Feb. 5, 1946. E. J. ELLIS ET AL 2,394,158

TRUCK SIDE BEARING

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Fig. 1.

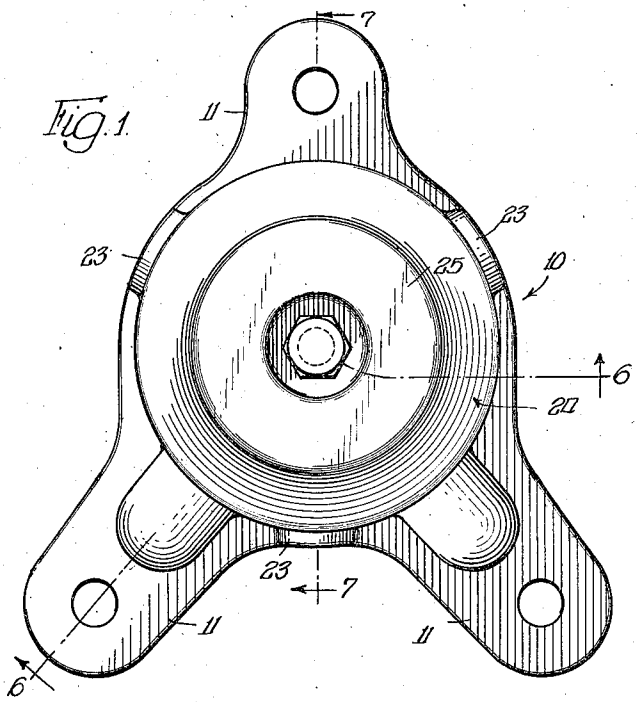


Fig. 2.

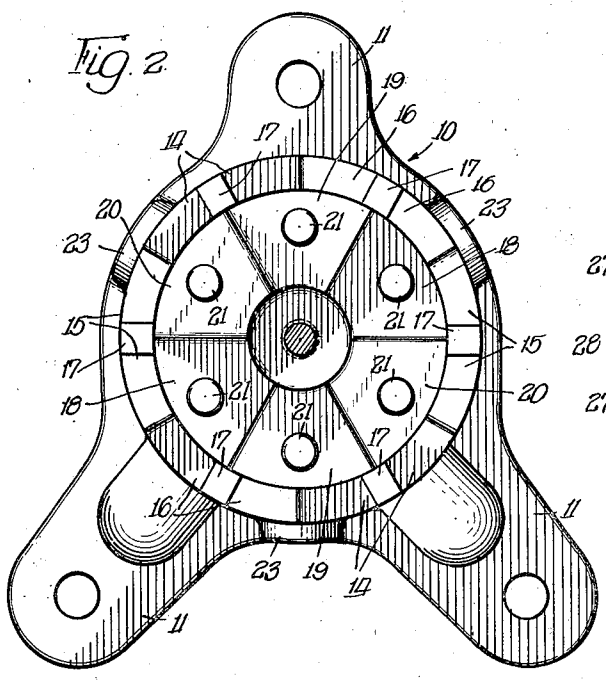
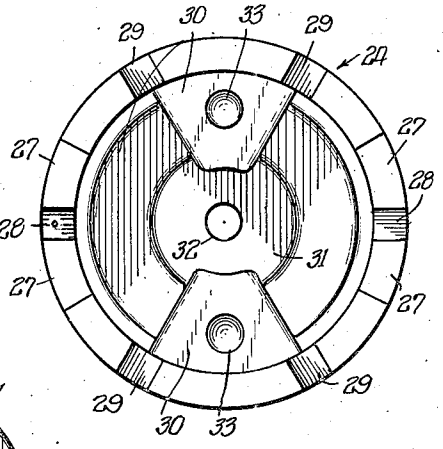


Fig. 3.



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Fig. 4

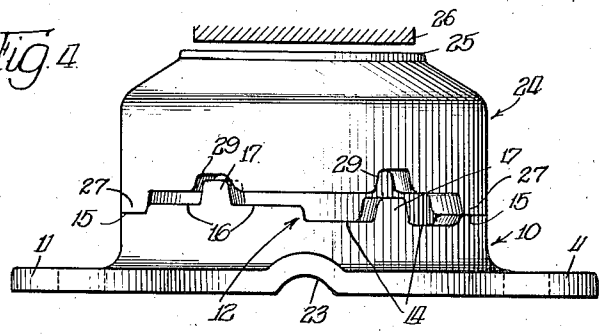


Fig. 5

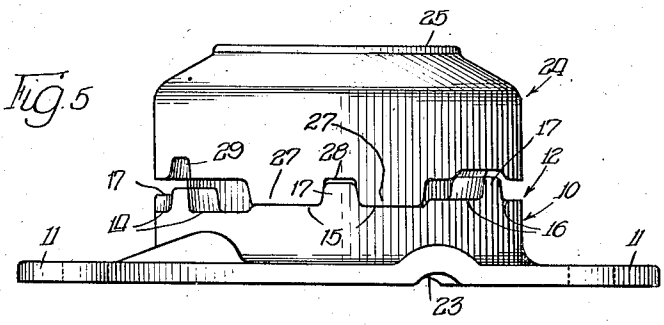


Fig. 6

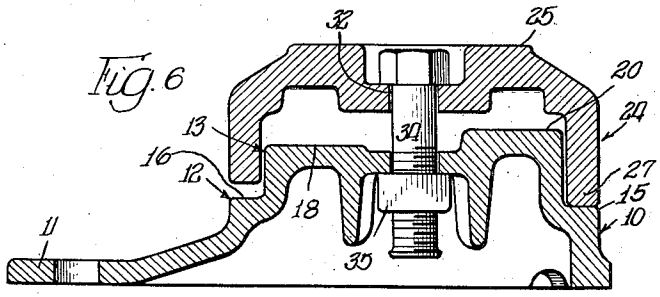
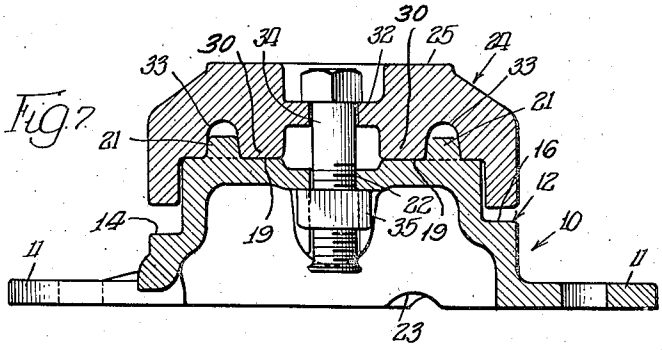


Fig. 7



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TRUCK SIDE BEARING

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Application March 27, 1944, Serial No. 528,309

4 Claims. (Cl. 308—138)

Our invention relates to a railroad car truck side bearing which is self-contained for adjustment to obtain the necessary car-body clearance as specified by the A. A. R. rules, without requiring change to be made in the car body side bearing and without requiring removal of the truck from beneath the car.

The invention has for its object the provision of a side bearing which eliminates the use of special shims, or other separate elements, and hence obviates the time, labor and expense heretofore incurred in the removal of previously inserted elements or in the insertion of special shims beneath the center bearing; our improved side bearing requiring no change to be made in the body side bearing or in the car center bearing; the bearing consisting of a self-contained unit adapted to be immovably secured to the truck bolster and adjustable, relative to the car body, while in place on the car truck.

The aforementioned objects and advantages of our invention, as well as other advantages inherent in the construction, will all be readily comprehended from the following detailed description of the accompanying drawings wherein—

Figure 1 is a top plan of the side bearing.

Figure 2 is a top plan of the bottom member of the bearing.

Figure 3 is a bottom plan of the top member of the bearing.

Figure 4 is a side elevation of the side bearing.

Figure 5 is a similar view taken at right angles to the view in Figure 4.

Figure 6 is a vertical sectional view taken on the line 6—6 of Figure 1 as viewed by the arrows.

Figure 7 is a similar view taken substantially on the line 7—7 of Figure 1, looking in the direction of the arrows.

Our improved side bearing for railroad cars has been designed to enable required adjustments to be made, initially and after installation, in keeping with the required clearances to be maintained between the truck and body side bearings without necessitating its removal or removal of the car truck, as, however, is the case with side bearings at present in use.

With constructions as at present employed, when adjustment of the side bearings is necessary to provide the required A. A. R. clearance between the car body side bearing plate and the truck side bearing, the car must be taken to the shops where removal of the truck from beneath the car can be made in order to permit special shims to be placed beneath the center bearing on the truck to sufficiently elevate the car body, especially where the center bearing has become worn; or to remove any shims that may have been initially employed beneath the side bearing in an effort to reduce the initial side bearing clearance to the requirements of the A. A. R. rules. Such operations, as is apparent, aside from requiring the car to be taken into the shops, necessitates, either the driving of a proper shim or plate beneath the center bearing on the truck, or the cutting of rivets whereby the initially inserted shim was secured to the body bolster beneath the side bearing plate. These operations involve considerable time, labor and material and hence great expense, as well as loss of car service.

Our improved side bearing is designed to eliminate this expense and loss of time in car service as adjustments to obtain the required clearance can be made by merely jacking and blocking the car body without removing the truck and then rotating the movable element of the bearing a predetermined extent to provide the required clearance without need for dissociating the elements of the bearing.

The specific embodiment of the invention shown in the drawings involves a casting or main body member 10, preferably provided with the radially disposed apertured flanges 11, 11, 11, whereby the body member 10 may be riveted or otherwise immovably secured on the truck bolster (not shown) of a railroad car. The main body is preferably annular and of predetermined height and terraced or off-set to provide an annular or ring-like terrace 12 and a second or upper annular terrace 13 which constitutes the top of the casting and is surrounded by the lower ring-like terrace 12 at a predetermined distance therebeneath.

The lower ring-like terrace 12 consists of a plurality of segmental surfaces arranged in different levels and of equal length; there being six segmental surfaces in the particular embodiment shown, with the segmental surfaces disposed diametrically opposite each other arranged in the same level, thus providing three elevations in the ring-like terrace 12 as more clearly shown in Figure 2 where the two segmental surfaces 14, 14 are in the same level or plane; the two segmental surfaces 15, 15 are in the same level and in a plane a predetermined distance above the plane of surfaces 14, 14; while the two segmental surfaces 16, 16 are in the same level and in a plane a predetermined distance above the plane of surfaces 15, 15.

Each segmental surface, preferably intermediate its ends, is provided with an upwardly dis-

posed lug 17. The lugs 17 are all identical in construction, except that the tops of the lugs 17 of the pair of segmental surfaces 15, 15 extend into a plane above the pair of lugs 17 of surfaces 14, 14; and the pair of lugs of surfaces 16, 16 extend into a plane above that of lugs 17 of surfaces 15, 15.

The upper surface of the hub-like or terrace portion 13 is provided with a plurality of sectoral portions or surfaces, substantially of equal circumferential dimensions, equal in number to the segmental surfaces heretofore described, namely six sectoral surfaces, with the tops of the sectoral surfaces disposed diametrically opposite each other arranged in the same plane and the three pairs of sectoral surfaces arranged in different planes, similar to the arrangement of the segmental surfaces of the lower terrace 12, thus providing three elevations in the upper annular terrace 13. That is to say, the upper terrace is provided with oppositely disposed sectoral surfaces 18, 18, radially aligned with the adjacent ends of segmental surfaces 15 and 16 of the lower terrace 12; oppositely disposed sectoral surfaces 19, 19, arranged in a predetermined plane slightly above the plane of surfaces 18, 18 and radially aligned with the adjacent ends of segmental surfaces 16 and 14 of the lower terrace 12; and the oppositely disposed sectoral surfaces 20, 20 arranged in a plane above that of sectoral surfaces 19 and radially aligned with the adjacent ends of segmental surfaces 14 and 15 of the lower ring-like terrace. It will be understood that the main body member 10 is of predetermined dimensions and the adjustments—in keeping with present conditions are in increments of one-eighth inch, thus affording side bearing heighths of 3⅝", 3¾", and 3⅞".

Each of the sectoral surfaces is provided with an upstanding annular boss or stud 21; and the sectoral surfaces, which extend from the outer perimeter of the upper terrace portion of the body member 10, terminate at their inner ends short of the center of the member or casting 10, with the center preferably depressed and provided with a suitable bolt receiving opening 22.

It will be understood that the top surfaces of the sectoral portions of casting 10 and the lower surfaces of the casting and its flanges 11 must be parallel and the casting is to be arranged flush with the top of the truck bolster; and in order to prevent accumulation of moisture beneath the casting, the base of the casting 10 preferably is provided with a number of air admitting and drain outlets at 23.

The top or adjustable member of the bearing is in the nature of cap 24 provided with a smooth top surface 25—with which the side bearing plate 26 on the car bolster contacts—which is preferably chilled to increase its hardness and thereby afford longer wear.

The cap has a depending annular skirt adapted to enclose or encircle the upstanding hub or cylindrical portion of the body member 10; and the lower perimeter of the skirt is provided with two pairs of depending segmental bearing lugs 27 arranged diametrically opposite each other; the lugs of each pair being spaced to provide the sockets 28 therebetween, with the bottoms of these sockets substantially in the same horizontal plane of the major portion of the skirt perimeter, see Figure 5. The lower perimeter of the cap-skirt, at prearranged circumferential distances apart, intermediate the lugs 27, is also provided with sockets 29; the sockets 28 and 29, as shown in Figure 3, being substantially sixty degrees apart in keeping with the spacing between the lugs 17 of the encircling lower terrace portion on the base member 10, so as to effect interengaging relation therewith.

The inner face of the cap member 24, within the annular skirt, is provided with a pair of sectoral bearing portions 30, 30, arranged diametrically opposite each other and corresponding with the sectoral surfaces 18, 19 and 20 on the upper face of the base member 10. The sectoral bearing portions 30, 30 are arranged a predetermined distance above the lower edge of the main portion of the skirt perimeter; with the inner ends of the sectoral portions 30, 30 uniting with the annular boss 31, which is centrally apertured at 32 to register with the center opening 22 in the base member 10. The sectoral portions 30, 30 are each provided with a socket 33 adapted to receive the upstanding studs 21 on the respective sectoral surfaces on the top of the base member. The central aperture 32 is countersunk on the upper surface of the cap, as shown in Figures 1, 6 and 7, to receive the head of a bolt 34, which passes through the central hole in the base member and has its lower end provided with a suitable nut 35, or other suitable means, whereby accidental rotation of the bolt is prevented.

The sectoral bearing surfaces and the segmental bearing surfaces surrounding the base member are so correlated that portions of the depending skirt of the cap member will effect bearing relation substantially at right angles to the bearing effected by the sectoral portions of both members. That is to say, when the sectoral portions 30, 30 of the cap member are in register with the lowest sectoral portions 18, 18 of the base member, the depending segmental lugs 27, 27 of the cap-skirt will be in bearing relation with the lowest diametrically opposite segmental portions 14, 14 disposed about the sides of the base member and the sockets 28 and 29 in the cap-skirt will register with the respective upwardly disposed lugs 17 on the sides of the base member; the lugs 17 in conjunction with the studs 21 of sectoral portions 18, 18 (which enter the sockets 33 in the two sectoral portions 30, 30 of the cap) will prevent rotative movement of the cap (after bolt 34 and its nut 35 have been completely screwed into place) and the bolt 34 relieved of rotative strains; while the studs 21 and the encircling skirt portion of the cap will take care of side thrusts and prevent any relative lateral movement between the base member and the cap member.

When the cap member 24 is rotated in counter-clockwise direction so as to position the two sectoral portions 30, 30 of the cap member on the sectoral portions 19, 19 (with their studs 21 registering with the sockets 33 of the cap member) of the base member, the segmental bearing lugs 27, 27 will have bearing contact with the segmental bearing surfaces 15, 15 on the base member, while the sockets 28, between each pair of bearing lugs 27 will receive the upstanding lugs 17 arranged on the segmental surfaces 15, 15 of the base member. Such rotation of the cap member, it will be understood, cannot be accomplished before the nut 35 and the bolt 34 have been sufficiently released; and this rotation will permit the cap member 24 to be elevated or raised above the first mentioned position.

Further counter-clockwise rotation (relative to the base member as viewed in Figure 2) of the

cap member (assuming that the bolt 34 and nut 35 have been released) will position the cap sectoral portions 30, 30 on the highest sectoral portions 20, 20 of the base member with the studs 21, 21 of portions 20, 20 registering with the sockets 33 in the cap sectors 30, 30; while the depending segmental bearing lugs 27, 27 will have bearing relation with the segmental surfaces 16, 16, on the annular shoulder at the sides of the base member and the upstanding lugs 17, intermediate the ends of segmental bearing surfaces 16, 16, will enter the sockets 28, 28 between the bearing lugs 27, 27; the lower end of the cap-skirt in all positions of the cap extending beneath the top of the base member and preventing any relative sidewise movement.

The A. A. R. rules define a certain amount of clearance to be maintained between the side bearing plate secured to the car body bolster and the side bearing elements secured on the truck bolster; the degree of clearance being practically determined by the condition of the car center bearings on which the car load is supported, so that when the center bearings are practically unworn the car body at its sides will be supported at an undesirable distance above the truck bolster. In order to meet this condition, the car is placed on a level track and the car body jacked up and blocked into level position and cap member 24 is then rotated about the center bolt until the pair of sectoral surfaces of the cap member register with the high sectoral surfaces 20, 20 of the base member. As the center bearing becomes worn thereby lowering the car body, the required clearance between the wear plate on the body bolster and the top of the side bearing may be obtained by rotating the cap member sufficiently to position its sectoral portions 30, 30 on the sectoral surfaces 19, 19 of the base member and subsequently onto sectoral surfaces 18, 18 of the base member; the adjustments being made by simply jacking the car body and sufficiently loosening the center bolt and nut to enable the cap member to be raised out of interengaging relation with the studs and side lugs of the base member.

The side bearing unit shown and described is believed to be the best embodiment of the invention, but structural modifications are possible and may be made without, however, departing from the spirit of our invention as defined in the appended claims.

What we claim is:

1. A side bearing for railroad cars comprising a base member with an upstanding cylindrical portion provided on its top with a plurality of circumferentially arranged sectoral bearing surfaces arranged in different elevations, the diametrically opposite bearing surfaces being arranged in the same plane, each surface having an upstanding stud; a flat topped cap member, rotatably arranged on the base member, provided with an annular skirt adapted to encircle the cylindrical portion of the base member, the inner face of the cap member having a pair of diametrically arranged sectoral bearing surfaces adapted to seat on the respective bearing surfaces of the base member, said cap sectoral bearing surfaces each having a socket adapted to receive the upstanding studs of the base member bearing surfaces to resist rotative movement of the cap member; and adjustable means for locking the cap member in its adjusted position.

2. A side bearing for railroad cars comprising a pair of members rotatably mounted on each other, one of said members having a plurality of annularly disposed bearing surfaces, one group of said surfaces being arranged on the top of said member and the other group of said surfaces being arranged about the sides of said member, said bearing surfaces being arranged in pairs with each pair disposed in a different horizontal plane; the other member having a pair of bearing surfaces arranged in the same plane adapted to seat on the bearing surfaces of the first mentioned group and having a depending pair of bearing surfaces at opposite sides adapted to seat on the bearing surfaces of the second mentioned group; the members having lug and socket interengaging relation with each other to prevent rotative movement.

3. A side bearing for railroad cars comprising a pair of members rotatably mounted on each other, one member having a plurality of bearing surfaces disposed in different horizontal planes with the surfaces opposite each other disposed in the same plane, one group of said surfaces being arranged on top of said member while the other group of said surfaces are arranged about the sides of said member, with the bearing surfaces in a given elevation arranged substantially at right angles to the bearing surfaces in a corresponding elevation on the top of said member; the other member on its lower face having a pair of bearing surfaces arranged in the same plane and diametrically opposite each other adapted to seat on the bearing surfaces of the first mentioned group and provided at its sides with depending bearing surfaces arranged substantially at right angles to said pair of bearing surfaces and adapted to seat on the bearing surfaces of the second mentioned group, the members having lug and socket interengaging relation whereby rotative movement between the members is prevented.

4. A side bearing for railroad cars comprising a pair of members arranged in rotatable relation, one member having a plurality of bearing surfaces disposed in different horizontal planes and in circular arrangement on the top of said member, with the surfaces diametrically opposite each other disposed in the same plane, a second group of bearing surfaces of different elevations arranged about the sides of the member with the bearing surfaces in a given elevation arranged substantially at right angles to the bearing surfaces in a corresponding elevation on the top of said member; the other member on its lower face having a pair of bearing surfaces arranged in the same plane and diametrically opposite each other and adapted to seat on the bearing surfaces on the top of the first mentioned member, the last mentioned member at opposite sides being provided with depending bearing surfaces arranged substantially at right angles to said pair of bearing surfaces and adapted to seat on the second group of bearing surfaces, the first member being provided with circumferentially spaced lugs and the second member provided with sockets adapted to receive said lugs and thereby lock the second mentioned member against rotative movement.

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