Sept. 12, 1933. A. E. SMALL 1,926,117

DEVICE FOR OPERATING CAR COUPLERS

Original Filed March 31, 1928

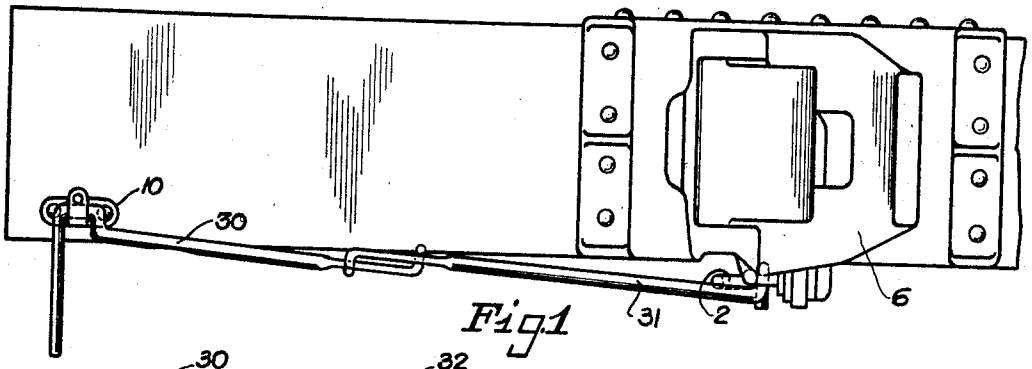


Fig. 1

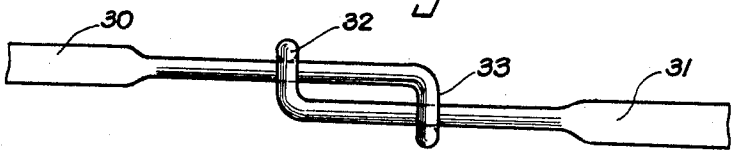


Fig. 2

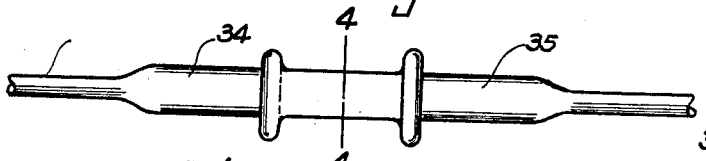


Fig. 3

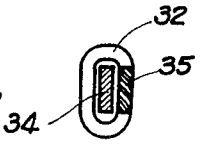


Fig. 4

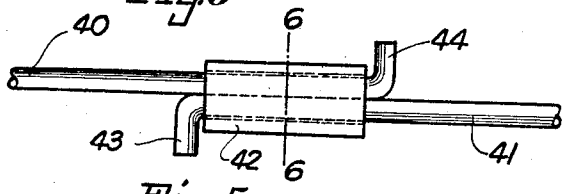


Fig. 5

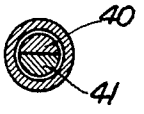


Fig. 6

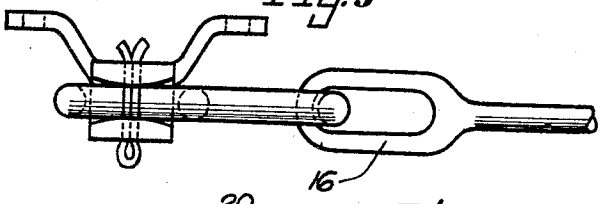


Fig. 7

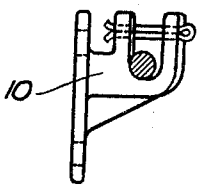


Fig. 9

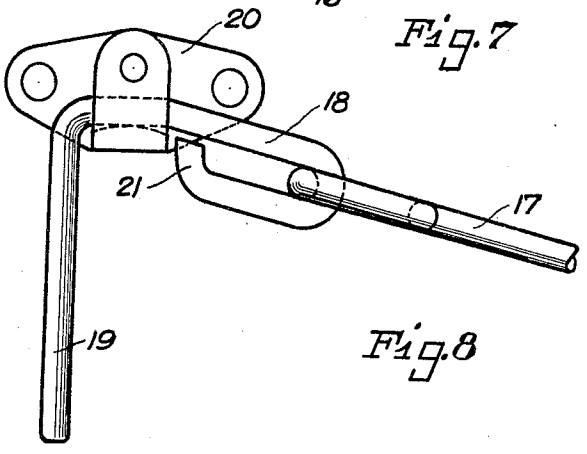


Fig. 8

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UNITED STATES PATENT OFFICE

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DEVICE FOR OPERATING CAR COUPLERS

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Original application March 31, 1928, Serial No. 266,200. Divided and this application May 13, 1929. Serial No. 362,746

15 Claims. (Cl. 213—167)

This invention comprises a revoluble operating device with its inner end connected to the car coupler and with its outer end located adjacent the side of the car and provided with a handle so that the coupler can be operated without the switchman going between the cars.

The standard vertical plane coupler has a knuckle pivoted to the coupler head and provided with a tail behind which the lock is positioned. In the so-called top operated coupler the lock lifter protrudes through and above the coupler head and is provided with a horizontal eye to which the usual coupler operating device is connected, but the opening for the lock lifter permits the entrance of sand, chats and water (which freezes) into the interior of the coupler head which seriously interferes with the movement of the coupler parts. To obviate this trouble so-called bottom operated couplers are now being frequently used, and my device is particularly adaptable to one of the popular so-called bottom operated type of couplers which comprise a rotor provided with an eye (hereinafter further described) for attachment to the operating device.

The object of the invention is to form the operating device for a car coupler of two component parts having a substantially common axis and to connect such parts so as to permit longitudinal movement therebetween and to transmit rotary movement from one part to another so as to permit a variation in the distance between the rotor on the coupler and the supporting bracket on the car to accommodate the lateral service movements of the coupler without substantially varying the distance between the operating device handle and the side of the car.

In the drawing:

Fig. 1 shows a typical application of my device to a railway car.

Figs. 2, 3 and 4 show in detail the connection of the component parts of the operating device shown in Fig. 1.

Figs. 5, 6, 7 and 8 show modified forms of the invention.

Fig. 9 shows the bracket.

One of the popular types of bottom operated couplers comprises the usual coupler head with the knuckle pivotally attached thereto and provided with a tail in front of which a lock block is positioned when the coupler is locked. A rotor is rotatively supported by the coupler head and operates a lift arm which is flexibly connected to the lock block by a link. The rotor is provided with an eye for attachment of an operating device. When the rotor is revolved the lift arm raises the lock block from behind the knuckle tail until it rests on the shelf to assume what is called a "lock set" position. Upon further revolution of the rotor the lower part of the lock block engages an inclined surface and "throws" the knuckle.

I prefer to mount the outer end of the operating device upon the car so as to prevent it moving longitudinally of itself so that the handle will remain in the position prescribed by the Interstate Commerce Commission Safety Appliance Acts, and furthermore, so that it will always be in the same position relative to the side of the car.

I prefer to use an open bracket, as shown in Fig. 9, so that the operating device can be connected to the rotor of the coupler and then the outer end of the operating device inserted in the bracket and retained therein by a cotter 13 or other similar means.

The operating device comprises two parts with the inner part operatively connected to the car coupler; for instance, by means of the hook engaging the eye of a rotor, as shown in Fig. 1. The outer part is supported by the bracket which is mounted upon the car. The parts 30 and 31 of the operating device are connected together so as to permit longitudinal movement therebetween and to transmit rotary movement from one part to the other. In Figs. 1, 2, 3 and 4 this connection is shown as a pair of co-acting elongated loops.

The telescopic or foreshortening arrangement is positioned anywhere between the rotor 2 on the coupler 6 and the bracket 10 on the car. In the form illustrated in Figs. 1 to 4 inclusive the device is formed in two parts 30—31, each of which has an eye 32—33 slidably engaging a shank 34—35 portion of the other part of the operating device. This shank portion is preferably made rectangular, as illustrated in Fig. 4, to prevent the component parts of the operating device twisting around each other and possibly binding.

Figs. 5 and 6 show a similar construction to that illustrated in Figs. 2 to 4 inclusive wherein the telescopic or foreshortening arrangement is provided by forming the operating rod in two pieces 40—41, each of which slidably engages a cylindrical ferrule 42. Stops 43—44 are provided on the operating device parts to retain them in operative position. In the forms shown in Figs. 1 to 6 inclusive (as well as in the other forms) a partial revolution of the outer part of the operating device (30 or 40) revolves the in-

ner part of the device (31 or 41) and operates the coupler.

Figs. 7 and 8 show a modified form wherein the telescopic or foreshortening means is positioned adjacent the outer end of the operating device, and in the form shown, is adjacent the bracket. The means to permit foreshortening comprises an elongated loop 16 on the operating device 17 slidably engaging an elongated loop 18 on that portion of the operating device which comprises the handle 19 and which is mounted in the open bracket 20. The handle and a portion 21 of the loop are engageable with the bracket to form stops.

In the constructions illustrated the elements are arranged to permit a variation in the distances between the rotor on the coupler and the bracket on the car to accommodate the lateral service movement of the coupler without substantially varying the distances between the handle and the side of the car.

The accompanying drawing illustrates 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.

This is a division of my co-pending application Serial No. 266,200, filed March 31, 1928.

I claim:

1. In a railway car, the combination of a laterally movable coupler, a bracket, and an operating device operatively attached to the coupler and supported by said bracket at its outer end, said operating device comprising two parts having a substantially common axis of rotation, said parts being connected directly together so as to support each other and permit longitudinal movement therebetween and transmit rotary movement from one part to the other.

2. In a railway car, the combination of a laterally movable coupler, a bracket, and an operating device operatively attached to the coupler and supported by said bracket at its outer end, said operating device comprising two parts having a substantially common axis and provided with co-acting elongated loops so as to permit longitudinal movement therebetween and transmit rotary movement from one part to the other.

3. In a railway car, the combination of a laterally movable coupler, a bracket, and an operating device operatively attached to the coupler and supported by said bracket at its outer end, said operating device comprising two parts having a substantially common axis and provided with co-acting elongated loops so as to permit longitudinal movement therebetween and transmit rotary movement from one part to the other, the outer of said loops being positioned adjacent the bracket so as to restrict the movement in one direction longitudinally of said axis.

4. In a railway car, the combination of a laterally movable coupler, a bracket, and an operating device operatively attached to the coupler and supported by said bracket at its outer end, said operating device comprising two parts having a substantially common axis and provided with co-acting elongated loops so as to permit longitudinal movement therebetween and transmit rotary movement from one part to the other, the outer of said loops being positioned adjacent the bracket so as to restrict the movement in one direction longitudinally of said axis, the outer of said parts being provided with a handle adjacent the bracket so as to restrict the movement of said part in the other direction longitudinally of said axis.

5. In a railway car, the combination of a laterally movable coupler, a bracket, an operating device operatively attached to the coupler and supported by said bracket at its outer end, said operating device comprising two parts having a substantially common axis of rotation, said parts being connected directly together so as to support each other and permit longitudinal movement therebetween and transmit rotary movement from one part to the other, and means to restrict the movement of one of said parts longitudinally of said axis.

6. In coupler mechanism having a movable lock, the combination of a rotary member for transmitting operating movements to the coupler lock, a bracket, and operating means supported by said bracket and extending and connected to said rotary member for rotating the latter for operating the coupler lock, said operating means including a plurality of rods each having portions intermediate said bracket and rotary member through which the other extends for transmitting rotative movement, said portions being aligned and spaced apart to permit relative movement of translation between said rods, one of said rods being secured to said rotary member and another of said rods being rotatively carried by said bracket.

7. In coupler mechanism having a movable lock, the combination of a rotary member for transmitting operating movements to the coupler lock, a bracket and operating means supported by said bracket and extending and connected to said rotary member for rotating the latter for operating the coupler lock, said operating means including a rod secured to said rotary member, and a handled rod pivoted to said bracket and slidingly secured to said first named rod, said handled rod having an offset portion therein adjacent said bracket to prevent relative movement of translation between said bracket and rod.

8. In coupler mechanism having a movable lock, the combination of a rotary member for transmitting operating movements to the coupler lock, a bracket, and operating means supported by said bracket and extending and connected to said rotary member for rotating the latter for operating the coupler lock, said operating means including a plurality of rods each having angularly disposed looped portions through which the other extends to provide limited lost motion and permit relative movement of translation therebetween, one of said rods being secured to said rotary member and another of said rods being rotatively carried by said bracket, the rod carried by the bracket being provided with an operating handle and having an offset portion therein adjacent said bracket to prevent relative movement of translation between said bracket and rod.

9. In coupler mechanism having a movable lock, the combination of a rotary member for transmitting operating movements to the coupler lock, a bracket, and operating means supported by said bracket and extending and connected to said rotary member for rotating the latter for operating the coupler lock, said operating means including a plurality of rods each having angularly disposed looped portions through which the other extends to provide limited lost motion and permit relative movement of translation therebetween, one of said rods be-

ing secured to said rotary member and another of said rods being rotatively carried by said bracket.

10. In a railway car or the like, the combination of a coupler, a bracket, and an operating device operatively attached to the coupler and supported by said bracket at its outer end, said operating device comprising two parts connected together so as to support each other and transmit rotary movement from one part to the other.

11. In coupler mechanism having a movable lock, the combination of a movable member for transmitting operating movements to the coupler lock, a bracket, and operating means supported by said bracket and extending and connected to said movable member for moving the latter for operating the coupler lock, said operating means including a rod secured to said movable member, and a handled rod pivoted to said bracket and slidingly secured for transmitting rotative movement to said first-named rod, each of said rods having a portion embracing the other of said rods in overlapped relation intermediate the bracket and movable member so as to support the other.

12. In coupler mechanism having a movable lock, the combination of a rotary member for transmitting operating movements to the coupler lock, a bracket, and operating means supported by said bracket and extending and connected to said rotary member for rotating the latter for operating the coupler lock, said operating means including a plurality of rods each having portions engaging the other at spaced intervals intermediate said bracket and rotary member so as to support the other and for transmitting rotative movement from one to the other, one of said rods being secured to said rotary member and another of said rods being rotatively carried by said bracket.

13. In coupler mechanism having a movable lock, the combination of a rotary member for transmitting operating movements to the coupler lock, a bracket, and operating means supported by said bracket and extending and connected to said rotary member for rotating the latter for operating the coupler lock, said operating means including a plurality of rods each having angularly disposed looped portions through which the other extends to provide limited lost motion and permit relative movement of translation therebetween, one of said rods being secured to said rotary member and another of said rods being rotatively carried by said bracket.

14. In a coupler mechanism having a movable lock provided with a movable member for transmitting operating movements thereto, a bracket, and operating means supported by said bracket and extending and connected to said movable member, said means including a rod secured to said movable member, and a handled rod rotatively mounted in said bracket, each of said rods having an offset portion intermediate said bracket and movable member and engaging the other of said rods in overlapped relation whereby each of said rods is supported by the other and movement of rotation is transmitted between said rods for operating said movable member upon rotation of said handled rod.

15. In a coupler mechanism having a movable lock provided with a movable member for transmitting operating movements thereto, a bracket, and operating means supported by said bracket and extending and connected to said movable member, said means including a rod secured to said movable member, and a handled rod rotatably mounted in said bracket, each of said rods terminating in an offset looped portion intermediate said bracket and movable member and engaging the other of said rods in overlapped relation whereby each of said rods is supported by the other and movement of rotation is transmitted between said rods for operating said movable member upon rotation of said handled rod.

ARTHUR E. SMALL.