

No. 696,286.

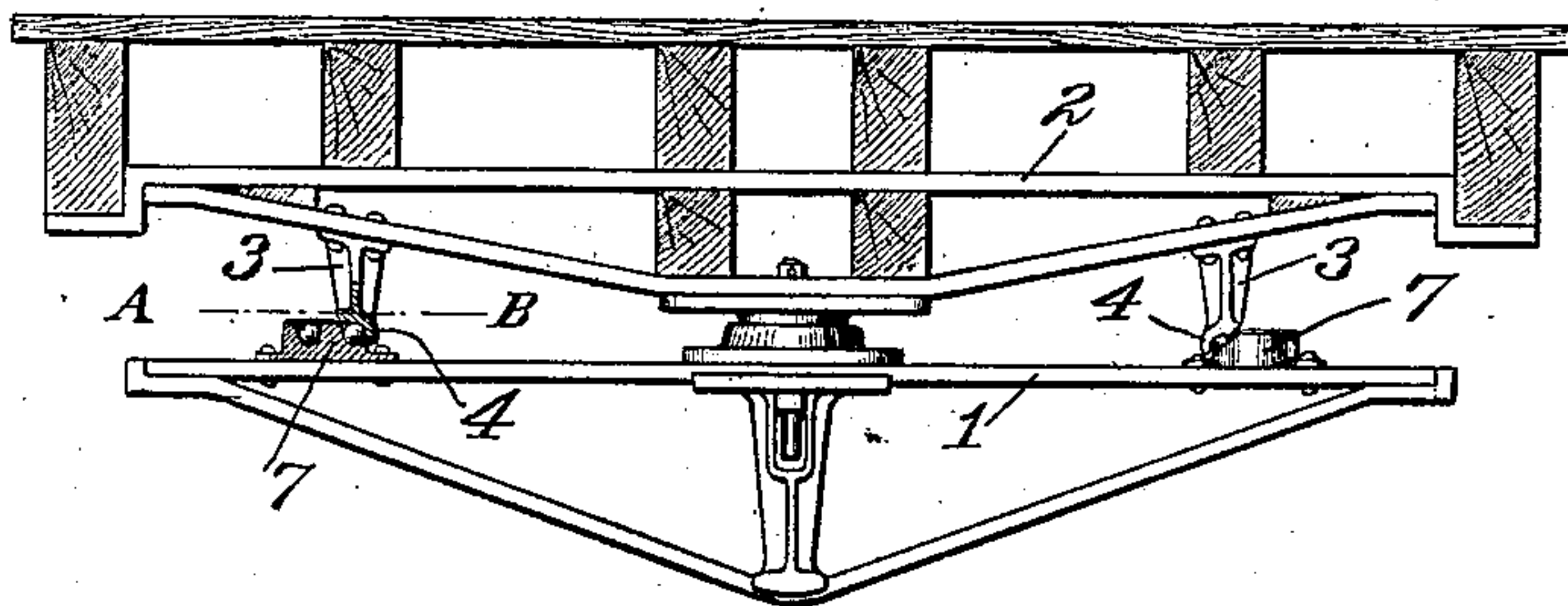
Patented Mar. 25, 1902.

J. C. WANDS & F. R. CORNWALL.  
SIDE BEARING FOR RAILWAY CARS.

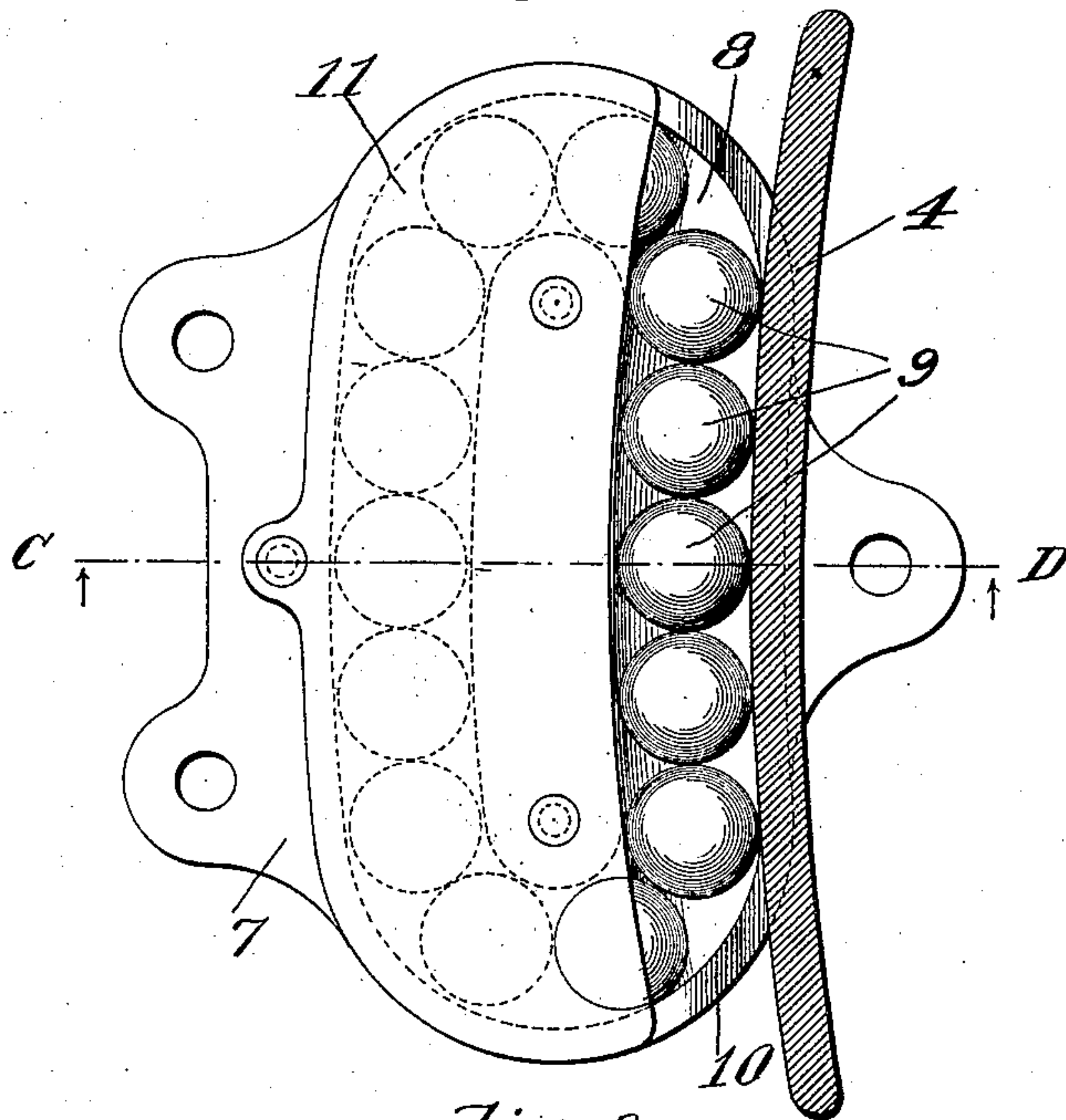
(Application filed Nov. 19, 1901.)

(No Model.)

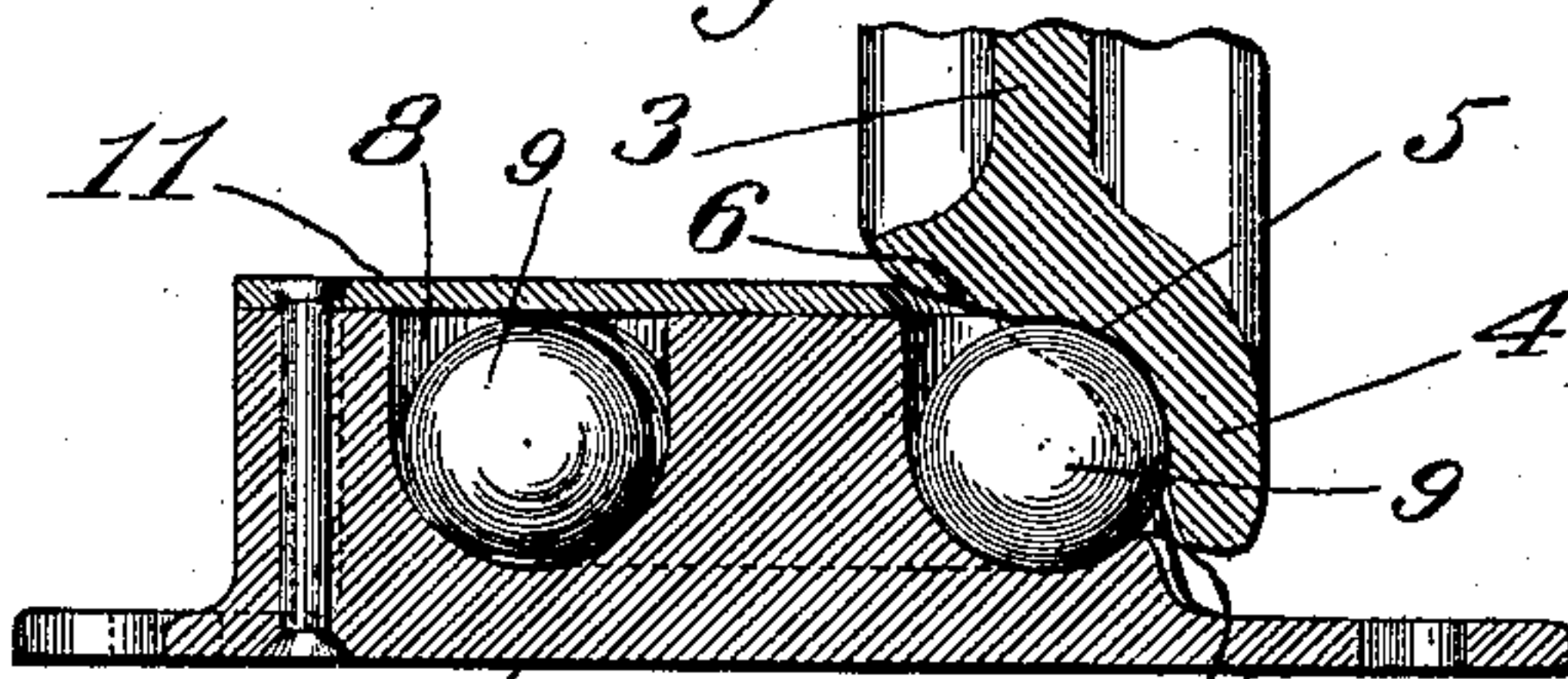
*Fig. 1.*



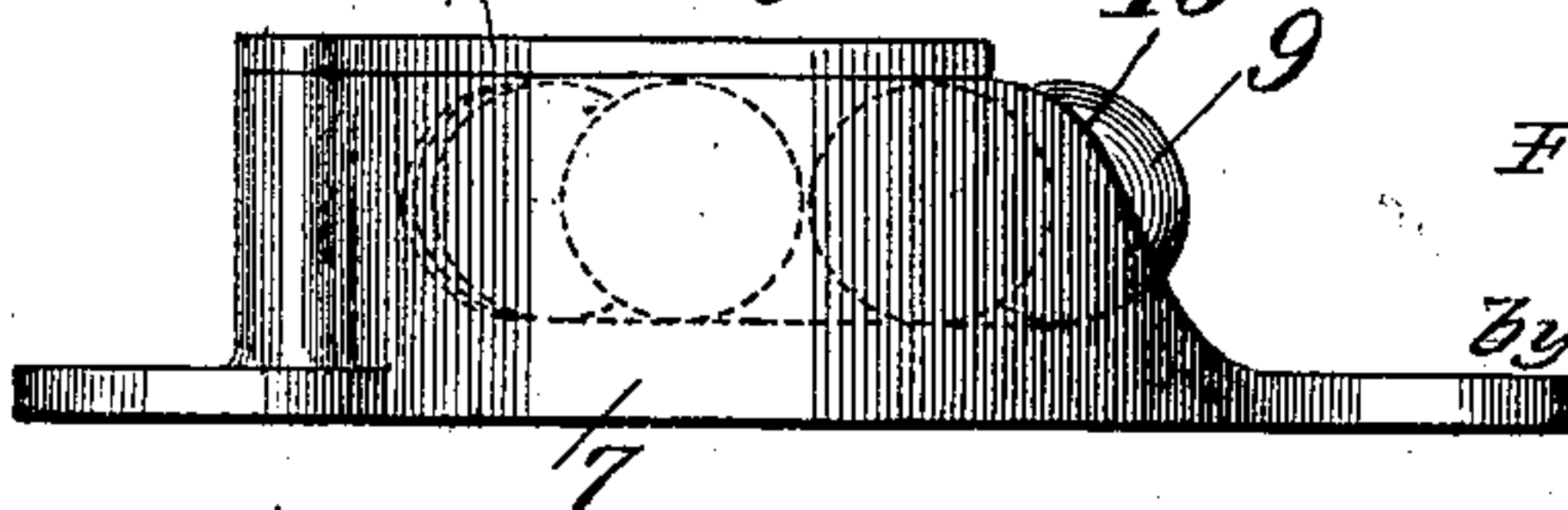
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

JOHN C. WANDS AND FREDERICK R. CORNWALL, OF ST. LOUIS, MISSOURI;  
SAID CORNWALL ASSIGNOR OF HIS RIGHT TO CHICAGO RAILWAY  
EQUIPMENT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF  
ILLINOIS.

## SIDE BEARING FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 696,286, dated March 25, 1902.

Application filed November 19, 1901. Serial No. 82,904. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN C. WANDS and FREDERICK R. CORNWALL, citizens of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Side Bearings for Railway-Cars, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view of our improved side bearing, showing the same in position on a truck-bolster. Fig. 2 is a top plan view of same on line *a b*, Fig. 1. Fig. 3 is a vertical sectional view on line *c d*, Fig. 2; and Fig. 4 is a side elevational view.

This invention relates to a new and useful improvement in side bearings for railway-cars, the object being to construct the bearing in a cheap and simple manner, so that it can be easily applied and when in position it will provide an efficient antifriction device for carrying loads which may be placed upon it and at the same time take up lateral thrusts due to lurching of the car.

With these objects in view the invention consists in the construction, arrangement, and combination of the several parts, all as will hereinafter be described, and afterward pointed out in the claims.

In the drawings, 1 indicates the truck-bolster, and 2 the body-bolster, such parts being of usual construction.

3 indicates the bearing-blocks, secured to the body-bolster, said bearing-blocks being concentric to the king-pin of the truck and each having a downwardly-extending flange 4 at its inner edge. (See Fig. 3.) The lower bearing-faces of these bearing-blocks form flat treads 5, beyond which are inclined or coned portions 6. These "body-bearings," as they might be called, have features common to a flanged wheel in that there is a flange and a tread, partially flat and partially coned, on each block. The flat portions of the tread are comparatively narrow and join the throat, so as to provide an extended seat for the balls

and enable the body-bearing to cooperate with the balls by transmitting the load thereto in vertical direction, (through the flat tread,) the angular and lateral thrusts being imparted through the throat and depending flange.

7 indicates a casting, preferably made of malleable iron, which casting is provided with attaching-lugs, whereby the same may be secured in position on the truck-bolster. This casting has a continuous groove or way 8 in its upper face forming an endless ball-race in which are arranged balls 9. These balls 9 are of such size with respect to their way that they completely fill said way, as shown, forming an endless row or chain of balls. We prefer that the bottom of this way be on a horizontal plane, so as to enable the balls to roll around in the way with the least possible friction. One of the outer walls of the groove or way is cut away, as indicated at 10, for the purpose of enabling the body-bearing to cooperate with the balls in one side of the way. In order to hold the balls in position in the other side of the way and at the same time prevent the entrance of dirt and dust into the way, we employ a covering-plate 11, which is preferably riveted in position.

In operation the bearings are arranged as shown in Fig. 1, wherein it will be seen that the body-bearings cooperate with the inner rows of balls, the depending flanges of the body-bearings serving to hold said balls in their respective ways and at the same time preventing side lurching of the car-body. The treads of the body-bearings rest upon the tops of the exposed balls, those balls in service, which may be designated as the "burden-carrying" balls, being located under the flat portions of said treads. When the truck swings on its pivot, it will be obvious that the body-bearings will displace the exposed row of balls, causing said balls to travel in their respective ways, and as the advancing balls are housed they force through the endless way the other balls to move into position at the rear end of the exposed portion of the way. The balls that enter and leave the exposed portion of the way practically carry no



burden during that portion of their travel that they are under the inclined portion 6 of the body-bearing block. Said inclined portion, however, will gradually apply and gradually relieve the balls from burden which enter under the flat bearing-face or leave said flat bearing-face. It will be noted that the cut-away portion 10 is such as to provide sufficient clearance for the action of the body-bearing, and therefore the curved end walls of the way serve as guides to skim the advancing balls from under the flat portion of the tread and force them into the housing. In service the endless row of balls will enable the frequent substitution of balls in the exposed way, and consequently the life of the bearing will be thereby considerably enhanced.

We are aware that many minor changes in the construction, arrangement, and combination of the several parts of our device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of our invention.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a side bearing for cars, the combination with an endless row of balls traveling in a horizontal plane, and a body-bearing directly cooperating with said balls and holding them in place; substantially as described.

2. In a side bearing for cars, the combination with a horizontal ball-race, of an endless row of balls located therein, and a body-bearing directly cooperating with the balls at one side of said way and holding them in place; substantially as described.

3. In a side bearing for cars, the combination with an endless row of balls all of which travel in the same plane, and a body-bearing having vertical and lateral contact therewith; substantially as described.

4. In a side bearing for cars, the combination with an endless row of balls, and a body-bearing having lateral contact therewith; substantially as described.

5. In a side bearing for cars, the combination with an endless row of balls, and a body-bearing having lateral and vertical contact with balls at one side of said endless row; substantially as described.

6. In a side bearing for cars, the combination with an antifriction device of spherical form, and a body-bearing having a depending flange and flat tread portion for cooperating with said spherical antifriction device; substantially as described.

7. In a side bearing for cars, the combination with an endless row of balls, and a body-bearing having a throat cooperating with the balls at one side of said endless row; substantially as described.

8. In a side bearing for cars, the combination with an antifriction device, and a body-bearing having a flange, a throat portion, a

flat tread and a coned tread for cooperating with the antifriction device; substantially as described.

9. In a side bearing for cars, the combination with an endless row of balls, and a body-bearing having a depending flange, a throat and tread for cooperating with said balls; substantially as described.

10. In a side bearing for cars, the combination with a casing formed with an endless groove, the side wall of said casing being removed opposite a portion of said groove, of an endless row of balls in said groove, which are exposed at that portion of the groove where the side wall of the casing is removed, the end walls of said casing serving as skimming devices for displacing the balls and forcing them to follow the groove; substantially as described.

11. In a side bearing for cars, the combination with a casing formed with a continuous groove, the side wall of said casing being removed opposite a portion of said groove, of an endless row of balls located in said groove, and a body-bearing cooperating with the balls in the exposed portion of the groove; substantially as described.

12. In a side bearing for cars, the combination with an endless row of balls, of a body-bearing having vertical and lateral engagement with a series of exposed balls at one side of said row, and skimmers at each end of said series of exposed balls; substantially as described.

13. In a side bearing for cars, the combination with an endless row of balls, a housing therefor, and a body-bearing having lateral contact with the balls at one side of said housing; substantially as described.

14. In a side bearing for cars, the combination with an endless row of balls, a housing therefor having one of its side walls cut away so as to expose the balls, the end walls of said housing serving as skimmers to displace the balls, and a body-bearing cooperating with the exposed balls; substantially as described.

15. In a side bearing for cars, the combination with a casting provided with a groove forming an endless ball-race, one side wall of said casting being cut away, and a body-bearing provided with a depending flange and a throat portion for cooperating with the exposed balls; substantially as described.

16. In a side bearing for cars, the combination with a body-bolster, of flanged bearing-blocks arranged thereon, a truck-bolster, and bearings on said truck-bolster cooperating with the flanged bearing-blocks on the body-bolster, said bearings on the truck-bolster consisting of casings in which are located antifriction devices cooperating with the vertical walls of said casings and the vertical faces of the flanges of the bearing-blocks on the body-bolster, whereby, through the medium of said vertical faces coacting with the antifriction devices, the lateral thrust is taken care of; substantially as described.



17. In a side bearing for cars, the combination with a body-bolster having flanged bearing-blocks, of a truck-bolster, supporting-ways on said truck-bolster, and an endless row of antifriction devices coöperating with the flanged bearing-blocks on the body-bolster; substantially as described.

18. In a side bearing for cars, the combination with a body-bolster provided with bearing-blocks having coned treads and flanges on their inner edges, of a truck-bolster having housings forming continuous ball-races, and an endless row of balls in said races which coöperate with the flanges and treads of the bearing-blocks on the body-bolster; substantially as described.

19. In a side bearing for cars, the combination with a casting formed with a continuous way, of balls in said way, one wall of said way being cut away to expose the balls, a flanged bearing-block coöperating with the exposed balls, and a covering-plate for housing the balls not in service; substantially as described.

In testimony whereof we hereunto affix our signatures, in the presence of two witnesses, this 15th day of November, 1901.

JOHN C. WANDS.

FREDERICK R. CORNWALL.

Witnesses:

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