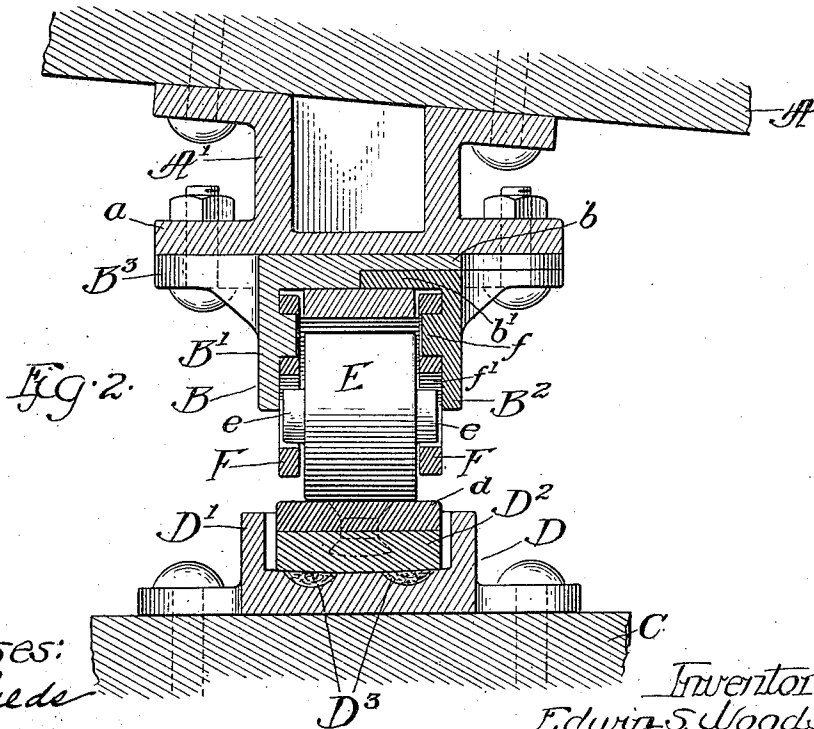
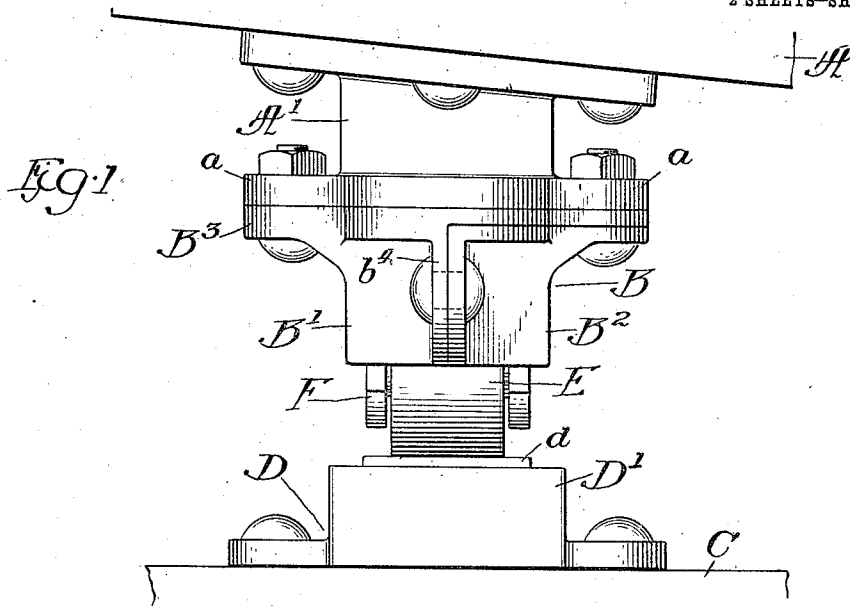


E. S. WOODS & A. A. WEIGEL.
 ANTIFRICTION SIDE BEARING FOR RAILWAY CARS.
 APPLICATION FILED JULY 19, 1909.

1,059,692.

Patented Apr. 22, 1913.

2 SHEETS—SHEET 1.



Witnesses:
 J. N. Alfreds
 W. H. Daggett.

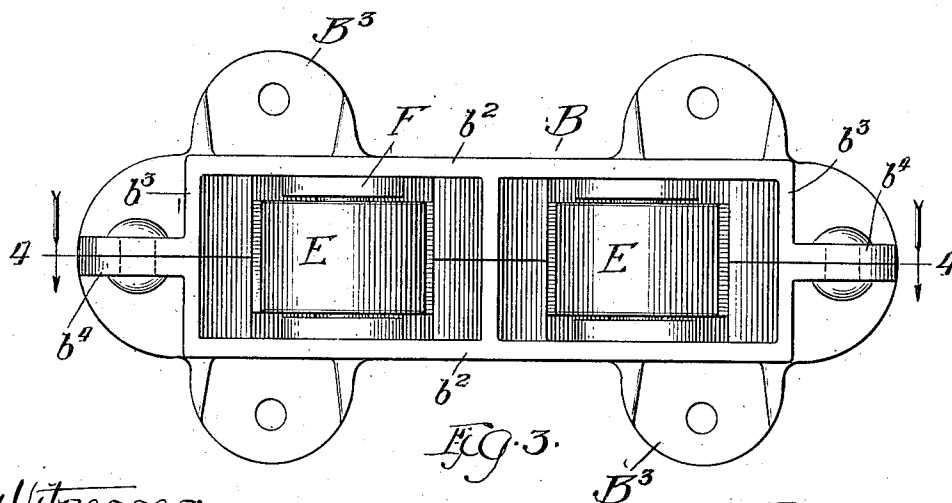
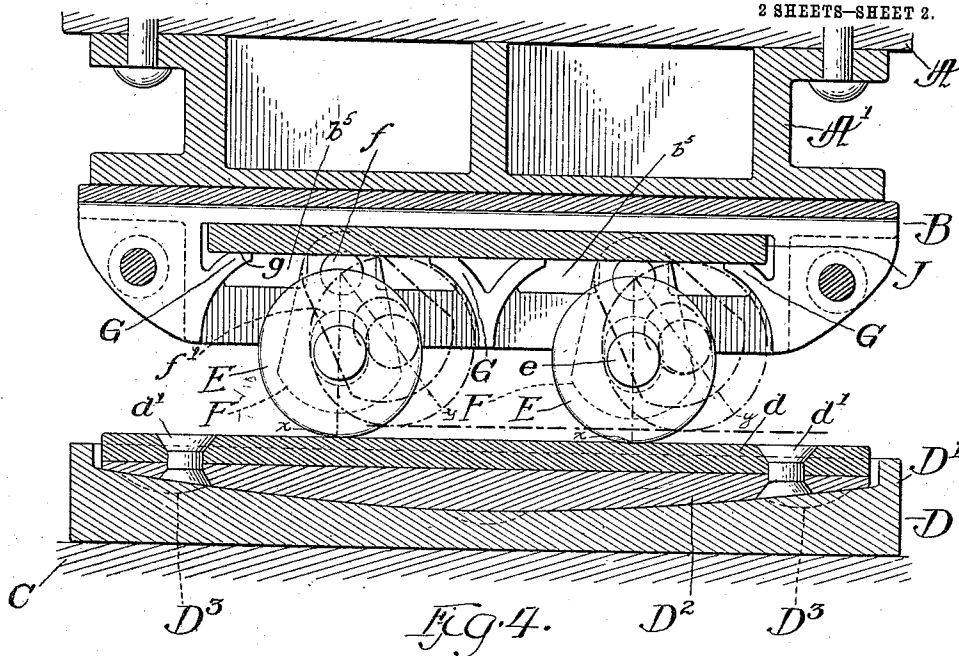
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UNITED STATES PATENT OFFICE.

EDWIN S. WOODS AND ARNOLD A. WEIGEL, OF CHICAGO, ILLINOIS; SAID WEIGEL
ASSIGNOR TO SAID WOODS.

ANTIFRICTION SIDE BEARING FOR RAILWAY-CARS.

1,059,692.

Specification of Letters Patent.

Patented Apr. 23, 1913.

Application filed July 19, 1909. Serial No. 508,433.

To all whom it may concern:

Be it known that we, EDWIN S. WOODS and ARNOLD A. WEIGEL, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Antifricition Side Bearings for Railway-Cars; and we 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 antifricition side bearings for railway cars and is generally of that type in which is used a casing attached to the car body or bolster with a roller supported within the casing in such a way as to have free play up and down within certain limits.

The object of the invention is to provide a side bearing of this character in which the roller will always be brought to center or to other predetermined position; both when the roller is free and when it rests upon the truck carrier bearing without load.

Another object of the invention is to provide a universal truck bearing in order to insure equal distribution of the load on the roller or rollers, and in order that the bearing surfaces of the rollers will have full contact at all times.

Another object of the invention is to insure a changed spot for contact on the roller each time that the contact is renewed, thereby causing the wear of the rollers to be evenly distributed and preventing the formation of flat rollers.

The invention possesses various other advantages which will appear and be more particularly pointed out as we proceed with our description.

Our invention consists in the combination of parts hereinafter described and more particularly pointed out in the claims.

In the drawings:—Figure 1 is an end elevation of our improved side bearing showing it in position on the car bolster with the roller in engagement with the truck bearing. Fig. 2 is a vertical section of the same. Fig. 3 is a plan view looked at from the bottom of the roller casing. Fig. 4 is a vertical longitudinal section of Fig. 3 on the line 4-4 thereof.

A indicates the car body bolster; B, the

roller casing; E, E the rollers therefor; C the truck; and D the truck bearing.

Instead of securing the casing directly to the car body or bolster, as is the present practice, we prefer to interpose a filler block A¹ which may be of any convenient or suitable construction. The angle of the bottom surface of the bolster A varies with different cars from zero upward. When the roller casing is bolted directly to the bolster a different casing is generally required for each car, requiring different patterns and, as a result, increased expense for every order. The expense of making different patterns for a simple filler block A¹, like that illustrated, is comparatively small, so that by using such a filler block, a standard casing, which may be manufactured ahead and kept in stock, may be used in all cases and a filler block, to suit the particular body bolster of the cars to be equipped, may be manufactured to meet the particular order. The use of the filler block A¹ is thus productive of enormous saving, both in cost of manufacture and in the time required to fill orders.

The casing B is preferably made in two sections B¹, B², one of which is provided at the top with a projecting flange or plate which overlaps the top of the other section, as clearly indicated in Figs. 1 and 2. Said casing has side walls b², b², and end walls b³, b³ which are provided, respectively, with laterally disposed lugs B³ at the top of the casing secured to similarly disposed lugs a on the filler block A¹, and with vertically arranged lugs b⁴, a pair for each section of the casing, by means of which said sections are secured together. The lugs B³ on the side of the casing which the top plate overlaps, not only serve to secure the casing to its seat but also serve to secure the sections of the casing together.

In the particular example of our invention illustrated herein, the casing is shown provided with two rollers, there being formed therein a chamber for each roller. Each roller is mounted in the same way and a description of one will, therefore, suffice for both. In the example of our invention illustrated two rollers are shown, but of course a single roller may be used.

F, F indicate arms in which the roller E is pivotally hung. Said arms are pivotally supported on trunnions f formed in the side

walls of the casing. The roller E is provided with trunnions e , e which engage in slots f^1 , f^1 formed in the swinging arms F. The ends of the slots f^1 are rounded to fit the trunnions e of the rollers and are of a length to give sufficient play to the rollers. At the opposite ends of the chamber are formed transverse curved webs G, G which project upwardly to form shoulders g on which rests the wear plate J, the same being maintained in position against said shoulders by the top of the casing.

The truck bearing D comprises a socketed plate D^1 , a wear plate d , and a bearing plate D^2 , the latter being secured to the wear plate by means of rivets d^1 , or in any other suitable manner. The engaging surfaces of the bearing plates D^2 and of the socketed plate D^1 are made spherical to form a universal bearing.

D^3 indicates oil grooves located below the bearing plate D^2 for lubricating the bearing.

The rollers E are centered by means of the swinging arms F which are made of sufficient weight to act in the manner of a pendulum to always bring the rollers back to their central position after they are released from forcible engagement with the wear plate of the truck bearing.

It will be apparent from an examination of Fig. 4, in which the rollers E, E, are shown in full dotted lines at one end of their travel, that they are limited in their movement in their respective chambers, by the arm F. It will also be apparent from a consideration of this figure that, as the roller has no tendency to rotate within the slots f^1 , except when forced to do so by reason of its engagement with the truck bearing D, a new point of contact y , coincident with that diameter of the roller passing through the pivotal axes of the swinging arms F, F, will be presented to the wear plate of the truck bearing upon the next forcible engagement of the roller's therewith, in place of the point of contact as indicated at x which the roller had when first engaged. The distance between these two points on the peripheries of the rollers would, of course, vary with the length of travel of the rollers from their central position. In the example above referred to the case was considered where the truck bearing dropped instantly away from the roller so that the roller would swing freely back to its central position without turning on its axis. Where this is not the case and the roller, by reason of its contact with the truck bearing, is caused to rotate on its trunnions as the arms F, F, in their swinging movement, bring it back to center, the distance between the two points of contact would be slight. In all cases, however, there would be a slight free swinging of the arms, with the roller not in contact with

the truck bearing, which would be sufficient to change the point of contact. It is thus evident that on account of the various combinations of movement of the arms and roller, and of the differing degrees of movement to which the rollers are subject, the point of contact will be constantly changing. The rollers will invariably return to the center, even though they have contact with the wear plate but without load, as the weight of the pendulum-like arms E will cause them to roll on the wear plate and return. As will be noted in the drawings, said arms are made wider at the bottom to provide sufficient weight to bring about this result.

As illustrated in the drawings, the side walls b^2 are cut away as indicated at b^5 . This lightens the construction and at the same time provides openings through which the bearing may be inspected. The rivets securing together the vertically arranged webs at the ends of the casing lock the sections of the casing together for shipment or for storing and also while in use.

While we have shown and described herein certain details of mechanical construction as illustrating what we regard as the preferable way of making our improved side bearings, it is to be understood that these may be modified in various ways without departing from the spirit of our invention, and that we do not limit ourselves to them except as pointed out in the appended claims.

We claim as our invention:—

1. In an antifriction bearing, upper and lower bearing members, an antifriction member adapted to contact with said bearing members, and a pivoted pendulum member carrying said antifriction member.
2. In an antifriction bearing, upper and lower bearing members, an antifriction element adapted to contact therewith, and a freely swinging weighted suspension member carrying said antifriction element.
3. In an antifriction bearing, upper and lower bearing members, an antifriction element adapted to contact therewith, said antifriction element being provided with trunnions, and freely swinging arms having slots formed therein, said trunnions of the antifriction element having bearing in said slots.
4. In an antifriction bearing, upper and lower bearing plates, freely swinging arms suspended between said bearing plates, said arms having slots formed therein, and an antifriction element provided with trunnions, said trunnions of the antifriction element having bearing in said slots.
5. In a roller bearing, an elongated chamber, a bearing plate located in said chamber, weighted swinging arms pivotally hung from the walls thereof, said arms having

slots formed therein below their pivotal points, and a roller provided with trunnions, said roller trunnions having bearing in said slots.

6. In a roller bearing, a casing having an elongated chamber, a bearing plate located in said chamber, a roller adapted to travel therein, and a weighted swinging member pivotally connected with said casing at one end, said last named member having a slot in which said roller is journaled.

7. In a side bearing, in combination with the casing, a bearing plate located therein, a roller adapted to travel in said casing, and a truck bearing member comprising a bearing plate and a second plate below said bearing plate, there being provided a universal bearing between the two.

8. In a roller bearing, a casing comprising horizontally adjacent sections dividing the casing into two parts, said sections having top plane surfaces, the one section being of greater height than the other section, said first named section having a horizontally projecting plate at the top overlapping the upper plane surface of the other section and said plate being provided with a depending shoulder for engagement with the other section, and means for securing said sections together.

9. In a roller bearing, a casing formed in two sections dividing the casing longitudinally, each of said sections having top plane surfaces, the one section being greater in height than the other section, a projecting plate formed at the top of said first named section, said plate overlapping the top surface of the other section, laterally disposed lugs formed at the top of each of said sections and on said overlapping plate, and vertically arranged lugs at the opposite ends of each section, together with means for securing said lugs together.

10. In a side bearing, in combination with the casing, a bearing plate located therein, a roller adapted to travel in said casing and to contact with said bearing plate, and a truck bearing located below said roller and adapted to be engaged thereby, said truck bearing comprising a socketed plate adapted to be secured to the truck, a bearing plate located in the socket of said first named plate, the engaging faces between said bearing plate and the socket of said plate being spherical, and oil grooves located between said two engaging surfaces.

11. In a side bearing, in combination with the casing, a bearing plate located therein, a roller adapted to travel in said casing and to contact with said bearing plate, and a truck bearing located below said roller and adapted to be engaged thereby, said truck bearing comprising a socketed plate adapted to be secured to the truck, and a bearing plate located in the socket of said first

named plate, the engaging faces between said bearing plate and the socket of said plate being spherical.

12. In a roller bearing, a casing having an elongated chamber, a bearing plate located in said chamber, a roller adapted to travel therein and a weighted swinging member pivotally connected with said casing at one end, said last named member having a slot in which said roller is journaled, and a truck bearing comprising a bearing plate and a second plate below said bearing plate, there being provided a universal bearing between the two.

13. In a roller bearing, a casing having an elongated chamber formed therein, a bearing plate located in said chamber, trunnions formed on the walls of said chamber, swinging arms pivotally hung from said trunnions, and a roller provided with trunnions, said roller trunnions having bearing in said slots, and a truck bearing comprising a bearing plate and a second plate below said bearing plate, there being provided a universal bearing between the two.

14. In a roller bearing, a casing formed in two sections dividing the casing longitudinally, each of said casings having upper top plane surfaces, the one section being greater in height than the other section, a projecting plate formed at the top of said first named section, said plate overlapping the top surface of the other section, transverse shoulders formed adjacent the end walls of said casing, and a bearing plate resting on said shoulders with its top surface in engagement with the under surface of the top wall of said casing.

15. In a roller bearing, a casing comprising sections having top plane surfaces, the one section being of greater height than the other section, said first named section having a projecting plate at the top to overlap the upper plane surface of the other section, an elongated chamber formed in said casing, a bearing plate located in said chamber, trunnions formed on the walls of said chamber, swinging arms provided with slots pivotally hung from said trunnions, and a roller provided with trunnions, said roller trunnions having bearing in said slots.

16. In a roller bearing, a casing comprising sections having top plane surfaces, the one section being of greater height than the other section, said first named section having a projecting plate at the top to overlap the upper plane surface of the other section, an elongated chamber formed in said casing, a bearing plate located in said chamber, trunnions formed on the walls of said chamber, swinging arms provided with slots pivotally hung from said trunnions, a roller provided with trunnions, said roller trunnions having bearing in said slots, and a

truck bearing comprising a bearing plate and a second plate below said bearing plate, there being provided a universal bearing between the two.

- 5 17. In an antifriction bearing, in combination with a car body and upper and lower bearing members, an antifriction element interposed between said bearing members, and means for suspending said
10 antifriction element from said car body, said means being adapted to return said antifriction element to a predetermined position under all conditions except when transmitting load.
- 15 18. In an antifriction bearing, an upper and lower bearing member, said lower bearing member having universal movement, a plurality of antifriction elements adapted to contact with said bearing members, and

a plurality of pendulum members carrying said antifriction elements.

19. In an antifriction bearing, in combination with upper and lower bearing members, the lower bearing member having universal movement, a plurality of antifriction elements adapted to contact with said bearing members, and a plurality of freely swinging weighted suspension members carrying said antifriction elements.

In testimony, that we claim the foregoing as our invention we affix our signatures in the presence of two witnesses, this 12th day of July A. D. 1909.

EDWIN S. WOODS.
ARNOLD A. WEIGEL.

Witnesses:

CLARENCE E. MEHLHOPE,
GEORGE R. WILKINS.