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CAR COUPLER CENTERING DEVICE

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Fig. 1

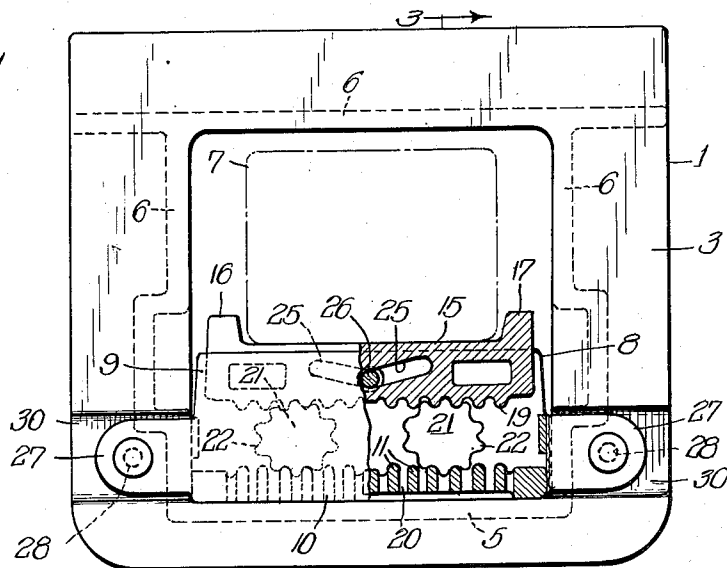


Fig. 2

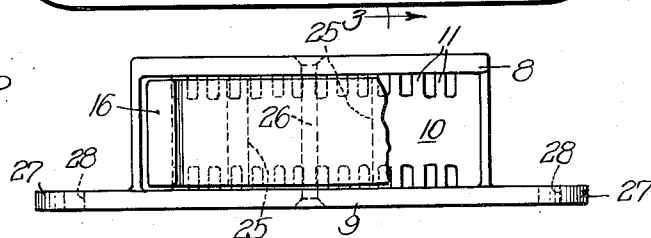
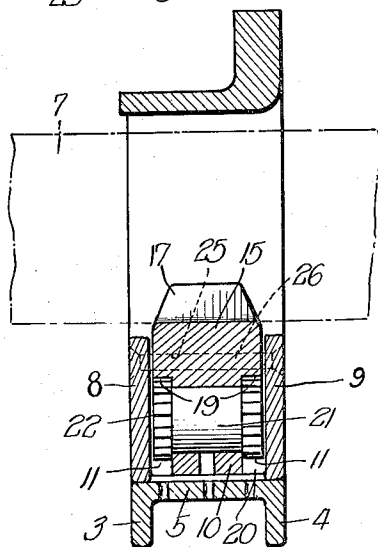


Fig. 3



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CAR COUPLER CENTERING DEVICE

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5 Claims. (Cl. 213-21)

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This invention relates to improvements in devices for retaining a railway car coupler adjacent the longitudinal center of the railway car, or within what is known as coupling range. When cars are uncoupled while on a curve the couplers are at an angle to the longitudinal center of the car, and if the cars are moved to a straight section of track and then coupled a lateral stress is transmitted to the coupler shank and draft gear, sometimes causing broken knuckles and guard arms. This invention causes a coupler when uncoupled on a curve to return to normal coupling range, thus minimizing the danger of broken parts. It further eliminates the necessity of a trainman going between cars to manually move a coupler to coupling range so that it will couple upon impact with another coupler. This reduces accidents to trainmen and lessens the time required to couple cars.

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

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

Figure 1 is a front elevation of a striking casting partly broken away and illustrating a centering device therein partly in section.

Figure 2 is a top plan view of the centering device portion of Figure 1 partly broken away.

Figure 3 is a section on line 3-3, Fig. 1.

The striking casting 1 is attached to the center sills in the usual manner and is provided with spaced side walls 3 and 4, an integral bottom 5 spanning the space between side walls and other similar walls 6 defining the top and sides of an opening through which the coupler shank 7 extends.

The improved coupler carrier and centering device comprising the herein described invention may be applied to and removed from such a striking casting as a unit, which is an important feature of the invention. The device consists of a pair of spaced parallel walls 8 and 9, the overall width of which is substantially equal to that of the spaced walls 3 and 4 of the striking casting. A flat base portion 10 is formed integrally with side walls 8 and 9, which portion 10 is formed, adjacent each wall 8 and 9, with rack teeth 11. The bottom lands of the rack teeth 11 are cut away, as shown at 20, so that there will be no weight carried by the teeth, as hereinafter described. Between the rack teeth 11, portion 10 comprises a flat plane surface.

The carrier portion of the device is indicated at 15 and comprises a rather thick block of material which substantially spans the space be-

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tween walls 8 and 9, and the ends of the upper surface of which are provided with upstanding lugs 16 and 17, between which a coupler shank, indicated in dotted lines at 18, rests upon the carrier. Lugs 16 and 17 insure that the carrier will be moved with the coupler 18 during any lateral movement of the coupler. At opposite sides of the bottom surface of the carrier 15 are also formed parallel rack teeth 19, facing the rack teeth 11.

Between the base portion 10 and carrier 15 are interposed a pair of cylindroidal cam rollers 21 which are in length equal to the width of the carrier 15 and bottom wall 10. Rollers 21 have formed, adjacent the opposite end portions thereof, peripheral teeth 22 which mesh with their corresponding rack teeth 11 and 19. Between the teeth 22 the rollers are cylindroidal, as clearly shown, with the long axis horizontal and the short axis vertical, when the coupler is centered or within coupling range. As clearly shown, the top land of the roller teeth do not reach the bottom land of the rack teeth, and vice versa, so that no weight is taken by the teeth; the weight of the coupler on the carrier being borne by the solid cylindroidal center portion of the roller and flat center portions between the racks of the carrier and base portion. Thus when the coupler is moved laterally, as when the train is rounding a curve, it will draw the carrier 15 laterally, which in turn will cause the rollers to roll correspondingly, moving the horizontal axis toward vertical position, and this movement will raise the coupler slightly. Should the couplers be uncoupled while in this position, the weight of the coupler on the carrier will cause the rollers to return to normal position with the long axis of the rollers again in horizontal position, which, of course, will return the coupler to centered position or at least within coupling range.

To prevent the carrier 15 from being disengaged from the roller teeth as, for example, when a car may be turned over in a car dumping machine, I have provided a V-shaped opening 25 through the carrier 15. A bolt 26 is applied through said opening 25 and also through aligned countersunk holes in walls 8 and 9 and is upset at opposite ends for secure application therein. The inclination of the arms of said openings is identical with the lateral and upward movement of the carrier caused by the cam rollers 21 during lateral movement of the coupler in either direction, so that even though bolt 26 is fixed the carrier can move laterally in either direction.

The side wall 9 is provided with a pair of laterally extending wings 27 which extend outward-

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ly adjacent the wall 3 of the striking casting, which walls 9 and 3 are provided with alined holes 28 for application of bolts or other fastening means to hold the entire device within the striking casting. Outer wall 3 of the striking casting is depressed, as indicated at 30, an amount equal to the thickness of wings 27, so that when wings 27 are secured to the depressions 30 in wall 3, the outer surface of said wings and wall 3 will occur in the same plane. Thus to remove the centering device unit from the striking casting, the fastening means in holes 28 are removed, and when the coupler is elevated off the carrier, the entire unit may be removed from the casting for repair or replacement of parts as may be necessary.

I claim:

1. In a centering device for a car coupler, a base portion having spaced side walls, rack teeth formed upon opposite side margins of said base portion, a coupler carrier between said side walls and provided with rack teeth upon opposite side margins facing the teeth of said base portion, a cylindroidal cam roller having teeth formed adjacent the opposite end portions thereof and meshing with the teeth of said carrier and base portion, the weight of a coupler upon the carrier being borne by the portions of the carrier, rollers and base portion between the teeth formed thereon, and means for securing the coupler carrier to said side walls for lateral and vertical movement therebetween.

2. In a centering device for a car coupler, a base portion carried by a car part, rack teeth formed upon opposite side margins of said base portion, a coupler carrier provided with rack teeth upon opposite side margins facing the teeth of said base portion, a cylindroidal cam roller having teeth formed adjacent the opposite end portions thereof and meshing with the teeth of said carrier and base portion, and means for operatively holding the carrier, roller and base portion in assembled relationship.

3. In a centering device for a car coupler, a base portion carried by a car part, a coupler carrier positioned above the base portion, a cylindroidal cam roller between the base portion and carrier, a longitudinal strip of the upper surface of the base portion and of the under surface of the coupler carrier being formed with rack teeth, a corresponding peripheral portion of the

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roller also formed with teeth meshing with the aforementioned rack teeth, the surfaces of the base portion, coupler carrier and cam roller adjacent said rack teeth being in rolling engagement so that no weight of a coupler upon the carrier is carried by said teeth.

4. In a railway car, the combination of a striking casting, a base portion having spaced side walls carried by said striking casting, rack teeth formed upon opposite side margins of said base portion, a laterally movable coupler carrier between said side walls above said base portion having rack teeth formed upon opposite side margins of said carrier facing the teeth of said base portion, a cylindroidal cam roller interposed between said carrier and base portion, said roller having teeth formed adjacent the opposite end portions thereof and meshing with the teeth of said carrier and base portion, the weight of a coupler upon said carrier being borne by the portions of the carrier, rollers and base portion between the teeth formed thereon, and means for securing said coupler carrier to said side walls for limited lateral movement therebetween.

5. A coupler centering device applicable as a unit to a railway car striking casting comprising a base portion carried by said striking casting and provided with a row of rack teeth, and spaced parallel side walls, a laterally and upwardly movable coupler carrier, above the base portion, and provided with a row of rack teeth facing the aforementioned rack teeth, a cylindroidal cam roller, between the base portion and carrier, supporting the carrier, and provided with circumferential teeth meshing with said rack teeth, said carrier having a V-shaped slot transversely therethrough, and fastening means passing through said slot and secured at its ends to said walls to secure the centering device parts in operative assembled relationship.

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