

H. DONNELLY.

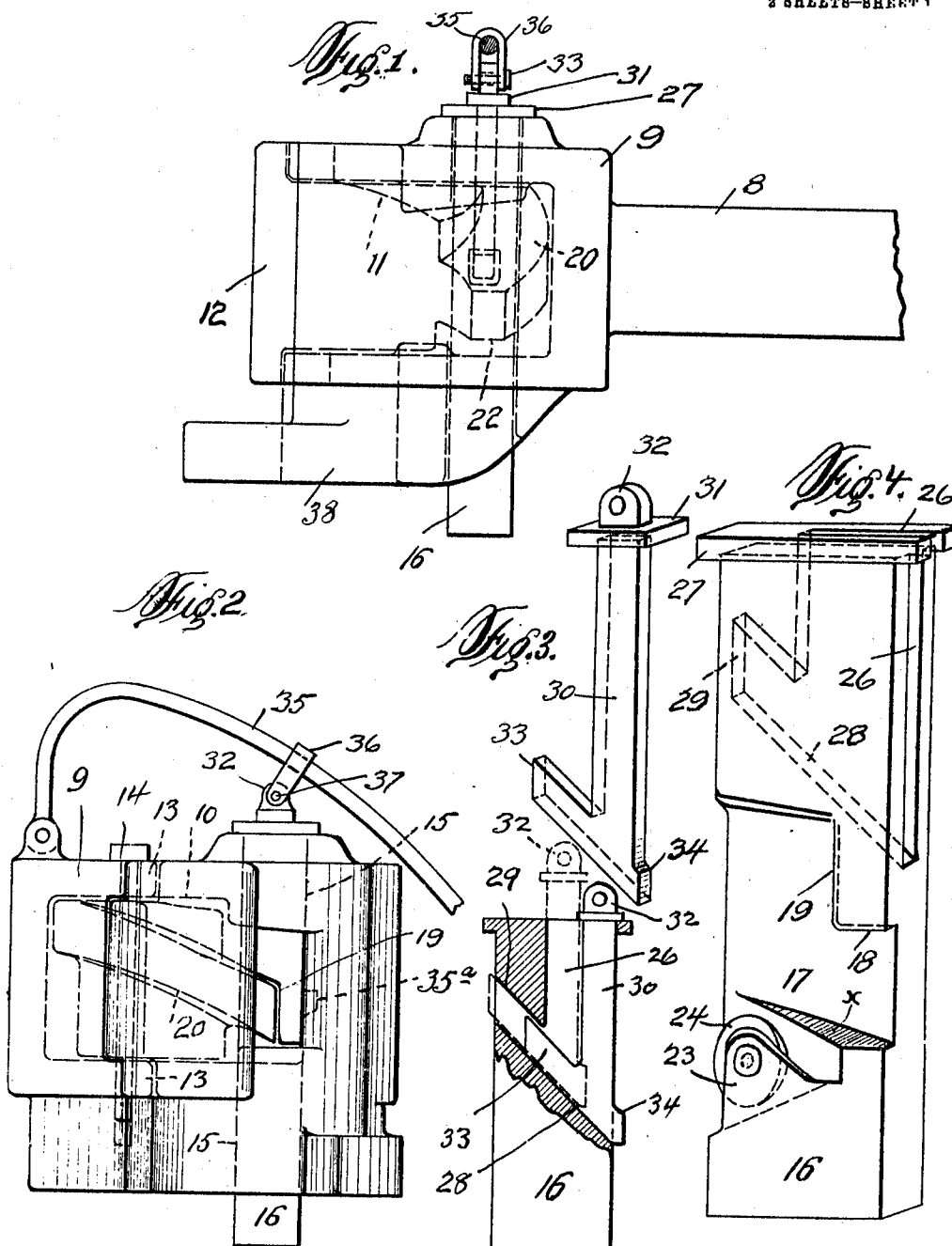
CAR COUPLING.

APPLICATION FILED FEB. 7, 1910.

1,003,716.

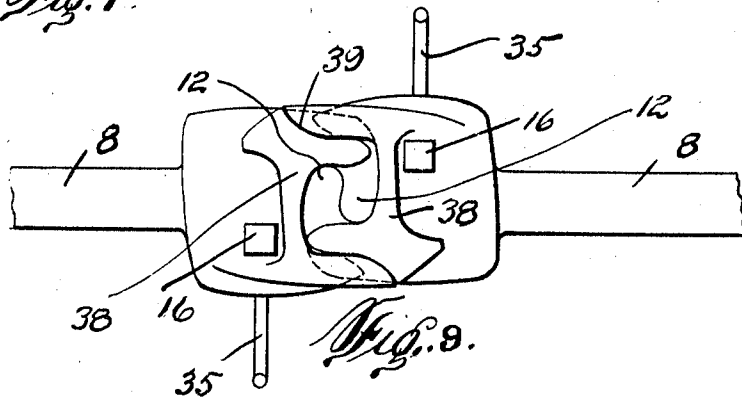
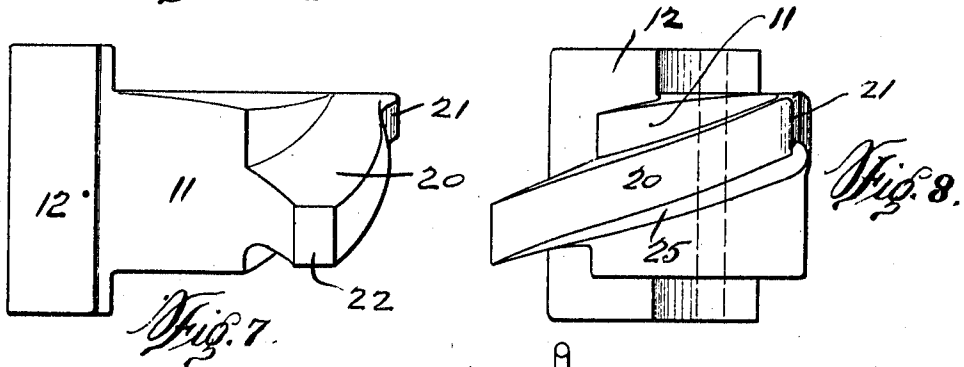
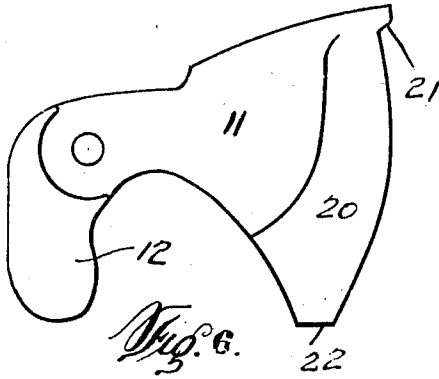
Patented Sept. 19, 1911.

3 SHEETS-SHEET 1



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CAR-COUPLING.

1,003,716.

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To all whom it may concern:

Be it known that I, HUGH DONNELLY, a citizen of the United States of America, residing at Lisbon, in the county of Columbia and State of Ohio, have invented certain new and useful Improvements in Car-Couplers and Adjusting Mechanism, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to car couplers, and the primary object of my invention is to provide an automatic car coupler with positive and reliable means for holding the coupling pin in the coupler body, thereby preventing the same from becoming accidentally displaced due to the vibrations to which the coupler is subjected by rolling stock in action.

Another object of the invention is to provide a car coupler with simple and effective means for relieving the knuckle-tongue from wear and tear when swinging into the coupler body.

With the above and such other objects in view as may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawing forming a part of this specification, wherein:—

Figure 1 is an enlarged side elevation of the coupler head. Fig. 2 is a front elevation of the same. Fig. 3 is a perspective view of a lock lifter. Fig. 4 is a perspective view of a locking pin. Fig. 5 is a side elevation of the locking pin partly broken away and partly in section, showing the lock lifter pin within the locking pin. Fig. 6 is a plan view of the knuckle. Fig. 7 is a side elevation of the same. Fig. 8 is an end elevation of the knuckle. Fig. 9 is a bottom plan of two interlocking coupler heads.

The coupler head which projects from the draw-bar 8 comprises a body 9 having a pocket 10 formed therein for the tongue 11 of a knuckle 12. The knuckle 12 is pivotally mounted between apertured extensions 13 of the coupler body by a pivot pin 14. The pocket 10 communicates with vertical rectangular openings 15 formed in the locking body for a knuckle pin 16 adapted to lock the tongue 11 of the knuckle 12 within the pocket. The openings 15 are rectangular

in cross section to receive the locking pin 16, and said pin is cut-away, as at 17, to provide clearance for the tongue 11, the cut-away portion of said pin providing a supporting shoulder 18 and a locking shoulder 19. The supporting shoulder 18 is adapted to rest upon the inclined rib 20 of the tongue 11 and ride upon said rib as the knuckle 12 is swung open. An opening movement of the knuckle 12 is limited by a lug 21 at the upper end of the inclined rib 20. The locking shoulder 19 is adapted to engage the end of the rib 20, as at 22, and lock the tongue 11 within the pocket 10, thus preventing the knuckle from being opened.

The locking pin 16 adjacent to the cut-away portion 17 is provided with a bearing 23 for a revoluble roller 24 which is employed as a movable bearing for supporting the rib 20, the roller 24 extending slightly above the surface which is indicated at X, Fig. 8. The rib 20 would rest upon the surface X if it were not for the roller 24. As the pin 16 is illustrated in perspective in Fig. 8, the roller does not appear as extending above the surface X. As the roller 24 extends above the surface X, there will be no friction between the rib 20 and said surface as the rib moves between the latter and the shoulder 18.

The locking pin 16 above the cut-away portion 17 is provided with a vertical slot 26, the upper end of the slot terminating at the head 27 of the locking pin. The bottom of the slot is inclined, as at 28, and communicating with the lower portion of the slot 26 is an angularly disposed opening 29 in the locking pin. In the slot 26 and the opening 29 is mounted a lock lifter 30 having the upper end thereof provided with a head 31 and an apertured lug 32, while the lower end thereof is provided with a hook 33 adapted to extend into the opening 29 and with a protuberance 34 alining with the hook 33. The wall of the pocket 10 alining with the walls of the openings 15 is provided with a recess 35 adapted to receive the protuberance 34 of the lock lifter 30 and thereby lock the locking pin 16 within the openings 15, thus preventing vibrations of the rolling stock from jarring the knuckle to that extent as to release the tongue 11 of the knuckle.

As best shown in Fig. 9 of the drawings, the hook 33 of the lock lifter is in a retracted

position when the protuberance 34 is in an extended position to retain the knuckle pin within the openings 15. When the lock lifter is elevated relatively to the locking pin to withdraw the protuberance 34, the hook 33 is carried upwardly in the opening 29 until it engages the wall of the opening 15, and as it cannot further advance in the opening 29, the locking pin will be elevated.

When the locking pin is elevated and the end of the opening 29 clears the upper surface of the coupler body, the hook 33 will be immediately projected and the end of the hook is so constructed as to engage the upper surface of the body and support both the lock lifter and locking pin in an elevated position. When in such position the shoulder 18 of the locking pin is sufficiently elevated to engage the inclined rib 20 of the knuckle tongue 11. The knuckle is now in position to be swung open. For instance, if it was desired to pull one car away from the other, it would be necessary that the lock lifter and the locking pin be elevated, before the knuckle 12 could swing open. As the knuckle swings to an open position the locking pin is further elevated and the lock lifter recedes until the protuberance 34 engages the wall of the opening 15.

Assuming that the knuckle is in an open position and that another knuckle contacts with the tongue 11, the knuckle will be swung inwardly allowing the locking pin to descend, and immediately upon the rib 20 clearing the shoulder 18, both of the locking pins 16 and lock lifter 30 would drop into position with the shoulder 19 holding the rib 20 and the protuberance 34 of the pin 30 holding the locking pin in a locked position.

A suitable elevating mechanism can be attached to the lock lifter whereby it can be manipulated from the side of a car without a trainman going between to couple the cars. As an example of the elevating mechanism, I show a pivoted lever 35 upon the coupler body, said lever extending through

a yoke 36 pivotally connected to the apertured lug 32 by a pin 37. The lever 35 can extend to the side of a car to be manipulated without a trainman going between coupled cars, or the well-known type of rock shaft, crank and chain can be used.

The bottom of each coupler head is provided with irregularly-shaped ribs 38, each rib being substantially I-shaped with the heads thereof rounded and curved, as at 39, to interlock, as best shown in Fig. 9, whereby the coupler bodies or heads will be rigidly held after the knuckles 12 have been coupled.

What I claim is:

A car coupler comprising a coupler head, a knuckle pivotally mounted in said head, a vertically movable locking pin arranged within the head and adapted to engage the knuckle for retaining it in closed position, said locking pin provided with a vertically disposed slot and an angularly extending opening at the inner terminus of the slot, said coupler head provided with a recess opposing one end of said opening, a lock lifter shiftably mounted in said pin and provided with a protuberance engaging the walls of said recess for locking the pin within the coupler head, said lock lifter further provided with an angularly disposed hook engaged with the locking pin, and means engaging with said lock lifter for shifting it to move the said protuberance out of said recess to release the locking pin and further adapted to shift the hook to engage the wall of the opening to elevate the pin to release the knuckle, said lock lifter adapted to have the hook thereof project from the pin and engage the draw head for maintaining the latter in an elevated position when raised to such position by said means.

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

HUGH DONNELLY.

Witnesses:

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