No. 871,200. PATENTED NOV. 19, 1907.

J. C. BARBER.

ANTIFRICTION LATERAL MOTION CENTER BEARING.

APPLICATION FILED JULY 26, 1906.

Fig. 1.

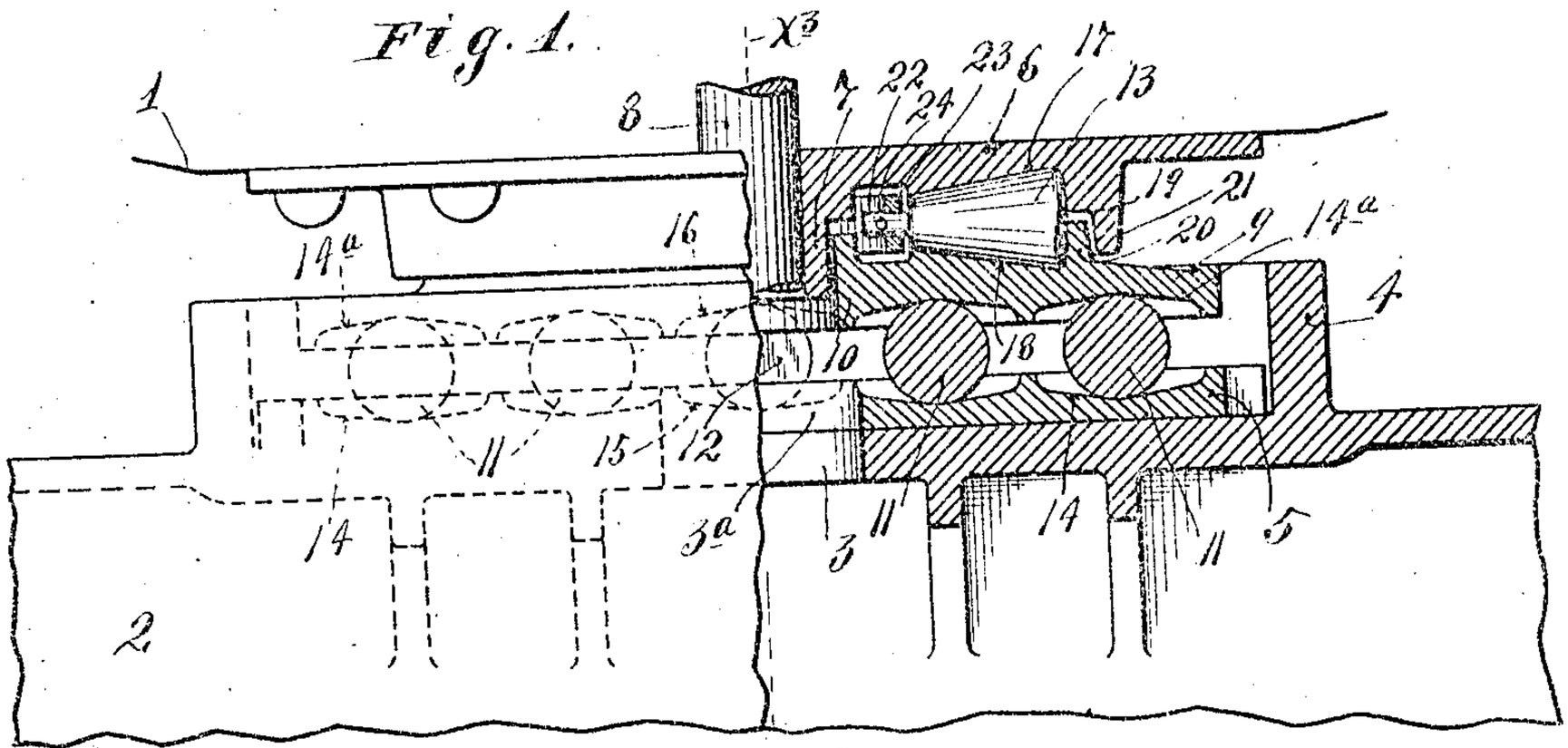


Fig. 2.

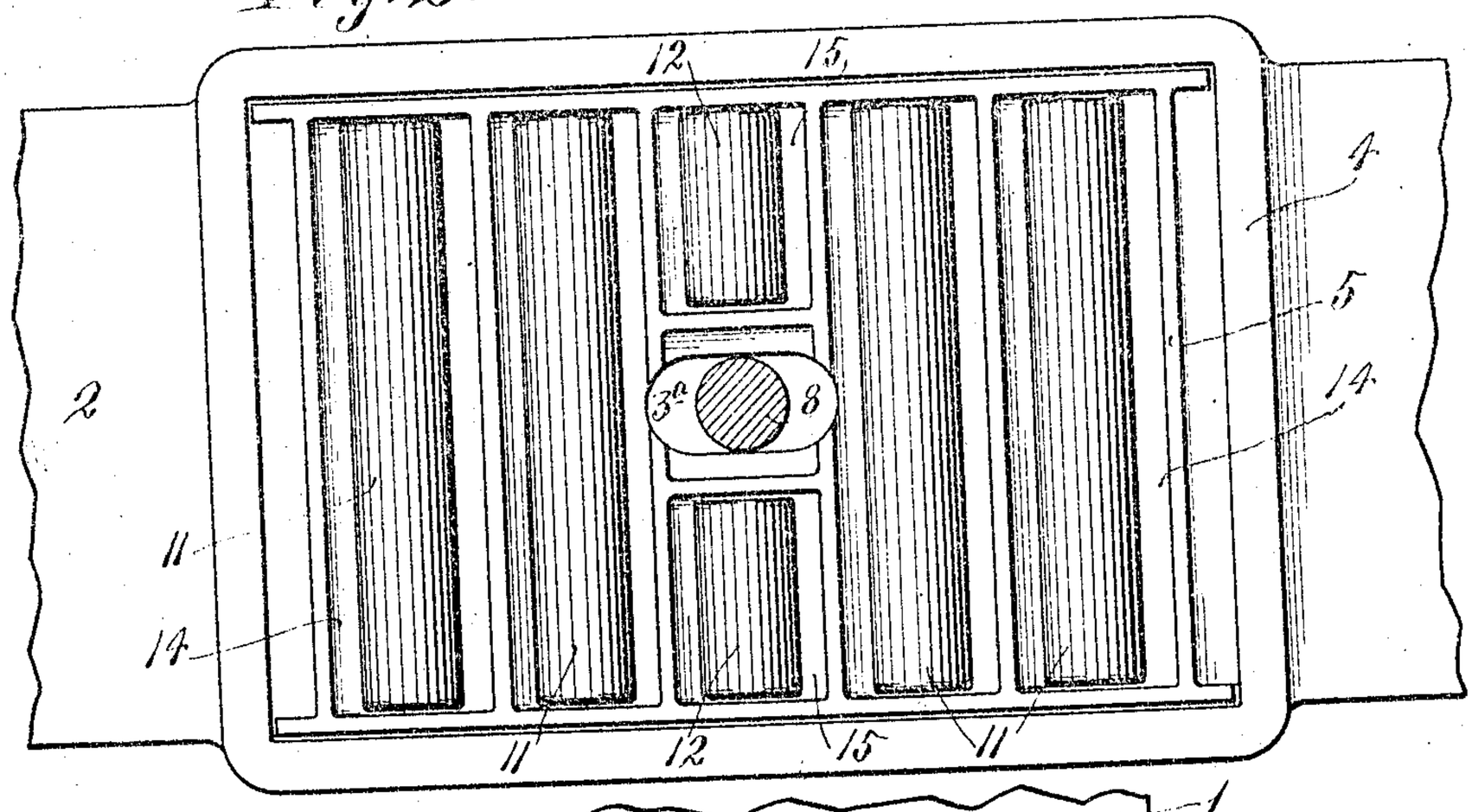
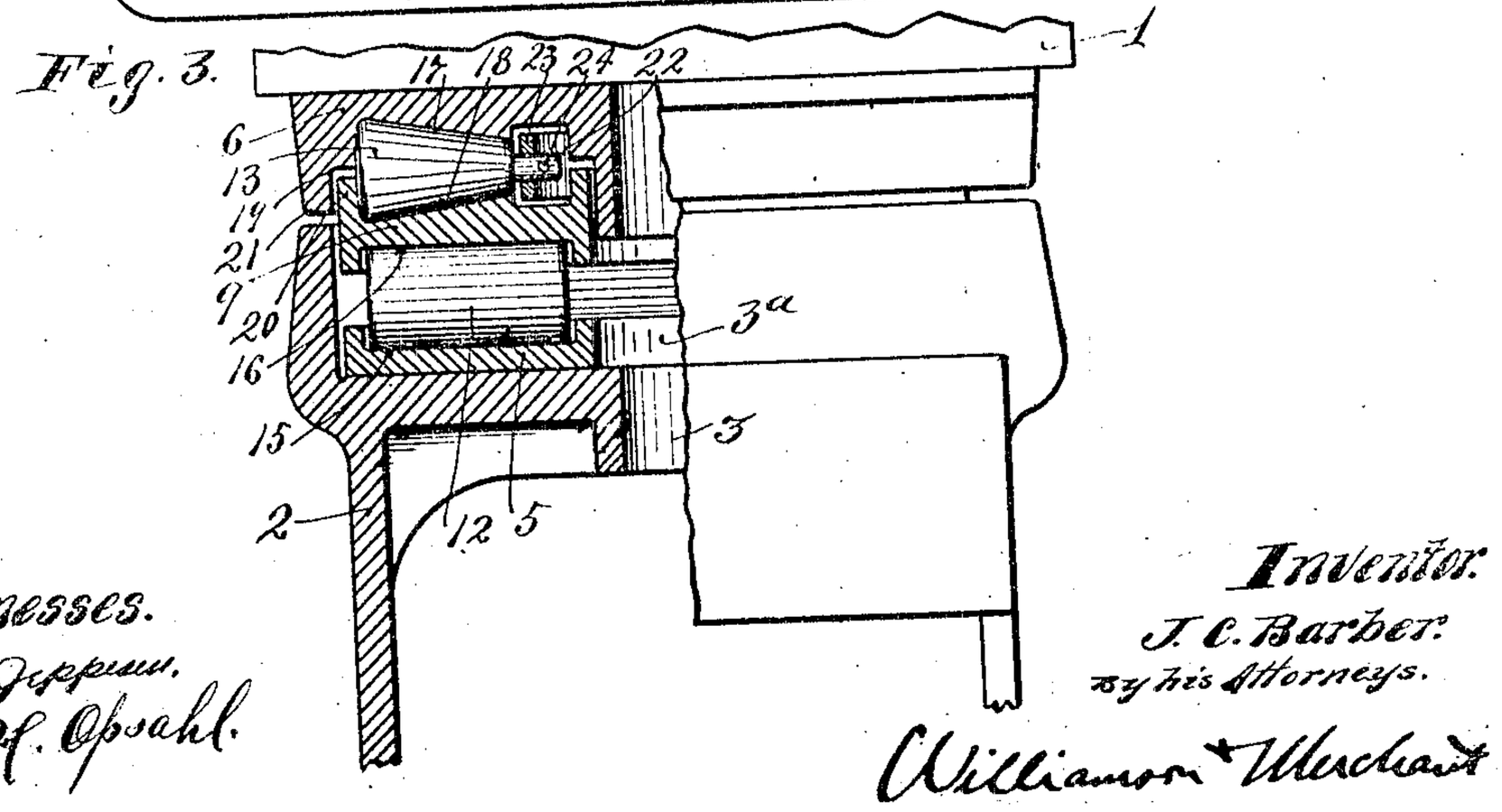


Fig. 3.



Witnesses.
E. W. Jeppesen.
A. H. Opsahl.

Inventor.
J. C. Barber.
By his Attorneys.
Williamson & Merchant

UNITED STATES PATENT OFFICE.

JOHN C. BARBER, OF CHICAGO, ILLINOIS.

ANTIFRICTION LATERAL-MOTION CENTER-BEARING.

No. 871,200. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed July 26, 1906. Serial No. 327,936.

To all whom it may concern:

Be it known that I, JOHN C. BARBER, 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 Antifriction Lateral-Motion Center-Bearings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention has for its object to provide a simple and efficient anti-friction lateral motion center bearing for railway cars, and the like, and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views.

Referring to the drawings:—Figure 1 is a view partly in side elevation and partly in vertical section showing the improved lateral motion center bearing applied to connect the body bolster of a car into a truck bolster, some parts being broken away. Fig. 2 is a plan view showing the truck bolster and the lower bearing member of the lateral motion device, some parts being broken away and some parts being in section, and Fig. 3 is a view partly in end elevation and partly in vertical section on the line x^3 x^3 of Fig. 1, some parts being broken away.

The numeral 1 indicates the body bolster of a car, and the numeral 2 indicates the truck bolster, which latter, as shown, is in the form of a channel shaped casting of steel or malleable iron, but which may be otherwise constructed. At its central portion the truck bolster 2 has an elongated slot 3 which is approximately at the center of a raised rectangular flange 4 shown as cast integral with the said bolster 2, and which flange and the central portion of the top of said bolster afford an open seat that is adapted to receive a rectangular plate 5 that constitutes the lower bearing member of the lateral motion device. This bearing member 5, which is preferably a steel casting, is at its central portion formed with an elongated slot 3^a that registers with the slot 3 before noted.

The upper center bearing member 6 is directly secured to the body bolster 1, and is preferably also in the form of a steel or malleable iron casting. At its center this upper bearing member 6 is provided with a depending sleeve 7 that affords a seat for the center bearing pintle 8 and which pintle projects downward through the coincident slots 3 and 3^a.

Interposed between the above noted bearing members 5 and 6 is an intermediate bearing plate or member 9 that constitutes the upper bearing member of the lateral motion device and the lower bearing member of the center bearing proper. This intermediate bearing plate 9 is provided with a centrally located sleeve portion 10 into which the depending sleeve 7 of the upper bearing member 6 is telescoped, and in which it works pivotally.

Anti-friction bearing devices are interposed between the lower bearing member 5 and the intermediate bearing member 9, and also between said intermediate bearing member 9 and the upper bearing member 6. These anti-friction devices in the first instance are in the form of cylindrical rollers 11 and 12, and in the second instance they are in the form of conical rollers 13. The bearing rollers 11 are disposed in pairs on opposite sides of the pivotal axis of the center bearing, and are arranged to work in bearing seats 14 and 14^a formed respectively in the upper surface of the lower bearing member 5 and in the lower surface of the intermediate bearing member 9. The bearing rollers 12 are relatively short as compared with the rollers 11, and they are located parallel thereto in axial alinement with each other, one in the front and one in the rear of the pivotal axis of the center bearing. Otherwise stated, the axes of the said short rollers when in normal or intermediate positions, intersect the axis of the pintle 8 at an angle of 90 degrees, and under movements of the two bolsters transversely of the truck, said rollers 12 move slightly from one side to the other of the position just stated. These short rollers 12 work in correspondingly short seats 15 and 16 formed respectively in the central portions of the upper surface of the lower bearing member 5 and in the under surface of the intermediate bearing member 9. The roller bearing seats

14, 14ª, 15 and 16 are concaved longitudinally of the truck bolsters so as to permit a lateral movement of the intermediate bearing member 9, upper bearing member 6 and body bolster 1 transversely of the truck, or otherwise stated longitudinally of the truck bolster 2.

In the best form of the device the so-called concave bearing surfaces of the roller seats are formed on inclined straight lines in reverse directions from the center portion of the seats. The side walls of the pocket formed by the bolster flange 4, guide the intermediate or traveling bearing member 9 for straight line movements transversely of the truck, and the end walls of said pocket or flange engage the ends of said bearing member 9 and limit its traveling movement. As is evident, it is necessary to place the inner members of the long rollers 11 at a very considerable distance apart in order to permit the clearance for the pintle 8 under longitudinal movements of the bolsters with respect to each other transversely of the truck. By placing the longitudinally spaced axially alined short rollers 12 between the innermost long rollers 11, the center bearing device is much more firmly supported, and the bearing members 5 and 9 are much less liable to be broken under the weight of heavy loads.

The conical bearing rollers 13 are radially disposed with respect to the axis of the center bearing, or in other words, with respect to the axis of the pintle 8, and they move on the annular bearing surfaces 17 and 18 respectively on the under surface of the upper bearing member 6 and on the upper surface of the intermediate bearing member 9. The said bearing surfaces 17 and 18 are of such conical form that they properly engage the interposed conical rollers 13 from end to end. Surrounding the annular bearing surface 17, the upper bearing member 6 is formed with a depending annular shoulder 19 against which the large outer ends of the rollers 13 engage, and surrounding the annular bearing 18, the intermediate bearing member 9 is formed with an annular stop shoulder or flange 20, with which the large outer ends of the said conical rollers engage. Also as shown, the upper bearing member 6 is formed with a depending annular flange 21 that surrounds the stop flange or shoulder 20 of the said bearing member 9.

The conical bearing rollers 13, as shown, are coupled together and spaced apart by a novel device disclosed and claimed in my pending application, S. N. 321,153, filed June 11th, 1906, entitled "Anti-friction center bearing for cars". This spacing and coupling device may therefore in this application be briefly noted as follows: The said conical rollers 13 at their inner ends are, as shown, provided with trunnions 22 that project through a coupling ring 23, which ring is supported by the said trunnions, and works freely in annular recesses formed in the bearing members 6 and 9. Pins 24 pass through the inner-guarding projecting ends of the trunnions 22 holding the said rollers coupled to said ring 23, when the said rollers and ring are removed from a working position.

A lateral motion center bearing of the character above described permits the desired lateral movement of the car body with respect to the trucks, or vice versa, and it makes it unnecessary to mount the truck bolster for transverse movements with respect to the truck frame. In fact, with this arrangement the truck bolster may be rigidly secured to the truck frame, but preferably and usually it would be spring mounted for vertical movements on the truck frame but would be held against endwise movements transversely thereof.

What I claim is:—

1. In a lateral motion center bearing, the combination with upper, lower and intermediate bearing members, said upper and intermediate bearing members having a pivotal movement with respect to each other, and said intermediate and lower bearing members having a traveling movement transversely of the truck, of relatively long and short bearing rollers interposed between said intermediate and lower bearing members, said relatively short rollers being located one in front and the other in the rear of the pivotal axis of the center bearing, substantially as described.

2. In a lateral motion center bearing, the combination with upper, lower and intermediate bearing members, said upper and intermediate bearing members having a pivotal movement with respect to each other, and said intermediate and lower members having a traveling movement with respect to each other transversely of the truck, of relatively long and short bearing rollers interposed between said intermediate and lower bearing members and engaging concaved seats therein, said long bearing rollers being arranged on opposite sides of the pivotal axis of the center bearing, and said short rollers being located one in front and the other in the rear of the pivotal axis of said center bearing, substantially as described.

3. In a lateral motion center bearing, the combination with upper, lower and intermediate bearing members and a pintle passed therethrough, said upper and intermediate bearing members having a pivotal movement with respect to each other, and said intermediate and lower bearing members having a traveling movement with respect to each other transversely of the truck, of relatively long and short bearing rollers inter-

posed between said intermediate and lower bearing members and engaging concaved seats therein, said long bearing rollers being arranged on opposite sides of the said pintle, and said short rollers being located one in front and the other in the rear of said pintle, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN C. BARBER.

Witnesses:
E. W. WEBB,
LEE W. BARBER.