March 14, 1950 E. P. KINNE 2,500,418

COUPLER OPERATING MECHANISM

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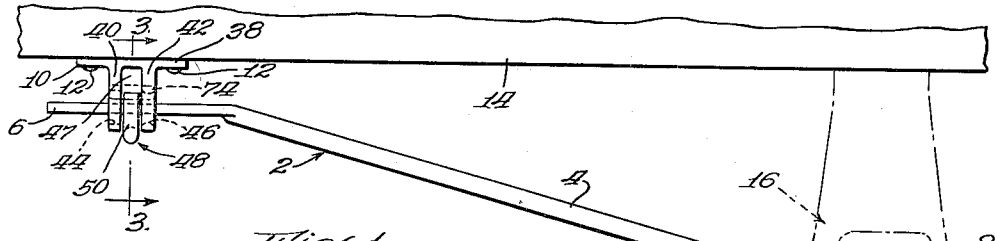


Fig. 1.

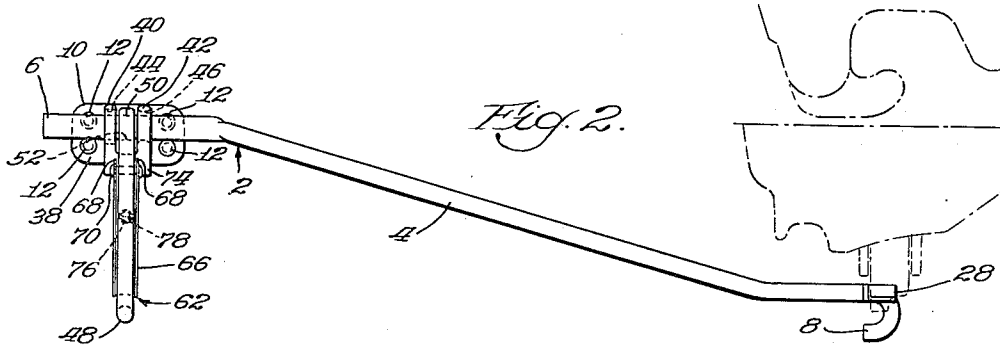


Fig. 2.

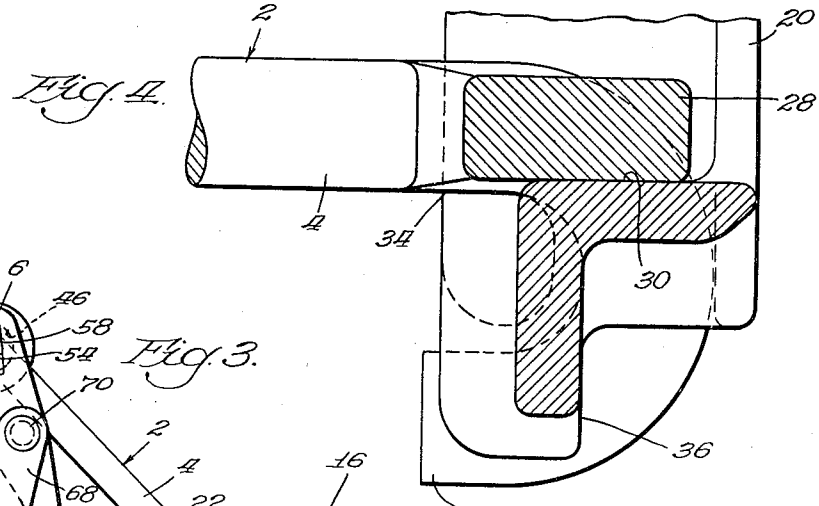


Fig. 4.

Fig. 3.

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COUPLER OPERATING MECHANISM

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10 Claims. (Cl. 213—166)

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My invention relates to a railway car coupler operating mechanism and more particularly to a mechanism of a type adapted for use with the standard E coupler.

The principal object of the invention is to provide means for preventing the coupler from being accidentally unlocked during service movements of coupled cars.

Another object of the invention is to devise an arrangement for locking the operating rod and preventing it from turning and accidentally unlocking the coupler.

A further object of the invention is to devise an operating rod arrangement providing at all times positive means for retaining the rotary lock lifter lever in its lowermost or normal position, the arrangement including a connection between the operating rod and the rotary lock lifter lever such as will prevent the lock lifter lever from operating independently of the operating rod.

A further object of the invention is to provide a bracket for carrying the outboard end of the operating rod in a manner as will permit any movement of the rod caused by angling of the coupler.

A more specific object of the invention is to provide a latch on the rod handle engageable with a lug on the bracket supporting the rod from the car body, the latch being manually releasable to permit operation of the rod when desired.

A still further object of the invention is to devise a latching arrangement for locking the operating rod, the operation of which is simple and readily apparent to the trainman without any special instruction.

These and other objects of the invention will be apparent from the specification and the drawings, wherein:

Figure 1 is a top plan view showing the uncoupling rod as normally attached to one end of the car body and connected to a coupler head supported therefrom;

Figure 2 is a front elevation of the structure shown in Figure 1;

Figure 3 is a sectional view taken on the line 3—3 of Figure 1; and

Figure 4 is an enlarged sectional view taken in the plane indicated by line 4—4 of Figure 3.

Describing the invention in detail, the coupler operating mechanism is illustrated as applied to an A. A. R. standard E coupler; however, it will be understood that the same may be used in connection with any other type of rotary operated coupler.

The coupler operating mechanism comprises an

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operating or uncoupling rod, generally designated 2, having a main body portion 4 preferably of conventional round section, an outer end portion 6 of flat-bar or rectangular section, and a hook or loop portion 8 at its inner end. The rod may be supported at its outer end from a bracket 10 supported at 12, 12 from a car body, fragmentarily indicated at 14 (Figure 1), said car body also supporting in well known manner a coupler 16.

The loop 8 of the rod may have an articulated connection to an eye 18 (Figure 3) of a rotor or rotary lock lifter lever 20, said lever being of standard form used in the present standard E coupler and being pivotally supported at one end as at 22 from integral trunnion means on the coupler head and having a pivotal connection at its other end, as at 24, to a toggle or link 26 adapted to operate the lock (not shown) of the coupler 16 upon rotation of the lock lifter and thus operate the coupler, as will be readily understood by those skilled in the art.

The loop end 8 of the rod is generally similar to that commonly used except that at the upper turn of the loop a luglike extension or lug 28 is formed, the contour of which may be readily seen from the drawings, wherein it will be observed that the forward extremity of the lug 28 is formed with a camlike portion (Figure 3) which may bear at 30 against the toggle-connected end of the rotary lock lifter lever, and the loop end of the rod may bear against the eye of the lifter lever as at 34 and 36. The rod and lifter lever are thus afforded a three-point engagement which substantially prevents relative rotation therebetween, as more fully discussed and claimed in my copending application Serial No. 531,719, filed April 19, 1944. It will be understood, however, that the connection between the rod and lifter lever is sufficiently loose to accommodate the various angling movements of the coupler head.

The bracket 10 may have a web 38 (Figures 1 and 3) serving as a base portion by means of which said bracket may be attached to the car body. On the web 38 may be formed a pair of substantially vertical lugs or ears 40 and 42 with aligned circular openings 44 and 46 through which the flat outer end portion 6 of the rod may extend, the opening 44 being of larger diameter than the opening 46 to accommodate angular movement of the rod as it is rotated to operate the coupler. The lower edges of the ears and web 38 may be connected by a bottom web 47 to strengthen the construction.

A handle 48 is suspended from the outer end 6

of the rod between the lugs 40 and 42 of the bracket, the handle having a flattened upper end or head 50 substantially trapezoidal in side elevation and said head may have a central trapezoidal-shaped opening 52 through which the flattened outer end 6 of the rod may extend, the handle thus being keyed to the rod for rotation therewith. The opening 52, it will be noted, is designed to accommodate relative rotational movement between the rod and handle within the limits permitted by the abutment of the marginal edges 54 and 56 (Figure 3) of the opening 52 with the sides 58 and 60 respectively of the rod 2, thus accommodating rotational movement of the rod during vertical angling of the coupler without rotating the handle. It will also be understood that the opening 52 in the head of the handle and openings 44 and 46 in the bracket lugs are dimensioned to accommodate sliding and tilting movement of the rod during the various movements of the coupler.

When the parts are in normal locked position, as shown in the drawings, the handle may be held against rotation or free swinging by means of a rotating latch, generally indicated at 62. The latch may comprise a pair of angularly arranged legs 64 and 66, the leg 64 extending inwardly toward the car body and the leg 66 extending downwardly adjacent the handle 48.

The latch may be provided with a pair of upwardly extending lugs 68, 68 intermediate its ends at the juncture of the legs 64 and 66 and may be pivoted to the handle 48 immediately below the head 50 thereof by means of a pin or bolt 70 extending through the handle and the upper ends of the lugs 68, 68.

The free end of the leg 64 may be provided with an upwardly extending lug 72 (Figure 3) arranged to releasably catch behind a depending lug 74 formed on the bottom web 47 of the bracket at the forward end thereof.

A spring, diagrammatically shown at 76 (Figures 2 and 3), may be compressed between the handle 48 and the leg 66 of the latch, the spring being seated at one end in a pocket 78 in the handle 48 and at its other end being positioned by a pair of positioning lugs 80, 80 (Figure 3) on the leg 66. It will be observed from a consideration of Figure 3 that the spring yieldingly holds the latch in latching position with the lug 74 by rotating the latch upon the pin 70 in a clockwise direction. It will also be noted that after the latch has been rotated into its latching position, rotation thereof is limited by abutment of each lug 68 against a stop 82 on the handle 48.

To operate the rod, the trainman simultaneously grasps the leg 66 of the latch and the handle 48 and by squeezing the same causes the latch to rotate in a counterclockwise direction (Figure 3), thus disengaging the lug 72 on the leg 64 of the latch from the lug 74 on the bracket. The whole assembly may then be rotated in a counterclockwise direction (Figure 3), causing the rod and lifter lever to so rotate and operate the coupler to its open position. To lock the coupler from its open position the rotation is reversed, the handle being brought to its lowermost position until the latch member locks with the lug 74.

It is to be understood that I do not wish to be limited by the exact embodiment of the device shown which is merely by way of illustration and not limitation as various and other forms of the device will, of course, be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In an operating mechanism for a rotor of a coupler mounted on a car body, a rod connected to the rotor, a bracket on the car body supporting the rod, a handle on the rod, a latch lever pivoted intermediate its ends to the handle and comprising a portion at one side of the handle and having another portion extending outwardly of the handle in vertically spaced relation to said bracket, and means on said latch lever and said bracket engageable in the locked position of the coupler to lock said handle against substantial rotation.

2. In a coupler operating arrangement for a rotary actuated coupler mounted on a car body, a rod connected at one end to the rotor of said coupler for actuation thereof, a bracket on said car body supporting the other end of said rod, said last-named end of said rod being of rectangular section, a handle comprising a trapezoidal-shaped opening receiving said last-named end of said rod therethrough, said opening accommodating relative rotation between said rod and handle and accommodating lengthwise sliding movement of said rod with respect to said handle, a lever latch pivoted intermediate its ends to said handle and comprising a pair of angularly related legs, one of which extends underneath said bracket and the other extends downwardly adjacent said handle, a lug depending from said bracket and an upstanding lug on said first-named leg of said latch, said upstanding lug being adapted to catch behind said depending lug when the coupler is in the locked position thereof, and resilient means positioned below the point of connection between said latch and said handle and bearing against and reacting between the handle and the downwardly extending leg of said latch for rotating said latch into the engaging position of said lugs.

3. In a coupler operating arrangement for a rotary actuated coupler mounted on a car body, a rod connected at one end to the rotor of said coupler for actuation thereof, a bracket on said car body supporting the other end of said rod, said last-named end of said rod being of rectangular section, a handle comprising a trapezoidal-shaped opening receiving said last-named end of said rod therethrough, said opening accommodating relative rotation between said rod and handle and accommodating lengthwise sliding movement of said rod with respect to said handle, a lever latch pivoted intermediate its ends to said handle and comprising a pair of angularly related legs, one of which extends underneath said bracket and the other extends downwardly adjacent said handle, a lug depending from said bracket and an upstanding lug on said first-named leg of said latch, said upstanding lug being adapted to catch behind said depending lug when the coupler is in the locked position thereof, and resilient means bearing against and reacting between the handle and the downwardly extending leg of said latch for rotating said latch into the engaging position of said lugs.

4. In an operating arrangement for a rotary operated coupler mounted on a car body, a rod connected to the rotor of said coupler, a bracket on said car body supporting the rod, a handle operatively associated with said rod for rotation thereof, and releasable operating means on said bracket and handle for locking the latter against accidental rotation comprising a depending lug on said bracket, a latch member movably mounted on the handle and extending therealong

and beneath said bracket, and resilient means reacting between said member and said handle for moving the former to a position engaging said member with said lug.

5. In an operating arrangement for a rotary operated coupler mounted on a car body, a rod connected to a rotor of said coupler, a bracket on said car body supporting the rod, a handle mounted on the rod, and releasable cooperating means on the bracket and the handle for locking the handle against rotation and comprising a latch member movably mounted on the handle for movement toward said bracket, a lug on said member spaced from said handle, a catch on said bracket between the lug and said handle, and resilient means carried by the handle and operative to urge said member toward said bracket.

6. In an operating arrangement for a rotary operated coupler mounted on a car body, a rotatable rod connected to the rotor of said coupler, a support on said car body for said rod, a dependent handle on said rod, and cooperating means carried by said handle and bracket for locking said handle against rotation in a direction unlocking said coupler and comprising a latch pivoted to the handle and engageable behind a portion of said bracket, and means for rotating said latch to a position engaging the same with said bracket portion.

7. In an operating mechanism for a rotor of a coupler mounted on a car body, an operating rod connected at one end to said rotor for rotation therewith, a bracket on said car body supporting the opposite end of said rod, a handle keyed to said rod at said last-mentioned end thereof, a latch lever pivoted intermediate its ends to said handle and comprising a portion extending downwardly adjacent said handle and having another portion extending beneath said bracket, lugs on said last-named portion of said latch lever and said bracket engageable in the locked position of said coupler to lock said handle against rotation, thereby preventing unlocking of said coupler during service movements of the car, and resilient means between said handle and said first-named portion of said latch lever for pivoting said latch lever into the engaging position of said lugs.

8. In an operating mechanism for a rotary operated coupler mounted on a car body, a rod connected to the rotor of the coupler, a bracket on the car body supporting the rod, a handle on the rod,

a latch member pivoted to the handle and rotatable toward said bracket and having stop means thereon engageable with stop means on the bracket for limiting rotation of the handle in a direction unlocking said coupler, means for so rotating the member comprising a spring reacting between the handle and said member, and abutment means on the handle engageable with said member for limiting rotation thereof toward said bracket for holding said member in a position for engagement of the stop means thereon with the stop means on the bracket.

9. In an operating mechanism for a rotor of a coupler mounted on a car body, a bracket comprising a mounting portion secured to the car body, spaced lugs extending from one side of said mounting portion, a rod extending through said lugs and connected to the rotor, a handle suspended from said rod between said lugs, a latch member pivoted to said handle on the side thereof adjacent said mounting portion of the bracket, and a web extending from said mounting portion between said lugs and having a dependent catch engageable with said latch member in the locked position of said coupler for preventing rotation of said handle in a direction unlocking the rotor.

10. A support bracket for a rotatable operating rod for a car coupler operating mechanism, said bracket having a mounting web, spaced substantially upright lugs projecting from one side of said web and having aligned round openings therethrough adapted to receive one end of said rod to afford support therefor, a bottom web intermediate said lugs at the bottom inner ends thereof connecting the same and merging into said mounting web at the lower edge thereof, and a depending lug on the forward edge of said bottom web adapted for cooperation with an associated latch member.

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REFERENCES CITED

The following references are of record in the file of this patent:

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