E. S. WOODS.

ANTIFRICTION BEARING FOR RAILWAY CARS.

APPLICATION FILED MAY 8, 1907.

979,119.

Patented Dec. 20, 1910.

Fig. 1.

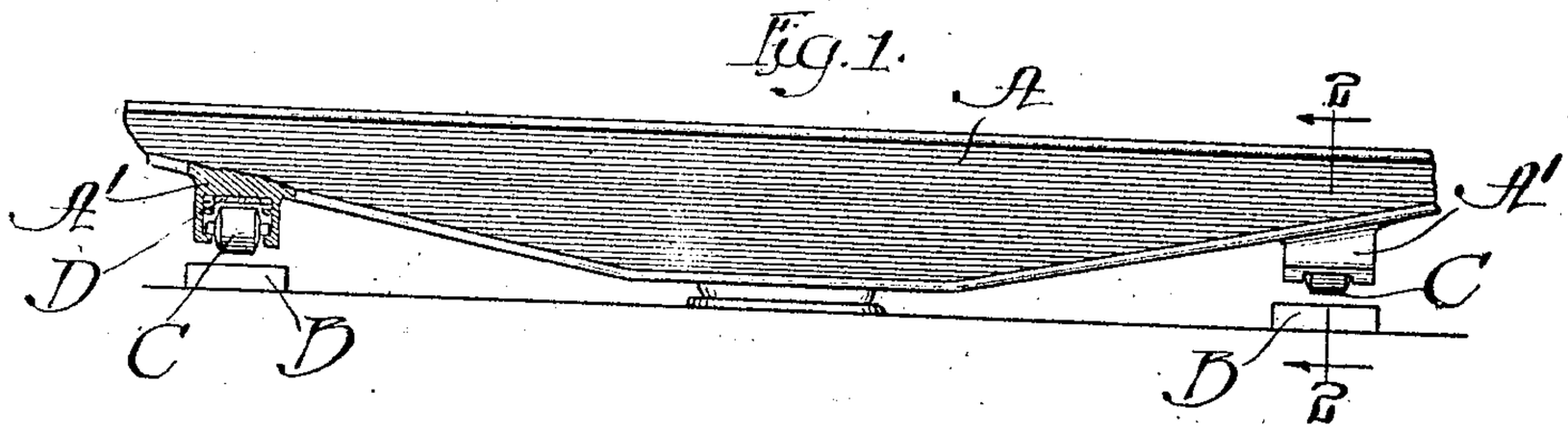



Fig. 2.

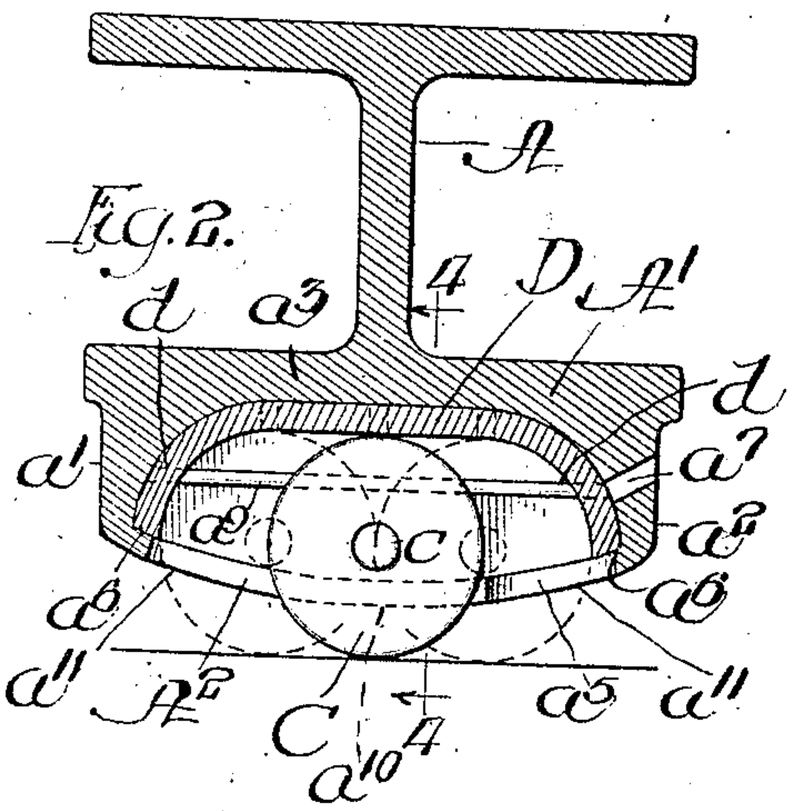



Fig. 3.

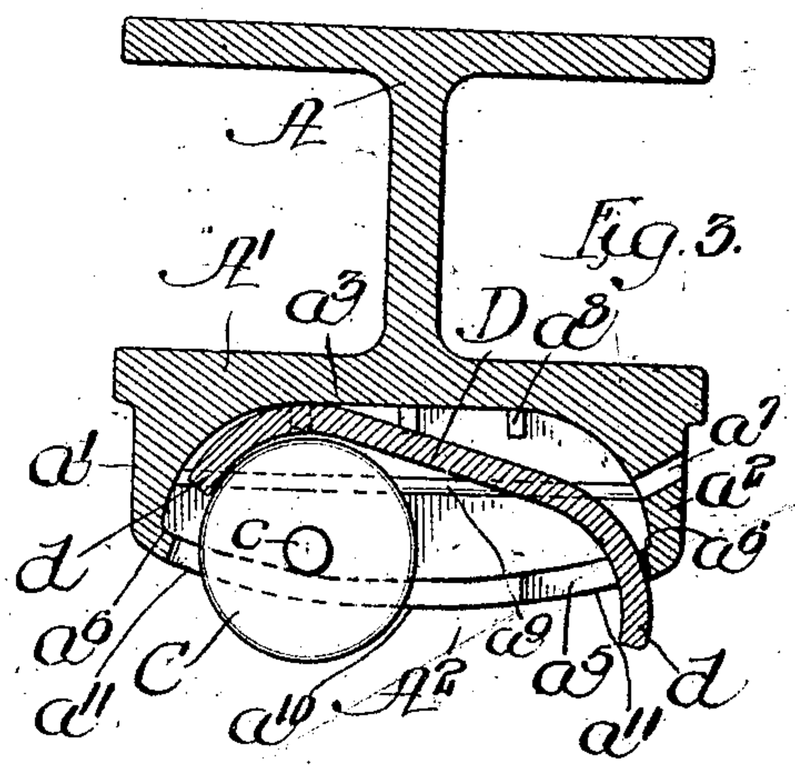



Fig. 4.

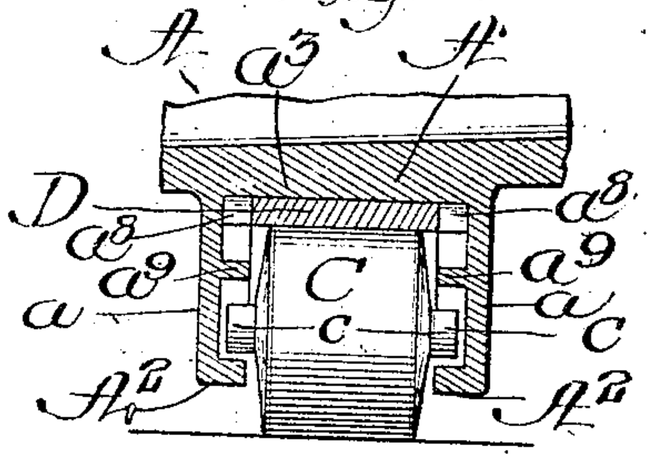
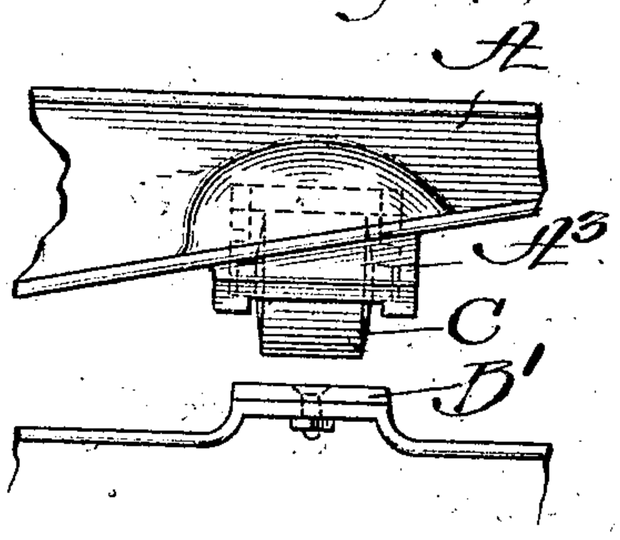



Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## ANTIFRICTION-BEARING FOR RAILWAY-CARS.

979,119. Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed May 8, 1907. Serial No. 372,479.

*To all whom it may concern:*

Be it known that I, EDWIN S. WOODS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Antifriction-Bearings for Railway-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in antifriction bearings for railway cars, and the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

Among the objects of my invention is to provide an improved means for locking a removable wear plate in the casing or carrier of an antifriction bearing of that kind designed for side bearings for railway cars, to provide an improved arrangement for centering or bringing to a predetermined position of rest in the casing the antifriction element, and to otherwise improve the construction of bearings of this general class.

In the drawings:—Figure 1 is a front elevation of a metal body bolster provided with side bearings embodying one feature of my invention. Fig. 2 is a cross-section on line 2—2 of Fig. 1. Fig. 3 is a similar section showing the manner of inserting the wear-plate in the roller casing. Fig. 4 is a transverse section, taken on line 4—4 of Fig. 2. Fig. 5 is a fragmentary view of the metal body bolster and modified form of bearing, showing the companion bearing on the truck bolster.

As shown in the drawings (Figs. 1 to 4) A designates a metal car or body bolster, and B B designate upwardly facing bearing plates carried by the truck bolster, to which latter said body bolster is pivoted to swing horizontally, in a familiar manner.

C C designate antifriction elements carried by the car bolster, consisting, as herein shown, of cylindric rollers which are mounted in casings or shells $A^1$ $A^1$ made integral with the metal body bolster A. The said casing $A^1$ is formed to provide an elongated roller chamber which is open at its lower side, and said roller projects downwardly through the open side of said chamber for engagement with the bearing plates B of the truck bolster. The bearing roller chamber is inclosed by parallel side walls *a a*, end walls $a^1$ $a^2$ and a top wall $a^3$. The side walls of the casing are provided at their lower margins with inwardly extending flanges or tracks $A^2$ $A^2$ upon which are adapted to rest and roll the trunnions or end bearings *c* of the bearing roller when the roller is free from or out of engagement with the upper and lower bearing surfaces. The said roller has vertical movement relatively to said tracks whereby, when it is engaged with the upper and lower bearing surfaces, the trunnions are lifted off the tracks, as is common in this type of bearing.

In Figs. 1, 2 and 3 the casing $A^1$, which is made integral with the body bolster, is located wholly below the lower line of the bolster. In Fig. 5 the roller casing $A^3$, also made integral with the body bolster A, is shown as contained partially within the cross-section of the bolster. In this latter arrangement the truck bolster bearing plate $B^1$ is correspondingly raised. An important advantage of the construction and arrangement shown in Fig. 5 is that it permits the height over all of the bearings to be materially reduced. Thus a bearing constructed as shown in Fig. 5 may be installed in locations where lack of space renders the use of a bearing located entirely below the bolster line impracticable. A general advantage of casting the bearing casings or boxes integral with the bolster is that this practice saves the cost and labor of applying said parts to the bolster, as heretofore and also reduces the cost of the equipment, as a whole, the additional cost of casting said casings on the bolster being small. Furthermore, this construction avoids liability of the bearing casing becoming detached from the bolster as occurs when the casings are applied by bolts, as heretofore. The upper bearing surface is formed by the lower face of a wear-plate D which is removably mounted in the roller chamber. In the present instance the said wear-plate is constructed and arranged to be inserted into the casing through the lower open side thereof after the roller is placed therein and arranged, when in place, to confine the roller in the chamber. The ends of the wear-plate are curved downwardly from the central horizontal bearing portion thereof to constitute end stops *d* adapted to engage the periphery

of the roller at the limits of its travel in said chamber.

The trunnion tracks or flanges $A^2$ are cut away at one end of the casing to provide notches $a^5$ through which the trunnions $a$ of the roller are adapted to pass when said roller is being inserted into and removed from the casing, and said wear-plate is made of such thickness at its ends as to arrest the movement of the roller, when the wear-plate is in place, with the trunnions between the said notches $a^5$ and the longitudinal center of the casing, whereby the roller cannot be removed until the wear-plate is removed. The ends of the wear-plate engage shoulders $a^6$ $a^6$ at the lower margins of the end walls of the casing, whereby said plate is held in place. The wear-plate is made of resilient material and is adapted to be sprung into position for engagement with the shoulders $a^6$. When inserting the wear-plate into the roller chamber the advance end, or that first inserted into the chamber, is brought into engagement with one of the shoulders $a^6$ and the rear or following end of the wear-plate is forced past the other shoulder $a^6$ by pressure exerted, in any suitable manner, on said latter end of the plate when said plate is in the general position shown in Fig. 3. As the end of said plate to which pressure is applied moves upwardly it springs into place behind the shoulder $a^6$ by its own resiliency, whereby said plate is locked into place. The removal of the wear-plate may be effected by inserting a suitable implement, as a punch, through an opening $a^7$ in the end wall of the casing adjacent to said notches $a^5$, such implement serving to spring the adjacent end of the plate away from the shoulder $a^6$ to permit it to be forced downwardly out of the casing. The side walls of the casing are provided on their inner faces with inwardly extending lugs $a^8$ which engage the side margins of the wear-plate to hold said wear-plate laterally in place. Said side walls of the casing are also provided with inwardly directed longitudinal ribs $a^9$, generally parallel with the track flanges $A^2$ and are so arranged as to prevent the roller turning or twisting in the chamber to an extent to disengage the roller trunnions from the tracks $A^2$, as best shown in Fig. 4. The said tracks $A^2$ for the trunnions are formed with central horizontal portions $a^{10}$ and upwardly and outwardly inclined portions $a^{11}$ as shown in Figs. 2 and 3. The said inclined end portions of the tracks are so disposed as to be beneath the trunnions when the trunnions are at the limits of their travel, as indicated in dotted lines in Fig. 2, so that when the upper and lower bearings separate and the roller drops downward with its trunnions engaging the inclined portions of the track, said roller will be returned by gravity toward the center of the casing and thus present new surfaces of contact to the upper and lower bearings. The provision of the horizontal central portions of said track, however, avoids the centering of the roller always at one place with respect to the upper and lower bearing surfaces, and thereby avoids tendency to uneven wearing of the said bearing surfaces.

I claim as my invention:—

1. In a roller bearing, a casing formed to provide a chamber open at one side and provided on its side walls with tracks, an antifriction element in said chamber arranged to extend through the open side thereof and provided with end bearings or trunnions adapted to engage said tracks, and a resilient wear plate in said chamber arranged to provide a tread for said antifriction element and to be locked in said casing by its resiliency.

2. In a roller bearing, a casing formed to provide an elongated roller chamber open at one side and provided on its side walls with track flanges, a roller mounted in said chamber and provided with trunnions adapted to engage said track flanges, a resilient wear-plate mounted in said chamber for contact with said roller, and engaging at its ends fixed shoulders on the casing, said shoulders being spaced a distance apart less than the distance between the ends of the wear-plate whereby said wear-plate, when inserted into the casing, springs behind one of said shoulders and is held in place thereby.

3. In a roller bearing, a casing formed to provide an elongated roller chamber open at one side and provided on its side walls with track flanges, a roller mounted in said chamber provided with trunnions adapted to engage said flanges, a wear-plate removably fitted in the chamber and constructed and arranged to confine the roller in the chamber, and engaging at its ends fixed shoulders on the casing, said wear-plate being resilient and held in place against said shoulders by its resiliency.

4. In a roller bearing, a casing formed to provide an elongated roller chamber open at one side and provided on its side walls with track flanges, a roller mounted in said chamber and provided with trunnions adapted to engage said track flanges, a resilient wear-plate in said chamber for contact with said roller and provided with curved ends to constitute stops for the roller and arranged to confine the roller in the casing, the ends of said wear plate engaging fixed shoulders on the casing to hold the wear plate in place, said shoulders being so arranged that the plate, when inserted into the casing, springs behind one of the shoulders to lock the plate in place.

5. In a roller bearing, a casing provided with an elongated roller chamber open at its

lower side and provided on its side walls with longitudinal track flanges, a roller removably mounted in, and projecting through the open side of, the chamber and provided with trunnions adapted to engage said track flanges, said track flanges being provided with notches through which said trunnions pass when the roller is inserted into and removed from the chamber, a resilient wear-plate removably fitted within the chamber and adapted to be inserted thereinto through said open side thereof and arranged to confine the roller in the chamber, said wear-plate being curved downwardly at its ends to constitute end stops for the roller, and said ends of the wear plate engaging fixed shoulders on the end walls of the casing to hold the wear plate in place, the parts being so arranged that when the wear-plate is inserted in place one end thereof springs behind its associated shoulder to lock the same in place.

6. In a roller bearing, a casing formed to provide an elongated roller chamber open at one side and provided on its side walls with track flanges, a roller mounted in said chamber and provided with trunnions adapted to engage said track flanges, a resilient wear-plate mounted in said chamber for contact with said roller and engaging at its ends fixed shoulders on the casing, said shoulders being spaced a distance apart less than the distance between the ends of the wear-plate whereby said wear-plate, when inserted into the casing, springs behind one of said shoulders and is held in place thereby, and the casing being provided near one of said shoulders with an opening through which may be inserted an instrument to disengage the wear-plate from said latter shoulder.

7. In a roller bearing, a casing provided with an elongated roller chamber open at its lower side and provided on its side walls with longitudinal track flanges, a roller removably mounted in, and projecting through the open side of, the chamber and provided with trunnions adapted to engage said track flanges, said track flanges being provided with notches through which said trunnions pass when the roller is inserted into and removed from the chamber, and a resilient wear-plate removably fitted within the chamber and adapted to be inserted thereinto through said open side thereof and arranged to confine the roller in the chamber, said wear-plate being curved downwardly at its ends to constitute end stops for the roller, and the ends of said wear plate engaging fixed shoulders on the end walls of the casing to hold the wear plate in place, the parts being so arranged that when the wear-plate is inserted in place one end thereof springs behind its associated shoulder to lock the same in place, the casing being provided with an opening permitting engagement of one end of said wear plate by a suitable implement whereby said end of the plate may be sprung away from the shoulder to release said plate from the casing.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 29th day of April A. D. 1907.

EDWIN S. WOODS.

Witnesses:
WILLIAM L. HALL,
GEORGE R. WILKINS.