINNESOTA.

CAR-COUPLING.

No. 830,548. Specification of Letters Patent. Patented Sept. 11, 1906.

Application filed March 3, 1906. Serial No. 303,972.

To all whom it may concern:

Be it known that I, CHARLES D. WHITING, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Car-Couplers, of which the following is a full, clear, and exact specification.

This invention relates to improvements in car-couplings; and the object of the same is to construct an improved form of pin or dog for locking or retaining the pivoted jaw or knuckle of the coupling in position.

A further object is to provide an improved means for preventing accidental displacement of the locking-pin or dog when the knuckle or jaw is closed or in operative position.

A further object is to provide an improved means for opening the jaw or knuckle.

A further object is to construct an improved coupler which will be simple in construction, cheap to manufacture, and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination, and arrangement of the various parts, as hereinafter more fully described and claimed, and shown in the accompanying drawings, illustrating the embodiment of this invention, and in which—

Figure 1 is a top plan view, partly in section, of a coupler constructed in accordance with the principles of this invention, showing in full lines the position of the parts when the knuckle is locked and in dotted lines the position of the parts when the knuckle is open. Fig. 2 is a longitudinal sectional view on line 2 2 of Fig. 1, showing in dotted lines the dog or locking-bar thrown back out of operative position. Fig. 3 is a transverse sectional view on line 3 3 of Fig. 1. Fig. 4 is a view, partly in section, illustrating a modified form of operating-link for raising the locking-pin or dog. Fig. 5 is an enlarged detail view of the parts, showing the knuckle in the operation of deflecting the locking-pin and in dotted lines the pin locked back to permit the knuckle to open. Fig. 6 is an enlarged detail elevation of the upper portion of the locking-pin or dog.

Referring more particularly to the drawings, and in which the same reference characters designate similar parts throughout the several views, the numeral 10 designates the draw-head, and 11 a knuckle pivoted thereto. Said knuckle is provided with an arm or extension having a tongue 12, which is adapted to move into and out of an aperture or opening 13 in the draw-head 10 when the knuckle 11 is turned upon its pivot 14 in the ordinary and well-known manner.

The knuckle 11 is preferably provided with a flat or straight portion 15 on its front side or face, adjacent or in proximity to the arm or extension 12.

The draw-head is preferably provided with an enlargement or housing 16, within which is pivoted one end of a locking-pin or dog 17. This pin or dog is pivotally secured in position in any suitable manner, but preferably by means of a transverse pin 18 passing therethrough and through suitable openings or apertures in the draw-head. The said dog or locking-pin 17 is loosely mounted on the pin 18 and is capable of a lateral rocking movement thereon and stands within the path of movement of the face 15 of the knuckle 11. It is provided with an inclined or beveled upper end 19, which is of an inclination sufficient to permit the pin or dog to swing about its pivot-point so as to move out of the path of the movement of the face 15 of the knuckle 11 to permit the latter to open or close. The locking-pin or dog 17 is also provided with an oblong slot 20, located, preferably, adjacent the rear edge near the upper inclined or beveled portion 19 and in a line with its pivot-point 18.

The slot is provided with an opening 21, which is opposed to the pivotal point of support, and the rear wall of the slot is preferably inclined from each end of the slot, so as to converge to a point 22 substantially in line with the opening 21 therein. The top of the slot is also tapered or inclined, as at 23, toward the side adjacent the knuckle, as shown in Fig. 3, for a purpose to be set forth.

The front face of the locking-pin or dog 17 is provided with a projection 24, located at a point on said face in the path of movement of the arm or extension 12 of the knuckle, and said projection is preferably provided with vertical inclined or beveled faces 25 for a purpose to be set forth.

A notch or recess 26 is provided in the lower extremity of the front of the locking

dog or pin, and said recess or notch is located to one side of the center of the face and preferably in close proximity to the side thereof which is adjacent the flat portion or face 14 of the knuckle 11. The draw-head 10 is provided with a lug or projection 27, which is adapted to enter the notch or recess 26 in the locking-pin or dog 17 in a manner to be hereinafter set forth. A rod or bar 28 is inserted in the slot 20 through the opening 21, and said bar or rod is of a length greater than the width of the locking-pin or dog 17 and the extremities thereof rest upon guides or supports 29 on the walls of the housing 16. Each of these guides or supports is provided with a shoulder 30, in front of which the extremities of the rod or bar 28 stand when the said bar or rod is in its lowermost position or when the dog or pin 17 assumes its operative or locking position.

A shoulder 31 is provided on the rod or bar 28, remote from one end thereof and adjacent the side of the dog or pin 17, and depending from this rod or pin 28 within the housing 16 and at a point between the shoulder 31 and the adjacent extremity of the rod is a rod or bar 32, which projects through and extends for some distance below the base of the draw-head 10. Within the housing 16 and adjacent the pivotal point of support of the locking-pin or dog 17 and in proximity to the face thereof is a shoulder or projection 33, which prevents the upper end of the said pin or dog from moving laterally on the pin or rod 18.

A rod or bar 34 stands within the draw-head 10, with one end thereof loosely connected to the knuckle 11, preferably adjacent its pivot-point, as at 35. The other end is provided with a lateral projection 36, which extends across and within the path of movement of the locking-pin or dog 17. The extremity thereof is preferably bent forward, as at 37, and is provided with an inclined face 38, which is adapted to be engaged by the locking-pin or dog 17 and which will laterally deflect the latter for a purpose to be set forth.

A link 39 is suitably pivoted to the draw-head 10 or to a bracket 40 thereon. An operating bar or rod 41 is connected to the link and extends to any convenient point for operation. This link stands adjacent the extremity of the depending rod or arm 32 and is provided with a shoe or plate 42, which contacts with the extremity of the said rod or arm 32 for raising the same when the link 39 is operated.

Extending from the rear face of the arm or extension 12 of the knuckle 11 is a projection 43, the faces 44 of which are beveled or inclined in a manner similar to the faces 25 of the projection 24 on the locking-pin or dog 17, and said projection 43 is disposed in a line and in the same plane with the projection 24, so that when the knuckle 11 is turned about its pivot the adjacent faces of the two projections will contact with each other.

A modified form of lifting-link is shown in Fig. 4, which comprises an arm 45, pivoted between its ends to the bracket 40 and in such a position that one extremity thereof will stand in proximity to the slot 20 in the locking-pin or dog 17. A link 46, one end of which is secured to the pin or bar 28, projects upward through an aperture 47 in the top of the housing 16 and has its free end pivoted or loosely connected, as at 48, to the adjacent extremity of the arm 45. If desired, a chafing-plate 49 may be provided for the face of the knuckle 11 and may be secured in position in any desired or suitable manner.

Assuming two couplers to be engaged and the knuckle 11 locked and the parts in the position as shown in full lines in Figs. 1, 2, and 3 and it is desired to unlock the knuckle for uncoupling, the operation is as follows:

The plate or shoe 42 is brought into contact with the extremity of the rod or bar 32 by means of the operating-rod 41, which will raise the rod or bar 28 to the top of the slot 20 in the locking-pin or dog 17 above and out of engagement with the shoulder 30 of the guides or supports 29. A continued elevation of the rod or bar 32 after it has reached the top of the slot 20 will move the locking-pin or dog 17 about its pivot-point, thereby moving said pin or dog 17 out of the path of the movement of the face 15 of the knuckle 11 and back against the inclined face 38 of the bar or rod 34. The portion 36 of the bar or rod 34 which stands within the path of movement of the pin or dog 17 is located at such a distance in rear thereof to permit the point or apex of the projection 24 to clear the end of the lug or projection 27. When the locking-pin or dog engages the inclined face 38, the lower portion thereof will be deflected laterally or moved in a direction parallel with the axis of its pivotal support 18, causing the recess or notch 26 therein to stand in a direct line with the lug or projection 27, so that when the pin or dog drops back upon its pivot the lug or projection 27 will enter the notch or recess 26 and lock the pin or dog back out of the path of movement of the face 14 of the knuckle 11, as shown in dotted lines in Fig. 5. The loose connection with the pivot-pin 18 and the inclined or tapering portion 23 of the slot 20 permit the upper portion of the locking-pin or dog 17 to rock laterally with relation to the pins or bars 28 and 18 when the lower portion of the pin or dog is deflected to throw the lug 27 and recess or notch 26 into engagement. When in this position, the projection 24 stands within the path of movement of the projection 43 in the face of the lip 12 of the arm or projection, as shown in Fig. 5. In this position the knuckle is unlocked and may be moved about its pivot when pressure

is applied thereto. When turned about its pivot, the inclined face 44 of the projection 43 will engage the face 25 of the projection 24 on the locking-pin or dog 17. The first tendency of these contacting faces is to swing the pin or dog 17 back upon its pivot 18, thereby disengaging the notch 26 and lug 27. (See Fig. 5.) A further action of the projection 43 upon the projection 24 on the locking-pin or dog will tend to deflect and rock the same laterally, thereby throwing the path of movement of the notch 26 out of line with the lug or projection 27, which will permit the notch or recess to pass the projection and the locking-pin or dog 17 to fall, so that the projection 24 thereon will rest against the face of the lip 12 of the arm or extension of the knuckle, but on the other side of the projection 43 thereon and in such a position that the other faces of the two projections 24 and 43 will stand adjacent each other. (See Fig. 1, dotted lines.) In this position the knuckle 11 will be held open and ready to be coupled.

When the knuckle is turned or closed when being coupled, the adjacent face 44 of the projection 43 will suddenly engage the face of the projection 24 of the locking-pin or dog 17 and knock the latter back a sufficient distance so that the two projections 24 43 will clear each other, but not far enough to cause the rear of the locking-pin or dog 17 to engage the inclined face 38 of the portion 36 of the rod or bar 34. After the projections have cleared each other the locking-pin or dog will fall by gravity into its normal position and in the path of movement of the face 15, as shown in Fig. 1, thereby locking the knuckle.

In the modification shown in Fig. 4 the operation is the same, except that the lifting mechanism for the locking-pin or dog 17 is operated from a point above the draw-head instead of from beneath, as will be understood.

It is to be understood that it is not desired to be limited to the exact sizes, proportions, details of construction, or arrangement of the various parts, as numerous changes may be made therein without departing from the spirit of the invention.

What is claimed as new is—

1. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto, said knuckle being provided with an arm or extension projecting into the head, a locking pivoted pin for the knuckle, means for disengaging the pin and knuckle, means for deflecting the free end of the pin in a direction parallel to its pivotal bearing, and means for retaining said pin in its deflected position.

2. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto, said knuckle being provided with an arm or extension projecting into the head, a pivoted pin normally standing within the path of movement of the arm, means for removing the pin out of said path of movement, means for moving the pin in a direction parallel to the axis of its pivotal bearing, and means for retaining the pin in its deflected position.

3. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto and provided with an arm or extension projecting into the head, a pivoted locking-pin for the knuckle, means for moving the pin to unlock the knuckle, means related to the knuckle for engaging the pin to laterally deflect the latter, and means for retaining the pin in its deflected position.

4. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto and provided with an arm or extension projecting into the head, a pivoted locking-pin normally standing within the path of movement of the arm or extension, means for moving the pin out of the said path of movement, means for swinging the pin in a direction parallel to the axis of its pivotal bearing, means for retaining the pin in its deflected position, and means operatively related to the knuckle for releasing the pin.

5. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto and provided with an arm or extension projecting into the head, a pivoted pin for locking the knuckle, means for moving the pin to unlock the knuckle, means for swinging the pin in a direction parallel to the axis of its pivotal bearing, means for retaining the pin in its deflected position, and means for releasing the pin and deflecting the same to its normal position.

6. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto and provided with an arm or extension projecting into the head, a pivoted locking-pin, means for moving the pin about its pivot to unlock the knuckle, means for rocking the pin laterally upon its pivot, means for retaining the pin in its deflected position, and interengaging means on the knuckle and pin for releasing said pin and deflecting the same to its normal position.

7. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto, and having an arm or extension projecting into the head, a pivoted locking-pin for the knuckle, means for moving the pin about its pivot for unlocking the knuckle, means disposed within the path of movement of the pin for swinging the same in a direction parallel to the axis of its pivotal bearing, means for retaining the pin in its deflected position, and means operatively related to the knuckle for releasing the pin and deflecting the same to its normal position.

8. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto and having an arm or extension projecting into

the head, a pivoted locking-pin for the knuckle, means for moving the pin about its pivot for releasing the knuckle, means within the path of movement of the pin for rocking the same laterally, means for retaining the pin in its deflected position, and projections carried by the pin and knuckle, said projections being adapted to engage each other to release the pin and deflect the same to its normal position when the knuckle is opened.

9. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto and having an arm or extension projecting into the head, a pivoted locking-pin for the knuckle, a rod or bar operatively related to the knuckle and projecting into the path of movement of the pin, said arm being provided with an inclined portion, means for moving the pin to release the knuckle and into engagement with the inclined portion of the rod for deflecting the pin laterally, means for retaining the same in its deflected position, and means for releasing the pin and deflecting the same to its normal position.

10. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto, and having an arm or extension projecting into the head, a pivoted pin for locking the knuckle, means for moving the pin to unlock the knuckle, an interengaging projection and recess carried by the draw-head and pin, means within the path of movement of the pin for rocking the same laterally to cause the projection to enter the recess, and means for moving the pin to disengage the projection and recess and deflect the pin to its normal position.

11. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto, and having an arm or extension projecting into the head, a pivoted pin for locking the knuckle, means for moving the pin to unlock the knuckle, an interengaging projection and recess carried by the draw-head and pin, means within the path of movement of the pin for rocking the same laterally to cause the projection to enter the recess, and a projection carried by the knuckle adapted to disengage the pin and projection and deflect the said pin into its normal path of movement.

12. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto, and having an arm or extension projecting into the head, a pivoted pin adapted to normally stand within the path of movement of the arm for locking the knuckle, a projection on said pin, means for moving the pin out of the said path of movement, means for rocking the pin laterally on its pivot, means for retaining the pin in its deflected position and out of the path of movement of the arm, and a projection on the arm, said latter projection being adapted to engage the projection on the pin for releasing the pin and deflecting the same to its normal path of movement when the knuckle is opened.

13. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto, and having an arm or extension projecting into the head, a projection on the arm provided with vertical inclined faces, a pivoted gravity locking-pin for the knuckle, said pin normally standing within the path of movement of the arm, and being provided with a projection having vertical inclined faces, said projection standing within the plane of the first projection, means for moving the pin out of the said path of movement, means for deflecting the pin laterally and means for retaining the pin in its deflected position and out of the path of movement of the arm, one face of the projection on the arm being adapted to engage the adjacent face of the projection on the pin for releasing the pin and deflecting it to its normal position when the knuckle is opened, and the other face being adapted to engage the projection on the pin for moving the latter about its pivot when the knuckle is closed.

14. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto, a pivoted locking-pin for the knuckle, said pin being provided with an aperture, a bar extending through the aperture and provided with a depending arm, means for engaging said arm to move the bar for turning the pin about its pivot, means for deflecting the locking-pin laterally, and means for retaining said locking-pin in its deflected position, one wall of the aperture being inclined to permit said lateral deflection.

15. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto and provided with an extension projecting into the head, a pivoted gravity-pin normally standing within the path of movement of the arm, said pin being provided with a slot, a bar passing through the slot with its extremities projecting beyond the sides of the pin, and provided with a depending arm, said bar normally resting at the bottom of the slot, means engaging the extremities of the bar for preventing the movement of the pin, and means engaging the arm for raising the bar out of contact with its engaging means and to the top of the slot for rocking the pin about its pivot.

16. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto, a pivoted gravity locking-pin for the knuckle having a slot adjacent the pivot, shoulders within the draw-head adjacent the slot in the pin, a bar passing through the slot, said bar being adapted to normally rest in one end of the slot and in contact with the shoulders on the draw-head adjacent thereto for locking the pin against pivotal movement, and means

for raising said bar out of engagement with the shoulders and to the other end of the slot for moving the locking-pin about its pivot.

17. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto, a pivoted gravity locking-pin for the knuckle, said pin being provided with a curved vertical slot, a shoulder on the draw-head adjacent the slot, a bar passing through the slot and beyond the sides of the pin, said bar being adapted to normally rest in the bottom of the slot with one end against the shoulder on the draw-head for locking the pin against pivotal movement, and means for raising the bar to the top of the slot and out of engagement with the shoulder for turning the pin on its pivot.

18. In a car-coupler, the combination of a draw-head, a knuckle pivoted thereto, a pivoted gravity locking-pin for the knuckle, said pin being provided with a slot adjacent its pivot, shoulders on the draw-head on both sides of the pin, a bar passing through the slot in the pin and projecting beyond the sides thereof, the extremities being adapted to engage the shoulders to lock the pin against pivotal movement, a collar on the bar adjacent one side of the pin, means for raising the bar out of engagement with the shoulders and for turning the pin on its pivot for unlocking the knuckle, means for rocking the pin laterally on its pivotal support, and means for retaining the pin in its deflected position, the top of the slot in the pin being inclined from the side remote from the collar on the bar, toward the side adjacent the collar to permit the lateral deflection of the pin.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 28th day of February, A. D. 1906.

CHAS. D. WHITING.

Witnesses:
JAY W. CRAM,
DELIA HALVERSEN.