

No. 682,288.

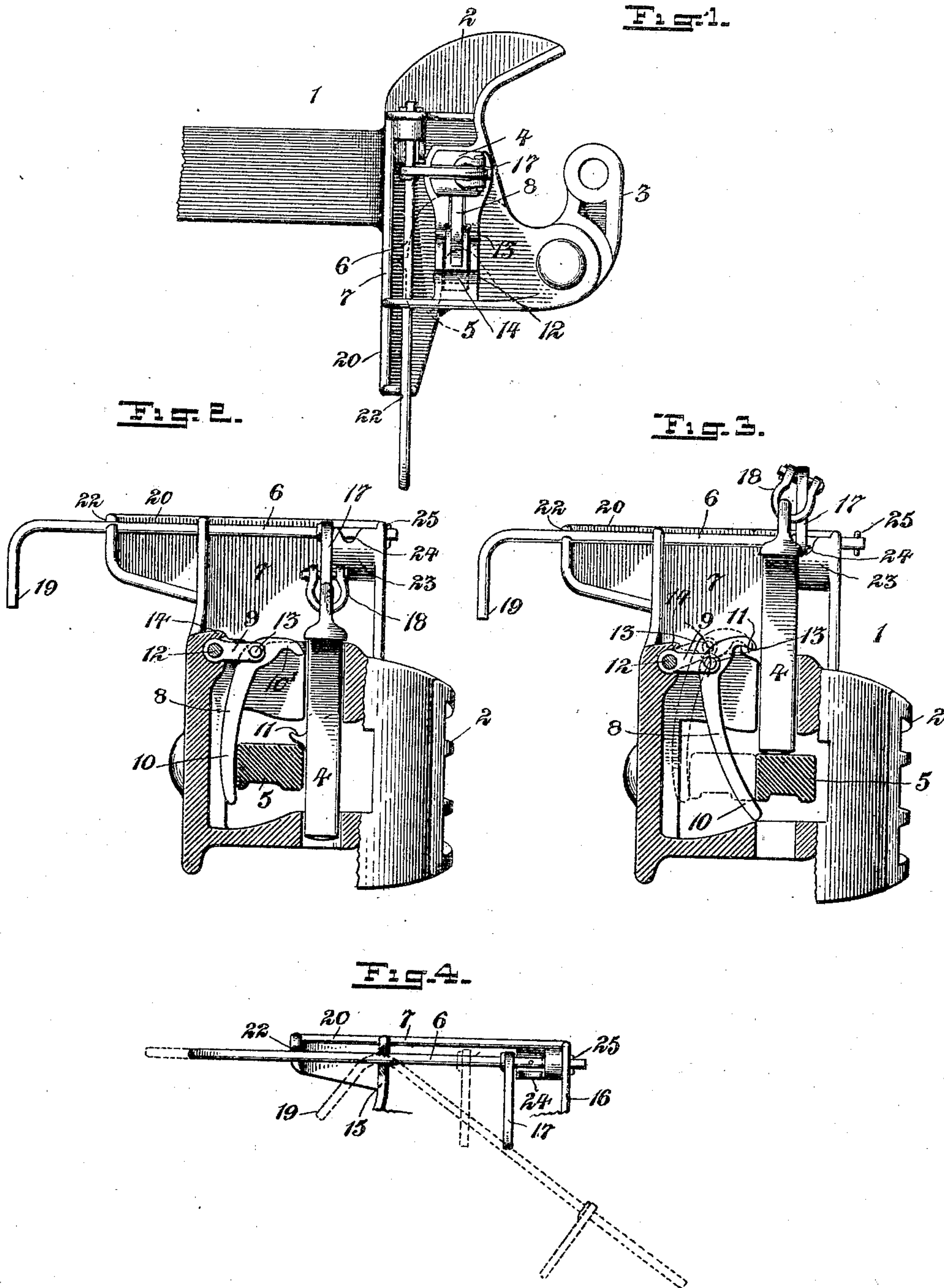
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CAR COUPLING.

(Application filed July 11, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 682,288, dated September 10, 1901.

Application filed July 11, 1900. Serial No. 23,206. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. SMILLIE, a citizen of the United States, and a resident of Newark, Essex county, State of New Jersey, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention relates to car-couplers of the "vertical-plane" type, and more particularly to certain improvements in the means for automatically opening the knuckle after the coupling-pin has been raised from locking position relative thereto.

A desirable form of knuckle-opener, as shown in my prior patent, No. 602,879, dated April 26, 1898, consists of a bell-crank lever which is pivotally supported in the draw-head of the coupler, with one arm extending into a position at the rear of the inner arm of the knuckle and its other arm extending into the path of a projection on the coupling-pin, whereby as the latter is raised from locking position relative to the knuckle the said projection thereon will engage with the opening-lever and operate the same, so as to cause the knuckle to be swung to an open position. After the coupling-pin has been raised it is then usually supported in such position until the coupler is again moved into coupling engagement with another coupler by supporting an arm of the uncoupling-lever upon a suitable rest. With the pin thus locked in its raised position the knuckle-opening lever as ordinarily supported would also be locked thereby in its position, holding the knuckle open. Such arrangement and action of the parts would be unobjectionable if the coupling-pin were always released prior to the coming together of the cars; but in the event of the coupling-pin not being released, through inadvertence or otherwise, when the couplers come together and the knuckles are thrown with force to their closed position the engaging arm of the opening-lever will receive the full force of the blow and be liable to be either broken or so bent as to be inoperative. Such objectionable feature is avoided in the construction disclosed in my said prior patent, No. 602,879, by providing the knuckle-opening lever with an elongated slot at its

fulcrum, so as to permit a certain limited sliding of the lever on said fulcrum, whereby should the knuckle be accidentally closed while the coupling-pin is in its raised and locked position the engaging end of the opening-lever will be free to be moved with the inner arm of the knuckle to the limit of movement of the same without bending, breaking, or being strained in any manner.

My present invention in part comprises a certain novel construction and combination of parts for securing a certain independence of movement of the knuckle-opening lever relative to the coupling-pin similar to that permitted by the elongated slot in my prior patent and for the same purpose.

Referring to the accompanying drawings, Figure 1 is a plan view of a coupler embodying my improvements. Figs. 2 and 3 are front end elevations of the same with the draw-head and knuckle in section, showing the different positions assumed by the movable parts when the coupling-pin is lowered and raised. Fig. 4 is a detail view showing the manner of placing the uncoupling-lever in connection with or disconnecting the same from the coupler.

In said drawings, 1 indicates a car-coupler of the vertical-plane type, consisting of the draw-head 2, the swinging hook or knuckle 3, having a hinged connection with said draw-head, and the coupling-pin 4, supported within a vertically-arranged opening in the draw-head for engaging with the inner arm 5 of the knuckle to hold the latter in its closed position. The pin 4 is adapted to be raised from its locking position relative to the knuckle by means of an uncoupling-lever 6, which latter, as herein shown, is supported in bearings on a raised flange 7 of the draw-head, so as to be movable with the latter, in the same manner as more fully disclosed in my prior patent, No. 636,575, dated November 7, 1899.

In accordance with my present invention I provide a lever 8, which is pivotally connected with the free or movable end of a pivoted link 9 and arranged with its lower arm 10 extending into a position at the rear of the knuckle-arm 5, so as to engage therewith, and its upper arm 10' extending into the path of a projection 11 on the pin 4, whereby the lever will be operated upon the upward move-

ment of said pin in a manner to be hereinafter described. The link 9, which carries the knuckle-opening lever 8, is pivotally connected at one end with the draw-head by means of a pin 12, and at its opposite end is movably supported in a normal position so as to hold the lever 8 in operative position relative to the coupling-pin and knuckle by means of the pivot-pin 13, which connects the link and lever, the ends of which pin project laterally beyond the sides of the link and rest in seats or recesses in the upper part of the draw-head, as shown. The upward throw of the lever-connecting end of the link 9 is limited by a stop 14, formed, as herein shown, by the overhanging wall of the opening in which the link is located.

In the operation of my improved coupler when the pin 4 is raised the projection 11 thereon engages with the end of the lever 8 before the lower end of the pin moves above the knuckle-arm and raises the same with the connecting end of the link until the latter comes in contact with the stop 14, (as indicated by dotted lines in Fig. 3,) and thereby renders the pivot or fulcrum pin 13 stationary, at which time the lower end of the coupling-pin has moved above the knuckle-arm, so as to release the latter. Then upon the continued upward movement of the coupling-pin the lever 8 is caused to turn or rock upon the now stationary fulcrum-pin 13 and force the knuckle to its open position. After the pin 4 has been raised sufficiently to thus operate the lever 13 the uncoupling-lever is then supported upon a suitable rest, to be hereinafter referred to, which permits the said pin 4 to drop back to a position with its lower end about even with the upper surface of the knuckle-arm, and thereby allows the lever-supporting end of the link 9 to drop back to its normal position, with the ends of the pin 13 resting in their seats in the upper surface of the draw-head, as indicated by full lines in Fig. 3. With the several parts thus supported it will be obvious that notwithstanding the upper end of the lever 8 is supported upon the projection of the vertically-stationary coupling-pin the pivoted link 9 will permit the lower end of the lever to move backward with the knuckle, as indicated by dotted lines in Fig. 3, in the event of the latter being closed accidentally or otherwise, and thus insure the proper operation of the several parts without liability of breakage.

One of the several features secured by means of my improved construction as described is that the coupling-pin may be raised and the knuckle opened and closed without any action of the opening-lever 8, if so desired, the said lever being operated by the continued upward movement of the coupling-pin after the knuckle has been released, thus leaving it optional with the trainman whether he will open the knuckle or not.

The uncoupling-lever 6, as herein shown, is supported in bearings which are formed in

ribs or projections 15 and 16, located on the face side of the flange 7. This lever 6 is provided with a forwardly-projecting lever-arm 17 at a point above the draw-head, which is loosely connected at its end with the coupling-pin through the medium of a link 18, and in order that the lever may be readily operated to raise the coupling-pin without going between the cars it is made of sufficient length so that one end will project laterally beyond the coupler to a point where it may be conveniently reached from the side of the car. At such outer end the lever is bent at an angle to form a lever-handle 19 for operating the same. The flange 7 extends laterally beyond one side of the coupler, as at 20, as a support for the projecting end of the lever, a rib or extension on such lateral extension being provided with a seat or recess 22, in which the lever rests and is supported at one end, as shown. As a desirable means for holding the coupling-pin 4 in its raised position after being drawn upward to release the knuckle I have provided the flange 7 with a forwardly and upwardly projecting lug 23 at one side of the lever-arm 17, the upper edge of which is provided with a recessed seat 24, adapted to receive the arm 17 and support the same with the connected coupling-pin in raised position, the lever 6 being longitudinally movable in its bearings, whereby it may be readily shifted to move the arm 17 either to a position to rest upon the seat 24, as shown in Fig. 3, or to a position at one side of the same, as shown in Fig. 2. The upper edge of the lug 23, over which the lever-arm 17 is passed in being placed in the seat 24, is of such height as to necessitate said lever-arm being raised sufficiently high when being moved thereover, whereby the lever 8 will be actuated to throw the knuckle to its open position, and the seat 24 is of such depth that the lever-arm 17 when located therein will allow the coupling-pin to drop down to a position with its lower end about even with the upper surface of the knuckle-arm, so as not to interfere with the closing of the latter, and the lever-supporting end of the link 9 to drop back to its lowered position, in the manner as hereinbefore referred to. The seat 24 is located adjacent to that end of the lug 23 nearest the lever-arm 17 and is formed with tapering walls, so that the lever-arm when raised and moved laterally toward said seat will readily locate itself therein, the upper edge of the lug, over which the lever-arm passes, being preferably made so narrow as to form merely a rounded point on which the lever-arm will not rest, and thus insuring the latter being properly seated if given but a slight lateral movement. The uncoupling-lever 6 is limited in its longitudinal movement in one direction by the lever-arm 17, located at one side of the rib 16, and in the opposite direction by a pin or split key 25, removably inserted through an opening in the uncoupling-lever at the opposite side of

said rib. In order that the lever 6 may be readily placed in or removed from its position in connection with the coupler, its outer bearing or seat 22 on the flange extension 5 20 is open to permit the bent handle portion of the lever to be turned up and moved past the same. By this construction the key 25 may be removed from the lever 6 and the latter be then moved longitudinally outward, 10 as indicated by dotted lines in Fig. 4, until the inner end of the same is free from its bearing in the rib 16, and then moved outward and in the opposite direction (also as indicated by dotted lines in Fig. 4) to draw 15 the handle portion 19 past the open seat 22 and through the opening forming its seat or bearing in the rib 15.

Having thus set forth my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a car-coupler, the combination, with the draw-head having a coupling-pin and a pivoted knuckle adapted to be held in closed position by said coupling-pin, of a lever supported with one end extending into a position 25 to engage with the knuckle and its other end extending into the path of a projection on the coupling-pin, a pivoted link having a pivotal connection with said lever and supporting the same, and means for permitting a limited vertical movement of said link, for 30 the purpose set forth.

2. In a car-coupler, the combination, with the draw-head having a coupling-pin, and a pivoted knuckle adapted to be held in closed position by said coupling-pin, of a bell-crank lever supported with one arm extending into 35 a position to engage with the knuckle and its other arm extending into the path of a projection on the coupling-pin, a link pivotally

connected at one end with the draw-head and at its opposite end having a pivotal connection with said lever, means for supporting the lever-connecting end of said link in vertical position, and a stop for limiting the 45 upward movement of said link and the connected lever, for the purpose set forth.

3. In a car-coupler, the combination, of the draw-head provided with a vertically-arranged flange, a knuckle, a coupling-pin, an 50 uncoupling-lever supported in a longitudinally-movable position in bearings on said flange and provided with an arm having operative connection with said coupling-pin, and a forwardly-projecting lug located upon 55 the front face of said flange and provided with a recess in its upper edge as a seat for said lever-arm, the said recess being formed with tapering walls, one of which terminates at the upper edge of the lug in a relatively 60 narrow tapering point over which the lever-arm is free to be moved, for the purpose set forth.

4. In a car-coupler, the combination, of a draw-head provided with a flange on its upper 55 side having bearings one of which is open, a knuckle, a locking pin or bolt, an uncoupling-lever supported in a longitudinally-movable position in the bearings on said flange, and provided with a lever-handle 70 at one end and with a lever-arm at a point between its bearings having detachable connection with said locking-pin, and means for removably retaining said lever in position in its bearings.

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