No. 869,685 PATENTED OCT. 29, 1907.

J. C. BARBER.

ANTIFRICTION CENTER BEARING FOR CARS.

APPLICATION FILED JUNE 11, 1906.

Fig. 1.

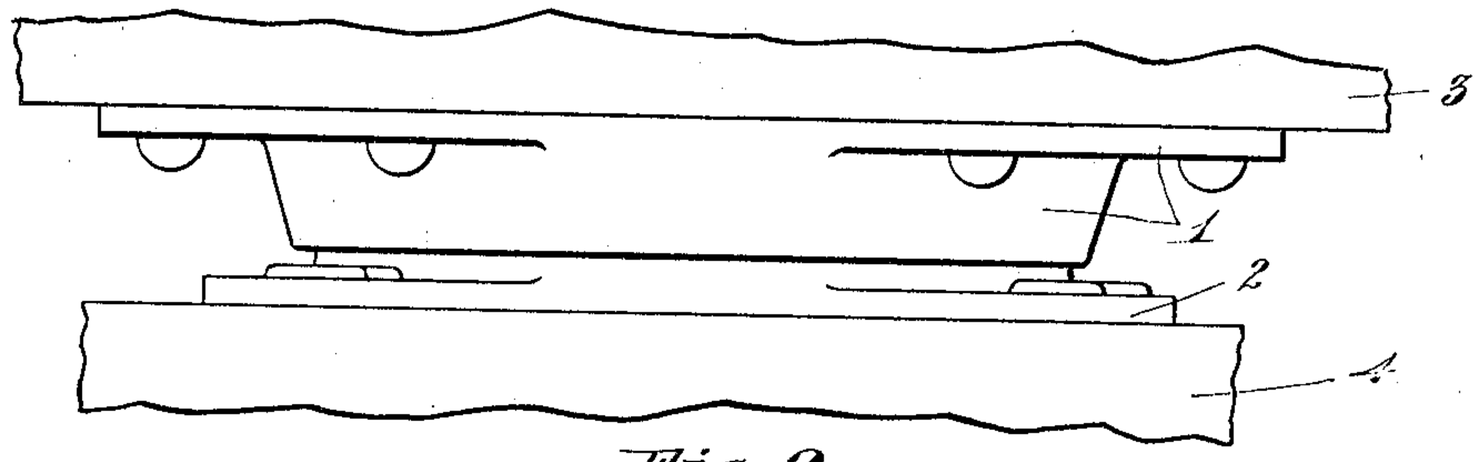


Fig. 2.

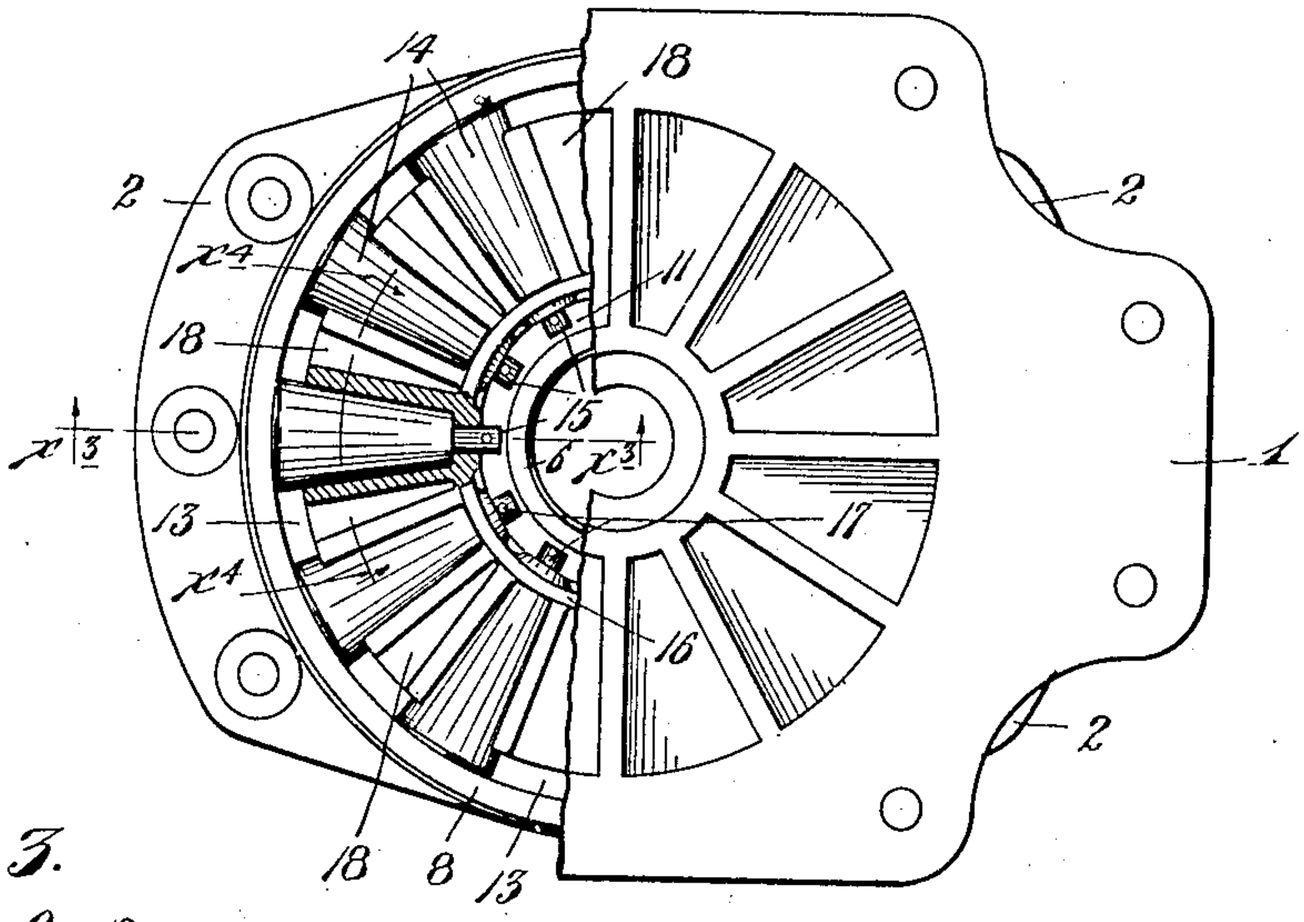


Fig. 3.

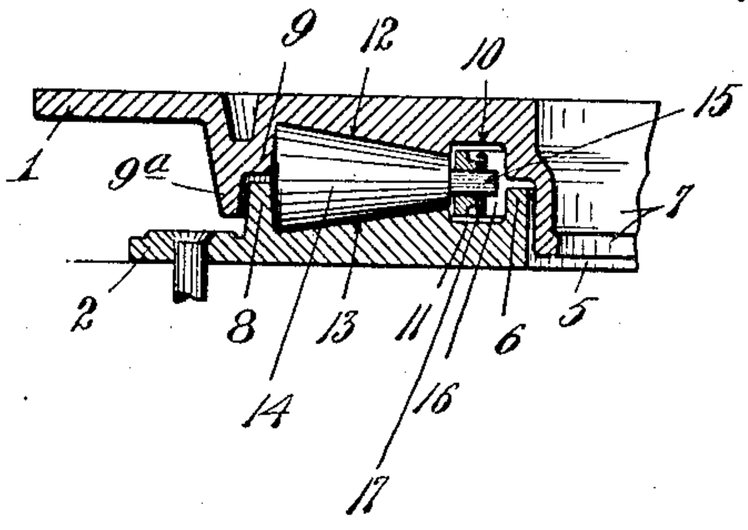
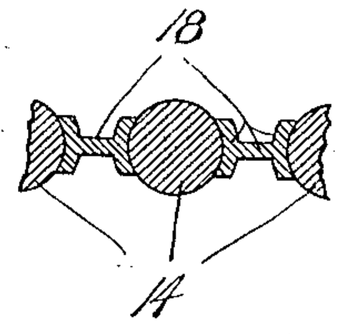


Fig. 4.



Witnesses.
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ANTIFRICTION CENTER-BEARING FOR CARS.

No. 869,685. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed June 11, 1906. Serial No. 321,153.

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 Center-Bearings for Cars; 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 especial object to provide an improved antifriction center bearing for cars, 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 in front elevation showing the improved center bearing. Fig. 2 is a plan view of the center bearing, with some parts broken away and with some parts sectioned. Fig. 3 is a vertical section taken on the line x^3 x^3 of Fig. 2, some parts being shown in full; and Fig. 4 is a vertical section taken on the line x^4-x^4 of Fig. 2.

The numeral 1 indicates the upper member and 2 the lower member of the center bearing, the former being bolted or otherwise secured to the body bolster 3 of the car, and the latter being bolted or otherwise secured to the truck bolster 4; which bolsters are shown in part in Fig. 1. The lower member 2 is formed with a central perforation 5 having, as shown, a surrounding upwardly projecting annular flange 6; and the upper member 1 is provided with a centrally located depending sleeve or hub portion 7 that depends into and works loosely within the said perforation 5. Said lower bearing member 2 is also formed with an upwardly projecting annular flange 8 that extends concentrically with the flange 6, but is located a very considerable distance outward therefrom. Said upper bearing member 1 is also formed with a depending annular stop shoulder or rib 9 that directly overlies said flange 8; and said shoulder 9 is provided with an outwardly offset depending flange 9^a that overlaps and surrounds said flange 8, as best shown in Fig. 3. The upper bearing member 1 just outward of its sleeve or hub 7 is, as shown, formed with a clearance channel 10, and the lower bearing member 2 just outward of its inner flange 6 is formed with a similar clearance channel 11. The upper bearing member 1, between its stop shoulder 9 and clearance channel 10, is formed with a conical roller bearing surface or tread 12 that converges downwardly toward the axis of the hub 7; and the lower bearing member 2, between its outer stop flange 8 and clearance channel 11, is formed with a conical roller bearing surface or tread 13 that converges upward toward the axis of the perforation 5 of the hub 7.

Truncated conical bearing rollers 14 are interposed between the conical bearing surfaces 12 and 13 of the bearing members 1 and 2. These bearing rollers are radially disposed with respect to the axis of the hub 7, and they are of such a taper that they closely fit the said conical bearing surfaces. The stop shoulder 9 of the bearing member 1 and the stop flange 8 of the bearing member 2 engage the outer ends of the rollers 14, and resist the thrust put upon the rollers by the weight of the load and due to the outward divergency of the said rollers and of the two bearing surfaces 12 and 13 with respect to each other. At their inner ends the bearing rollers 14 are provided with inwardly projecting trunnions 15 that project through and are loosely journaled in a retaining ring 16 that works loosely within the clearance grooves 10 and 11 of the members 1 and 2. Pins or cotters 17 are passed through perforations in the inner ends of the trunnions 15, and serve to hold the rollers connected to the said ring 16 when the bearing members are separated.

The retaining ring 16, between the adjacent rollers, is formed with radially-projecting outwardly-flaring spacing arms 18, which in cross section are double concave. Otherwise stated, the spacing arms 18, at each vertical face, have concave surfaces that fit the adjacent conical rollers, so that the said rollers are held in true radial disposition with respect to each other, and are evenly spaced but are permitted to freely rotate. The spacing arms therefore afford outwardly diverging conical sockets in which the rollers are loosely journaled. The said arms do not, however, extend either to the bottoms or tops of said rollers, but on the contrary, terminate short thereof so that the said rollers are brought into unrestricted engagement with the opposing conical bearing surfaces 12 and 13 of the two bearing members.

By the above described arrangement of the retaining ring and spacing arms the rollers are not only properly spaced and kept out of contact with each other under oscillatory movements of the bearing members with respect to each other, but the said rollers throughout their traveling movements are held always in true radial line with the common axis of the two conical bearing surfaces 12 and 13. When the bearing members are separated, the retaining ring, together with all the rollers, may be removed therefrom without changing the relative positions of the said ring and rollers. This makes it an easy matter to take apart and put together the center bearing. Furthermore, it prevents

displacement of the rollers when the car-body is jacked up, or when the bearing members 1 and 2 are separated by accident, as when cars are derailed. It will be understood that the ring 16 constitutes a retainer for the rollers, and that said ring is interlocked with the said rollers in such manner that the rollers will not be accidentally separated therefrom, even when the ring and the rollers are removed from between the upper and lower bearing members. This feature is very important because it prevents the rollers from being displaced or lost when the upper and lower center bearing members are separated, and the rollers are removed therefrom. By providing the conical rollers at their small inner ends with trunnions that are journaled to but interlocked with the retaining ring located inward of said rollers, the rounded outer and large ends of said rollers are left free for engagement with the thrust surfaces of the flanges 8 and 9 of the lower and upper bearing members, respectively. The retaining ring 16 with its spacing arms 18 constitutes a spider for holding the rollers spaced apart and for holding the rollers together when the latter are removed from the center bearing or when the upper and lower members of the center bearing are separated; but the said retaining ring, without regard to the said spacing arms, constitutes a roller retaining device to which the trunnions of the said conical rollers are interlocked but in which said trunnions are journaled. Furthermore, the center bearing above described is of comparatively small cost, and is in all respects highly efficient for the purposes had in view.

I claim as my invention:

1. In a center bearing for cars, the combination with lower and upper plates connected with freedom for swiveling motion in respect to each other, having opposing treads for radially disposed conical rollers and thrust flanges for the outer ends of said rollers, of conical rollers radially disposed between said treads, which rollers have rounded outer ends abutting the thrust flanges of said plates, and are provided with trunnions at their inner ends, and a retaining ring between the said plates in which ring the trunnions of said rollers are journaled and to which they are interlocked, substantially as and for the purposes set forth.

2. In a center bearing for cars, the combination with a pair of bearing plates having telescoping hubs, telescoping outer flanges, treads for radially disposed conical rollers, thrust surfaces for the outer ends of said rollers, and a clearance space for a retaining ring adjacent to their telescoping hubs, of conical rollers radially disposed between said treads, which rollers have rounded outer ends bearing against said thrust surfaces, and are provided with trunnions at their inner ends, and a retaining ring encircling the telescoping hubs of said plates in said clearance space between said plates, in which ring the trunnions of said rollers are journaled and to which they are interlocked with freedom for a limited radial movement in respect to the ring, substantially as described.

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

JOHN C. BARBER.

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