July 4, 1950 K. E. ZEIDLER 2,513,834

CUSHIONED CAR COUPLER SUPPORT AND POSITIONING DEVICE

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Fig. 1.

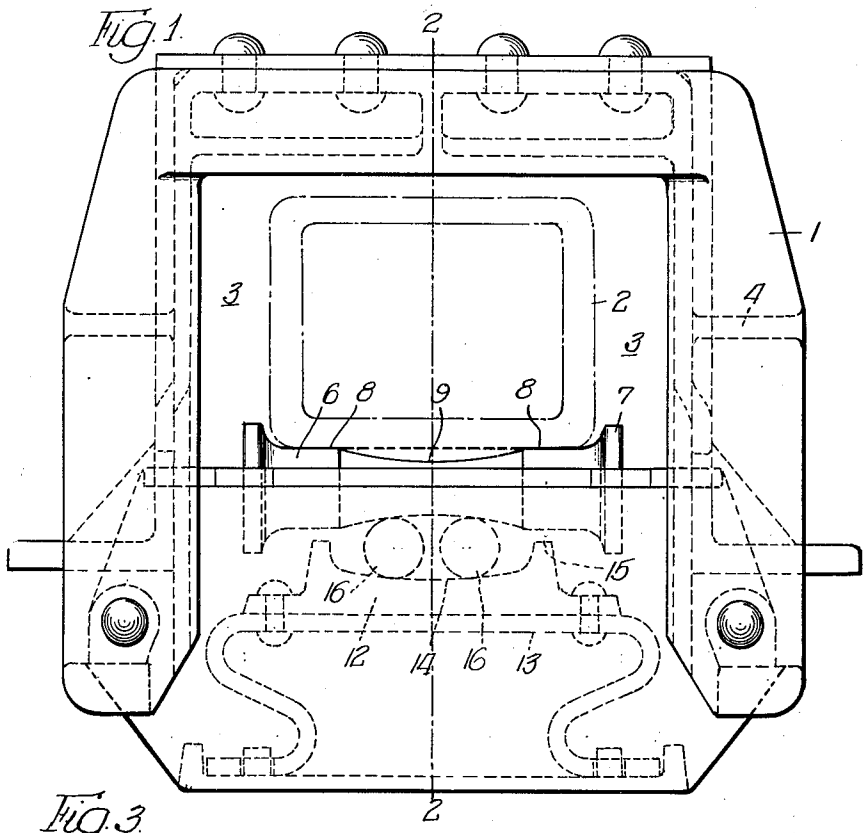
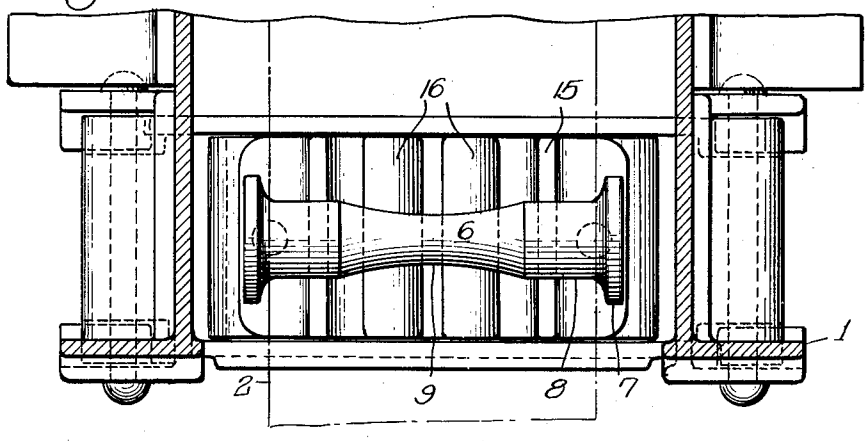


Fig. 3.



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Fig. 2

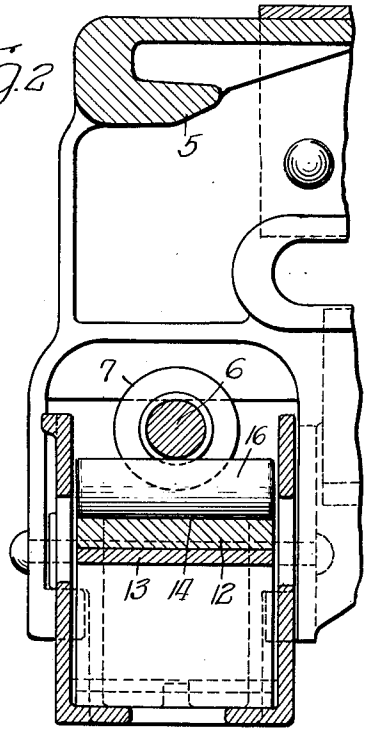


Fig. 5

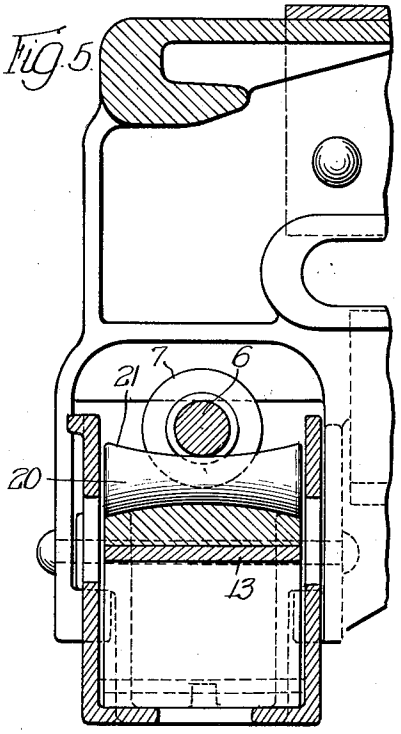
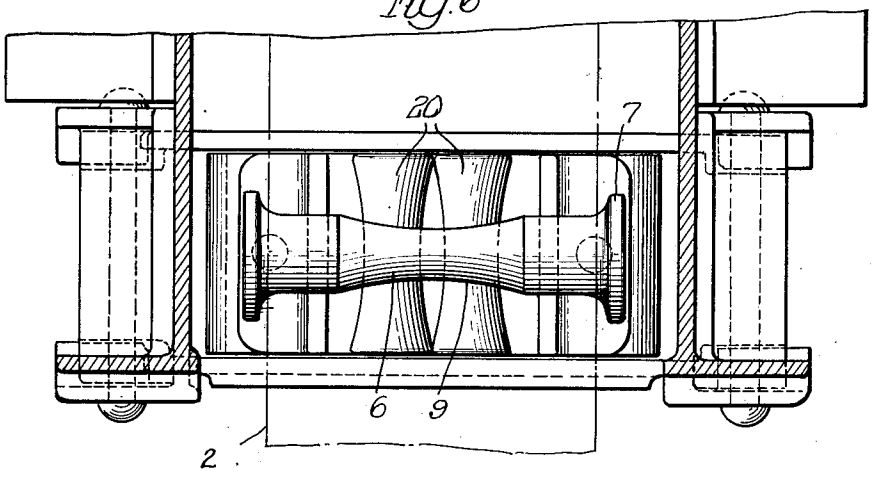


Fig. 6



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CUSHIONED CAR COUPLER SUPPORT AND POSITIONING DEVICE

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Fig. 4

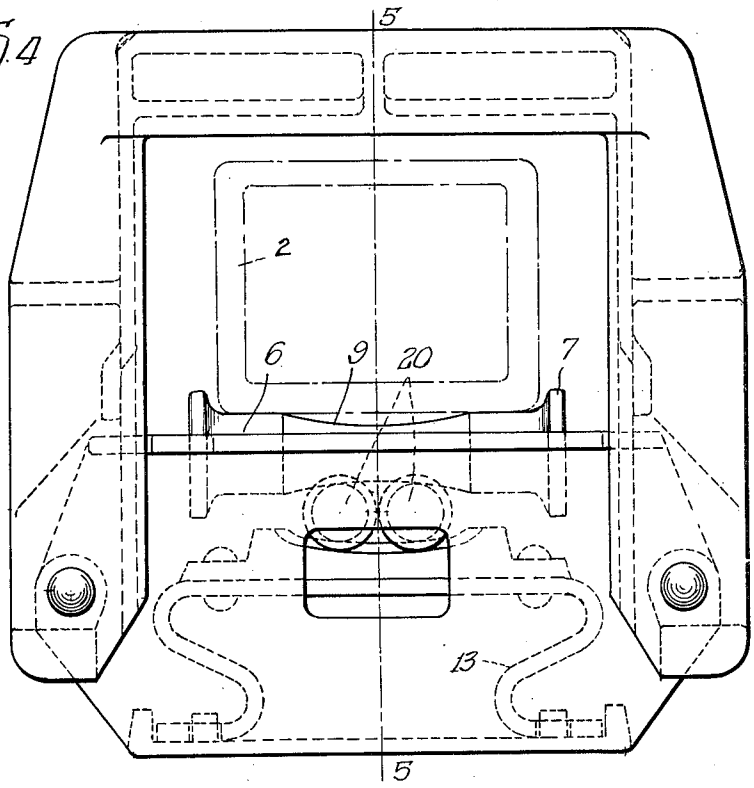


Fig. 7

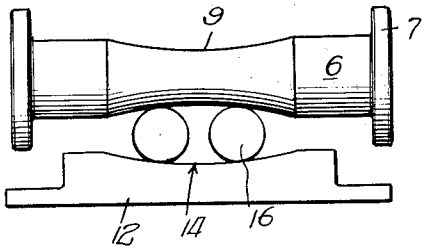
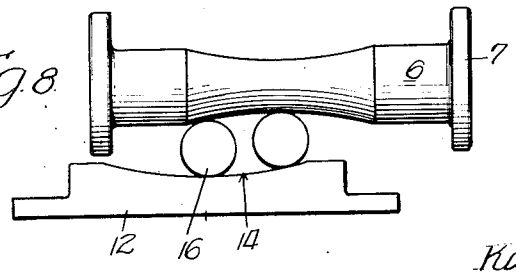


Fig. 8



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CUSHIONED CAR COUPLER SUPPORT AND POSITIONING DEVICE

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Fig. 9

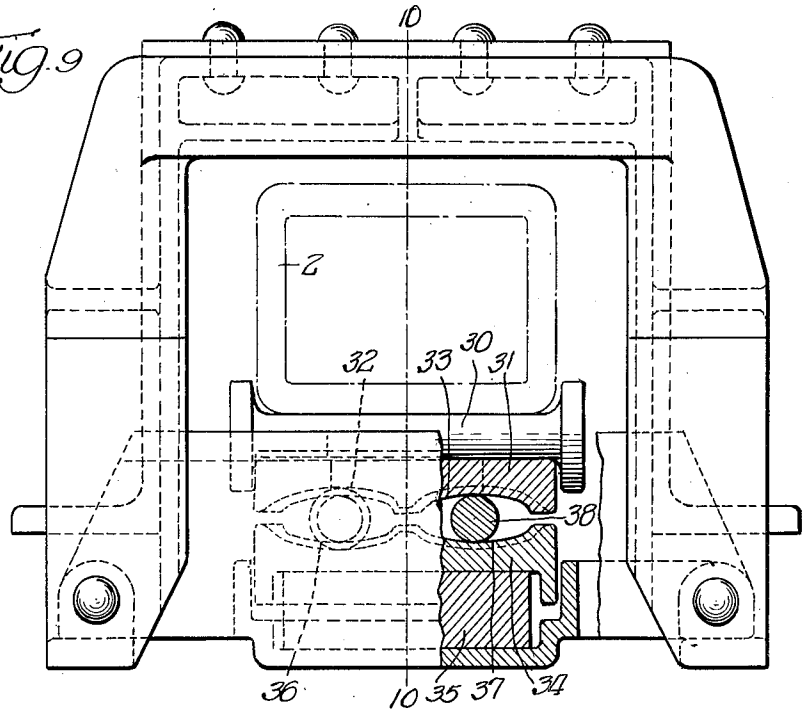
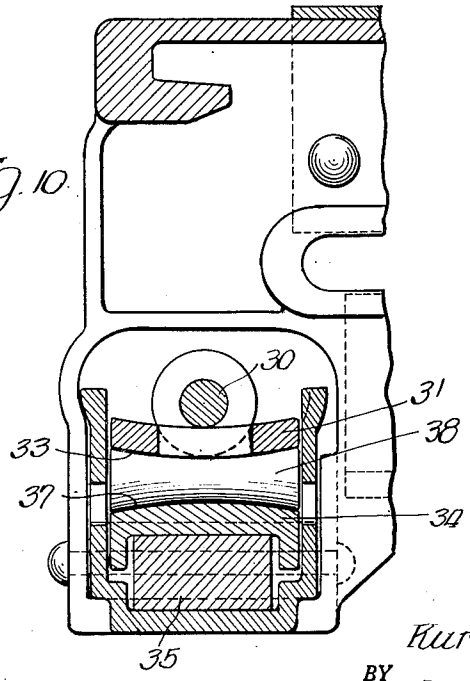


Fig. 10



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Patented July 4, 1950 2,513,834

UNITED STATES PATENT OFFICE

2,513,834

CUSHIONED CAR COUPLER SUPPORT AND POSITIONING DEVICE

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Application December 7, 1946, Serial No. 714,707

8 Claims. (Cl. 213—61)

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This invention relates to means to support a longitudinally, laterally and vertically movable railway car coupler upon a part fixed to the car by a combination of rollers and associated structure so as to return said coupler by gravity to substantially the longitudinal central plane of the car or, in what is known in the trade, as "coupling range" when free to do so, and preferably also to return said coupler to its normal position longitudinally of the car when free to do so, which comprises the principal object of the invention.

Another object is to provide means to resiliently support the aforementioned means.

A further object of the invention is to associate the resilient means with said rollers and cooperative structure so as to maintain said parts in operative relationship during service movements of the car.

In the drawings:

Figure 1 is a front elevation of a railway car striking casting showing my improved device applied thereto.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a plan view of Figure 1.

Figures 4, 5, 6, 7 and 8 show a modified structure wherein—

Figure 4 is a view similar to Figure 1.

Figure 5 is a section on line 5—5 of Figure 4.

Figure 6 is a plan view of Figure 4.

Figure 7 is a diagrammatic view showing the roller carrier, rollers and race in centered position.

Figure 8 is similar to Figure 7 showing the relation of the parts when the carrier has been moved laterally.

Figure 9 is a view similar to Figure 1, partly in section, of a further modification of the device.

Figure 10 is a section on line 10—10 of Figure 9.

In the drawings the coupler striker is shown at 1 and comprises either an integral casting or one built up of welded parts so as to surround the coupler shank 2. Striker 1 is substantially rectangular in form and composed of two like spaced plates having aligned openings 3 therein through which the car coupler 2 projects and is longitudinally, laterally and vertically movable therein as is common. The plates comprising the striker are held in spaced relation by suitable webs or shelves, such as shown at 4 and 5, and said striker is securely fixed by any desired means to the end sill of the car.

The coupler 2 rests upon the roller coupler carrier 6, which carrier is provided with a flange forming a shoulder 7 to cause the carrier to move

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laterally with the coupler, said carrier also having spaced cylindrical coupler engaging surfaces 8—8 adjacent the shoulders 7 and a concave surface 9 therebetween.

The race 12 is preferably resiliently supported by the double S-shaped spring 13 or other resilient means. This race is provided with a substantially concaved roller engaging surface 14, at each end of which surface the race is provided with an upstanding track 15 to provide means to rollably support said roller carrier should the hereinafter described rollers become lost or broken.

Interposed between said roller engaging surfaces of said carrier and race there is provided one or more rollers 16 to rollably support said carrier upon said race. It will be noted that the axis of the roller carrier 6 is disposed at right angles to the axis of the supporting rollers 16 so that during longitudinal movement of the coupler the roller carrier 6 constitutes a rolling support for the coupler upon the rollers 16 and during lateral movement of said coupler the rollers 16 provide a rolling support for the carrier 6 upon the race. Furthermore it will be noted that in longitudinal section (Figure 2) the roller engaging surface 14 of the race 12 is concave. Thus when the coupler moves laterally it causes the carrier 6 to move laterally and roll upon the rollers 16 and roll the leading roller up the incline at one end of the concave roller engaging surface 14 of the race, and roll the following roller down the incline at the other end of the concave roller engaging surfaces 14 of the race. The opposed concave portion 9 of the roller carrier 6 compensates for the difference in elevation of the two rollers as both roll so that the coupler 2 and carrier roller 6 are always maintained in substantially horizontal position. (See Figures 7 and 8.) However, the leading roller rolls up its inclined surface more than the following roller rolls down its inclined surface, thus depressing the resilient means 13, but when the coupler is uncoupled while in said laterally moved position, the resilient means 13 will immediately raise the coupler and carrier, thereby causing the carrier to return to normal position (within coupling range) by gravity, as it is then free to do so.

While the device is shown and described as provided with two rollers 16, substantially the same results would be accomplished were but one roller used. However, I prefer to use two rollers to increase the bearing area between the roller and cooperating parts, and also to stabilize the coupler.

In the modification of the invention shown in Figures 4, 5 and 6, the device is also arranged so that it will tend to return the coupler to normal position longitudinally of the car when free to do so. This is accomplished by providing a roller or rollers **20** of concave form; that is, being of smaller diameter at its middle and increasing progressively in diameter therefrom toward its opposite ends, as shown in Figure 5. Thus when the coupler moves longitudinally it rolls upon the roller carrier **6** which in turn rolls upon the concave surface **21** of the roller **20**, thereby compressing the resilient means **13**, and, if uncoupled, while so moved longitudinally, said resilient means will immediately raise the rollers **20**, carrier roller **6** and coupler **2** so that said carrier roller will tend to roll back to normal position by gravity.

The roller engaging surface of the race is preferably convex in cross section, as shown in Figure 6, to conform to the contour of the roller, thus increasing the bearing area between the roller and the race.

It is understood that both lateral and longitudinal movements of the coupler and carrier may take place simultaneously.

In the modification shown in Figures 9 and 10, the coupler **2** rests upon a roller carrier **30** of uniform diameter, which in turn rolls upon an upper race **31**, the lower surface of which is provided with a pair of concave raceways **32** and **33**. The lower race is shown at **34** and rests upon the resilient means **35** (shown in this instance as a rubber block) and the upper surface of said lower race **34** is provided with a similar pair of raceways **36** and **37**, and between each of the opposite raceways is mounted a roller **38**. The only difference between this modification and that previously described is that the roller carrier is of cylindrical form, that the upper race is provided, and the opposed faces of the two races **31** and **34** are provided with a pair of raceways. Otherwise, the functioning of this modification is similar to that previously described.

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. Means to support and position a railway car coupler carrier upon a member adapted to be fixed to a car; said means comprising a roller coupler carrier provided with means to cause the carrier to move laterally with a coupler when supporting said coupler, said carrier having a cylindrical coupler engaging surface and a concave surface, and a roller disposed on an axis at right angles to the axis of said roller carrier, and engaging said concave surface and rollably supporting said carrier for movement laterally of the car, whereby said carrier is caused to return to centered position by gravity when free to do so.

2. Means to support and position a railway car coupler carrier upon a member adapted to be fixed to a car; said means comprising a roller coupler carrier provided with means to cause the carrier to move laterally with a coupler when supporting said coupler, said carrier having a cylindrical coupler engaging surface and a roller engaging surface, a race having a roller engaging surface, and a roller interposed between said roller engaging surfaces on an axis at right angles to the axis of said roller carrier to support said carrier upon said race, one of said roller engaging surfaces being substantially concave to cause the carrier to return to centered position by gravity when free to do so.

3. Means to support and position a railway car coupler upon a member adapted to be fixed to a car; said means comprising a roller coupler carrier to directly engage a coupler and provided with means to cause said roller carrier to move laterally with a coupler when supporting said coupler, said roller carrier having a cylindrical coupler engaging surface and a roller engaging surface, a race having a substantially concave roller engaging surface, and a roller interposed between said roller engaging surfaces on an axis at right angles to the axis of said roller carrier to support said carrier upon said race and to cause the carrier to return to centered position by gravity when free to do so.

4. A structure substantially as set forth in claim 2 and resilient means adapted to support said race upon a fixed part of the car.

5. A structure substantially as set forth in claim 3 wherein said race is provided with an emergency track to provide means to rollably support said roller coupler carrier.

6. A structure substantially as set forth in claim 3 wherein said roller is of concave form so as to cause the carrier to return to centered longitudinal position when free to do so.

7. A structure substantially as set forth in claim 3 wherein said roller is of concave form so as to cause the carrier to return to centered longitudinal position when free to do so and said roller engaging surface of the race is convex normal to said concave surface thereof to conform to the contour of said roller.

8. A structure substantially as set forth in claim 3 wherein said roller is of concave form so as to cause said carrier to return to centered longitudinal position when free to do so, and resilient means are provided to support said race upon a fixed part of the car.

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