March 7, 1950 S. C. BRONSON 2,499,567

COUPLER OPERATING MECHANISM

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Fig. 1.

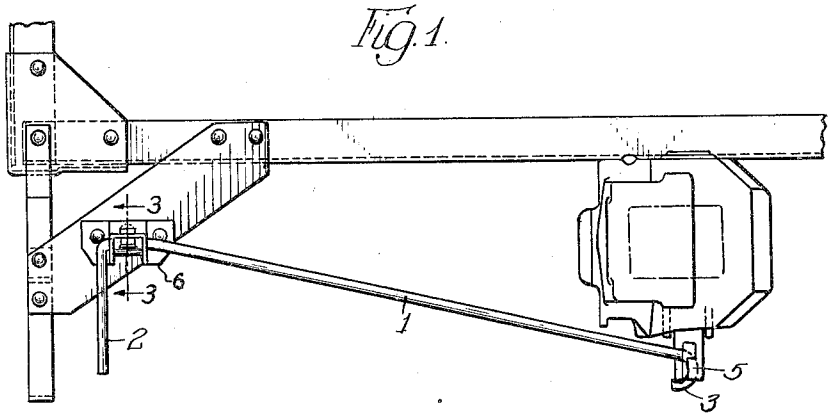


Fig. 3.

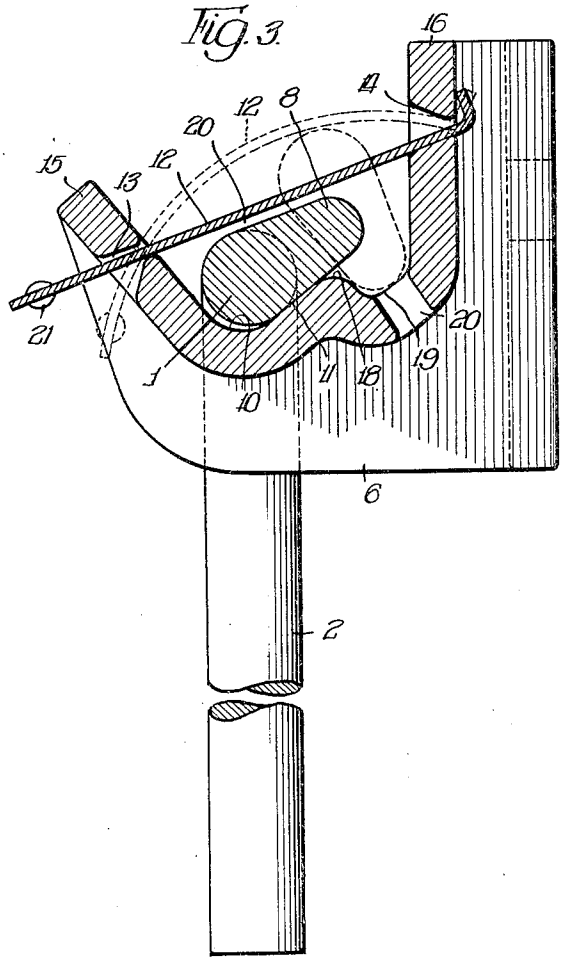
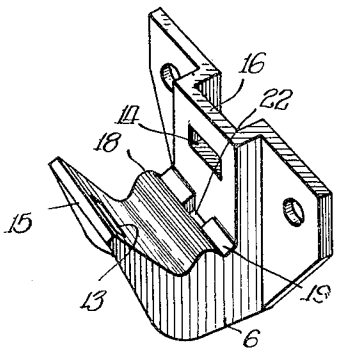


Fig. 2.



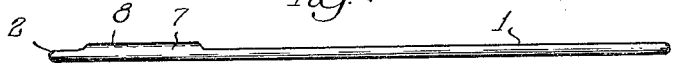
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COUPLER OPERATING MECHANISM

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Fig. 4



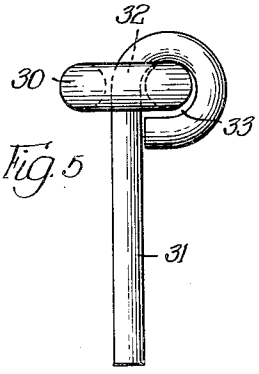


Fig. 5

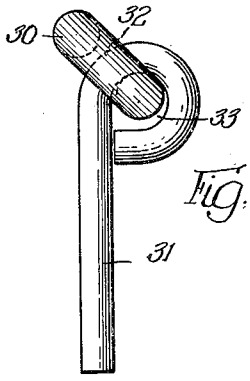


Fig. 6

Fig. 7

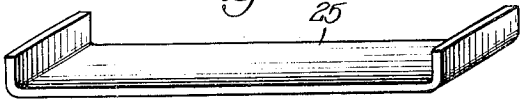
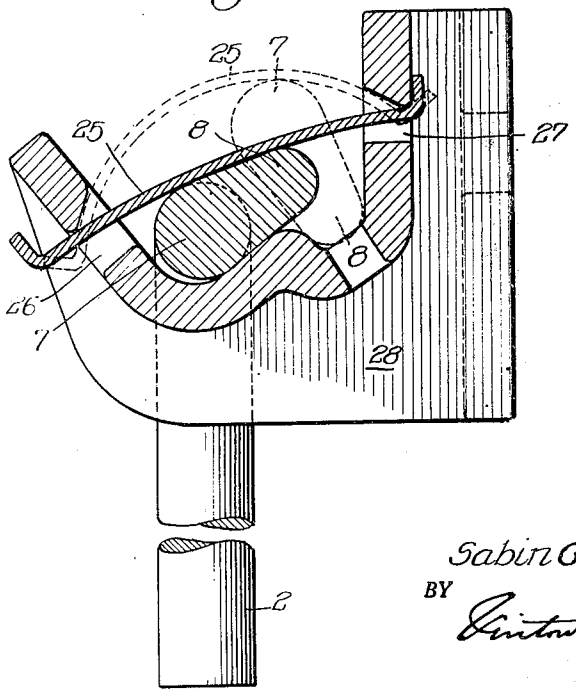


Fig. 8



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COUPLER OPERATING MECHANISM

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Application October 4, 1945, Serial No. 620,327

5 Claims. (Cl. 213—169)

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This invention relates to railway car coupler operating mechanisms, operable from the side of the car, and the principal object of the invention is to provide an operating rod having a handle at its outer end and normally non-rotatably supported by a bracket on the end of a car and having means at its inner end for attachment to the lock lifter of a car coupler so that upon rotation of said rod said lock lifter is swung to raise the coupler lock and thereby operate the coupler.

Another object is to so form the supporting bracket and the part of the rod supported by the bracket so that, normally, the rod is non-rotatable in said bracket, but when the rod handle is operated in the usual way by a trainman the rod may be rotated within the bracket to operate the coupler.

Another object is to so form the supporting bracket that when the rod handle is released by the trainman the operating rod will automatically return to its non-rotatable position therein.

The desirability of normally non-rotatively supporting a coupler operating rod has been recognized in the prior art, but in most instances known to applicant, it is necessary for the rod to be elevated out of its held position before it can be rotated. This is objectionable because it requires a special operation by the trainman which is not readily apparent, especially when working in the dark.

Specifically the object of the invention is to provide a spring which is preferably associated with the operating rod supporting bracket and normally it resiliently holds the rod in substantially non-rotative relation with the bracket. Furthermore, so that upon rotation of the operating rod (by means of the handle or otherwise) the spring resiliently resists such rotation so that when the force causing the rotation ceases the spring tends to return the operating rod to normal position. In other words, when the operator lets go of the handle the operating rod is forced by the spring back to its normal position.

Another object is to so position the spring relative to the bracket that the spring retains the operating rod in the bracket.

Another object is to so form the spring and its attaching means to the bracket that it can be snapped into place so that it does not require any other attaching means, such as a bolt or cotter pin, which might become accidentally detached from the bracket so that the spring would also become detached and lost.

Other objects and advantages of the invention will appear in the following description thereof.

Referring now to the accompanying drawings forming part of this application and wherein like reference characters indicate like parts:

Figure 1 is an elevational view showing the uncoupling rod supported adjacent its handle end in a bracket and connected at its inner end to the lock lifter of a coupler.

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Figure 2 is a perspective view of my improved coupler operating rod bracket.

Figure 3 is a central sectional view through the bracket showing the relation of the bracket, operating rod and spring in full lines in normal position, and in dotted lines when the operating rod has been rotated ninety degrees. In this figure a slight clearance is shown between the spring and the operating rod.

Figure 4 shows a plan view of a typical operating rod for use with my device.

Figure 5 is an end view of a two piece operating rod wherein the handle is a separate member from the operating rod.

Figure 6 is a view similar to Figure 5 showing the operating rod rotated approximately forty-five degrees.

Figure 7 shows a typical spring for use with my improved device.

Figure 8 is similar to Figure 3 but shows the spring in engagement with the operating rod.

In the drawings, 1 indicates an operating rod for an Association of American Railroads standard E coupler, which rod is provided at its outer end with a depending handle portion 2 and at its inner end with a hook portion 3 connected to an eye of the rotary lock lifter 5, which lifter is pivotally connected at one end to a link which lifts the lock of the coupler upon swinging of the lock lifter and thereby operates the coupler. Adjacent the handle portion 2 the rod is supported adjacent the side of a car in a bracket 6.

The trend of railway freight train operation is toward faster moving trains which causes greater wear and tear on the car and equipment thereon, and sometimes the inertia built up in the operating rod, or the lock lifter, is sufficient to lift the coupler lock and thereby uncouple cars of a moving train. To prevent such an occurrence, I have designed my operating rod so that in normal position, i. e., at all times other than when the coupler is to be operated to uncouple a pair of cars, said rod is substantially non-rotatably held in its supporting bracket which is substantially U-shaped in transverse section. Consequently, the handle cannot "whip" due to said inertia and thereby unlock the coupler.

Figures 1, 2, 3 and 4 show a typical form of my invention wherein the operating rod 1 is provided with a non-circular portion 7 forming a lateral extension 8 which portion 7 is rotatively mounted in the bracket, as at 10, with the lateral extending part 8 in engagement with the bracket at 11, thus providing a non-rotative engagement of the rod with the bracket to prevent the service movements of the car from accidentally rotating the rod sufficiently to unlock the coupler. The spring 12 yieldably extends between the apertures

13 and 14 in the walls 15 and 16 of the bracket over the non-circular portion 7 of the rod, and is adapted to limited flexion relative to its support, so as to retain the operating rod in normal position and biased against accidental rotation.

When the rod is rotated the extension 8 of the rod rolls upon the surface 18 and into the groove 19 and simultaneously deflects the spring 12 substantially as shown in dotted lines in Figure 3, thus providing resilient means to return the rod to normal position when free to do so. The line of force exerted by the spring upon the rod is eccentric from the place of support of the rod in the groove, thereby providing a restoring moment to return the rod to normal position, as shown in full lines in Figure 3.

One of the objects of the groove 19 is to reduce the amount of deflection or distortion of the spring necessary for the operation of the device. The spring 12 is prevented from moving bodily upwardly by its engagement with the upper surfaces of the apertures 13 and 14. Conversely, the spring 12 is prevented from moving bodily downwardly by its engagement with the lower surfaces of the apertures 13 and 14, as it may be desirable to provide a clearance 20 between the spring 12 and rod to keep them from wearing each other when the rod moves laterally of the car with the coupler. A rivet 21, or other means, is used to keep the spring in place. The groove 19 is preferably provided with a drainage hole 22.

Figures 5 and 6 show an operating rod 30 having a separate handle 31. Figure 5 shows the handle and rod in normal position with the eye 32 on the operating rod in horizontal position and the handle 31 vertically disposed by gravity. Figure 6 shows the operating rod rotated forty-five degrees so that the eye 32 is at an angle of forty-five degrees to the horizontal, but due to the association of the eye 32 on the operating rod and the eye 33 on the handle, the handle assumes the vertical position by gravity shown in Figure 6. This type of rod may be used with my device.

Figure 8 shows a modified construction wherein the spring 25 is in contact with the non-circular portion 7 of the rod. In this modification the spring 25 is normally straight, as shown in Figure 7, but must be slightly deflected to be inserted in the apertures 26 and 27 in the bracket 28. The spring 25 is held in such deflected shape by the upper surfaces of the apertures 26 and 27. These apertures 26 and 27 and the spring 25 are shaped so that the spring 25 may be snapped into place and thus held in the bracket 28 without any other securing means.

The accompanying drawings illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof, within the scope of the claims, will occur to persons skilled in the art.

I claim:

1. In an operating mechanism for a railway car coupler including a rod for operating said coupler upon rotation of said rod, which rod is provided with a non-circular portion; a bracket defining a U-shaped support adapted to support the non-circular portion of said rod, a leaf spring extending across said U-shaped support in close proximity to said non-circular portion, and adapted to limited flexion relative to said support whereby rotation of said non-circular portion will cause said spring to be flexed and thereby normally bias said rod against accidental rotation.

2. In an operating mechanism for a railway car coupler including a rod for operating said coupler upon rotation of said rod, a portion of said rod being provided with a laterally extending part; a bracket defining a U-shaped support having a bearing surface adapted to normally support said portion and part, a groove adapted to receive said part upon rotation of said rod, and a leaf spring mounted in and extending across said support and adapted to limited flexion relative to said support, whereby upon rotation of said rod said portion moves from said bearing and flexes said spring and said part moves into said groove, thereby providing a restoring moment in said spring which urges said portion to return to normal rest position when free to do so.

3. In an operating mechanism for a railway car coupler including a rod for operating said coupler upon rotation of said rod, said rod being provided with a non-circular portion; means to prevent accidental rotation of said rod due to service movements of the car sufficient to unlock the coupler, said means comprising a bracket defining a U-shaped support attachable to said car and provided with spaced walls having aligned apertures therein and adapted to support the non-circular portion of said rod between said walls, and a leaf spring yieldably secured adjacent its ends within said apertures and extending over said portion in close proximity thereto and adapted to limited flexion relative to said support whereby upon rotation of said rod said portion flexes said spring thereby biasing said rod against accidental rotation.

4. A supporting bracket for a rotatable car coupler operating rod, said rod being formed with a non-circular portion, said bracket comprising spaced walls defining a U-shaped support having a notch in the bottom thereof adapted to support said non-circular portion, said spaced walls formed with aligned apertures therein, and resilient means yieldably secured at its ends in said apertures and extendable over said non-circular portion in close proximity thereto and adapted to limited flexion relative to said support to normally bias said rod against accidental rotation.

5. A supporting bracket for a rotatable car coupler operating rod, said rod being formed with a non-circular portion having a laterally offset part, said bracket comprising spaced walls defining a U-shaped support having a notch in the bottom thereof adapted to support said non-circular portion, said notch formed with a groove into which said part may roll upon rotation of said rod, said spaced walls formed with aligned apertures therein, and resilient means yieldably secured at its ends in said apertures and extendable over and in close proximity to said non-circular portion and adapted to limited flexion relative to said support to normally bias said rod against accidental rotation.

SABIN C. BRONSON.

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