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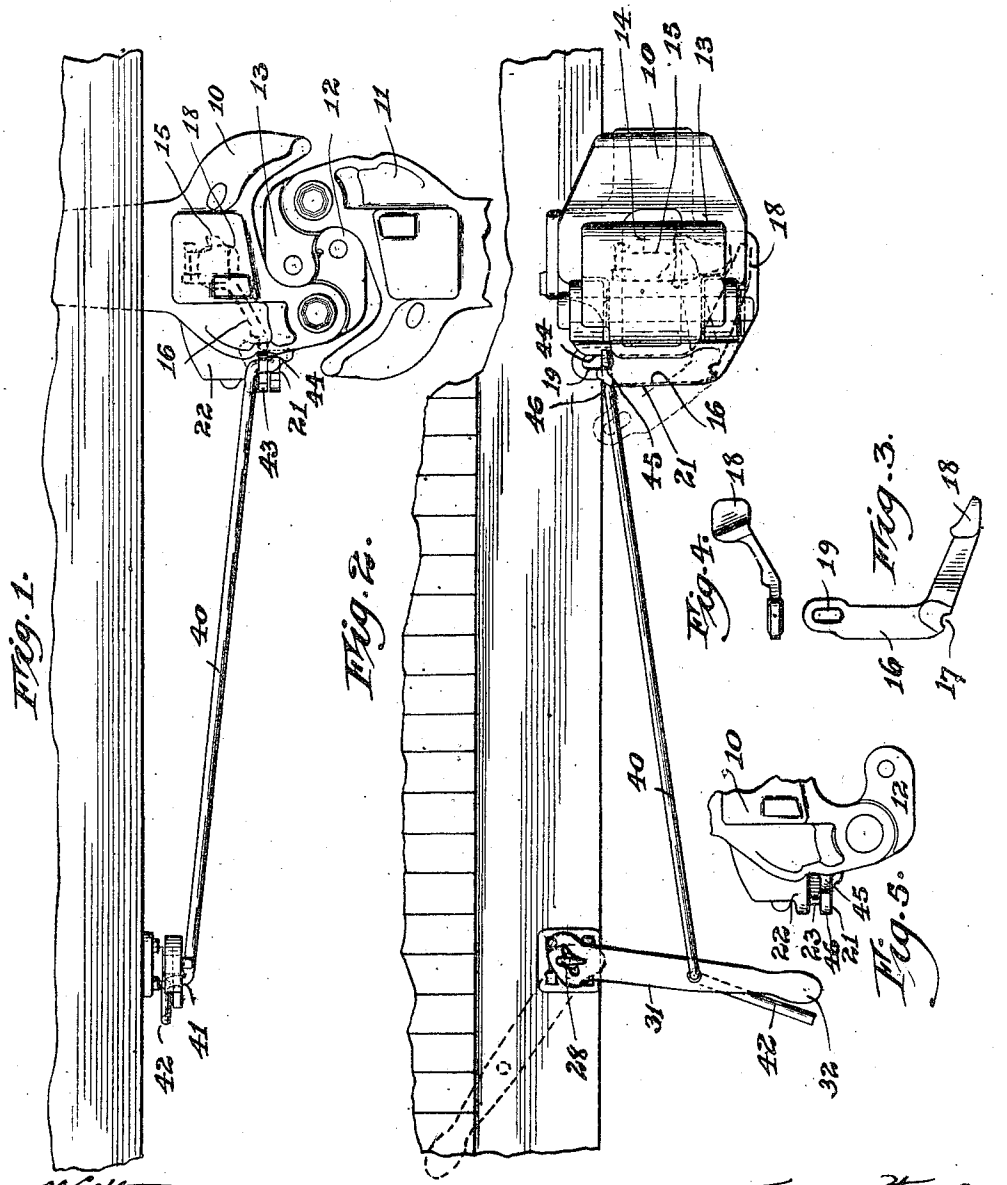
RAILWAY CAR COUPLING.

APPLICATION FILED JAN. 4, 1909.

990,363.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 1.



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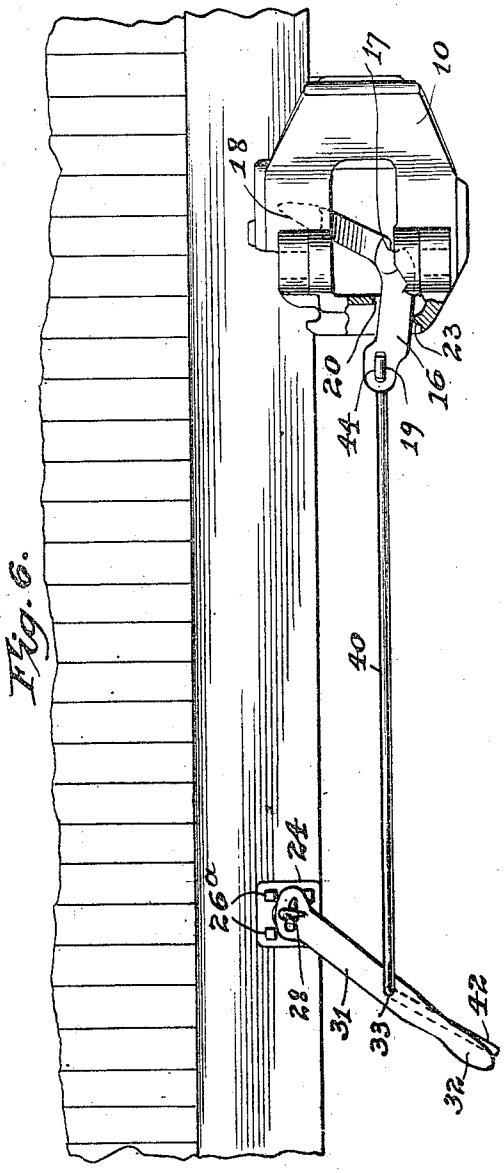


Fig. 6.

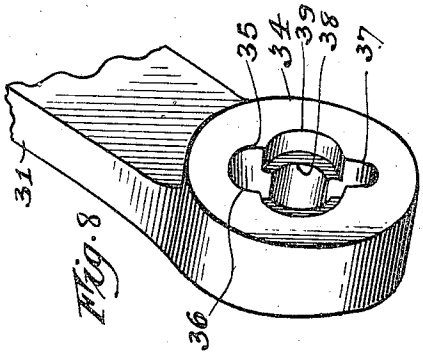


Fig. 8.

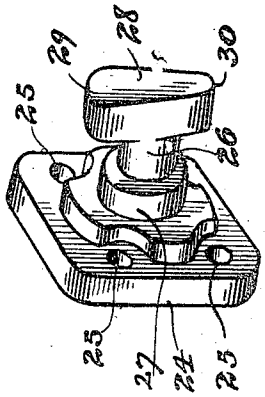


Fig. 7.

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UNITED STATES PATENT OFFICE.

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RAILWAY-CAR COUPLING.

990,363. Specification of Letters Patent. Patented Apr. 25, 1911.

Application filed January 4, 1909. Serial No. 470,606.

To all whom it may concern:

Be it known that I, EDMUND P. KINNE, a citizen of the United States, residing at Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Railway-Car Couplers, of which the following is a specification.

My invention pertains to car couplers of the Janney or pivoted knuckle type, and more particularly concerns means for actuating the knuckle-locking mechanism and for centering the draw-bar or coupler. As is well known, car couplers of this type must have a certain amount of lateral play in order to permit them to swing as the train is rounding curves, such transverse movement being from 1¼″ to 2½″ on either side of the center line of the coupler. Because of this permissible lateral movement it frequently happens that the coupler heads are not in alinement or rgeister when two cars are brought together to be coupled or connected, and it is frequently necessary for the brakeman to shift one or both of the couplers so as to adapt or position them to properly engage one another. Couplers of this kind are usually provided with vertically movable locking or lifting pins, and such pins are ordinarily equipped with lifters, the operating mechanism for the latter sometimes comprising a rock-shaft mounted in bearings on the end sill of the car and having a crank member connected to the upper end of the lock or lifting pin by a chain. In other cases the pin is lifted from beneath by means of a bent lever, one end of which is brought into contact with the lower end of the pin, which in some cases protrudes through the bottom wall or floor of the coupler-head, such lifting lever being connected by a rod to a hand-actuated lever pivoted or fulcrumed on the end sill of the car so that it can be manipulated without requiring the brakeman to pass between the cars.

It is the object of my invention to combine a lock-lifting mechanism of this general type with a draw-bar centering device, and to accomplish this object I preferably employ a lock-operating or lifting-lever in the form of a bell-crank pivoted or fulcrumed between its ends upon the coupler-head, one end thereof (the lower end) being adapted to pass beneath and engage the lower end of the lock or lifting-pin, while the upper or other end is connected by a rigid rod or link to an actuating lever pivoted on the end sill of the car.

A further object of the invention is to fulcrum such actuating lever detachably on the car end sill or car-body in such a manner that it can not be removed as long as the coupler knuckle and locking mechanism are in position, but can be detached upon removal of the knuckle and locking device, this fulcrum arrangement of the lever being such that the lever can be applied to its supporting pivot stud only in the correct and proper manner, thereby eliminating all possibility of incorrectly applying the lever by one inexperienced in this line. The construction and arrangement of parts of the device are also such that the connecting rod or link can be placed in position or detached from the actuating and lock operating levers only when the knuckle and locking mechanism have been taken out of the coupler-head. Consequently, it is impossible to disengage or render this device inoperative except by dismantling the coupler itself.

Another object of this invention is to make the device capable of centering the coupler without operating or actuating the knuckle locking parts and of performing the latter function without laterally shifting the coupler head.

My improvements are shown in the accompanying drawings, wherein like reference characters refer to the same parts throughout the various views, and in these drawings—Figure 1 is a plan view of two coupler-heads locked together, and of my improved combined lock operating and centering means; Fig. 2 is a fragmentary end elevation of a car equipped with my improved centering and lock actuating device; Fig. 3 is a side elevation of the lock operating bell crank lever; Fig. 4 is a plan view of the same; Fig. 5 is a fragmentary plan of one of the coupler heads with the lock operating or lifting lever omitted; Fig. 6 is a view similar to Fig. 2, partly broken away, illustrating the position of the parts which will permit the connecting rod or link to be disengaged from the two levers; Fig. 7 is a perspective view of the fulcrum or pivot stud on which the manually-actuated hand lever is mounted; and Fig. 8 is a perspective view of an end portion of such lever, the

inner side of the lever being shown outermost in this view to more clearly indicate the construction.

In the drawings 10 and 11 represent a pair of coöperating coupler-heads and 12 and 13 the pivoted knuckles thereof.

14 represents the knuckle lock and 15 the coöperating lock-lifting pin mounted for vertical reciprocation, it being understood that this knuckle locking mechanism may be of any desired form of construction consistent with its automatic release by the lock operating mechanism described hereinafter. This latter mechanism comprises, in the embodiment shown in the drawings, a lock-operating elbow or bell-crank lever 16 notched at its angle at 17, provided at its inner end with a foot 18 on which the lifting pin 15 is adapted to rest, and equipped at its upper end with a slot 19.

As is clearly indicated in Fig. 6, one side wall of the coupler head is apertured at 20, and outside of such hole and disposed between a vertical outwardly-extended fin 21 and the portion 22 of the coupler head there is provided a lever seat or fulcrum 23 on which the lock-operating lever 16 is adapted to turn, its recess or socket 17 receiving a portion of the rib or fulcrum 23, as will be readily understood.

I mount on the end sill of the car body adjacent to the side of the car a fulcrum stud or pivot post shown in perspective in Fig. 7 and composed of a flat base 24 having a plurality of apertures 25 for the accommodation of the securing screws or bolts 26^a, the post comprising in addition a stud proper 26 and an adjacent cylindrical portion 27 of somewhat larger diameter, the outer end of the stud or post 26 having a transverse head 28 wider at 29 at one side of the post or stud than at the outer side 30, as is clearly shown.

The manually operated actuating lever 31 has a handle portion 32 at its free end, an intermediate aperture or hole 33 extended therethrough, and at its other end it is somewhat thickened to provide a substantially-cylindrical head 34 having extended therethrough a hole 35 of substantially the same shape and size as the head 28, this hole having a larger portion 36 to accommodate the part 29 of the head, and a smaller portion 37 to receive the smaller part 30. This head also has a central cylindrical hole or aperture 38 of substantially the same diameter as the part 26 of the stud and a larger concentric recess 39, on its inner face, of practically the same diameter as the enlargement or boss 27. It will, therefore, be apparent that this end of the actuating lever 31 may be applied to the fulcrum stud or post by positioning the lever as indicated in dotted lines in Fig. 2, so that the hole 35 is in register with the head 28, whereupon the lever may be pushed over the stud, the portions 38 and 39 of the complex aperture or recess in the lever receiving the parts 26 and 27, respectively, of the stud and on which parts the lever is adapted to turn or rotate. Just as soon as this lever has rotated to any extent on the stud the hole 38 is no longer in register with the head 28 and the latter prevents removal of the lever. It will be readily understood that in this manner and in no other way can the actuating lever be applied to its supporting fulcrum stud. For example, if it is attempted to place the lever on the stud or post with the aperture or recess 39 outermost, it will be impossible to push the lever fully on to the stud since the former then has on its inner face no recess or cavity to receive the enlargement or boss 27. Furthermore, since the two parts of the head 28 are made unequal in size, the lever can be applied to the stud only when the larger portion 36 of the hole 35 registers with the part 29 of the head. To connect this actuating lever 31 with the lock-operating bell-crank lever 16 I employ a rod 40 bent at one end to supply a lateral portion 41 to fit and turn in the cylindrical hole or aperture 33 of the actuating handle 31, this end of the rod also having a downwardly-extended handle portion 42, the function of which is indicated hereinafter. At its other end this connecting rod or link has a lateral part 43 adapted to reside in the slot 19, this transverse portion terminating in a slight longitudinal extension 44 intended to fit in a recess 45 located in the upper portion of the fin 21, the latter having a beveled or inclined face 46, as indicated in Fig. 2, leading to such recess.

In order to assemble the parts of this mechanism the knuckle 12, lifting pin 15, and lock block 14 are removed from the coupler head and the lock operating bell-crank lever 16 is placed in the head in the position indicated in Fig. 6. The actuating lever 31 is applied to its supporting fulcrum stud 26 in the manner described above, and while the handle is in the dotted line position shown in Fig. 2. Then the handle part 42 of the rod 40 is passed through the hole 33 of handle 31 until the lateral portion 41 of the rod is received in the hole. The handle with the rod thus attached is then swung into the position shown in Fig. 6 so as to bring the finger or extension 44 of the rod into register with the slot 19, which is of approximately the same length as or slightly longer than this extension or finger. The rod 40 may then be shifted sidewise slightly so as to push this finger through the slot, thereby bringing the lateral portion 43 into the slot in which it is intended to have a bearing. The parts are then moved to the left as viewed in Fig. 6 until the lever 16 is seated on its fulcrum rib 23 on which it turns, so that all of the parts are brought to

the position shown in full lines in Fig. 2. Then the lock block and lifting pin and the knuckle and its pivot pin are put in place and the mechanism is ready for operation.

To take the device apart the reverse of the steps indicated above is required, it being necessary of course to take the knuckle, lifting pin, and block out of the coupler head, because as long as these parts are in position it is impossible to shift the lock operating bell-crank lever into such position that the connecting rod can be detached, and until such rod is detached it is not possible to swing the actuating lever on its fulcrum stud sufficiently to bring it to detaching position.

When it is desired merely to center the coupler by shifting it in one direction or the other transversely of the car, the brakeman or operator grasps the handle 32 and turns the lever 31 on its fulcrum in the proper direction. If the brakeman pulls the lever to the left, as the device is illustrated in Fig. 2, the part 44 of the rod 40 engages the outer substantially-vertical wall of the recess 45 in the fin and acts to pull the coupler sidewise in response to the turning of the actuating lever. If, on the other hand, the operator desires to shift the coupler away from him, that is, to swing the lever 31 to the right, as viewed in Fig. 2, the coupler head is also moved to the right, the inner end of the extension or finger 44 striking the wall of the coupler head, pushing the latter and drawbar, as will be readily understood.

When it is desired to raise the knuckle locking device of the coupler head on to the lock-set or to swing the knuckle open, the operator grasps both handles 42 and 32 and swings them to the left as the mechanism is viewed in the illustration of Fig. 2. His grasping of the handle 42 with the handle 32 operates to lift the inner end of the rod 40, the latter turning in the aperture 33, as will be readily understood, and such lifting of the rod raises the finger 44 out of the recess 45, thereby permitting the lock operating bell-crank lever 16 to swing on its fulcrum without shifting the coupler head. Such movement of this elbow lever lifts the locking mechanism either on to the lock-set or if the handle 31 is swung far enough the knuckle itself will be thrown open. The weight of the lever 31 combined with that of the locking mechanism of the coupler head and the bell-crank lever is such that when the brakeman releases the handle 31 all the parts will swing automatically to the position shown in Fig. 2, the finger 44 traveling up the incline 46 and dropping into the recess 45, as will be perfectly apparent.

Whereas I have described herein all the details of construction of this particular embodiment of my invention, it is to be understood that the latter is not limited and restricted to the precise structural features set forth and that these may be modified to a considerable extent without departing from the essence and substance of the invention.

I claim:

1. In a device of the character described, the combination of a car coupler having a knuckle and a lock therefor, a lock-operating lever, an actuating lever, and means joining and disengageably connected to said actuating and lock-operating levers, the parts of the coupler when in their normal positions preventing said means and levers from assuming positions permitting their disengagement, substantially as described.

2. In a device of the character described, the combination of a car coupler having a knuckle and a lock therefor, a lock-operating lever, an actuating lever disengageably fulcrumed on the car body, and means connecting said lock-operating and actuating levers, the parts of said coupler when in their normal positions preventing said actuating lever from assuming a position permitting its disengagement from the car body, substantially as described.

3. In a device of the character described, the combination of a car coupler having a knuckle and a lock therefor, a slotted lock-operating lever fulcrumed on the coupler-head, an actuating lever fulcrumed on the car body, a connecting rod fulcrumed on said actuating lever and bent laterally and then longitudinally with respect to the main portion of the rod to provide a retaining finger, said lateral portion being adapted to reside in said slot and be retained therein by the coöperation of said finger with said lock-operating lever, said rod being capable of disengagement from said lock-operating lever when the parts are positioned to bring said finger and slot into register, substantially as described.

4. In a device of the character described, the combination of a car coupler having a knuckle and a lock therefor, a slotted lock-operating lever fulcrumed on the coupler head, an actuating lever fulcrumed on the car body, a connecting rod fulcrumed on the actuating handle and passing through a slot in said lock-operating lever, and means whereby said rod may engage said coupler head to center or move the same when in one part of said slot and be freed from said head and capable of actuating said lock-operating lever only when in another part of said slot, substantially as described.

5. In a device of the character described, the combination of a car coupler having a knuckle and a lock therefor, a lock-operating means, and an actuating means, and means joining said lock-operating and actuating means and having disengageable connections therewith permitting detachment

when the knuckle and lock are removed from the coupler head, such detachment being prevented when the knuckle and lock are in position in the coupler head, substantially as described.

6. In a device of the character described, the combination of a coupler head having a knuckle and a lock therefor, a lock-operating means, an actuating means detachably connected to the car body, and means joining said lock-operating and actuating means and having disengageable connections therewith permitting detachment of said joining means and of said actuating means from the car body when the knuckle and lock are removed from the coupler head, said detachments being prevented when the knuckle and lock are in position in the coupler head, substantially as described.

7. In a device of the character described, the combination of a car coupler having a knuckle and a lock therefor, the coupler head being provided with a recess, a lock-operating lever fulcrumed on said coupler head, an actuating lever fulcrumed on the car body, and a rod connecting said lock operating and actuating levers, said rod being fulcrumed on the latter and having a loose connection with the former, whereby said actuating lever may be swung on its fulcrum with a portion of said rod in said recess to shift or center the coupler or may be swung with the rod removed from said recess to actuate the lock-operating lever without shifting the coupler, substantially as described.

8. In a device of the character described, the combination of a car-coupler having a knuckle and a lock therefor, a lock-operating lever, and actuating means connected to said lock-operating lever and capable of being operatively connected to or disconnected from the coupler, whereby the latter may be shifted to center the same or the lock operated without movement of the coupler, substantially as described.

9. A coupler-unlocking mechanism comprising an unlocking-lever pivoted to the coupler-head and having a member disposed beneath the locking device, an operating handle pivoted to the car-body, and a link connecting said operating handle and unlocking-lever whereby the coupler may be unlocked, said link also being operatively connected with said coupler head which may thereby be laterally moved for alinement, substantially as described.

10. A coupler-unlocking mechanism comprising an elbow lever pivoted to the coupler-head and having an end thereof adapted to release the lock, an operating-handle pivotally mounted on the car body, and a link connecting the operating handle and the elbow lever above its pivot, whereby the lock may be released, said link also being operatively connected with the coupler which may thereby be laterally adjusted for alinement, substantially as described.

11. The combination with a car-coupler of a lock-releasing lever pivoted thereto, an operating handle pivotally connected to the car-body by a bayonet joint, and a rigid link having its ends off-set and adapted to pass through apertures in the unlocking-lever and the operating handle, respectively, the end of said link associated with said operating handle being normally in a plane angularly disposed with relation to said handle, movement of said end into the same plane as that of said handle thereby causing a corresponding movement of the end of said link associated with the lock-releasing lever, substantially as described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."