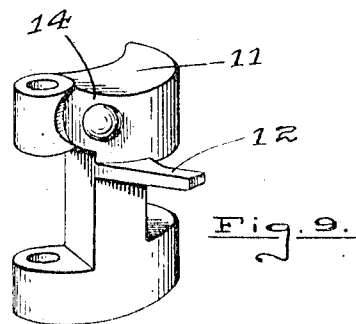
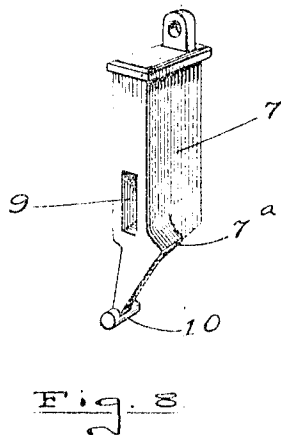
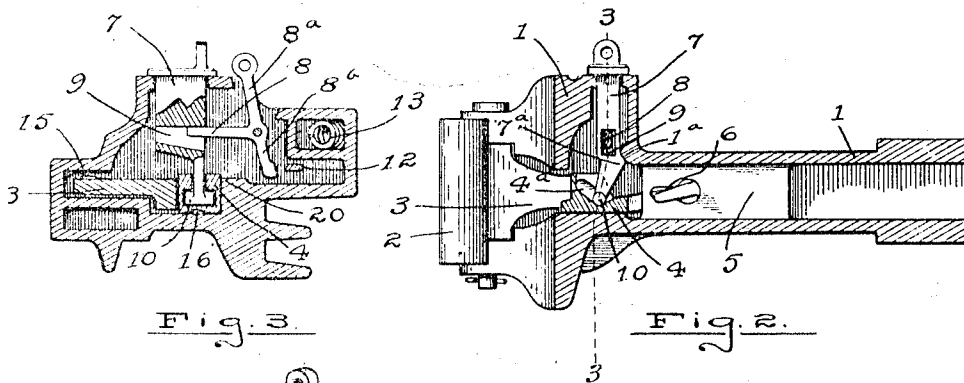
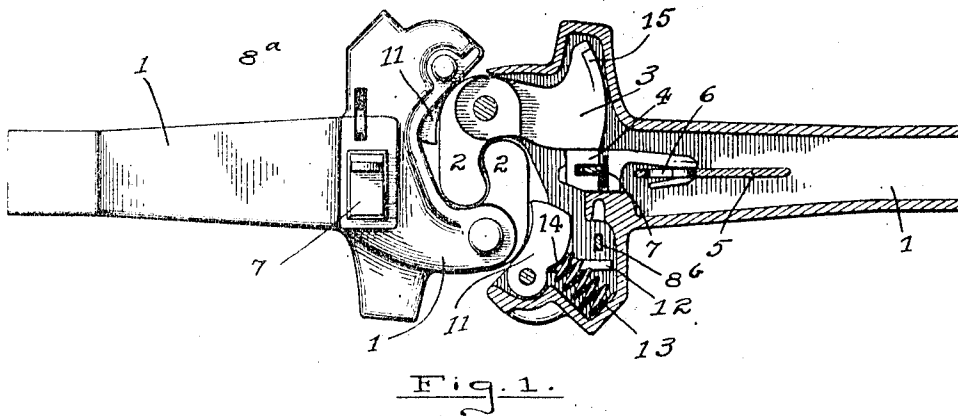


L. H. MURRAY.
AUTOMATIC CAR COUPLING.
APPLICATION FILED MAY 10, 1910.

1,055,414.

Patented Mar. 11, 1913.

2 SHEETS-SHEET 1.



Witnesses
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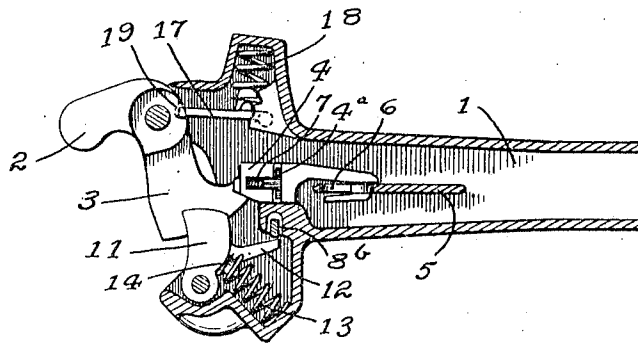


Fig. 4.

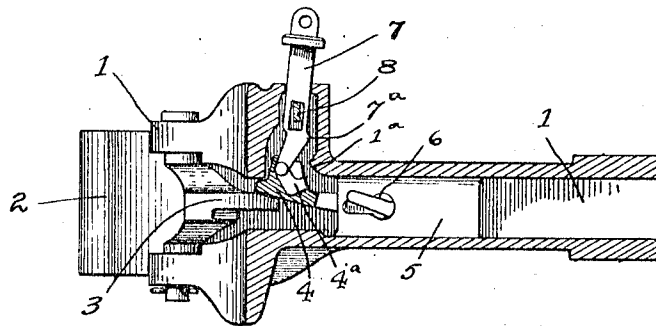


Fig. 5.

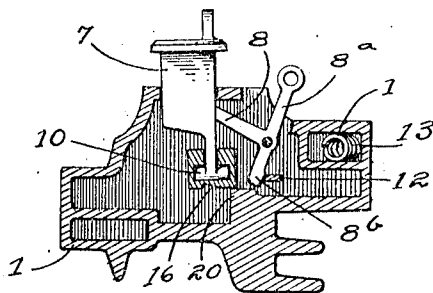


Fig. 6.

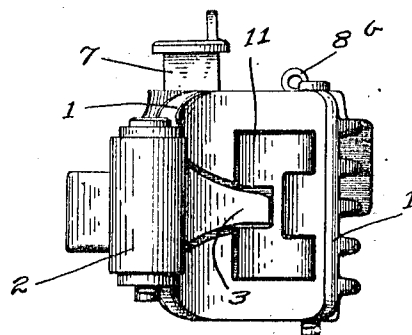


Fig. 7.

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UNITED STATES PATENT OFFICE.

LEWIS H. MURRAY, OF GRAND RAPIDS, MICHIGAN.

AUTOMATIC CAR-COUPLING.

1,055,414.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed May 10, 1910. Serial No. 560,536.

To all whom it may concern:

Be it known that I, LEWIS H. MURRAY, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Automatic 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.

My invention relates to improvements in automatic car couplers of the Janney type comprising a jaw having a pivoted knuckle and a locking bar to hold the same, and its object is to provide improved means for automatically unlocking and opening the knuckle of one coupler, when the engaging coupler is manually unlocked and moved away, and to provide the device with various new and useful features as hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings in which:

Figure 1 is a plan view of two couplers embodying my invention, shown in locked position, one of the same being shown partially in horizontal section; Fig. 2 a longitudinal vertical section of one of the couplers in locked position; Fig. 3 a transverse vertical section on the line 3-3 of Fig. 2; Fig. 4 a horizontal section of one of the couplers in unlocked position; Fig. 5 a longitudinal vertical section of the same; Fig. 6 a transverse vertical section of Fig. 5, taken in the plane of the axis of the lifter pin; Fig. 7 an end elevation looking into the open jaw of the coupler; Fig. 8 an enlarged perspective view of the lifter pin showing its peculiar configuration; and Fig. 9 an enlarged perspective view of the releasing lever.

Like numbers refer to like parts in all of the figures.

1 represents the frame or body of the coupler, which is attached to the draw bar of a car in the usual way. The outer end of this frame is jaw shaped and a pivoted member 2, commonly called a knuckle, is pivoted in one of the jaws and arranged to partially close the space between the same when in locked position. In order to lock this knuckle when closed, a locking bar 4 is provided, which drops in front of a rearwardly extending arm 3 on the knuckle. This locking bar extends backward within the frame and

terminates in a hook shaped end which is inserted in a keyhole slot 6 in a web 5 of the frame. By this construction, the locking bar is pivotally attached to the frame and moves both vertically and laterally at its free end, and assembling is facilitated.

To unlock the knuckle and allow it to swing open, the locking bar 4 must be raised out of the path of the arm 3. To accomplish this movement, I provide a lifter pin 7 which extends downward through an opening in the upper side of the frame. The lower end of the lifter pin terminates in a T-shaped head 10, which engages and traverses a diagonal T-slot 4^a in the locking bar 4 which is inclined forward and upward. The lifter pin is raised by means of a three arm lever, the horizontal arm 8 of which is inserted in a slot 9 in the lifter pin, said lever being actuated either manually by means of its upper arm 8^a, or automatically through its lower arm 8^b by means of mechanism hereafter described.

The principal object of this invention as before stated is to provide improved means whereby the knuckle will be automatically opened and will remain in that position, except when two couplers are engaged. The purpose of this is to prevent the jaws from being broken, which would be the tendency should they engage each other when in closed position, and to make sure that the knuckles are open when cars are to be coupled. To accomplish this, a releasing lever 11 is provided, which is pivoted in the jaw opposite the one in which the knuckle is pivoted. Normally this lever swings outward between the jaws of the coupler and is yieldably held in this position by a spring 13 which pivotally engages a rounded retainer 14 provided on the lever 11. When in this normal outward position, an arm 12 on the inner side of the lever 11 and swinging within a recess in the frame, engages the lower arm 8^b on the three arm lever and moves it toward the axis of the coupler. This raises the lifter pin 7, together with the locking bar 4, and releases the arm 3 of the knuckle allowing the latter to swing open. When two couplers are engaged, however, the knuckle of one engages the releasing lever of the other, forcing it within the frame and holding it there with the spring 13 compressed. In this position the arm 12 no longer engages the arm 8^b of the three arm lever, which will be left free to

swing back allowing the lifter pin and locking bar to drop and lock the knuckle in closed position.

It is frequently the case in an ordinary coupler of this type, that the jarring of the car while in motion will cause the locking bar to work upward and unlock the knuckle. I overcome this objectionable feature by providing a projection or shoulder 7^a on the rear side of the lifter pin and an opposing shoulder 1^a on the frame. When the pin is lowered, the T head will slide rearward in the slot and bring the shoulder 7^a beneath the shoulder 1^a and any upward movement of the locking bar will be stopped when these shoulders engage each other. When the lifter pin 7 is raised, however, its lower T-shaped extremity will rise in the diagonal T-slot 4^a carrying the shoulder 7^a away from beneath the shoulder 1^a and the lifter pin may then be raised and when its T-head reaches the upper end of the diagonal T-slot, it will carry the locking bar 5 upward with it.

In the following explanation of the operation of this device, I will assume that two couplers are attached to cars in the usual way and holding the cars together. In order to unlock these couplers and allow the cars to separate, the three arm lever may be manually operated by means of its upper arm 8^a or the pin lifted by the usual means (not shown). This will raise the lifter pin 7, its lower end rising in the diagonal slot 4^a and lifting the locking bar 4, as heretofore explained, which will free the knuckle 2, allowing it to swing outward and release the companion coupler. As the cars separate, the releasing lever 11 on the opposite coupler will, by the action of the spring 13, swing outward into the now empty jaw and its rearwardly extending arm 12 will raise the lifter pin and locking bar by means of the three arm lever, thus automatically unlocking the knuckle on this coupler and allowing it to be swing open by a trigger 17 pivoted in the frame, engaging a notch 19 in the knuckle, and actuated by a spring 18.

It often happens that the engine will be pushing instead of pulling the train when the cars are to be uncoupled and the cars will not separate until the engine is stopped. It has been the custom for the brakeman to manually hold the coupler unlocked until the cars separate, and the knuckles open. In this device a shelf or ledge 20 is provided in the frame, and when the locking bar 4 is raised it is lifted at one side instead of directly in line with the center of gravity. The pin 7 will be caused to swing over and deposit the bar 4 upon this shelf, thus unlocking the knuckle and allowing it to open when the cars separate. On the return of the knuckle to locked position, the arm 3 will pass under the locking bar 4 and a lug

15 on the upper face of the arm will engage a recess 16 in the lower side of the locking bar, carrying it off the shelf 20 and allowing it to drop in front of the arm to lock the knuckle.

What I claim is:—

1. A car coupler, comprising a frame having jaws spaced apart, a knuckle pivoted in one jaw, an arm on the knuckle swinging within the frame, a vertically and laterally movable locking bar to engage and hold the arm, a fixed shelf in the frame at one side of the bar, a manually operated lever connected to the bar to lift the same and deposit it on the shelf, a spring-actuated lever to engage and move the manually operated lever and to hold the same in inoperative position, said spring-actuated lever being engaged and moved out of engagement with said manually operated lever by the knuckle of another coupler.

2. A car coupler, comprising a frame having jaws spaced apart, a knuckle pivoted in one of the jaws, an arm on the knuckle swinging within the frame, a locking bar pivoted in the frame at one end and vertically movable at the other end, a lifting pin attached to the bar by a T-head engaging an upwardly and forwardly inclined T-slot in the bar, and opposing shoulders on the frame and pin, engaged when the T-head is in the lower end of the slot and disengaged by forward movement of the head in the slot when the pin is lifted.

3. A car coupler, comprising a frame having jaws spaced apart, a knuckle pivoted in one jaw, an arm on the knuckle swinging within the frame, a vertically and laterally movable locking bar to engage and hold the arm, a lifting pin connected to the bar at the lower end and adapted to swing laterally, means for lifting and laterally moving the pin applied to the same at one side of its center of gravity, and a shelf at the same side of the bar on which the bar is deposited by the pin.

4. A car coupler, comprising a frame having jaws spaced apart, a knuckle pivoted in one jaw and having an arm swinging in the frame, means for locking the arm, a vertically movable pin to lift the locking means and release the arm, a releasing lever pivoted in the other jaw, a spring to open the knuckle, a spring to operate the releasing lever, an arm on said releasing lever, and a lever pivoted in the frame having one arm engaging the pin to lift the same and having another arm engaged by the arm on the releasing lever.

5. A car coupler, comprising a frame having jaws spaced apart, a knuckle pivoted in one jaw, locking means for the tail of the knuckle, a releasing lever pivoted in the other jaw, springs to swing the knuckle and lever outward, an arm on the releasing lever,

a vertically movable pin to raise the locking means and release the knuckle and a three arm lever pivoted in the frame and having one arm engaging the pin to vertically move the same, a second arm engaged by the arm on the releasing lever to hold the pin and locking means in raised position and a third arm to manually operate the three arm lever.

6. A car coupler, comprising a frame having jaws spaced apart and provided with a shelf and a web, a knuckle pivoted in one jaw, a releasing lever pivoted in the other jaw, an arm on the knuckle and an arm on the lever, a locking bar pivoted to the web at one end and vertically movable at the other end and also having an inclined T-slot, a lifting pin having a T-head engaging and

traversing the T-slot, shoulders on the pin and frame adapted to engage when the T-head is in the lower end of the slot, a lever pivoted in the frame engaging the pin at one side of its center of gravity to lift the pin and swing the same laterally to deposit the bar on the shelf, said lever being engaged by the arm on the releasing lever, and a projection on the top of the arm on the knuckle to engage the bottom of the bar to move the latter off from the shelf.

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

LEWIS H. MURRAY.

Witnesses:

HAROLD O. VAN ANTWERP,
MINNIE THOMPSON.