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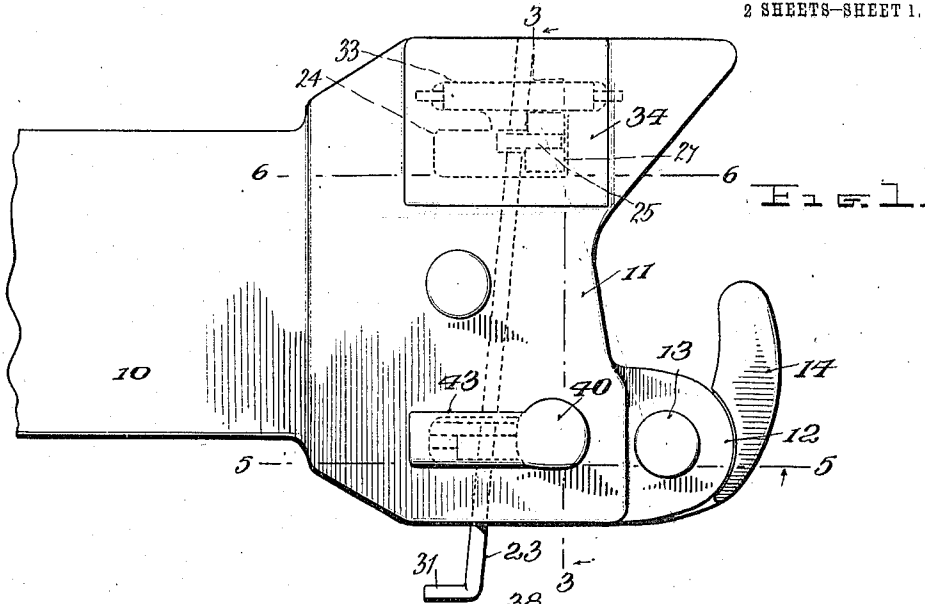


Fig. 2.

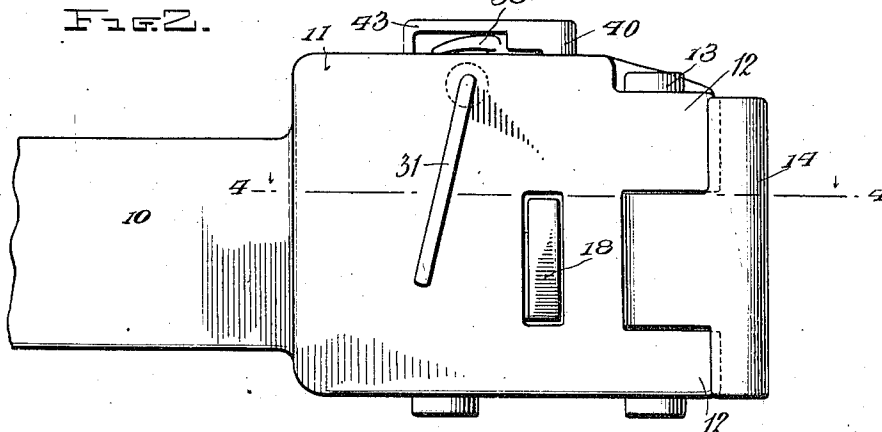
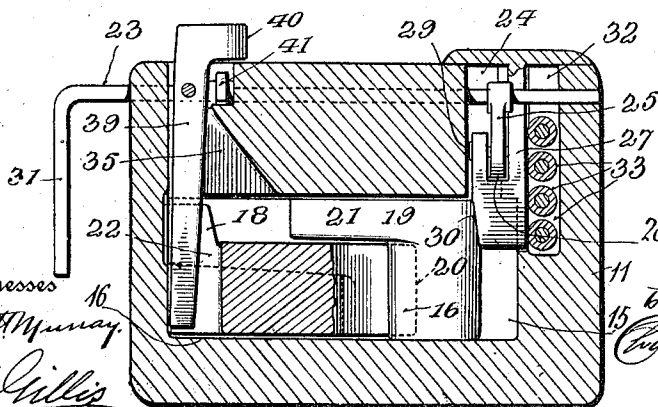


Fig. 3.



Witnesses 16  
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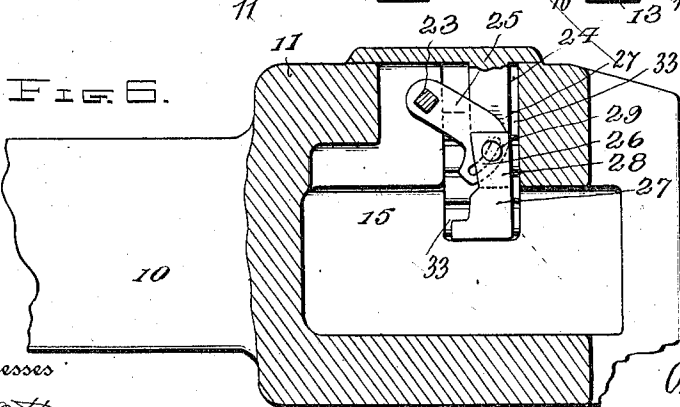
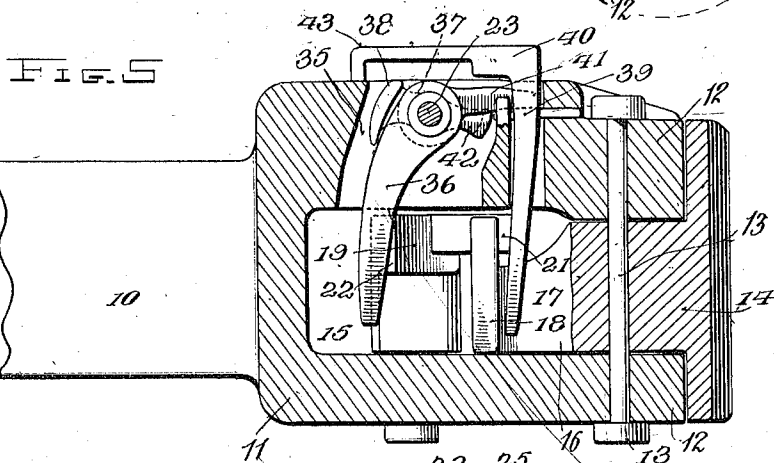
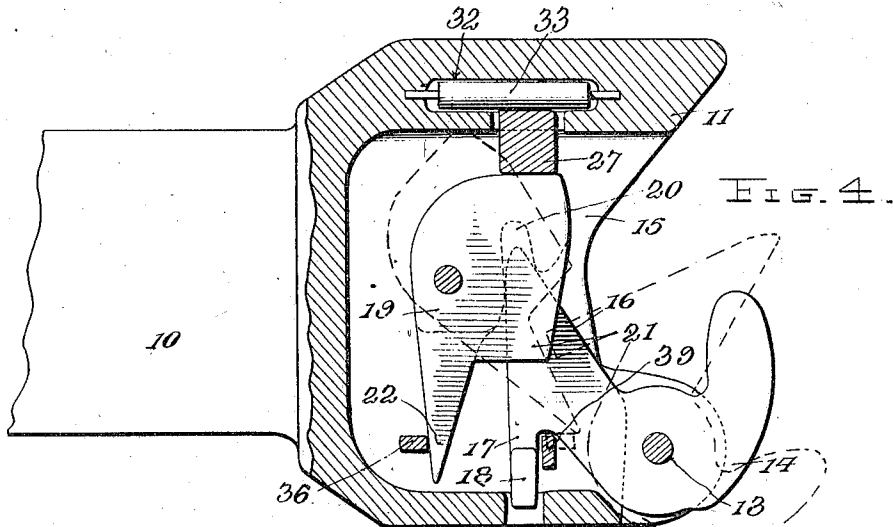
Attorneys

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CAR COUPLING.  
APPLICATION FILED MAY 12, 1910.

989,439.

Patented Apr. 11, 1911.

2 SHEETS-SHEET 2.



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# UNITED STATES PATENT OFFICE.

OTHO STARLING, OF DOTHAN, ALABAMA.

## CAR-COUPLING.

989,439.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed May 12, 1910. Serial No. 560,892.

### *To all whom it may concern:*

Be it known that I, OTHO STARLING, a citizen of the United States, residing at Dothan, in the county of Houston, State of Alabama, have invented certain new and useful Improvements in Car-Couplers; and I do hereby 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.

This invention relates to car couplings of the usual Master Car Builders' type wherein a knuckle joint is employed in connection with the draw head.

The invention relates especially to the manner in which the knuckle joint is locked when the cars are coupled and released when the cars are uncoupled.

The principal object of the invention is to provide an improved construction of couplers of this character in which the mechanism is so arranged that the couplers may be released when under tension.

Another object of the invention is to provide an improved mechanism by means of which the knuckle joint will be thrown to open position positively, said mechanism being connected to the locking mechanism of the coupler.

With the above and other objects in view, the invention consists in general of a draw head provided with a knuckle and locking mechanism of improved character.

The invention further consists in certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:—Figure 1 is a plan view of a coupler constructed in accordance with this invention. Fig. 2 is a side elevation of such a coupler. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 2. Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a section on the line 6—6 of Fig. 1, certain of the parts shown in the section being broken away.

The coupler includes the usual shank 10 which is of any preferred form and on this shank is carried the head indicated in general by the numeral 11. The head 11 is provided with the usual spaced ears 12 where-

through passes the pivot pin 13 of the knuckle 14. The head 11 is provided with a pocket 15. Within this pocket 15 extends the tail 16 of the knuckle and this tail is provided with a portion 17 having an up-standing lug 18 formed thereon.

Pivoted in the pocket 15 is a lock member 19. This locking member 19, is provided with a recess 20 adapted to receive the tail 16 and this recess is closed on the upper side by a web which projects outwardly as at 21 and rests on top of the tail 16. The body of the member is also provided with an extension or tail 22 of such length as to intersect the path of the lug 18. The front of the tail 16 and the front wall of the recess 20 are so arranged that, when the coupler is locked, the contacting surfaces will be of such a bevel as to readily disengage even when heavy draft is exerted on the knuckle.

The member 19 being readily disengaged from the tail of the knuckle provision is made to prevent such disengagement unless the train operative desires this result. This provision takes the form of certain latch mechanism. Extending through the coupler head from side to side thereof and adjacent the top of the head is a rock shaft 23. This rock shaft 23 passes through an opening 24 which extends down from the upper side of the coupler head and opens into the pocket 15. The rock shaft 23 has provided thereon a rock arm 25 which swings in the opening 24 and which is provided with a slot 26. At 27 is a latch which is slidable vertically in the opening 24 and which is provided with a slot 28 so that the upper portions of the latch constitute spaced ears through which passes a pin 29 which also passes through the slot 26. One face of this latch member is beveled as at 30 and this face contacts with a portion of the member 19, said portion being also beveled so that the member 27 will lift easily, the beveling diminishing the frictional engagement.

The rock shaft 23 is provided with a handle 31 by means of which it may be rotated. Now, when the parts are in such position that the member 27 is dropped the member 19 cannot rotate. If the rock shaft be rotated the arm 25 will be moved and the lower end of the slot 26 will engage the pin 29 and cause the latch 27 to lift above the top of the member 19. Member 19 can then swing around and as it does so one portion of the top will pass below the latch member 27.

If the rock shaft then be swung in the opposite direction the effect will be to cause the pin 29 to take position in the upper end of the slot 26. Meanwhile the member 27 will remain raised. The parts being in this position if the lock 19 be moved back to its former place so that it is in locked position the portion of the upper face on which the latch 27 rests will be moved away from beneath the latch with the result that the latter will be free to fall, the pin 29 passing down the slot 26. When this takes place the lock will be again latched from movement.

In order to still further eliminate the friction and render the latch easy to lift, a pocket 32 is provided in the head 11, the pocket communicating with the opening 27. In this pocket are held anti-friction rollers 33 and in order to protect these rollers and the working parts from injury by rain or snow the member 27 is provided with a broad head 34 constituting a cap which closes the upper ends of the opening 24 and pocket 32 when the latch is in its lowered position.

Since under certain conditions the lock 19 would fail to disengage from the tail 16 by the pull on the knuckle 14 provision is made to positively force the lock 19 clear of said tail. To this end a second opening 35 is formed down through the head 11 to the pocket 15, this opening being on the opposite side of the head from the opening 24. The rock shaft 23 also passes through this opening and on this shaft is a freely rotatable arm 36 which extends down through the opening into the pocket 15, the lower end of the arm 36 lying behind the projection 22 on the member 19. Fixed upon the shaft 23 to rotate therewith is an operating member 37 having an arm 38 which is adapted to contact with the arm 36 after the rock shaft has been rotated a predetermined distance. When this arm 38 contacts with the arm 36 the lower end of said arm 36 will be forced forward and by reason of its contact with the projection 22 the member 19 will be revolved on its pivot so that the recess 20 is moved clear of engagement with the tail 16. The member 37 is so positioned on the rock shaft 23 that the arm 38 only begins to actuate the arm 36 after the latch 27 has been fully raised to release the member 19. In this manner the member 19 is successively released and rotated. Provision is also made to positively open the knuckle. To this end there is provided a lever 39 which is pivoted to swing transversely of the pocket 15 and which is so positioned that it engages in the angle formed between the projection 17 and the body of the knuckle 14. This lever 39 has an inwardly projecting head 40 which lies in the path of an arm 41, the latter being freely rotatable on the rock shaft 23. The member 37 previously described is also

provided with a second arm 42 and this arm is arranged at such an angle to the arm 38 that after the arm 38 has moved the arm 36 and thus unlocked the knuckle, the arm 42 will contact with the arm 41 which in turn will engage the under side of the head 40 of the lever, cause the same to rotate on its pivot or fulcrum and force the knuckle to open position. It will thus be seen that in the operation of opening the knuckle the latch, lock, and knuckle are successively actuated. The knuckle having been opened in this manner the rock shaft 23 is turned backward to its original position. When the trains come together the lug 18 engages the projection 22 and causes the member 19 to swing around so that the member 16 enters the recess 20. The latch 27 then drops and locks said member 19 from unlocking.

In order to protect the parts held in the opening 35 the head of the lever 40 is broadened out as indicated at 43 so as to form a cap covering said opening.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

Having thus described the invention, what is claimed as new, is:—

1. In a car coupler, a coupler head having a pocket therein, a knuckle carried by the said head and provided with a tail extending within said pocket, a lock pivoted in the pocket to swing in a horizontal plane and having a recess engaging said tail when the coupler is locked, a latch for said lock movable vertically and adapted to position against the side of the lock to prevent its rotation, said latch being further adapted for vertical movement whereby it may rest on top of said lock when the lock is rotated, a rock-shaft passing through said head, a rock-arm fixed on said rock-shaft, and a pin and slot connection between said rock-arm and latch, said latch, lock and knuckle adapted to be moved in the order named upon movement of the rock-arm.

2. In a car coupler; a coupler head having a pocket therein; a knuckle carried by the head and provided with a tail extending within said pocket; a lock pivoted in the pocket to swing in a horizontal plane and having a recess engaging said tail when the coupler is locked, said lock further being provided with an extended arm; a latch for said lock; a rock shaft passing through said head; an arm loosely mounted on the rock shaft and having its end engaging the arm of the lock; an arm fixed on said rock shaft and adapted to contact with the last mentioned arm after the rock shaft has been rotated through a predetermined angle; means connecting said rock shaft and latch to raise the latch and release the lock prior to the movement of the loosely mounted arm; and other means actuated by the move-

ment of the rock shaft to open said knuckle after said loosely mounted arm is moved by the fixed arm.

3. In a car coupler, a coupler head having  
5 a pocket therein, a knuckle carried by the head and provided with a tail extending within said pocket, a lock pivoted in the pocket to swing in a horizontal plane and having a recess engaging said tail when the  
10 coupler is locked, said lock further being provided with an extended arm, a latch for said lock, a rock-shaft passing through said head, an arm loosely mounted on the rock-shaft and having its free end engaging the  
15 arm of the lock, an arm fixed on said rock-shaft and adapted to contact with the last mentioned arm after the rock-shaft has been rotated through a predetermined angle, means for connecting said rock-shaft and  
20 latch to raise the latch and release the lock prior to the movement of said loosely mounted arm, and other means actuated by

the movement of the rock-shaft to open said knuckle after said loosely mounted arm is moved by the fixed arm, said other means 25 comprising a transversely swinging lever pivoted to the coupler head adjacent the upper part thereof and having a lower end engaged against said knuckle in rear of its pivot, a second loosely mounted arm on the 30 rock-shaft adapted to engage and actuate said transversely swinging lever, and a second fixed arm carried by said rock-shaft and engageable with the second loosely mounted arm after the first loosely mounted arm has 35 been engaged by the said first named fixed arm of the rock-shaft.

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

OTHO STARLING.

Witnesses:

L. N. GILLIS,  
GEO. H. CHANDLEE.