2 Sheets—Sheet 1.

H. W. FARLEY.

Car-Axle Bearing.

No. 216,165. Patented June 3, 1879.

Fig. 1.

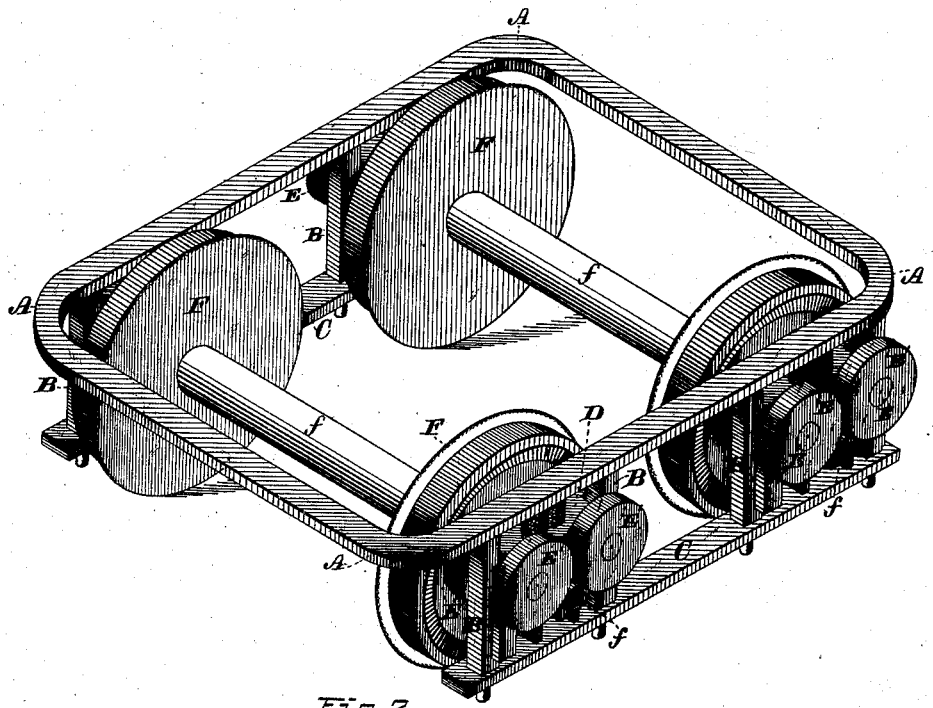
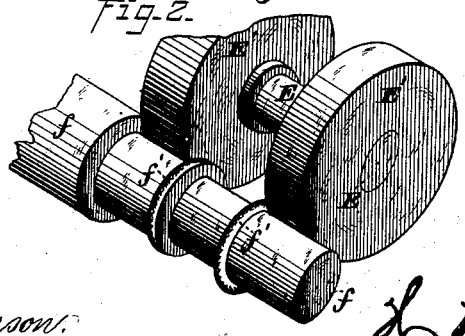


Fig. 2.



WITNESSES:

Jas. C. Hutchinson.

Henry C. Hazard.

INVENTOR.

H. W. Farley, by

Pinckney & Lyon his Attys

2 Sheets—Sheet 2.

H. W. FARLEY.
Car-Axle Bearing.

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Fig. 3.

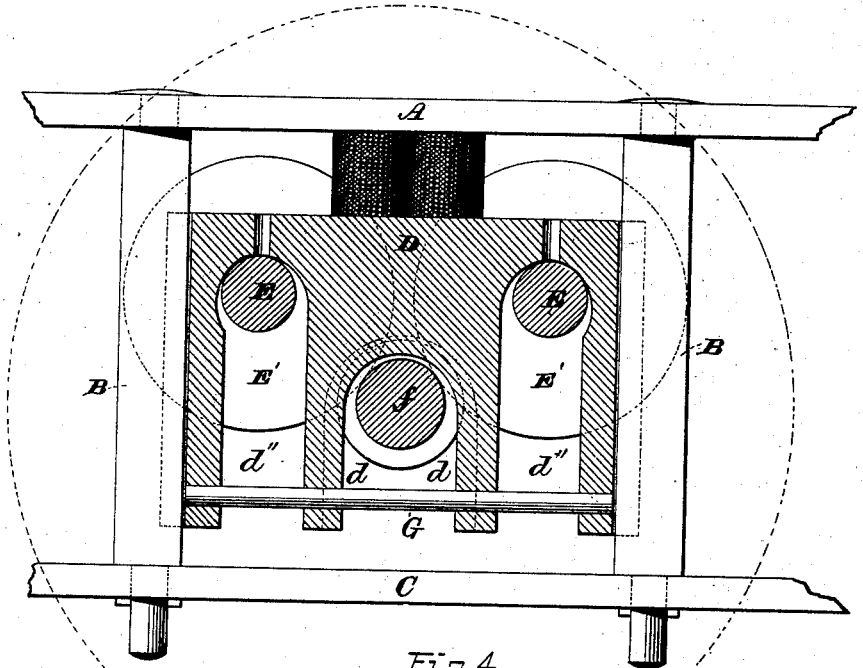
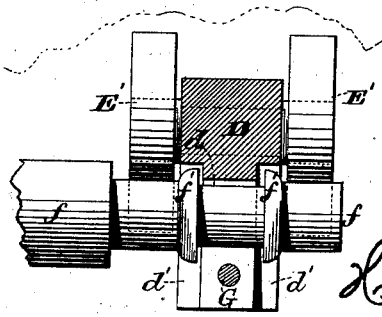


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY W. FARLEY, OF OSWEGO, ILLINOIS.

IMPROVEMENT IN CAR-AXLE BEARINGS.

Specification forming part of Letters Patent No. **216,165**, dated June 3, 1879; application filed February 17, 1879.

To all whom it may concern:

Be it known that I, HENRY W. FARLEY, of Oswego, in the county of Kendall, and in the State of Illinois, have invented certain new and useful Improvements in Anti-Friction Bearings for Car-Journals; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of a car-truck provided with my improved journal-bearings. Fig. 2 is a like view of one of said bearings and an axle-journal separated from the truck-frame. Fig. 3 is a vertical central section of a journal and its bearing upon a line parallel with the track; and Fig. 4 is a central longitudinal section of said axle-journal and its box, one of the friction-rollers being shown in side elevation.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to render practicable the employment of friction-rollers for journal-bearings of car-axles; and to this end it consists, principally, in combining with the journal of a car-axle two pairs of anti-friction rollers, which furnish bearings for the end portions of said journal immediately outside each end of the box, substantially as and for the purpose hereinafter specified.

It consists, further, in an axle-journal which has a bearing upon superimposed anti-friction rollers, and is held in longitudinal position by means of circumferential enlargements that engage with the journal-box, substantially as and for the purpose hereinafter shown.

It consists, further, in the peculiar construction of the journal-box and its combination with the car-journal and anti-friction rollers, substantially as and for the purpose hereinafter set forth.

It consists, finally, in the bearing as a whole, its several parts being constructed and combined to operate in the manner and for the purpose hereinafter shown and described.

In the annexed drawings, A represents the frame of a car-truck which is provided upon each side with two downward-projecting jaws, B, for each axle employed, said jaws being connected together at their lower ends by means of a brace-rod, C, all in the usual manner.

Between each pair of jaws B is fitted a pedestal or journal-box, D, which has considerably greater width than usual, and embraces the inner face and edges of each jaw in the ordinary manner, its length as compared with the length of said jaws permitting all necessary vertical motion.

At the transverse center of each box D is provided an opening, *d*, which extends from its lower end upward to or above the vertical center of said box, has parallel sides and a semicircular top, and at each of its edges is provided with a rabbet, *d'*, as shown in Fig. 4.

Upon each side of the central recess or opening, *d*, is provided a similar but more narrow recess, *d''*, which extends somewhat above the center of the box D, and at its upper semicircular end is curved slightly outward from said recess *d*.

Within each recess *d''* is journaled a shaft, E, which projects beyond each side of the box D, and upon each end has secured a roller, E', that has such diameter as to cause its periphery to approach nearly to the periphery of a similar roller, E', that is secured upon a shaft, E, which is journaled within the opposite recess *d''*. Each of said rollers has, preferably, a thickness equal to one-half the thickness of said box, and is arranged so that its inner face just clears the contiguous face of said box.

The central recess, *d*, of the box D receives the journal *f* of a car-axle, F, which journal has such reduced diameter at its longitudinal center as to enable it to fit loosely into said recess, and at each end of such reduced portion is provided with circumferential enlargements *f'*, that fit into and loosely fill the rabbets *d'*, while immediately outside of each enlargement said journal furnishes a bearing for the peripheries of the rollers E' at that side of the box.

A rod or bolt, G, passing horizontally through the lower portion of the box D, prevents the latter from becoming disengaged from the journal *f* in the event of the removal of the truck-frame, or in case the truck is thrown from the track.

The operation of the parts described is as follows, viz: The weight of the car is, through any desired system of springs, imposed upon the boxes D, and said boxes are sustained upon or by the rollers E′ and their shafts E, while said rollers rest upon and are supported by the journals *f* of the axles F, said rollers operating as rolling bearings for said journals. In consequence of the difference in the relative diameters of the journals *f* and rollers E′ the latter make but one revolution to three revolutions of the former, by which means the rubbing bearing-surfaces (the shafts E) move with but one-third the velocity of an ordinary axle-journal, and have materially less friction, while, by causing each axle E to bear one-half the superimposed weight such friction is still further reduced. The enlargement *f′* of the journal *f* receives the end-thrust and preserves the longitudinal position of the axle with relation to the journal-boxes. They may also be used as guides for the rollers E′, if desired, and operate to maintain the longitudinal position of the latter.

It will be observed that by placing the rollers E′ at the sides of the journal-boxes any desired diameter can be given to said rollers without interference with the vertical motion of said box, while, as heretofore employed, said rollers have been placed within the box, and their dimensions were of necessity limited to a very small size.

This invention is intended for use upon all kinds of rolling-stock, such as is used upon the various kinds of railways, tram-roads, &c.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In combination with the journal of a car-axle, two pairs of anti-friction rollers, which furnish bearings for the end portions of said journal immediately outside each end of the box, substantially as and for the purpose specified.

2. A car-axle journal which has a bearing upon superimposed friction-rollers, and is held in longitudinal position by means of central circumferential enlargements that engage with the journal-box on each side thereof, substantially as and for the purpose shown.

3. The journal-box D, provided with the central recess, *d*, and side recesses, *d″*, in combination with the journal *f* and with the shafts E and rollers E′, substantially as and for the purpose set forth.

4. The hereinbefore-described anti-friction bearing, consisting of the journal-box D, provided with the central recess, *d*, rabbets *d′*, and side recesses, *d″*, the shafts E, and rollers E′, and the journal *f*, having the reduced central portion and the circumferential enlargements *f′*, said parts being combined with each other and with the truck-frame in the manner and for the purpose substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of December, 1878, at Springfield, county of Clarke, State of Ohio.

HENRY W. FARLEY.

Witnesses:
NATH. KINSMAN,
J. W. R. CLINE.