No. 668,642. Patented Feb. 26, 1901.

J. J. HENNESSEY.

GRAVITY ROCKER SIDE BEARING FOR RAILWAY CARS.

(No Model.) (Application filed Sept. 1, 1900.) 3 Sheets—Sheet 1.

FIG. 1.

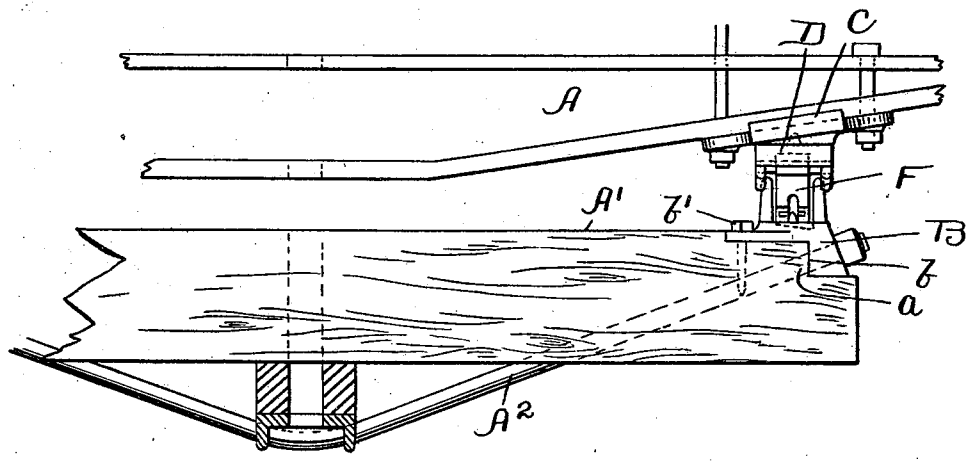

FIG. 2.

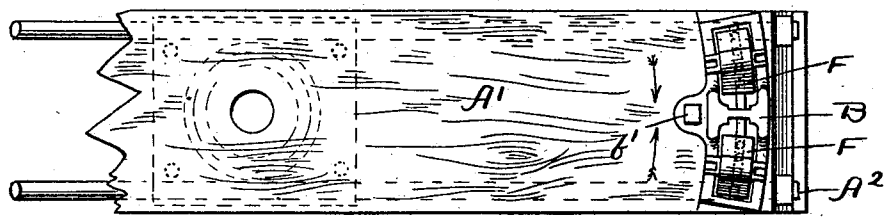

FIG. 3.

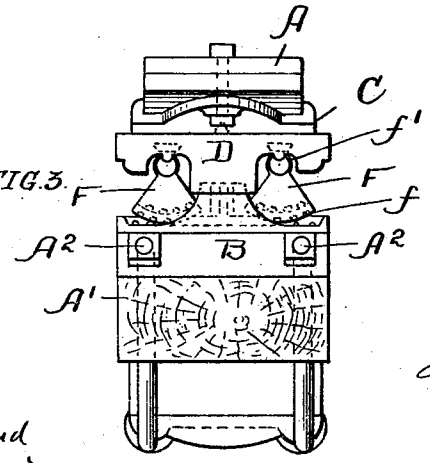

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FIG. 4.

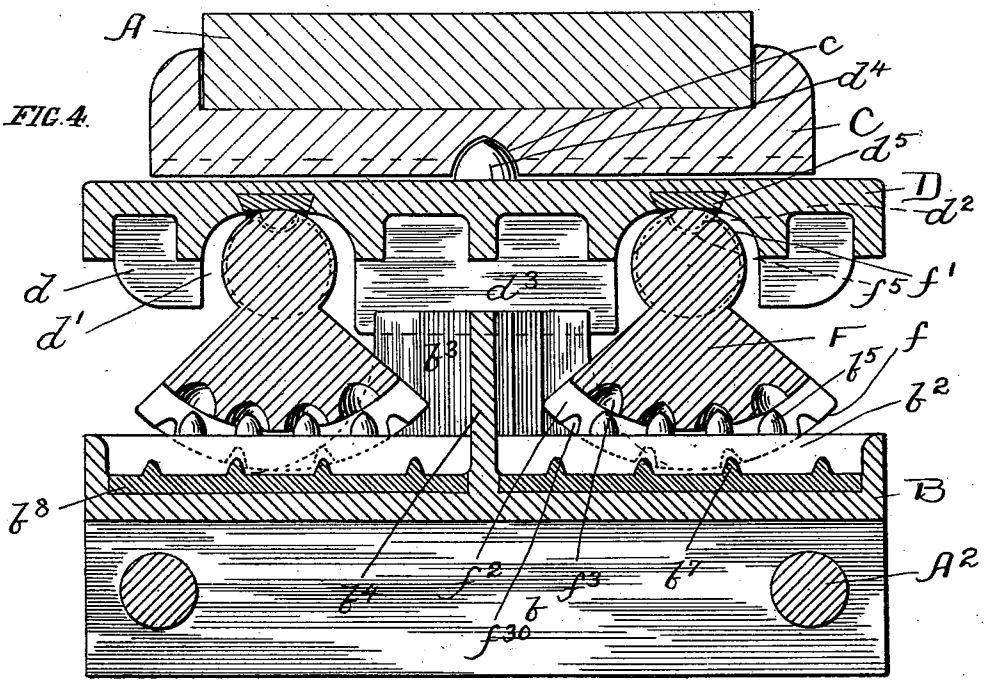

FIG. 5.

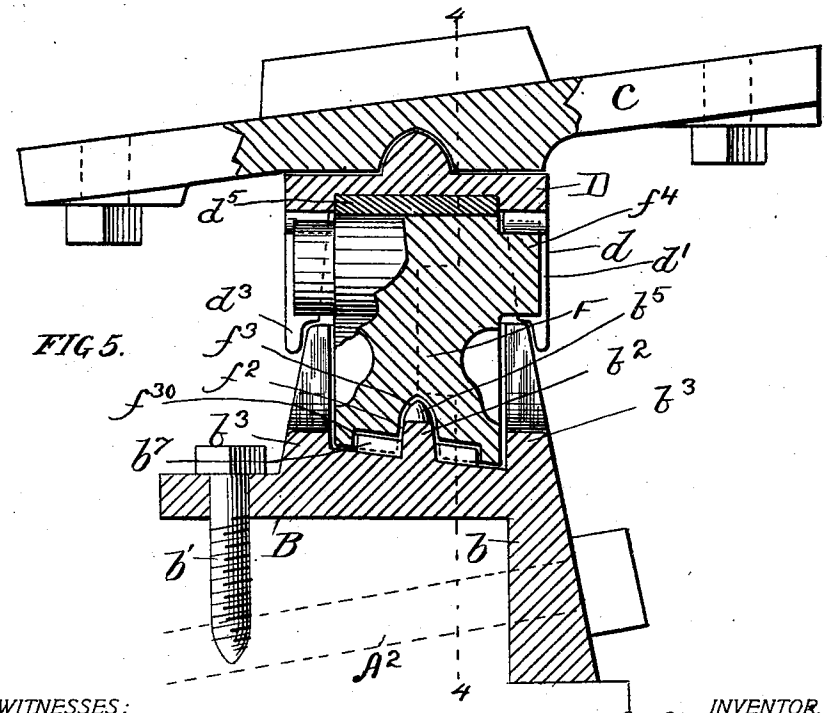

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FIG. 6.

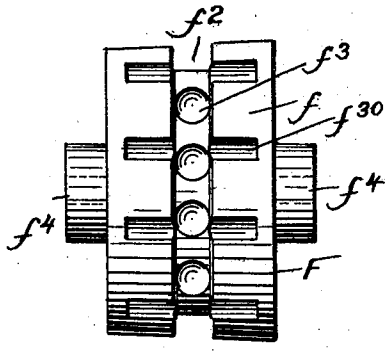


FIG. 7.

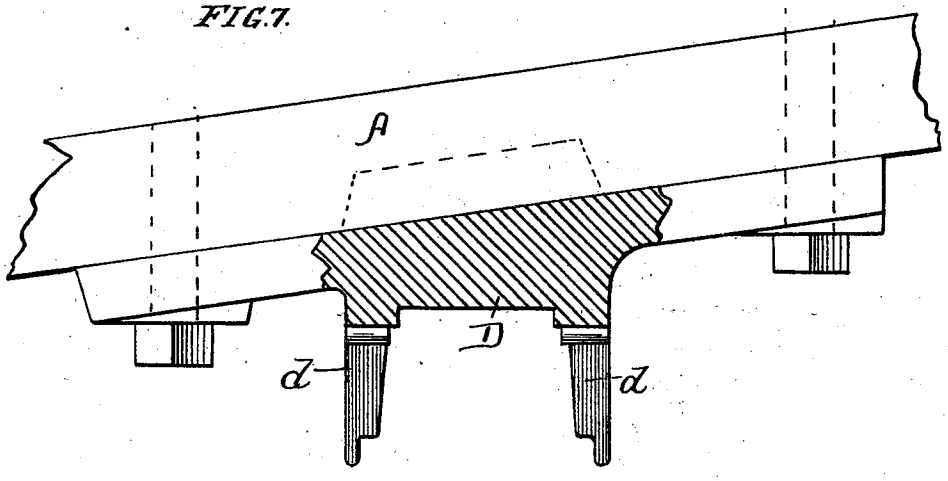
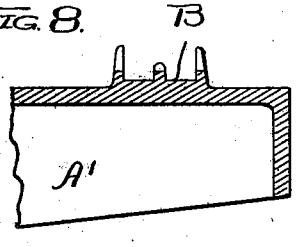


FIG. 8.



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UNITED STATES PATENT OFFICE.

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GRAVITY-ROCKER SIDE BEARING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 668,642, dated February 26, 1901.

Application filed September 1, 1900. Serial No. 28,729. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. HENNESSEY, a citizen of the United States, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Gravity-Rocker Side Bearings for Railway-Cars, of which the following is a specification.

My invention relates to improvements in side bearings for railway-cars, and more particularly to improvements upon the gravity-rocker side bearing heretofore patented to me in Letters Patent of the United States No. 648,986, of April 10, 1900.

My invention consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described and specified in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a car-body and truck-bolster provided with my invention. Fig. 2 is a plan view of the bottom plate and rockers. Fig. 3 is an end view of the bolsters, showing the side bearing in side elevation. Fig. 4 is an enlarged section taken on the curved line 4 4 of Fig. 3 and on the vertical line 4 4 of Fig. 5. Fig. 5 is a vertical section parallel to one of the rockers. Fig. 6 is a detail bottom view of one of the rockers. Fig. 7 shows a modification, and Fig. 8 illustrates a modification.

In the drawings, A represents the body-bolster, and A′ the truck-bolster, of a car.

B is the bottom plate of the side bearing, the same being curved on the arc of a circle, whose center is the king-bolt on which the bolsters turn. The bottom plate B is provided with a shoulder or offset b, fitting in the notched or recessed end a of the truck-bolster and through which the truck-bolster trusses A^2 extend. The bottom plate of the side bearing thus affords a metal face for the truss-rods to bear against, while the truss-rods serve to secure the bottom plate to the truck-bolster. The bottom plate is additionally secured to the truck-bolster by a bolt or screw b'.

D is the top plate of the side bearing, the same reciprocating in respect to the bottom plate and being curved on the same arc as the bottom plate, and F F are a pair of gravity or automatically-returning rockers interposed between the curved top plate D and the curved bottom plate B. The rockers F each have a large curved lower face f and a smaller curved upper face f' for the top and bottom plates to ride and bear against, and the curved bearing-faces of the rockers, instead of being sectors of cylinders, as in my patent No. 646,986, are sectors of cones whose apices are at the center or king-bolt on which the bolsters turn in respect to each other, so that as the rockers rock or ride on the bottom and top plates as the bolsters swing no grinding, twisting, or wrenching strain will be exerted on either the rockers or the top and bottom plates of the side bearings, as is the case with rockers whose faces are arcs of cylinders, owing to their natural tendency to rock or travel in a straight line, while the end of the bolster must necessarily move in a curve. The pair of sector-shaped conical rockers F F thus extend and travel with their axes at an angle to each other or radially of the curved plates B D.

C is a supplemental upper plate, which is preferably bolted to the under side of the body-bolster and against which the top plate D bears.

The bottom plate B is provided with a central strengthening and rocker-guiding rib b^2 and also with lateral or side guide-flanges b^3 at its side edges. These latter, however, preferably only extend for part of the length of the bottom plate at the central portion thereof, as will be readily understood from the drawings. The central guide-rib b^2 is preferably provided with round-top teeth b^5 at intervals. The large lower curved or conical bearing-face f of each of the gravity returning rockers F is provided with a central groove f^2 to fit the central guide-rib b^2 and with rounded recesses f^3 to receive the teeth b^5 on the rib b^2. The bottom plate B is further provided with teeth b^7 on each side of the central guide-rib b^2, and each of the rockers F is provided with corresponding notches or recesses f^{30} to engage said teeth b^7. The groove f^2 in the rocker F should be slightly

deeper than the height of the rib b^2, as indicated in the drawings, so that the rocker will have no rolling contact with the upper face of the rib, and the teeth b^5 on the rib should loosely fit the recesses f^3 in the rocker to give the play necessary to compensate for the difference in radii of the bearing-faces of the rocker and the bottom of the groove f^2 therein.

The top plate D, which reciprocates in respect to the bottom plate B, is furnished with depending guide-flanges $d\,d$ at its side edges, which are provided with wide notches $d'\,d'$ to receive the projecting ends f^4 of the conical curved upper faces f' of the rockers F and with round central bosses or projections d^2 to fit in concave recesses f^5, formed in the curved faces f' of the rockers at the ends thereof. By this means the top and bottom plates are given a greater range or limit of travel in respect to each other, as the small upper face of the rocker may roll on or in respect to the top plate, while the large lower face thereof rolls on or in respect to the bottom plate. The top plate D is further provided with a steel bearing-face d^5, recessed or dovetailed therein to take the wear of the rocker and increase the durability of the side bearing. The top plate D is further provided at its side edges with depending guide-flanges $d^3\,d^3$, which engage the guide-flanges $b^3\,b^3$ on the bottom plate. The guide-flanges $d^3\,d^3$ preferably fit outside the guide-flanges $b^3\,b^3$. The meeting or overlapping flanges $d^3\,d^3$ are together greater in depth or length vertically than the height of the rockers, as will be readily understood from Figs. 3, 4, and 5 of the drawings. The bottom plate B is also preferably provided with a central transvere flange b^4, which connects and strengthens the side flanges $b^3\,b^3$ and also serves as a stop for the rockers to limit their movement. The top plate D is or may be also provided with a central boss or projection d^4, fitting in a corresponding recess c in the upper face-plate C.

As shown in the modification, Fig 7, the top plate D is indicated as being made integral with the plate C, which is attached to the body-bolster—that is to say, as being bolted directly to the bolster.

The bottom plate B is preferably provided with a wearing plate or strip b^8, inserted in the path of the rockers to take the wear thereof on each side of the central guide-rib b^2. The central guide-rib b^2 may preferably be made integral with this wearing-plate of steel, as may also be the teeth b^5.

In the drawings I have illustrated my invention as applied to a car having a metal body-bolster and a wooden truck-bolster; but it will be readily understood by those skilled in the art, however, that my invention is equally applicable to cars having both truck and body bolsters of wood or of metal. In applying my invention to cars having metal bolsters the bottom plate of my side bearing is preferably made in a separate piece from the metal bolster, especially if the lower or truck bolster is of wrought or rolled metal; but, if desired, the bottom plate of the side bearing may be made integral with the truck-bolster if of metal, especially of cast metal.

In the modification, Fig. 8, I have indicated the bottom plate B of my side bearing as being made integral with a cast-metal truck-bolster.

I claim—

1. In a side bearing for railway-cars, the combination with a curved bottom plate and a curved top plate, of a pair of interposed gravity returning rockers extending at an angle to each other or radially of said curved plates having large lower bearing-faces and small upper bearing-faces of conical or tapering form, substantially as specified.

2. In a side bearing, the combination with a bottom plate furnished with a central guide-rib provided with teeth, and having teeth on each side of said guide-rib, of a top plate and a pair of interposed rockers each provided with a central groove to receive said rib and with recesses in said groove to receive said teeth on said rib, and having recesses on either side of said groove to receive the teeth on the bottom plate aside said central rib thereon, substantially as specified.

3. In a side bearing, the combination with a bottom plate furnished with a central guide-rib provided with teeth, a top plate, and a pair of interposed rockers furnished each with a central groove and with recesses to receive the teeth on said rib of the bottom plate, substantially as specified.

4. In a side bearing, the combination with the bottom plate and top plate, of a pair of interposed rockers, said bottom plate having a central guide-rib and provided with teeth at each side thereof, and said rockers having a central groove and being provided with recesses on each side thereof to engage the teeth on the bottom plate, substantially as specified.

5. In a side bearing, the combination with a bottom plate and a top plate, of a pair of interposed gravity returning rockers having upper and lower curved bearing-faces of conical or tapering form, said top plate having side flanges $d^3\,d^3$ furnished with wide notches $d'\,d'$, and with curved bosses or projections $d^2\,d^2$, and said rockers having recesses $f^5\,f^5$ at the ends of their upper bearing-faces, substantially as specified.

6. In a side bearing, the combination with a bottom plate having a flange or shoulder b adapted to fit against the ends of the bolster and to receive the truss-rod, a top plate and a pair of interposed rockers, substantially as specified.

7. In a side bearing, the combination with a bottom plate secured to the truck-bolster and a top plate, of a pair of interposed rockers, having small upper and large lower curved bearing-faces, said top plate having a boss or projection on its upper face engaging the body-bolster or the plate secured thereto

to cause the same to move with said body-bolster or the plate secured thereto, substantially as specified.

8. In a side bearing, the combination with a bottom plate, of a top plate, interposed rockers having small upper and large lower curved bearing-faces, a body-bolster, and means for causing the top plate to move with the bolster, substantially as specified.

9. In a side bearing, the combination with the bottom plate, of a top plate, a pair of interposed sector-shaped rockers having upper and lower curved bearing-faces, the top plate having a boss or projection d^4 on its upper face, and a body-bolster face-plate C having a recess c to receive said boss on the top plate, substantially as specified.

10. The combination with a body-bolster and truck-bolster, of truss-rods for the truck-bolster, a bottom side-bearing plate having a flange or shoulder abutting against the ends of the truck-bolster and through which the truss-rods extend, a top plate, and a pair of interposed rockers, substantially as specified.

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