

A. C. DAVIDSON.

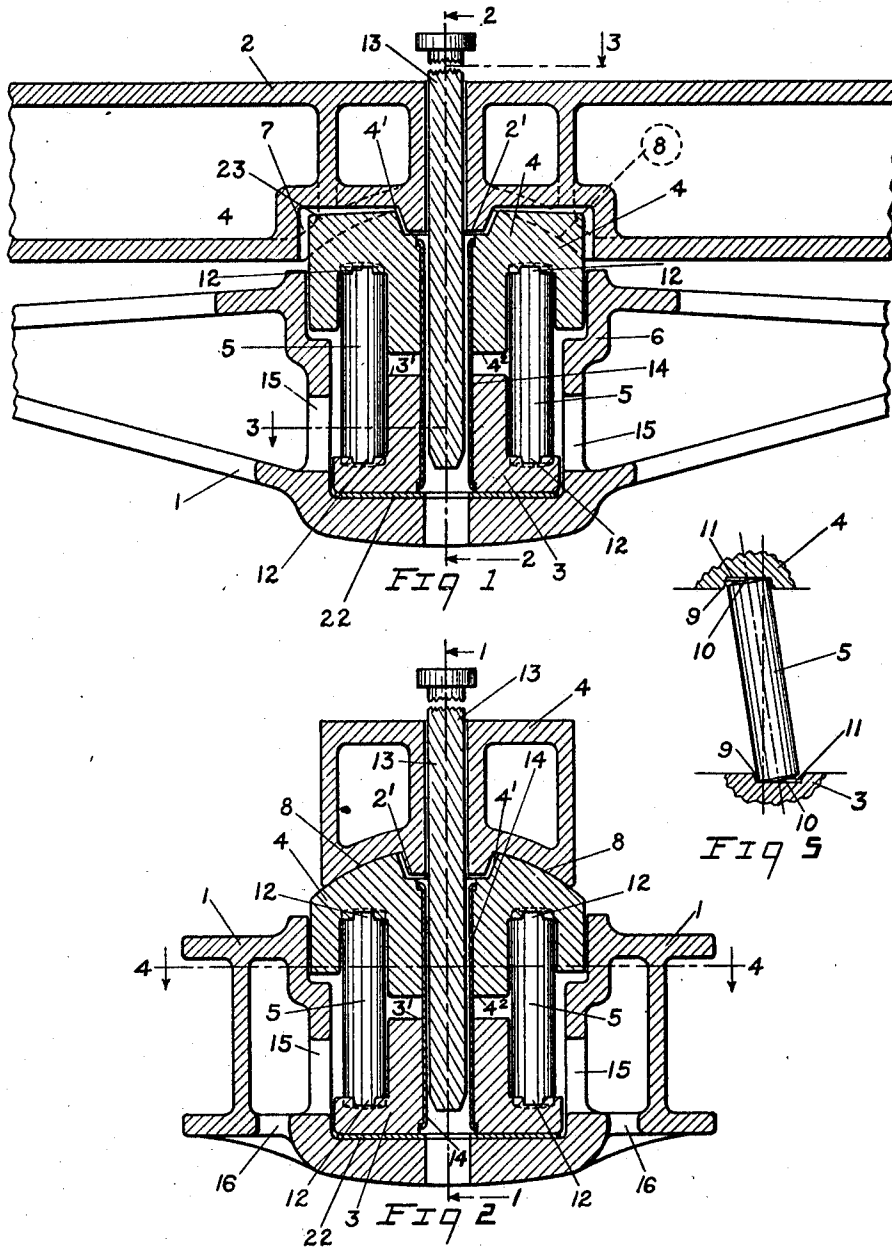
BEARING.

APPLICATION FILED JULY 9, 1908.

1,003,960.

Patented Sept. 19, 1911.

3 SHEETS-SHEET 1.



WITNESSES

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INVENTOR

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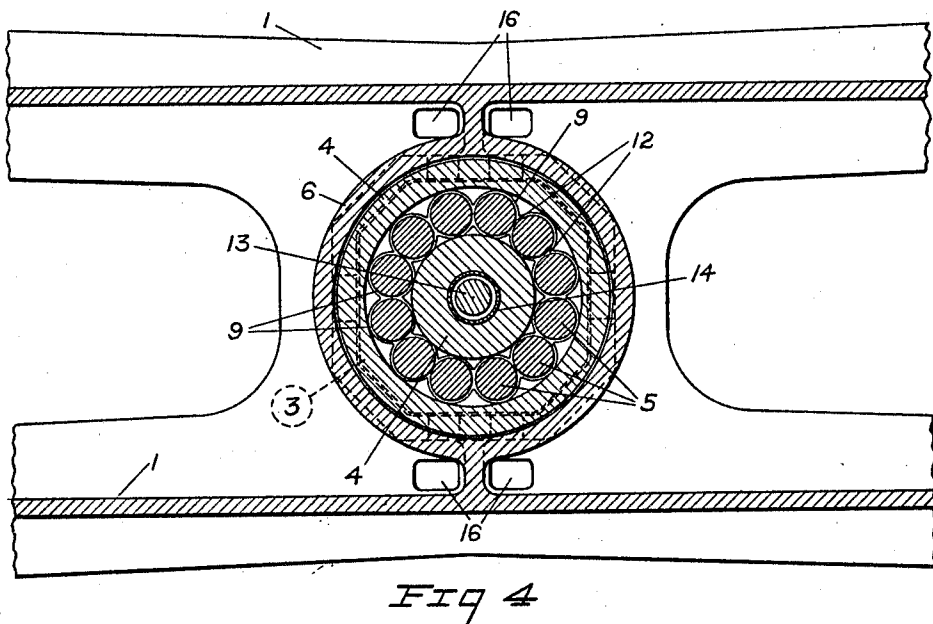
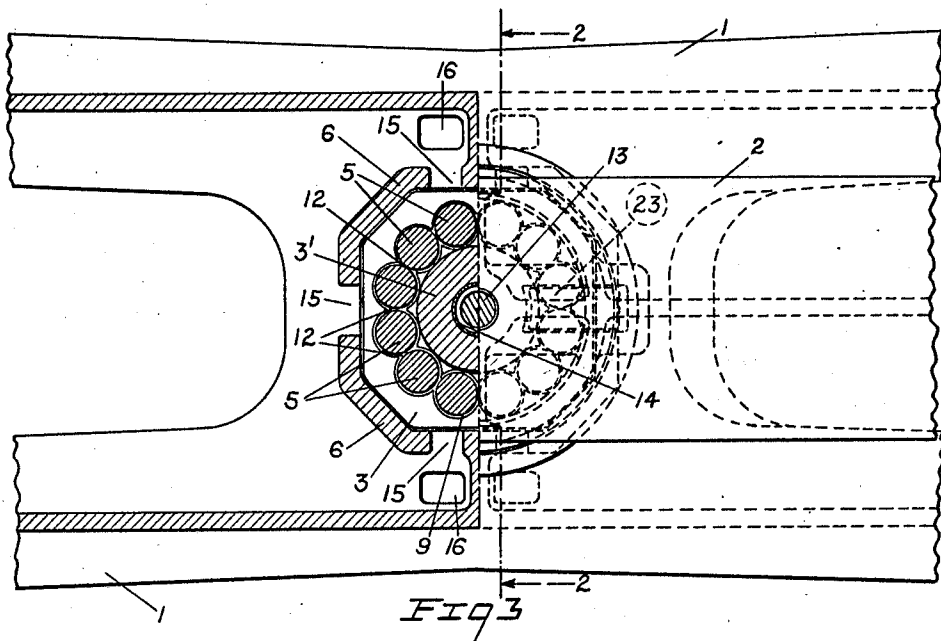
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3 SHEETS-SHEET 2.



WITNESSES

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3 SHEETS—SHEET 3.

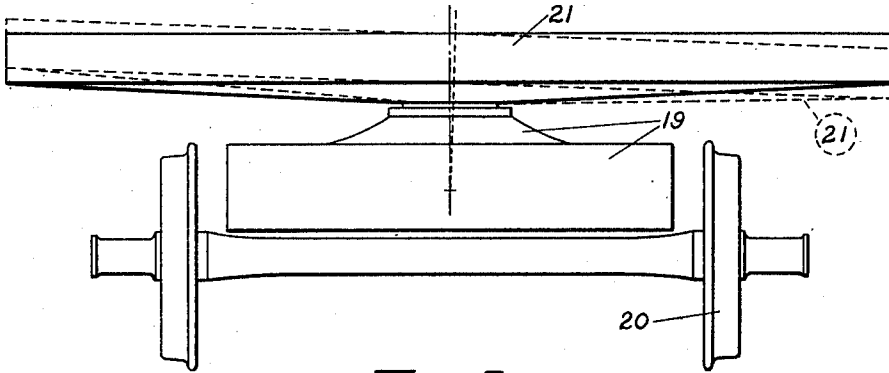


Fig 7

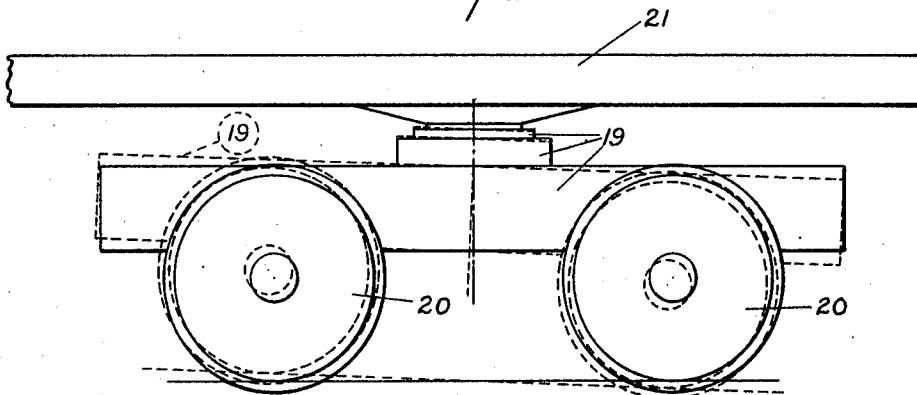


Fig 8

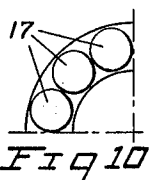


Fig 10

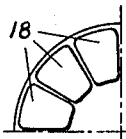


Fig 12

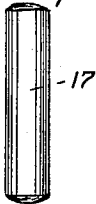


Fig 9
WITNESSES

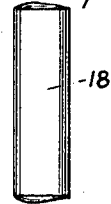


Fig 11

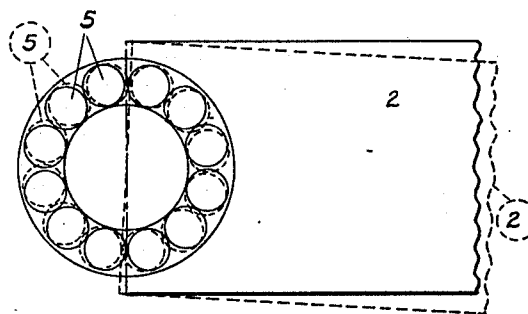


Fig 6

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UNITED STATES PATENT OFFICE.

ARTHUR C. DAVIDSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO EDWIN S. WOODS, OF CHICAGO, ILLINOIS.

BEARING.

1,003,960.

Specification of Letters Patent.

Patented Sept. 19, 1911.

Application filed July 9, 1908. Serial No. 442,645.

To all whom it may concern:

Be it known that I, ARTHUR C. DAVIDSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bearings, of which the following is a description.

My invention belongs to that class of devices known as bearings, and particularly a center bearing or a bearing adapted for use between a car body and a truck, and has for its objects the production of a simple, efficient and satisfactory bearing of the kind described, and for the purposes set forth or for use wherever applicable other than the purposes set forth and shown.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts, Figure 1 is a vertical sectional view of the bearing taken substantially on line 1—1 of Fig. 2, Fig. 2 is a vertical sectional view of the same taken substantially on line 2—2 of Fig. 1, Fig. 3 is a horizontal sectional view of the same taken substantially on lines 3—3 of Fig. 1, Fig. 4 is a horizontal sectional view taken substantially on line 4—4 of Fig. 2, Fig. 5 is a detailed view of the preferred form of supporting pin, Fig. 6 is a view illustrating a movement of the bearing, Fig. 7 is an elevation of a truck showing a possible movement of the car body relative to the truck, Fig. 8 is a partial side elevation of a truck showing another possible movement of the truck relative to the car body, Fig. 9 is a detail view of a modified post, Fig. 10 is a top elevation of a number of posts in position similar to those shown in Fig. 9, Fig. 11 is a side elevation of another modified form of post, and Fig. 12 is a top elevation of several posts similar to that shown in Fig. 11.

Referring to the drawings in which my preferred form of bearing is shown, 1 represents the truck bolster and 2 the car body bolster, or its equivalent, supported thereon. On the bolsters 1 and 2 are arranged the bolster center plates 3 and 4, which, in the preferred construction, are made separable from their respective bolsters, it being obvious that they may be integral therewith if

desired. When made separable, any suitable means may be employed to prevent rotation of the plates 3 and 4 relative to their respective bolsters, such as pins, (not shown) or their equivalent. The preferred construction, however, is to insert the plates in recesses formed in the bolsters in such manner that the plates 3 and 4 are removable from the respective bolsters 1 and 2 but are not rotatable relative thereto. As shown the truck bolster center plate 3 is positioned in substantially a pocket formed by the walls 6 of the bolster, the rotation of the two relative to each other being prevented by making the bottom octagonal or of some other suitable shape, such as square, hexagonal, etc. The body bolster center plate 4 is also arranged in its respective bolster 2 to prevent rotation of the two relative to each other, the preferred construction, however, being adapted or arranged to permit movement of the body of the car relative to the truck, substantially as shown in Figs. 7 and 8, in which 19 represents the car truck, 20 the car wheels, and 21 the car body. In the construction shown the body bolster 2 is recessed and the center plate 4 positioned therein, the flat face extended portion 23 preventing rotation of the parts relative to each other in substantially a horizontal plane. The body bolster 2 is preferably provided with an extended portion 2¹ adapted to loosely fit into the recess 4¹ on the center plate 4. The bearing faces 8 between the plate 4 and the bolster 2 are preferably substantially spherical except for the extended portion 23 on the plate 4 and the recess in the bolster 2 to receive the same, so that movement is permitted between the two to permit positions of the car body and truck substantially as shown in Figs. 7 and 8 before mentioned. As shown most clearly in Fig. 1 a space 7 is left between the extension 23 and the wall of the recess in the bolster 2 to permit movement therebetween.

In the construction of bearing commonly used the friction between the truck bolster and the car body bolster is considerable when one is rotated relative to the other. My device is designed to reduce this friction to comparatively nothing as compared with the common construction mentioned. To accomplish this I preferably arrange between the bolsters or the bearing center plates 3 and 4 or their equivalents, a plu-

5 rality of posts or pins 5, the same being arranged when in normal position substantially longitudinally therebetween. In the construction shown in Figs. 1, 2, 3 and 4, the pins are rounded at the ends, the radius of curvature of the ends preferably equaling half the length of the pin or post, the plates being provided with recesses 9 arranged to receive the ends of the posts, so that the same are retained in relative position to the plates at their respective ends. In the preferred construction, the recesses 9 are preferably formed with substantially cylindrical bottoms as shown in Figs. 1, 2, and 5, so that when the plates 3 and 4 are rotated relative to each other, rocking the posts or pins 5, there is substantially no sliding movement between the pins and plates so that there is practically no friction therebetween. In order to permit the use of as many posts 5 as possible thus increasing the points, lines or surfaces of contact, the depressions 9 may be arranged so close together that they open into each other as at 12 (Figs. 1, 2, 3 and 4). It is obvious that any other arrangement may be employed to retain the posts 5 in position relative to the respective plates at the ends thereof, equivalent to the depressions 9, as for instance pins or their equivalent for the purpose may be arranged on the pins or posts 5 (not shown), cooperating with the plates, at or proximate their respective ends.

35 In the preferred construction the plate 4 is held against lateral displacement and likewise the body bolster 2, by the outside face of the center plate 4 bearing against the face of the recess in the upper portion of the truck bolster as most clearly shown in Figs. 1, 2 and 4. It is obvious that a king pin 13 or its equivalent may also be additionally employed as shown if desired. The two center plates 3 and 4 may be also secured together to prevent separation in any suitable way, a tube 14 substantially turned over at the ends being shown for the purpose, the same permitting rotation of the two relative to each other but preventing separation thereof. With this construction the car body may be lifted from the truck without disarranging the center plates 3 and 4 and the pins 5, and if desired the two plates and the pins or posts 5 may be removed as an entirety from the truck bolster. As shown the center plates 3 and 4 are extended at 3¹ and 4² respectively, it being obvious that this is a matter of preference or that for example the truck plate 3 might be extended at the outer edge thereof corresponding to the extension 3¹ at the center.

In Fig. 9 a cylindrical pin or post 17 is shown in which the ends are round, the radius of curvature being less than half the length of the post or pin.

65 Fig. 11 shows a slightly modified form of

post 18 the same forming substantially the same functions as the posts 5 or 17 but giving an increased surface contact, thus substantially increasing the diameter of the bearing.

If desired openings 15 and 16 may be arranged in the walls of the truck bolster to prevent any dust or dirt that may accumulate in the bearing to sift through. Any suitable means may be employed to give a vertical adjustment between the truck bolster and the car body bolster or center plates, as shown a filler block or plate 22 of the desired thickness is arranged between the truck bolster center plate and the bolster adjustment being obtained by varying the thickness of the block. While the device shown is particularly adapted for use in car construction, it is obvious that it may be employed wherever applicable and not necessarily limited to a construction where the plane of rotation is substantially horizontal.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the form, arrangement or combination of parts shown and described without departing from the spirit of my invention, hence I do not wish to be understood as limiting myself to the exact construction, arrangement and combination of parts herein shown and described.

What I claim as new and desire to secure by Letters Patent is:

1. In a device of the kind described and in combination, a truck bolster, a center bearing plate therefor removable therefrom, means for preventing movement thereof relative thereto, a body bolster and a center bearing plate therefor removable therefrom, and means for preventing rotation of the two relative to each other in substantially a horizontal plane, and means for permitting the partial rotation of said plates relative to each other, comprising a plurality of posts longitudinally arranged therebetween, with their ends loosely positioned on the plates.

2. In a device of the kind described and in combination, a truck bolster, a center plate therefor removable therefrom, means for preventing a rotation of the two relative to each other, a body bolster and a center plate therefor, and means for preventing substantially a horizontal rotation of the two relative to each other, means for permitting partial rotation of said bolsters in both horizontal and vertical planes relative to each other, including a plurality of posts arranged longitudinally between said plates, serving as supporting means for said body bolster, and means for substantially securing said plates together.

3. In a device of the character described, a body bolster provided with a center plate, a truck bolster, a center plate therefor, means

for holding said center plates in axial alignment, and means permitting a partial rotation of the bolsters relative to each other including a circular series of longitudinally arranged elongated cylindrical posts positioned between said bearing plates with their ends loosely engaging the same.

4. In a device of the character described, a body bolster provided with a center plate, a truck bolster, a center plate therefor, means for holding the center plates in axial alignment, said center plates being provided on the adjacent faces thereof each with a circular series of pockets around the axes thereof, and means permitting a partial rotation of the bolsters relative to each other including a circular series of longitudinally arranged elongated cylindrical posts positioned between said bearing plates and provided with rounded ends fitting into pockets in said bearing plates.

5. In a device of the character described, a truck bolster provided with a center plate movable therewith, a body bolster, a center plate therefor, and movable therewith, said body bolster and center plate being fashioned to permit a limited rocking movement of the body bolster, and means permitting a partial rotation of the bolsters relative to each other including a circular series of longitudinally arranged posts positioned between said bearing plates with their ends loosely engaging the same.

6. In a device of the character described, a truck bolster provided with a pocket therein, the upper portion of which is circular in cross section, a center plate removably seated in the lower portion of said pocket and rotatable with said truck bolster, a body bolster, a center plate rotatable with said

body bolster and provided with a depending circular portion projecting into the circular portion of the pocket in the truck bolster, and means permitting a partial rotation of the bolsters relative to each other including a circular series of longitudinally arranged posts positioned between said bearing plates with their ends loosely engaging the same.

7. In a device of the character described, a truck bolster having a pocket therein, the upper portion of which is circular in cross section, a center plate in the lower portion of the pocket of the truck bolster and rotatable with said truck bolster, a second center plate loosely fitting in the circular portion of the pocket in the truck bolster, a circular series of longitudinally arranged posts positioned between said center plates with their ends loosely engaging the same, a body bolster supported upon said upper center plate and free to rock thereupon, and means for preventing the rotation of the body bolster and upper center plate relative to each other.

8. In a bearing of the character described, a pair of opposed center plates, a circular series of longitudinally disposed posts positioned between said center plates with their ends loosely engaging the same, a sleeve for securing said center plates together, said sleeve holding the center plates in axial alignment and permitting independent rotation thereof.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

ARTHUR C. DAVIDSON.

Witnesses:

ROY W. HILL,
C. M. CELLA.