Aug. 31, 1948. A. F. COULTER 2,448,419

ADJUSTABLE DEAD LEVER GUIDE

Filed Oct. 1, 1947 2 Sheets-Sheet 1

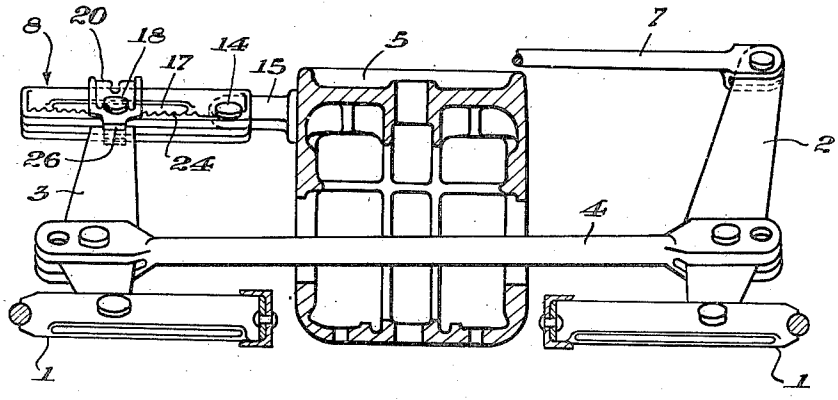


Fig. 1.

Andrew F. Coulter INVENTOR.

BY

Brown, Critchlow, Flick & Peckham

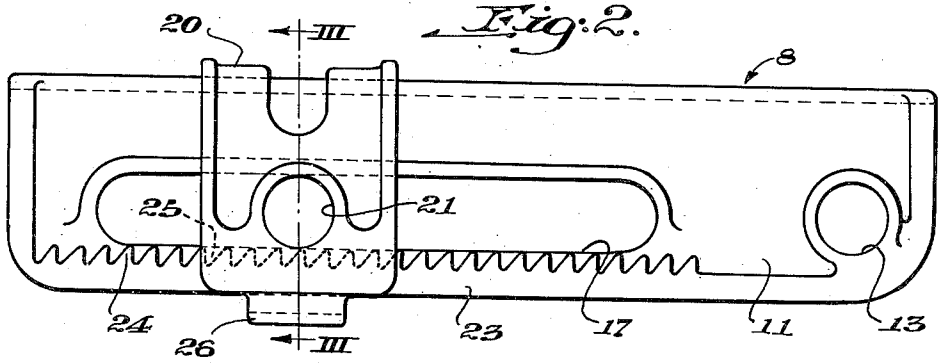
his ATTORNEYS.

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Fig. 2.



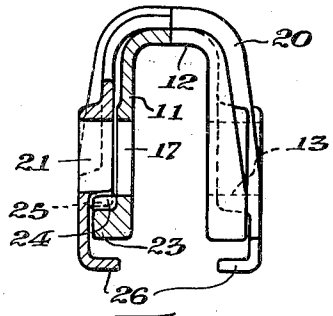


Fig. 3.

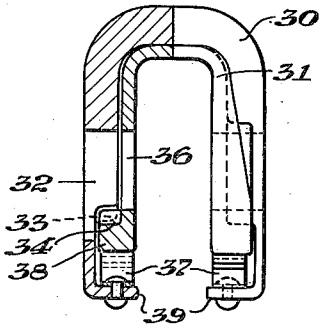


Fig. 5.

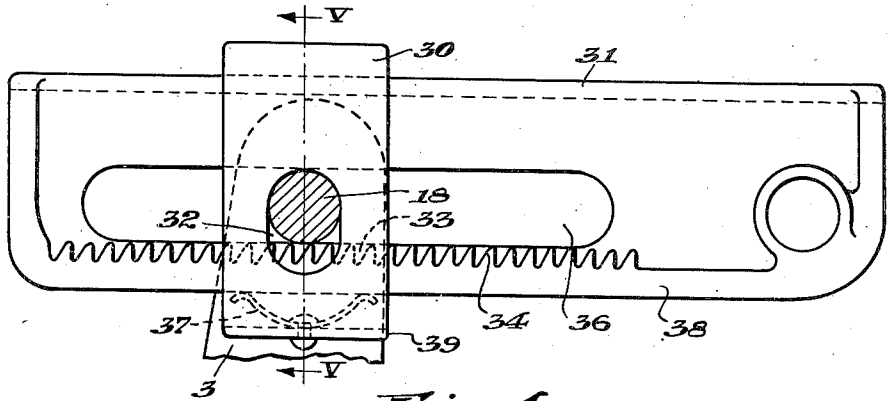


Fig. 4.

INVENTOR.
Andrew F. Coulter
BY
Brown, Critchlow, Flick & Peckham
his ATTORNEYS.

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UNITED STATES PATENT OFFICE

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ADJUSTABLE DEAD LEVER GUIDE

Andrew F. Coulter, Wilkinsburg, Pa., assignor to Frederic Schaefer, Pittsburgh, Pa.

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8 Claims. (Cl. 74—522)

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This invention relates to railway car brake rigging, and more particularly to the guides or fulcrums to which the upper ends of the dead levers are pivotally connected.

The conventional dead lever guide is formed merely by doubling a metal bar upon itself to form spaced side walls between which the upper end of a dead lever is inserted. The ends of the bar have holes for a pivot pin that connects the guide to a truck bolster. The side walls of the guide are provided with a series of holes for receiving a pivot pin that extends through the upper end of the lever. By removing this pin from one set of holes and inserting it in another set, the upper end of the lever can be adjusted along the guide to take up slack in the rigging due to wear of the brake shoes. A minor disadvantage of such a dead lever guide is that the pin must be removed before the position of the lever can be changed. A major disadvantage is that the sets of holes through the guide are not very close together, so that the upper end of the lever can be adjusted into only a few different positions, all of which are rather far apart. Also, the pressure exerted lengthwise of the guide when the brakes are applied, sometimes bends the guide.

It is among the objects of this invention to provide a dead lever guide which is strong and rigid, which permits the upper end of a dead lever to be adjusted to many different closely spaced positions along the guide, and which may permit such adjustments to be accomplished without removing the pin that connects the lever to the guide.

In accordance with this invention, the main body of the guide is an elongated supporting member having spaced side walls provided at one end with pin-receiving holes for pivotally connecting the guide to a truck bolster. This supporting member is channel shape with the tops of its side walls integrally connected together. The side walls have oppositely disposed longitudinal slots therethrough that are adapted to receive a pivot pin extending through the upper end of a brake lever between the walls. The outside of the supporting member is provided along the bottom of one or both of the slots with a series of teeth that mesh with teeth formed on a bearing yoke which fits over the supporting member and is slidable lengthwise of it. The yoke has an open bottom through which the brake lever extends, while the sides of the yoke are provided with holes for the ends of the brake lever pin. By lifting the yoke far enough to disengage its teeth from the supporting member teeth, the yoke can be adjusted to different positions along the guide. If the pin-receiving holes in the yoke are in the form of vertical slots, the yoke can be lifted out of

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engagement with the supporting member teeth without removing the brake lever pin. In such a case the yoke normally is held in its lower locked position by means of springs.

The invention is illustrated in the accompanying drawings in which Fig. 1 is a fragmentary cross section of brake rigging showing my improved dead lever guide in use; Fig. 2 is an enlarged side view of the guide; Fig. 3 is an end view showing half of the guide in section taken on the line III—III of Fig. 2; and Figs. 4 and 5 are views similar to Figs. 2 and 3, respectively, of a modification of this invention.

Referring to Fig. 1 of the drawings, a pair of brake beams 1, supported in the usual way by brake hangers (not shown), are operated by a live lever 2 and a dead lever 3 pivotally connected to them. The lower portions of the two levers are pivotally connected by a connecting rod 4 extending through the truck bolster 5. The brakes are applied by swinging the upper end of the live lever toward the bolster by means of a piston rod 7 connected to the brake cylinder (not shown). The upper end of the dead lever is held by a fulcrum or dead lever guide 8 projecting in the usual way from one side of the bolster.

In accordance with this invention, this guide is made in two pieces; an elongated supporting member, and a yoke slidably mounted on it. As shown in Fig. 3, the supporting member is in the general form of an inverted channel, the side walls 11 of which are integrally connected at their tops by a flat web 12. This web reinforces the side walls and prevents them from being bent. One end of side walls 11 is provided with a pair of holes 13, through which extends a pivot pin 14 that connects the guide to a lug 15 that projects from one side of the truck bolster. The side walls are provided throughout most of their length with oppositely disposed longitudinal slots 17 which are just wide enough to receive a pivot pin 18 that extends through the upper end of dead lever 3 located between those walls. The supporting member is straddled by a bearing yoke 20 that has its sides provided with holes 21 registering with slots 17 and receiving the ends of the brake lever pin 18. The metal around the holes is thickened to provide adequate bearing surfaces for the pin. Of course, the bottom of the yoke is open so that the lever can project up into the supporting member.

In order to lock the yoke in any one of many different positions along the slots, so that brake lever pin 18 will be held in fixed position in the guide, the lower edges of the supporting member's side walls are provided with outwardly projecting flanges 23. Each of these flanges has a series of teeth 24 projecting from its upper sur-

face along, but not above, the bottom of the adjoining slot. The sides of the yoke, in a plane below holes 21, are provided with several teeth 25 that normally mesh with teeth 24 so that the yoke can not be moved lengthwise of the guide as long as pin 18 is in place. However, when the brake lever pin is removed from the yoke, the latter can be lifted high enough on the supporting member to disengage the sets of teeth from each other. The yoke can then be moved lengthwise of the supporting member to another position and dropped into place to hold the yoke there. When the pin is replaced in the yoke, the engaging sets of teeth will keep the yoke from moving along the guide. To prevent the yoke from being lifted off the supporting member when pin 18 is removed, the sides of the yoke are provided with extensions 26 that extend down past supporting member flanges 23 and then inwardly beneath them. These extensions are spaced just far enough from the bottoms of the flanges to permit the yoke teeth to be disengaged from teeth 24 when the yoke is raised.

When the embodiment of the invention shown in Figs. 4 and 5 is used, it is not necessary to remove the brake lever pin 18, shown in section in Fig. 4, from the yoke 30 in order to adjust it along the supporting member 31. The construction of this supporting member is essentially the same as the one discussed above, but the yoke has pin-receiving holes that are in the form of vertical slots 32. The upper walls of these slots preferably engage the pin, but the slots extend far enough below the pin, when the yoke is in its lower position, to permit the yoke to be slid upward on the supporting member far enough to disengage the yoke teeth 33 from the underlying teeth 34. This allows the yoke to be moved lengthwise of the supporting member while the pin extends through them and slides along slots 36. The yoke is prevented from accidentally moving upwardly on the pin, and releasing itself from the supporting member teeth, by means of leaf springs 37 compressed between the bottoms of the supporting member flanges 38 and the tops of the yoke extensions 39 that project beneath the flanges. The springs may be riveted to the extensions to hold them in place.

With both forms of this invention, the teeth are placed so close together that the brake lever pin can be adjusted along the guide by much smaller increments than could be done when pin-receiving holes instead of slots were used. In the one case this can be done without even removing the pin from the lever and guide, thereby greatly facilitating the operation.

According to the provisions of the patent statutes, I have explained the principle and construction of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A brake rigging dead lever guide comprising an elongated supporting member having spaced side walls provided at one end with aligned pin-receiving holes for pivotally connecting the guide to a truck bolster, said walls also having oppositely disposed longitudinal slots therein adapted to receive a pivot pin extending through the upper end of a brake lever between the walls,

the outside of said supporting member being provided along the bottom of at least one of said slots with a series of teeth, and a bearing yoke fitting over and slidable lengthwise and vertically on the supporting member and having an open bottom adapted to receive said lever, the sides of the yoke being provided with holes adapted to receive the ends of said brake lever pin, said yoke also being provided with teeth engaging some of said first-mentioned teeth to lock the yoke against movement lengthwise of the supporting member while the yoke is in its lower position thereon, whereby the brake lever pin can be adjusted to many different positions along said guide.

2. A brake rigging dead lever guide comprising an elongated supporting member having spaced side walls provided at one end with aligned pin-receiving holes for pivotally connecting the guide to a truck bolster, said walls also having oppositely disposed longitudinal slots therein adapted to receive a pivot pin extending through the upper end of a brake lever between the walls, the outside of said supporting member being provided along the bottom of at least one of said slots with a series of teeth, and a bearing yoke fitting over and slidable lengthwise and vertically on the supporting member and having an open bottom adapted to receive said lever, the sides of the yoke being provided with holes adapted to receive the ends of said brake lever pin, said yoke also being provided with teeth engaging some of said first-mentioned teeth to lock the yoke against movement lengthwise of the supporting member while the yoke is in its lower position thereon, whereby the brake lever pin can be adjusted to many different positions along said guide, and the bottom of the yoke projecting inward under said side walls and normally spaced therefrom to limit upward movement of the yoke on the supporting member.

3. A brake rigging dead lever guide comprising an elongated supporting member having spaced side walls provided at one end with aligned pin-receiving holes for pivotally connecting the guide to a truck bolster, said walls also having oppositely disposed longitudinal slots therein adapted to receive a pivot pin extending through the upper end of a brake lever between the walls, the outside of said supporting member being provided along the bottom of at least one of said slots with a series of teeth, a bearing yoke fitting over and slidable lengthwise and vertically on the supporting member and having an open bottom adapted to receive said lever, the sides of the yoke being provided with holes adapted to receive the ends of said brake lever pin, said yoke also being provided with teeth engaging some of said first-mentioned teeth to lock the yoke against movement lengthwise of the supporting member while the yoke is in its lower position thereon, whereby the brake lever pin can be adjusted to many different positions along said guide, the bottom of the yoke projecting inward under said side walls and normally spaced therefrom to limit upward movement of the yoke on the supporting member, and springs compressed between the bottoms of said side walls and the underlying portions of the yoke to normally hold the yoke in said lower position.

4. A brake rigging dead lever guide comprising an elongated supporting member having spaced side walls provided at one end with

aligned pin-receiving holes for pivotally connecting the guide to a truck bolster, said walls also having oppositely disposed longitudinal slots therein adapted to receive a pivot pin extending through the upper end of a brake lever between the walls, the outside of said supporting member being provided along the bottom of at least one of said slots with a series of teeth, and a bearing yoke fitting over and slidable lengthwise and vertically on the supporting member and having an open bottom adapted to receive said lever, the sides of the yoke being provided with vertical slots adapted to receive the ends of said brake lever pin with the upper walls of the yoke slots substantially engaging the pin while the yoke is in its lower position on the supporting member, said yoke also being provided with teeth engaging some of said first-mentioned teeth to lock the yoke against movement lengthwise of the supporting member while it is in said lower position, and said yoke slots permitting the yoke to be moved upward far enough to separate its teeth from said series of teeth without removing said lever pin, whereby the pin can be adjusted to many different positions along said guide.

5. A brake rigging dead lever guide comprising an elongated channel-shape supporting member having spaced side walls integrally connected at their tops and provided at one end with aligned pin-receiving holes for pivotally connecting the guide to a truck bolster, said walls also having oppositely disposed longitudinal slots therein adapted to receive a pivot pin extending through the upper end of a brake lever between the walls, the outside of said supporting member being provided along the bottom of at least one of said slots with a series of teeth, and a bearing yoke fitting over and slidable lengthwise and vertically on the supporting member and having an open bottom adapted to receive said lever, the sides of the yoke being provided with holes adapted to receive the ends of said brake lever pin, said yoke also being provided with teeth engaging some of said first-mentioned teeth to lock the yoke against movement lengthwise of the supporting member while the yoke is in its lower position thereon, whereby the brake lever pin can be adjusted to many different positions along said guide.

6. A brake rigging dead lever guide comprising an elongated channel-shape supporting member having spaced side walls integrally connected at their tops and provided at one end with aligned pin-receiving holes for pivotally connecting the guide to a truck bolster, said walls also having oppositely disposed longitudinal slots therein adapted to receive a pivot pin extending through the upper end of a brake lever between the walls, the bottoms of said side walls being provided with outwardly projecting flanges each having a series of teeth along its upper surface, and a bearing yoke fitting over and slidable lengthwise and vertically on the supporting member and having an open bottom adapted to receive said lever, the sides of the yoke being provided with holes adapted to receive the ends of said brake lever pin and with teeth engaging some of said teeth in both of said series to lock the yoke against movement lengthwise of the supporting member while the yoke is in its lower position thereon, whereby the brake lever pin can be adjusted to many different positions along said guide.

7. A brake rigging dead lever guide comprising an elongated channel-shape supporting member having spaced side walls integrally connected at

their tops and provided at one end with aligned pin-receiving holes for pivotally connecting the guide to a truck bolster, said walls also having oppositely disposed longitudinal slots therein adapted to receive a pivot pin extending through the upper end of a brake lever between the walls, the bottoms of said side walls being provided with outwardly projecting flanges each having a series of teeth along its upper surface, and a bearing yoke fitting over and slidable lengthwise and vertically on the supporting member and having an open bottom adapted to receive said lever, the sides of the yoke being provided with vertical slots adapted to receive the ends of said brake lever pin with the upper walls of the yoke slots substantially engaging the pin while the yoke is in its lower position on the supporting member, the sides of the yoke also being provided with teeth engaging some of the teeth in both of said series to lock the yoke against movement lengthwise of the supporting member while it is in said lower position, said yoke slots permitting the yoke to be moved upward far enough to separate its teeth from said series of teeth without removing said lever pin, whereby the pin can be adjusted to many different positions along said guide, the bottom of the yoke projecting inward under said flanges and normally spaced therefrom to limit upward movement of the yoke on the supporting member, and springs compressed between the bottoms of said flanges and the underlying portions of the yoke to normally hold the yoke in said lower position.

8. A brake rigging dead lever guide comprising an elongated channel-shape supporting member having spaced side walls integrally connected at their tops and provided at one end with aligned pin-receiving holes for pivotally connecting the guide to a truck bolster, said walls also having oppositely disposed longitudinal slots therein adapted to receive a pivot pin extending through the upper end of a brake lever between the walls, the bottoms of said side walls being provided with outwardly projecting flanges each having a series of teeth along its upper surface, and a bearing yoke fitting over and slidable lengthwise and vertically on the supporting member and having an open bottom adapted to receive said lever, the sides of the yoke being provided with circular holes adapted to receive the ends of said brake lever pin and with teeth engaging some of the teeth in both of said series to lock the yoke against movement lengthwise of the supporting member while the yoke is in its lower position thereon, whereby the brake lever pin can be adjusted to many different positions along said guide, and the bottom of the yoke projecting inward under said flanges and normally spaced therefrom to limit upward movement of the yoke on the supporting member when said pin is removed.

ANDREW F. COULTER.

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