No. 673,502. Patented May 7, 1901.

G. W. MAGEE.

RAILROAD CAR AXLE BEARING.

(Application filed Oct. 7, 1899.)

(No Model.)

Fig. 1.

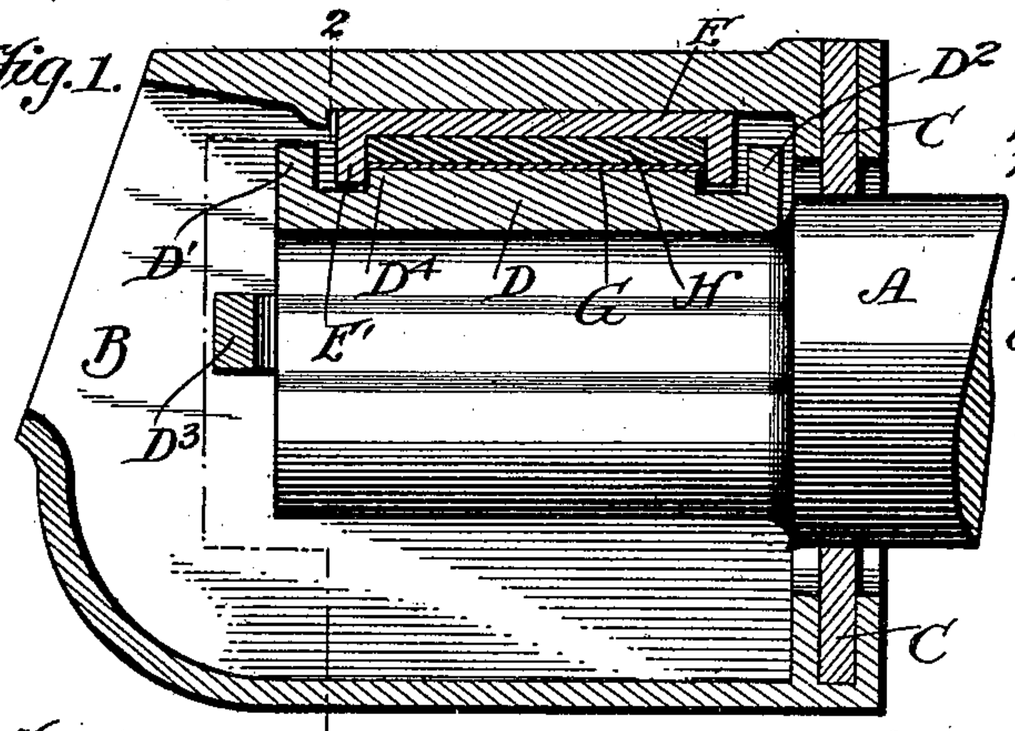

Fig. 2.

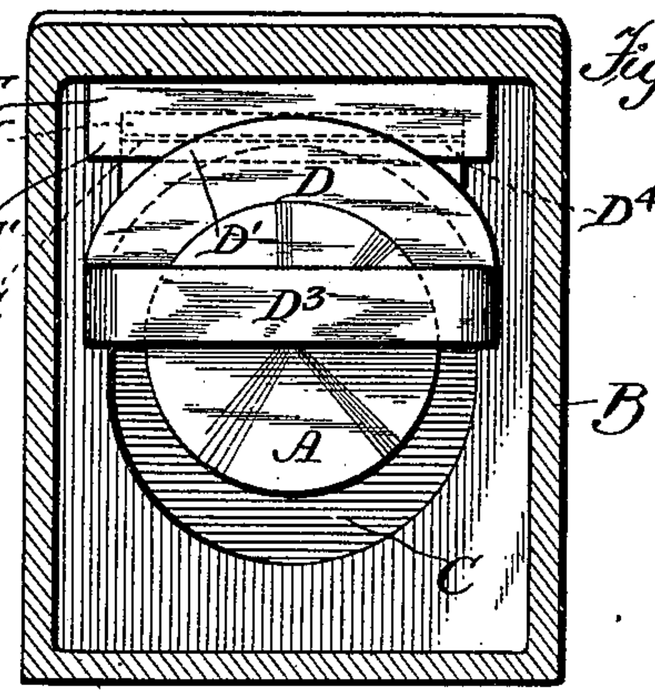

Fig. 3.

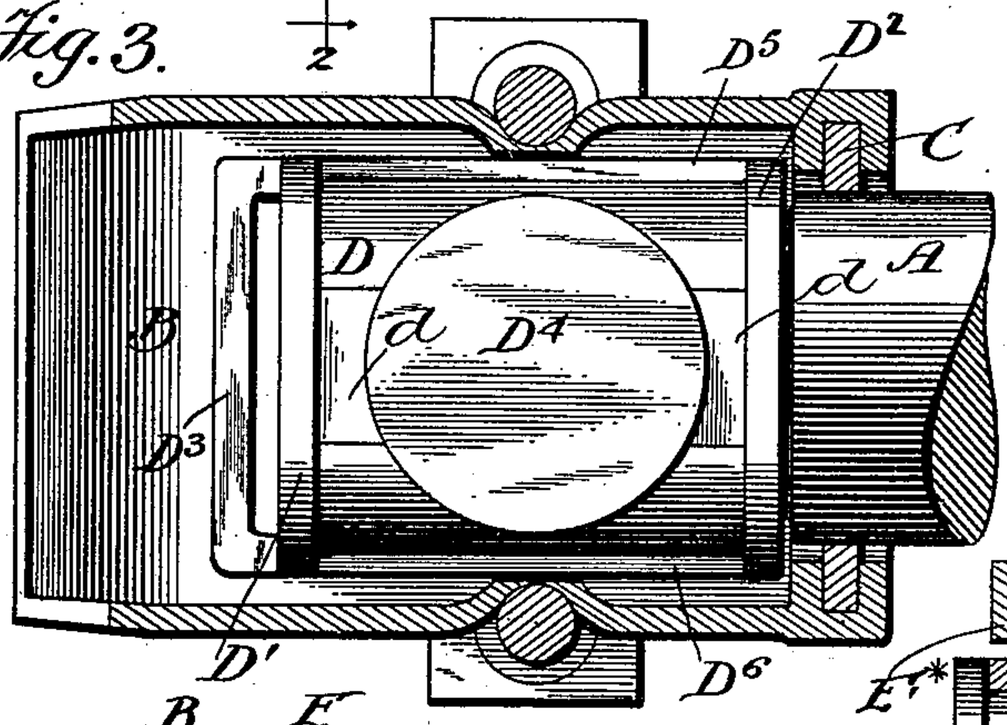

Fig. 4.

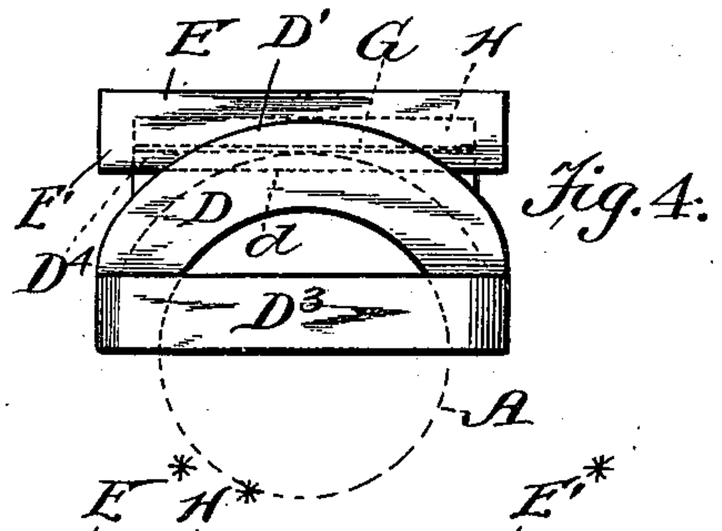

Fig. 5.

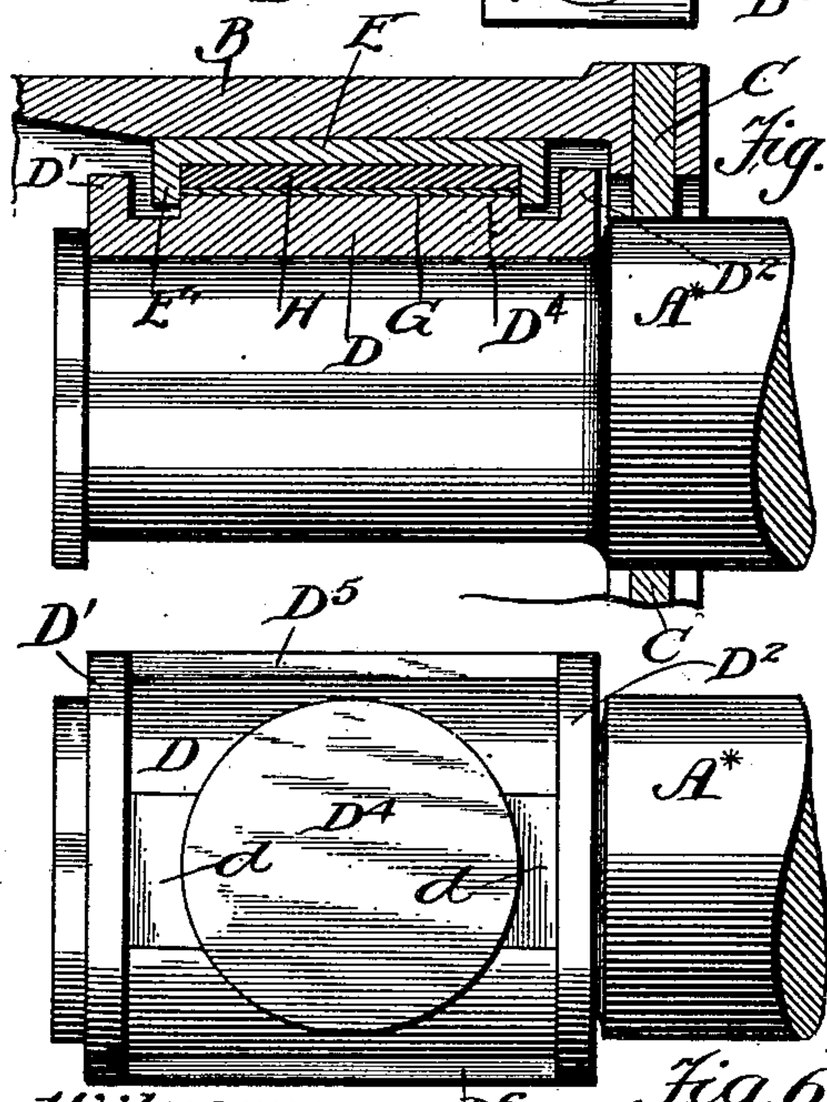

Fig. 7.

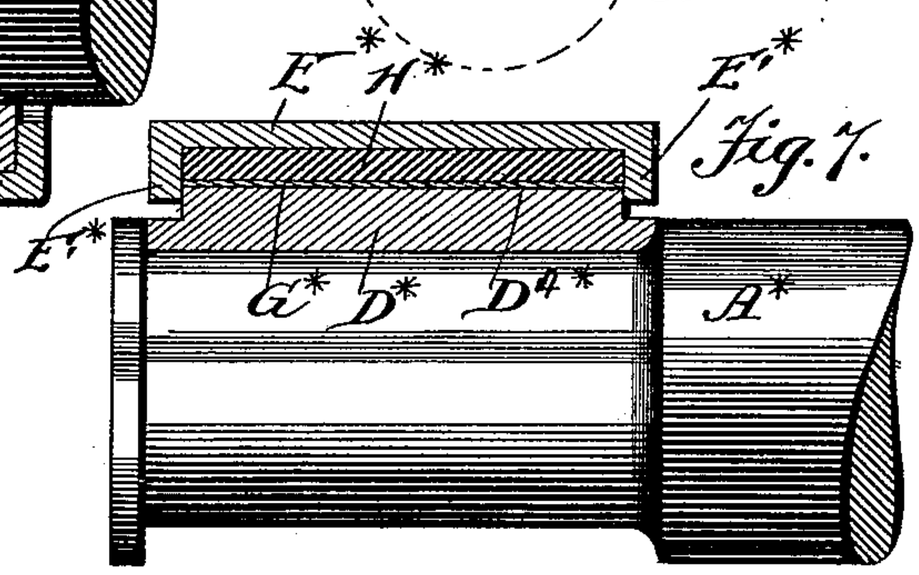

Fig. 8.

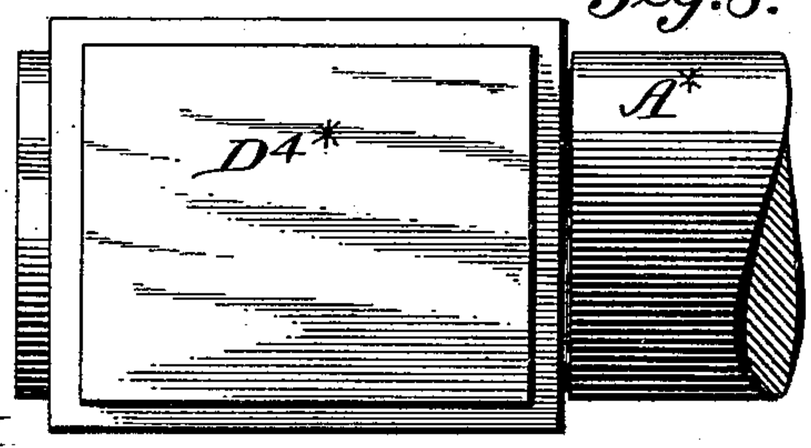

Fig. 6.

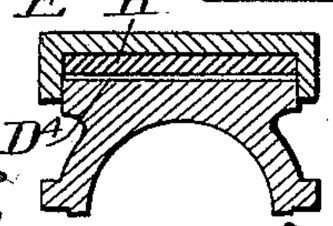

Fig. 4ª.

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UNITED STATES PATENT OFFICE.

GEORGE W. MAGEE, OF BROOKLYN, NEW YORK.

RAILROAD-CAR AXLE-BEARING.

SPECIFICATION forming part of Letters Patent No. 673,502, dated May 7, 1901.

Application filed October 7, 1899. Serial No. 732,871. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MAGEE, a citizen of the United States, residing in the borough of Brooklyn, in the city and State of New York, have invented a certain new and useful Improvement in Railroad-Car Axle and other Bearings, of which the following is a specification.

The conditions under which the bearings of car-axles are required to work become exceedingly difficult as the load is increased. Freight-cars are now constructed with a registered capacity of a hundred thousand pounds and are privileged to carry in emergencies ten per cent. in excess. Even with the slowest freight-trains there are always liable to be occasions, particularly in descending long grades, when a high speed is endured for a long period. The Pullman and the Wagner cars running regularly at high speeds weigh fifty tons without including load. Much of the difficulty is due to the shifting of the load toward one end or the other of the several bearings, this becoming particularly objectionable when the load is carried near the inner or technically the "rear" end of the bearing, where the grit can never be completely excluded. Another difficulty is due to the load being borne on a narrow surface instead of on the whole of the proper bearing-surface.

It is common to not extend the brasses down to the level of the axis, but to cover only a portion of the surface, and thus by limiting the bearing-surface to a narrower area near the top of each journal to avoid the liabilities of the brass to spread.

I have devised a construction of bearing which insures that the load shall always be uniformly distributed over the journal, provides against the liabilities of the brass to spread, and allows the brass to be extended down quite to the level of the center of the journal and still be free to make all the rocking and other motions ever occurring in practice due to malalinement.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out this invention.

Figure 1 is a vertical section in the plane of the axis of the journal; Fig. 2, a vertical section on the line 2 2 in Fig. 1, and Fig. 3 a sectional plan view of the same with some of the upper parts removed. In these figures the axle is made in what I esteem the preferable manner for this invention, omitting the end flange, sometimes termed the "collar." The succeeding figures show a modification in which the axle is in the usual form, retaining the end collar. This form allows the invention to be used without any change of axles or of the inclosing boxes in cars already in use. Fig. 4 is an end view of the brass detached, the axle being indicated in dotted lines. Fig. 4^a is a corresponding central vertical section on a smaller scale. Fig. 5 is a vertical longitudinal section somewhat similar to Fig. 1, but with an ordinary axle; and Fig. 6 is a plan view thereof. In all the figures the drawings show the novel portions with so much of the ordinary parts—the axle and the cap, box, dust-guard, &c.—as is necessary to indicate their relations thereto. Fig. 7 is a vertical section showing a modification, and Fig. 8 is a plan view of the brass and axle illustrated in Fig. 7.

Similar letters of reference indicate like parts in all the figures where they appear.

Referring to Figs. 1, 2, 3, and 4, A is the axle; B, the inclosing box, equipped with the usual attachments, partly shown, and C C the usual dust-excluder or dust-guard. It will be understood that the bottom of the box carries waste and oil and suitable provisions for holding these important elements in contact with the under side of the journal, which is exposed thereto.

D is the brass, which may be of the usual material, except that I omit the usual lead lining, the yielding and rapidly-shaping quality due to that ordinary adjunct being unnecessary with my invention and the hollow under surface of the brass being accurately finished to match the journal.

I will use supernumerals to indicate special portions of the brass, D' D^2 being ribs or flanges arching over the top at each end, D^3 a cross-bar extending across the end beyond or "in front" of the end of the journal, and D^4 being a platform projection formed integral with the brass on the top and which per-

forms the important functions of stiffening the brass in addition to the bracing due to the arched ribs D′ D² and receiving the load with practical uniformity over its whole upper surface.

D⁵ and D⁶ are strengthening and stiffening flanges extended longitudinally along the lower edge of the two sides, respectively. Recesses *d d* are formed in the upper face of the main body of each brass near each end to allow the cap, which is to be presently described, to rock in all directions without contact except through the proper yielding medium carried on the platform D⁴.

E is a cap having a hanging rim E′, making an easy fit around the platform D⁴. The cap can roll or tilt a little relatively to the axle to correspond with any rocking motion of the truck or irregularity of the road.

On the upper face of the platform rests a disk G, which may be a little larger, so as to overhang a thirty-second of an inch, more or less, all around the top of the platform. This may be brass.

H is a thick sheet or cushion of vulcanized rubber applied in and filling the interior of the cap E. It is not important that it shall yield in the sense of a car-spring vertically; but it performs an important duty by changing in form without change in volume.

The disk G performs important functions. It may fit with sufficient tightness to be retained frictionally in place in the cap, and thus to hold the rubber pad or cushion H in place when the parts are being applied together and separated. It allows the platform D⁴ to be appreciably smaller than the interior of the cap E, so that the parts may be more easily applied together and may be rocked further relatively to each other than would otherwise be practicable, and yet by the aid of the close-fitting disk, of sufficient strength and stiffness to maintain its plane form, the tight joint or approximately such required to retain the rubber under such pressures may be maintained, and especially the disk G may slide easily on the platform below either laterally to a small extent or torsionally to any extent in applying the parts together or in allowing any subsequent changes of position.

The invention allows the load to be carried either at the exact mid-length of the bearing or at any required point contiguous thereto as may be preferred, maintaining the bearing at any point, according as the platform D⁴ is originally located in casting and finishing the brass. The tendency of brasses and of journals under all usual conditions to wear away more rapidly at the inner end (the back end) than at the other may make it usually preferable to locate the platform with its center a little in front of the mid-length. Wherever located, my invention keeps the bearing unchangeable.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The lead lining may be retained, and the elaborate chambering of the inner surface of the brass and the filling of such chambers with a tin alloy, known as "babbitting," may be employed, if desired in any case.

The recesses *d d* may be omitted where there is a sufficient height to allow the hanging rim E′ to make its slight motions without such provision.

Other sufficiently-yielding material may be used for the cushion H in lieu of soft rubber.

The cap E may be cast in one with the box B.

Parts of the invention may be used without the whole.

Figs. 5 and 6 show a form of the parts in which the collar is retained on the end of the axle A⁂ and the bar D³ across "the front" of the brass D⁂ is omitted.

Instead of making the part which I have termed the "platform" circular it may be of any other form, taking care to make the cap E, the cushion H, the disk G, and the interior parts of corresponding form. I propose in case a larger area of the platform is desired to make it rectangular and of a size occupying nearly all the horizontal space available in the upper portion of the box. Figs. 7 and 8 show such form, the cap E⁂, cushion H⁂, disk G⁂, and platform D⁴⁂ being as large as the space available will allow.

I claim as my invention—

1. The combination in a bearing of a brass having a flat horizontal platform, a cap embracing the platform, and a pad of non-metallic material confined between said platform and cap, substantially as set forth.

2. In a bearing, the combination with the box, and bearing-brass, the latter having a flat raised surface or platform, of a cap embracing the platform and a pad of rubber confined between said platform and cap, substantially as set forth.

3. In a bearing, the combination with the box and bearing-brass, the latter having a flat raised surface or platform, of a cap embracing the platform and a pad of rubber confined between said platform and cap, and a thin metallic disk G between the pad and platform, substantially as set forth.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

GEO. W. MAGEE.

Witnesses:
J. B. CLAUTICE,
C. A. WEED.