

W. S. LIVENGOOD.
JOURNAL BEARING.

No. 510,807.

Patented Dec. 12, 1893.

Fig. I.

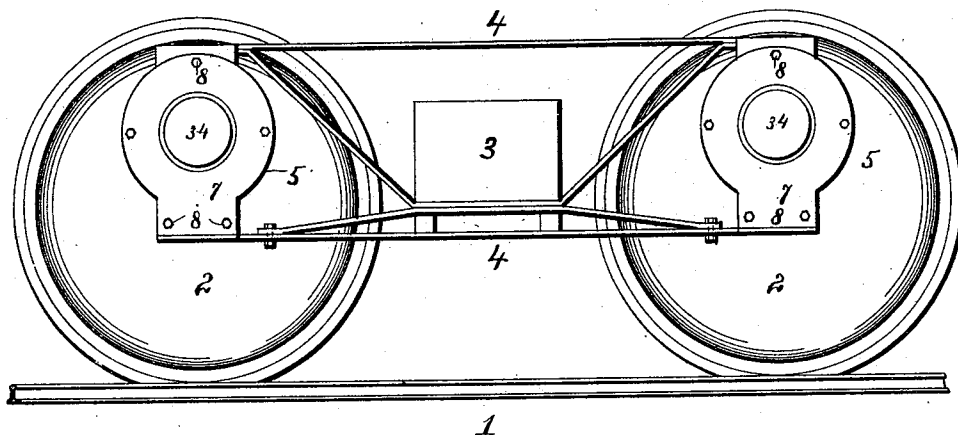


Fig. II.

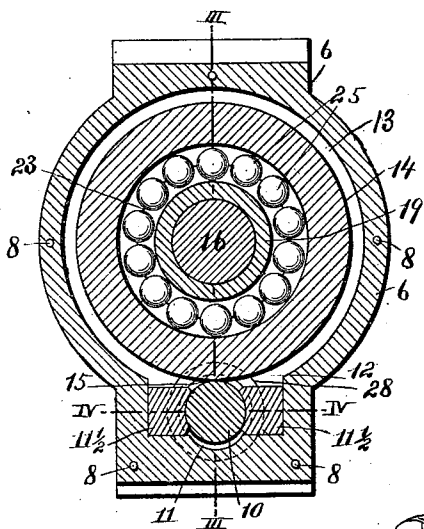


Fig. III.

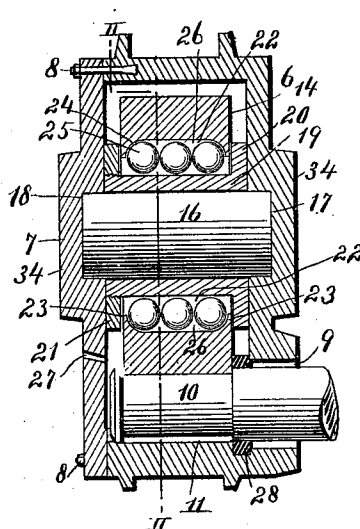
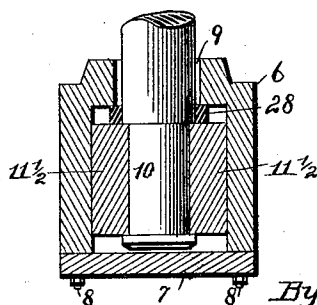


Fig. IV.



Witnesses:
F. G. Fischer
J. C. Mullett

Inventor:
W. S. Livengood
By *Wm. H. Prosser* Attys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. V.

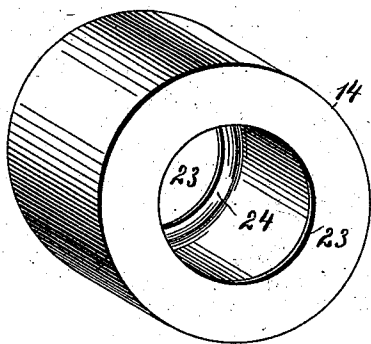


Fig. VI.

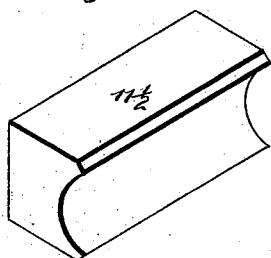


Fig. VII.

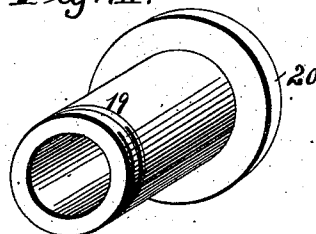


Fig. VIII.

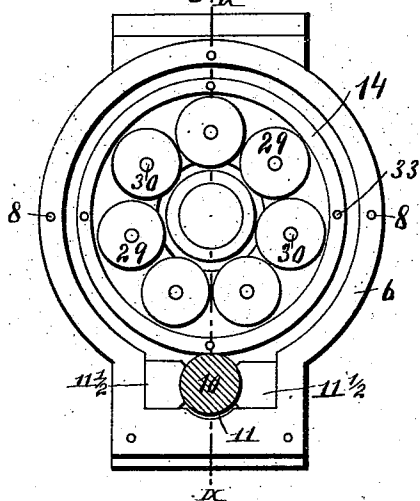
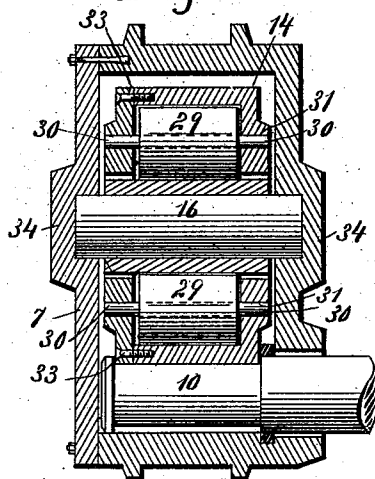


Fig. IX.



Witnesses:
F. G. Fischer
J. C. Mullett

Inventor:
W. S. Livengood
By *Knicker Bros.*
Attys.

UNITED STATES PATENT OFFICE.

WINFIEALD S. LIVENGOOD, OF KANSAS CITY, MISSOURI, ASSIGNOR TO
WILLIAM SMALL, JR., OF SAME PLACE.

JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 510,807, dated December 12, 1893.

Application filed June 16, 1893. Serial No. 477,807. (No model.)

To all whom it may concern:

Be it known that I, WINFIEALD S. LIVENGOOD, of Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Journal-Bearings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to certain new and useful improvements in journal bearings which may be applied to railway trucks, as shown in the drawings, or used for other journal bearings in which it is desired to make the bearings as frictionless as possible; and my invention consists in certain features of novelty hereinafter described and pointed out in the claims.

Figure I, represents an end elevation of a railway truck with my improvements attached thereto. Fig. II, represents a vertical section taken on line II, II, Fig. III, represents a vertical section taken on line III, III, Fig. IV, is a detail sectional view of the axle bearing taken on line IV, IV, Fig. V, is a perspective view of the ring bearing which surrounds the balls of the rollers. Fig. VI, is a detail perspective showing the side axle bearing. Fig. VII, is a detail perspective showing the sleeve which surrounds the central supporting shaft of the journal bearing, and on which the ball bearings travel. Fig. VIII, is an end view of the outer plate removed, forming a modification of the bearing. Fig. IX, is a vertical section of the modification taken on line IX, IX, Fig. VIII.

Referring to the drawings: 1, represents a rail on which the wheels 2, of the truck travel.

3, represents the usual cross-beams, and 4, the braces connecting the same with the journal boxes 5.

6, represents the box casing, and 7, the face plate connected therewith by means of suitable bolts 8. The lower end of the casing 6, is provided with an opening 9, into which the axle 10, extends, the said casing being provided with a groove 11, extending beneath the axle and made to conform to its outer periphery.

11½ represents side bearing blocks fitting into a squared recess 12, in the bottom of the

casing 6, said blocks being concave in form at their inner ends and bearing against the axle to prevent lateral movement of the same. The casing 6, is provided with a circular central opening 13, into which I place a ring 14, said ring having a bearing on the axle 10, at its lowest point, as shown at 15.

16, represents a central shaft journaled into a recess 17, in the casing 6, and in a recess 18, of the face plate of said casing. Surrounding the shaft 16, is a sleeve 19, having an annular flange 20, at one of its ends, 21, representing a threaded ring screwed onto the opposite end of said sleeve, thus forming an annular groove 22, in said sleeve. The ring 14, is provided with annular flanges 23, on its inner wall, the outer side of said flanges having bearings against the inner side of the flange 20, and ring 21, said flanges being made concave in form, as shown at 24, to adapt themselves to a series of ball bearings 25. By the extension of the flanges 23, an annular groove 26, is formed on the inner wall of the ring 14. This groove with the space between the flange 20 and the ring 21, forms an aperture in which the ball bearings 25, rest, there being a series of rows of said ball bearings which may be increased if found desirable, the bearing thus being distributed over a large surface.

In operation as the axle 10, turns, the ring 14, resting thereon is turned, said ring in turn turning on the balls 25, which travel on the sleeve 19, which may be loosely mounted on the shaft 16, and turned around the same, if desired, thus forming a bearing in which the friction is reduced to a minimum. It is obvious that the shaft 16, may be lengthened together with the sleeve 19, and a greater number of ball bearings used, it only being necessary to keep the tread or outer periphery of the ring 14, the same width as the bearing portion of the axle. The sleeve 19 and shaft 16 formed a bearing.

27, represents an opening into which oil may be inserted the ring 14, serving to carry the oil up to the highest portion of its travel.

28, represents packing to prevent the dust from passing in through the opening 9, surrounding the axle. The opening 9, in the casing is made somewhat larger in diameter than

the axle so as to permit the casing to adjust itself as the bearing becomes worn.

In Figs. VIII and IX, I have shown a modification in which wheels or rollers 29, are used in place of the ball bearings, said rollers having central shafts 30, journaled to the ring 14, as shown at 31, for the purpose of keeping the rollers in proper alignment. Where said rollers are used I provide the ring 14, with a detachable face plate 32, secured to the body of the ring by screws 33, for convenience in placing the rollers 29, in position, one end of the shafts 30, being journaled in said face plate, 32. The casing 6, and the face plate 7, are provided with bosses 34, which increase the thickness of said casing and face plate in order to form a strong bearing for the central shaft 16.

I claim as my invention—

1. The combination of a central shaft, a sleeve surrounding the same having peripheral flanges at each of its ends forming an outer peripheral groove; roller bearings; a ring surrounding said roller bearings and adapted to travel upon the same; said ring

having flanges extending inwardly and between the flanges on the sleeve and having an inner peripheral groove for the reception of the roller bearings, substantially as and for the purpose set forth.

2. The combination of an axle or other shaft; a ring traveling upon the same; roller bearings within said ring, and a sleeve on which said roller bearings travel, said ring and sleeve having suitable means for wholly inclosing said roller bearings; substantially as described and for the purpose set forth.

3. The combination of an axle or a shaft; a ring traveling upon the same; ball bearings within said ring; a sleeve on which said ball bearings travel, having a rigid flange at one of its ends, and a removable ring at its opposite end for forming the flange thereon; substantially as described and for the purpose set forth.

WINFIEALD S. LIVENGOD.

Witnesses:

F. E. MULLETT,
M. A. GOODING.