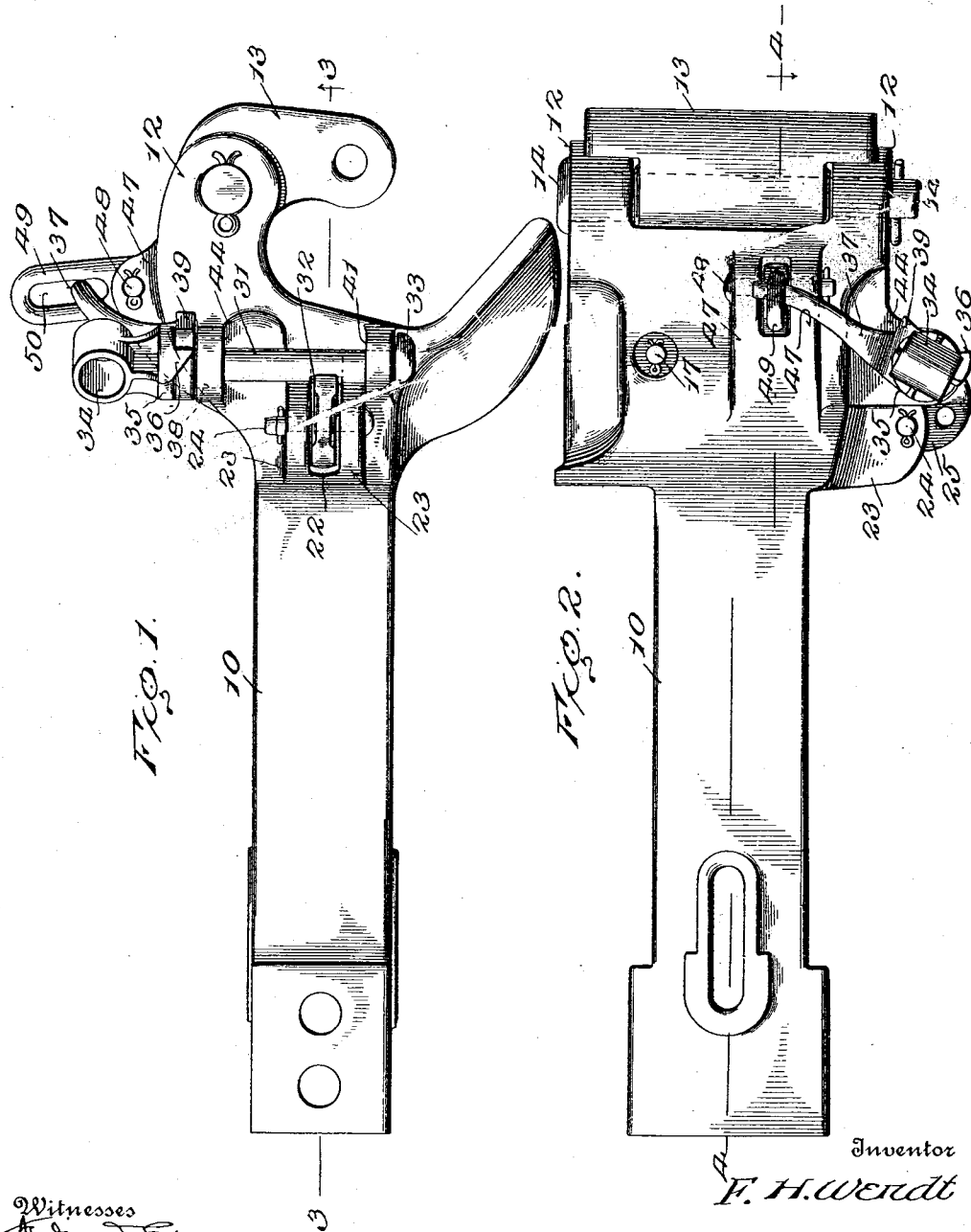


F. H. WENDT.
 CAR COUPLING.
 APPLICATION FILED SEPT. 8, 1911.

1,048,613.

Patented Dec. 31, 1912.

3 SHEETS—SHEET 1.



Witnesses
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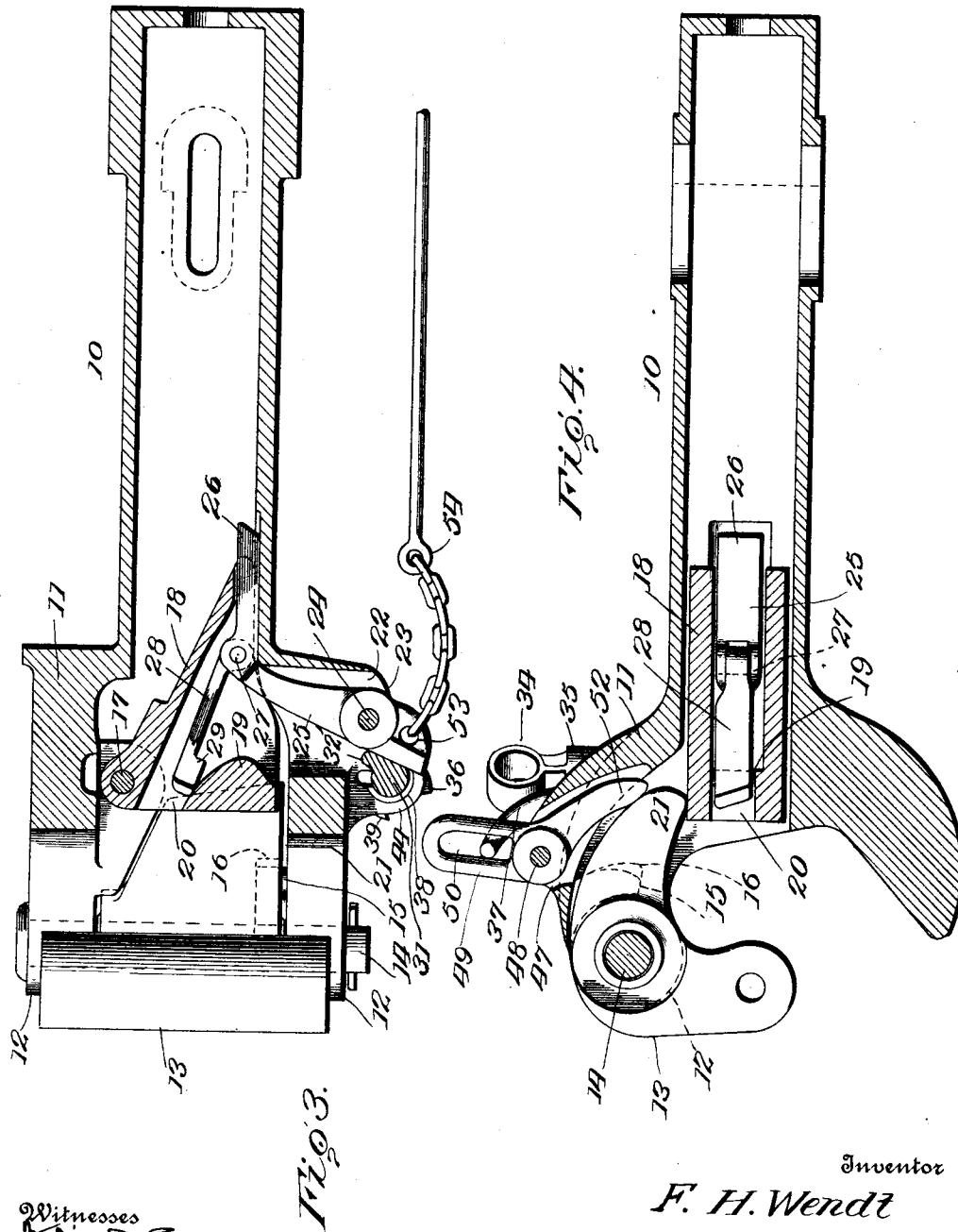
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3 SHEETS-SHEET 2.



Witnesses
Herman Espy
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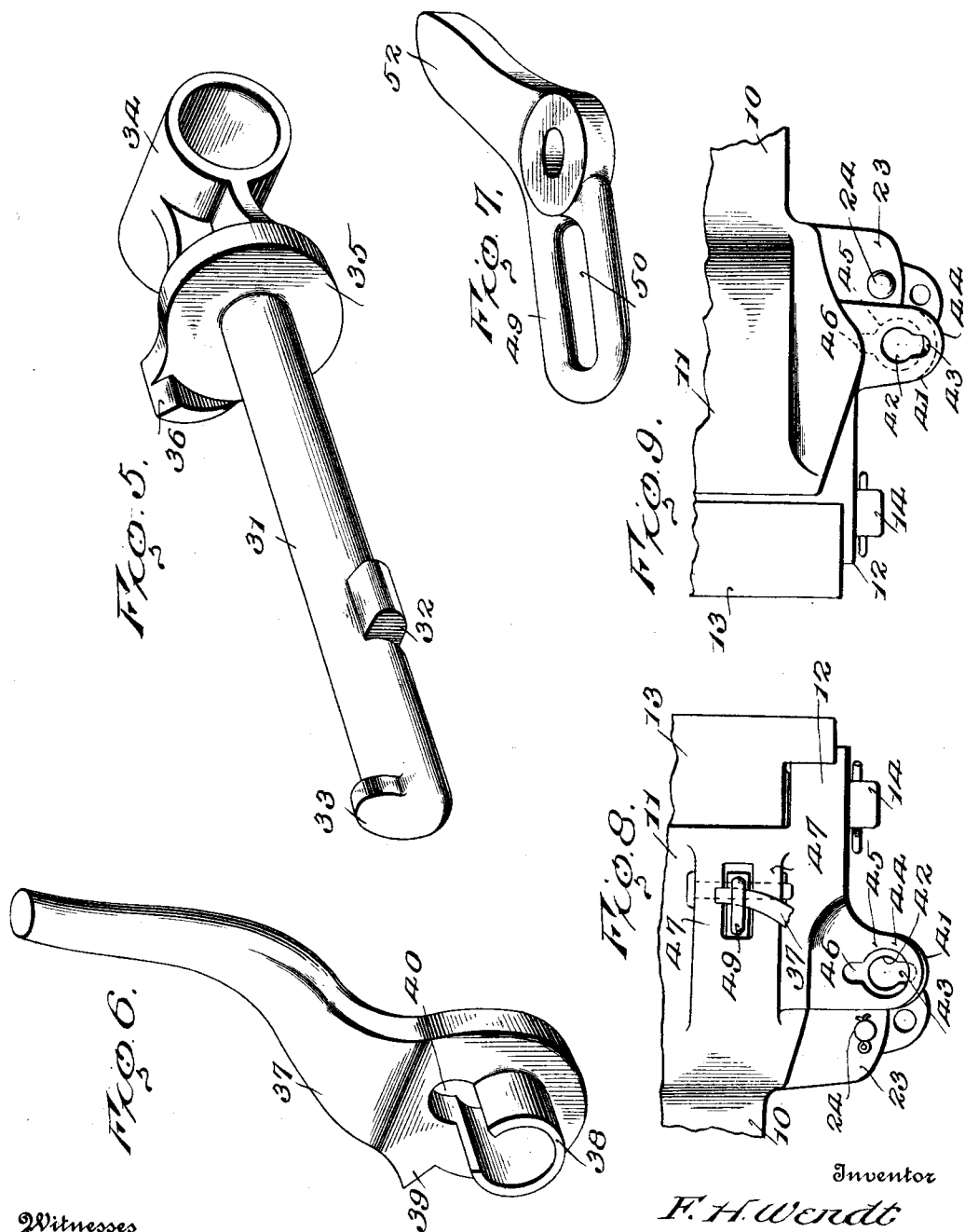
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

FRED H. WENDT, OF MARSHFIELD, WISCONSIN, ASSIGNOR OF ONE-THIRD TO ELI CROTTEAU, OF MARSHFIELD, WISCONSIN.

CAR-COUPLING.

1,048,613.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed September 8, 1911. Serial No. 648,373.

To all whom it may concern:

Be it known that I, FRED H. WENDT, citizen of the United States, residing at Marshfield, in the county of Wood and State of Wisconsin, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

This invention relates to improvements in car couplers of the automatic and safety type, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a device of this character with improved locking and unlocking means; and to provide means for maintaining the couplers in locked relation in event of the breakage of a knucklepin.

Another object of the invention is to provide a device of this character wherein means are provided for preventing the drawhead and draftbar from dropping to the track in event of the breakage of the drawbar or its holding means.

Another object of the invention is to produce a device of this character wherein means are provided for forcing the knuckle wide open and operating the releasing mechanism by one movement of a lever.

Another object of the invention is to provide a device of this character whereby the coupling action is accomplished without producing jars and concussions and whereby the locking action is accomplished when the parts are moved with a slow or rapid movement or whether the impact is heavy or light.

Another object of the invention is to provide an improved double acting releasing and setting mechanism which is located in convenient position either for operation from between the cars or from outside the cars as may be preferred.

With these and other objects in view the invention consists in certain novel features of construction as hereafter shown and described and then specifically pointed out in the claims, and in the drawing illustrative of the preferred embodiment of the invention, Figure 1 is a bottom plan view of the improved device; Fig. 2 is a side elevation from the operative side; Fig. 3 is a section on the line 3—3 of Fig. 1 with the coupler

arranged in operative position. Fig. 4 is a section on the line 4—4 of Fig. 2; Fig. 5 is a perspective view of the rock shaft whereby the locking and releasing mechanism is actuated; Fig. 6 is a perspective view of the actuating arm for the knuckle throwing lever; Fig. 7 is a perspective view of the knuckle throwing lever; Fig. 8 is a detail view of a portion of the drawhead from the operating side, and Fig. 9 is a similar view from the opposite side, illustrating the construction.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

The improved coupler embodies the usual drawbar 10 having the drawhead 11, the latter having the usual pivot lugs 12 between which the knuckle, represented as a whole at 13, is pivotally supported by the usual knuckle-pin 14. The drawbar, drawhead and knuckle are of the usual form except that the interior of the drawhead is provided with an upwardly directed stop lug 15 and that the knuckle 13 is provided with a corresponding recess 16 which engages over the lug 15 when the knuckle is in closed position. By this arrangement it will be obvious that the "pull" of the coupler is borne largely by the lug 15 so that the knuckle remains in operative position and will pull its full tonnage in event of the breakage of the knuckle-pin, the strain then being borne entirely between the lug 15 and the cavity in the knuckle.

Pivoted at 17 within the drawhead 11 is a locking block represented as a whole at 18 and triangular in outline and completely filling the interior of the draw-head transversely and extending by its rear reduced terminal into the interior of the drawbar. The block 18 is hollow on the under side and with a relatively heavy transverse web 19 at the forward side and with an opening 20 between the web 19 and the body of the block. The opening 20 is preferably located at one side of the center and nearest to the knuckle-pin side of the drawhead, the object to be hereafter explained. The block 18 bears by its lower face upon the bottom of the drawhead and of the drawbar, as shown in Fig. 3, and when in this position the outer face of the web 19 is in vertical position and the "heel" portion 21 of the knuckle extends

rearwardly of the forward portion of the block when the knuckle is closed, as shown in Fig. 4. The block 18 thus forms the locking member whereby the knuckle 13 is retained in closed position, and when the block is caused to swing upon its pivot 17, the web carrying portion of the block will be withdrawn rearwardly from engagement with the knuckle and release the latter. Means are provided in the improved coupler for actuating the block 18 and automatically locking it in open or withdrawn position. Formed through the bottom of the drawhead next to the drawbar is a longitudinally extending slot 22, and depending from the drawhead at opposite sides of the slot are perforated ears 23 through which a pivot pin 24 extends. Mounted to swing upon the pin 24 is an angular or bent block-actuating lever 25, the lever extending upwardly through the slot 22 and into the interior of the block 18 with the terminal 26 of the lever 25 directed rearwardly and extending beyond the rear thinner edge of the block and in contact therewith, as represented in Fig. 3. By this means it will be obvious that when the lever 25 with its extended terminal 26 is rotated upon the pin 24, the rear end of the block will be elevated and the forward portion will be withdrawn from engagement with the knuckle and release the latter.

Pivoted at 27 to the lever 25 is a lock bar 28 having a depending shoulder 29. The bar 28 lies with its shoulder end in engagement with the rear side of the web 19 when the lever 25 is in withdrawn position or with the block 18 depressed or in position to hold the knuckle locked. Then when the lever 25 is actuated to elevate the block, the locking member 28 will be moved through the opening 20 until its shoulder 29 engages over the edge of the web 19 and thus locks the block in withdrawn position with the forward portion of the lock member 28 protruding through the opening 20 and into the outer portion of the drawhead. By this arrangement when the coupling action takes place and the knuckle of the opposite or moving drawhead strikes the heel portion 21 of the receiving or stationary drawhead, the knuckle of the heel of the receiving drawhead engages against the protruding portion of the hook 29 of the member 28 and releases the latter from the web 19 and thus permits the block 18 to drop into locking relations with the knuckle, as hereafter more fully explained.

Depending from the drawhead 11 in advance of the ears 23 are other ears through which an operating rock-shaft 31 is mounted, the rock-shaft being provided with a lug 32 which engages against the lower portion of the block-actuating lever 25 below its pivot pin 24, and thus actuates the lever when the shaft 31 is rotated. The shaft 31

is provided at its inner end with a lug 33 projecting from the shaft substantially at right angles to lug 31, and provided at its opposite ends with a transverse integral sleeve or socket 34 to receive a suitable turning rod or handle. Located next to the sleeve 34 is an integral collar 35 having a lug 36 extending toward the opposite end of the shaft and spaced therefrom as shown. An arm 37 is mounted for oscillation upon the shaft 31 and provided with a "split" collar 38 and a projecting lug 39, the arm 37 being likewise provided with a cavity 40 opposite the opening or "split" in the collar 38. The arm 37 with its collar 38 is designed to be mounted for oscillation upon the shaft 31 and is placed in position thereon by passing the sleeve portion 38 over the end of the shaft, the lug 33 passing through the cavity 40, and then by turning the arm 37 for a short distance around the shaft the cavity 40 will pass over the lug 32 and the arm 37 then moved to a position against the collar 35, when in this position the lug 39 extends into the path of the lug 36, so that when the shaft 31 is rotated by a rod inserted through the sleeve 34 the lug 36 will engage the lug 39 and thus "pick up" the arm 37 and move it with the shaft, the object to be hereafter explained.

Depending from the drawhead 11 at one side is a lug 41 having an aperture 42 corresponding to the body of the shaft 31 and with a downwardly directed recess 43 communicating with the aperture and through which the lug 32 passes when the shaft 31 is turned with the lug 33 presented downwardly, and then when the shaft is rotated to present the lug 33 horizontally the latter will bear against the body of the lug 41 and thus lock the shaft from longitudinal movement. Depending from the drawhead 11 at the opposite side is another lug 44 having an opening 45 therethrough corresponding in diameter to the "split" collar 38 and with an upwardly directed recess 46 corresponding to the recess 40 of the arm 37. To connect the shaft 31 and its arm 37 through the lugs 41—44, the shaft 31 with its arm 37 is turned to present the lug 33 downwardly and passed through the larger opening 45 and the collar 38 also passed through the opening 45 and the lug 33 then passed through the opening 42—43, the larger lug 32 being also passed through the registering recesses 43—46. The shaft 31 is then rotated to bring the lug 32 into vertical position and the lug 33 into horizontal position and bearing against the body of the lug 41. By this means the shaft 31 is supported for oscillation through the lugs 41—44 and prevented from longitudinal movement through the lugs.

Extending from the drawhead 11 at the same side as the lug 44 are two perforated

ears 47 spaced apart and with a slot in the drawhead between the ears and communicating with the interior of the drawhead. A pivot pin 48 extends through the ears 47 and likewise through a knuckle-throwing lever represented as a whole at 49 and provided with a slot 50 in its outer portion and extending by its inner portion through the slot in the drawhead and with its terminal 52 extending into the rear of the heel portion 21 of the knuckle. The arm 37 is curved laterally and upwardly as shown at 52 and extends through the slot 50 of the knuckle-throwing mechanism, so that when the shaft 31 is oscillated the lug 36 by engaging against the projection 39 of the arm 37 will move the latter and thus cause the operation of the knuckle-throwing member simultaneously with the rotation of the shaft. It will be noted that the lower end of the block-actuating lever 25 bears against the shaft 31 opposite the lug 32, so that when the shaft 31 is located with the lug 32 standing vertically, the lower portion of the lever 25 will bear against the body of the shaft 31 with the terminal 26 of the lever 25 out of action relative to the block 18, and without imparting motion to the latter. When it is desired to actuate the block 18 to release the knuckle, a suitable rod is inserted in the sleeve 34 and the shaft 31 turned to cause the lug 32 to bear against the lower portion of the lever 25 and thus elevate the block and release the knuckle. This oscillation of the shaft 31, as before stated, causes the lug 36 to "pick up" the arm 37 by engagement with the lug 39 and thus causes the terminal 52 of the member 37 to actuate the knuckle-throwing member 49 which causes the latter to force the heel portion of the knuckle outwardly and disengage the knuckle from the lug 15. At the same time that the lever 25 is actuated to release the block 18, the hook member 28 is caused to engage the block and lock this member in open position as before described. By this simple arrangement the uncoupling action is accomplished by one movement of the shaft 31.

At its lower end the lever 25 is provided with another aperture 53, to which a rod or chain, indicated at 54, is attached and leads rearwardly and is coupled to some stationary portion of the frame work or body of the car, the rod or chain lying sufficiently loose to permit the operation of the lever 25 but which will be drawn taut and thus actuate the lever 25 in event of the breakage of the drawbar and its attachments. By this means in event of such breakage the coupling mechanism will be automatically actuated and the coupling members released so that the broken drawhead will not be pulled from the car and dropped to the track.

This is an important feature of applicant's

device and materially increases its efficiency and utility, and correspondingly increases the "safety."

By this means it will be obvious that a complete automatic safety coupler is produced.

It will be noted that by imparting a relatively short rotary movement to the rock shaft 31, the block-actuating lever 25 will be actuated and the holding block 18 released and "set" in inoperative position, through the medium of the locking hook member 28 and then by a further rotary movement of the rock-shaft, the knuckle-throwing member 49 will be actuated and the knuckle forced into wide open position. The complete operation is thus produced by one movement of the rock-shaft which may be continuous or intermittent as may be required by rotating the shaft. The lock member 28 is of sufficient length so that the hook 29 does not engage over the rib 19 until after the block 18 has been elevated to a sufficient extent to release the knuckle, so that it is possible with the improved apparatus to actuate the rock-shaft to a sufficient extent to release the block, but not far enough to cause the lock member 18 to operate. When thus actuated, the return movement of the rock-shaft will release the arm 35 and cause the block 18 to drop to its former position without being locked in open position. This is an important feature and enables the operator to readily control the action of the releasing mechanism. It will also be noted that when the coupler is in open position and ready to be coupled again with the block 18 locked in released position, and when the knuckle of the opposing coupler engages the hooked terminal 29 of the lock member 28, the block is automatically and readily released and the coupler again locked without producing any jar or concussion. Thus the heavy jars or concussions incident to the ordinary coupler are entirely obviated and the "lock" produced by as slow an impact or movement as it is possible to impart to the moving car, while at the same time a rapid movement or impact will produce precisely the same results as with the slow movement. Thus no damage can result to merchandise contained in freight cars, or unpleasant agitation or jarring to the passengers in passenger cars.

When the improved coupler is applied to passenger coaches, an arm will be connected to the socket 34 and with a lever or other operating appliance connected to the arm and mounted at any convenient point upon the platform of the coach, the lever not being shown as it forms no part of the present invention.

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

1. In a car coupler including a drawhead

and knuckle, a locking block swingingly mounted within the drawhead and extending into the path of the knuckle, an operating lever arranged to actuate said block, 5 a knuckle-throwing lever pivoted in said drawhead and extending into the path of said knuckle, a shaft mounted for rotation beneath said drawhead and provided with a lug engaging said operating lever and having a lateral lug, and an arm arranged to 10 actuate said knuckle-throwing lever and provided with a lug extending into the path of said trip lug.

2. In a car coupler including a drawhead 15 and knuckle, a locking block swingingly mounted within the drawhead and extending into the path of the knuckle, a lever arranged to actuate said block, a lever arranged to throw said knuckle, perforated 20 ears depending from said drawhead, a shaft mounted for rotation through said ears and having a trip lug and a cam lug for engaging said block-actuating lever, and an arm loose upon said shaft and engaging the 25 knuckle-throwing lever and provided with a lug extending into the path of the trip

lug, whereby one movement of the shaft will actuate the knuckle-throwing lever and the block-actuating lever.

3. In a car coupler including a drawhead 30 and knuckle, a locking block swingingly mounted within the drawhead and extending into the path of the knuckle, a lever arranged to actuate said block, another lever pivoted intermediate its ends to said draw- 35 head with one end slotted and the other end engaging the knuckle for throwing the same, perforated ears depending from said drawhead, a shaft mounted for rotation through said ears and having a trip lug and a cam 40 lug for engaging said block-actuating lever, and an arm loose upon said shaft and extending at one end through the slot of the knuckle-throwing lever and provided with a lug extending into the path of the trip 45 lug.

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

FRED H. WENDT. [L. S.]

Witnesses:

G. W. COOK,
J. C. LEE.

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