(No Model.)

M. A. ANDREWS.

AXLE MOUNTING.

No. 432,109. Patented July 15, 1890.

Fig. 1.

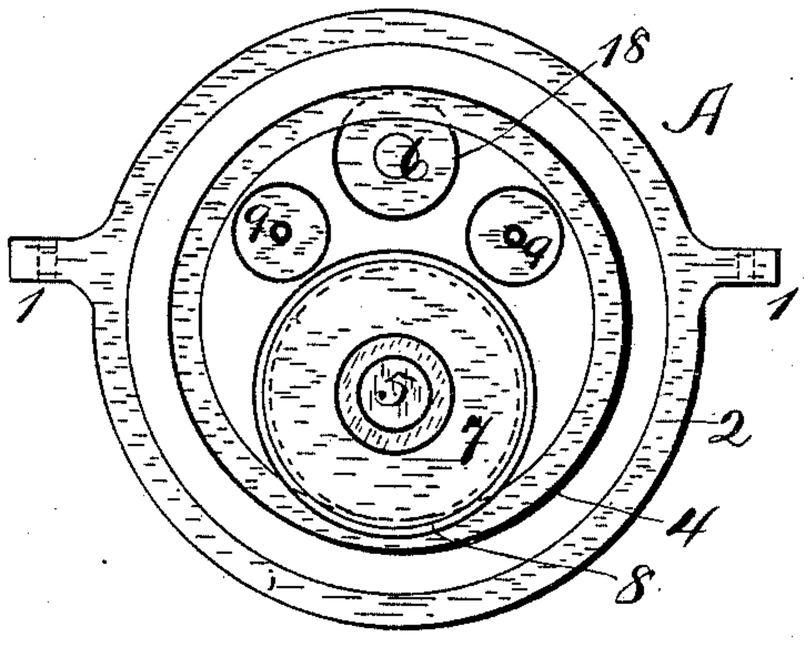


Fig. 4.

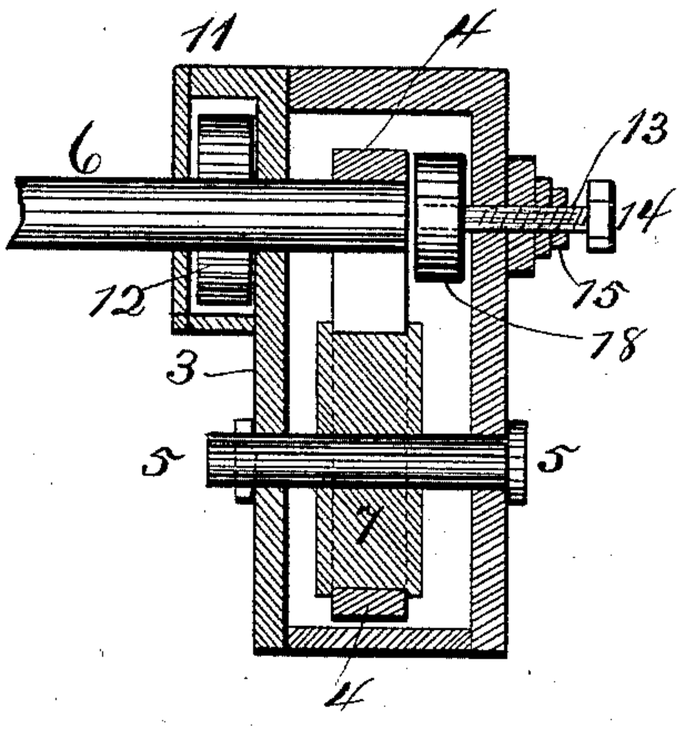


Fig. 2.

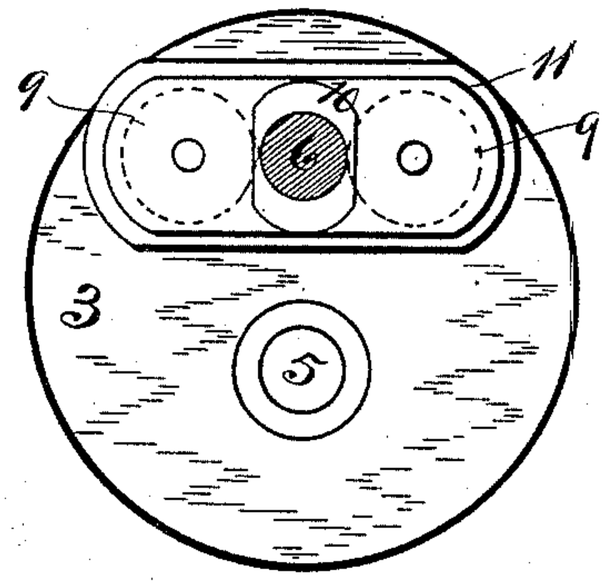


Fig. 3.

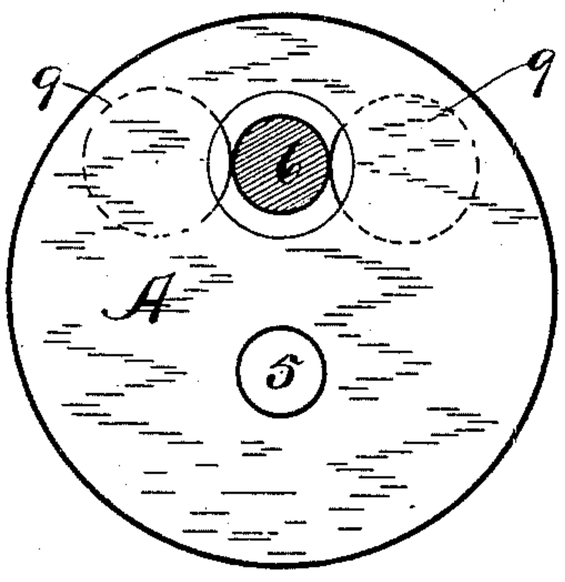
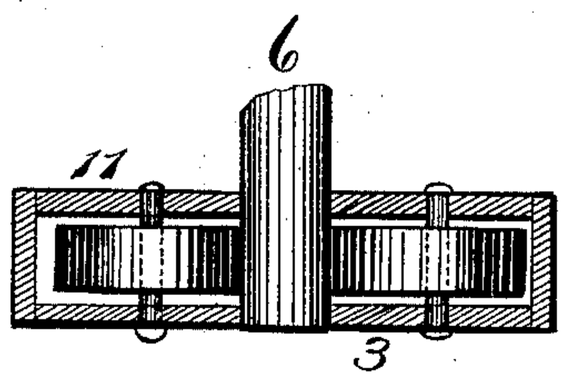


Fig. 5



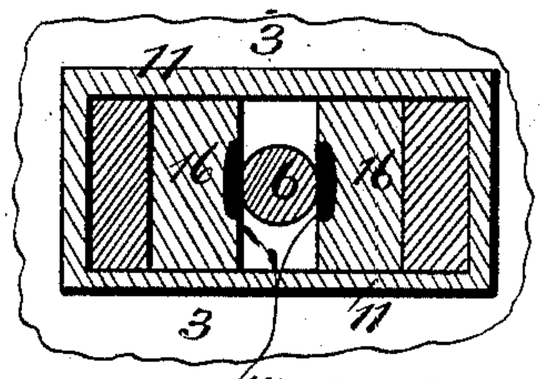


Fig. 6.

Witnesses.
H. P. Denison
P. P. Denison.

Marian A. Andrews
Inventor
By his Attorneys
Smith & Denison

UNITED STATES PATENT OFFICE.

MARION A. ANDREWS, OF SYRACUSE, NEW YORK.

AXLE-MOUNTING.

SPECIFICATION forming part of Letters Patent No. 432,109, dated July 15, 1890.

Application filed October 21, 1889. Serial No. 327,609. (No model.)

To all whom it may concern:

Be it known that I, MARION A. ANDREWS, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Axle-Mountings, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in the mounting of cars upon their axle-bearings and to the bearings themselves, and which are designed to reduce the friction of the axle in its bearings, and consequently reducing the draft proportionally to the frictional reduction.

The object of my invention is to produce an anti-friction journal-bearing, and also one which requires no oiling, in which a ring bears functionally upon the top of the axle, a grooved roller fitting upon the inner face of the ring vertically opposite the axle, which primarily receives the weight of the car and load and through which and the ring it is transmitted to the axle, and friction-rollers between the grooved roller and inner face of the ring to steady the ring, preventing oscillation, and also aiding in transmitting friction to the ring to rotate it jointly with the friction of the grooved roller, and also providing friction-rollers or other friction mechanism bearing horizontally against the axle opposite each other to steady the axle and prevent it from being thrown out of line horizontally with the oscillation of the car-body or truck.

My invention, being an improvement upon a patent granted to H. L. Phelps June 19, 1888, No. 384,782, consists in the several novel features hereinafter described, and which are set forth in the claims annexed hereto.

It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a rear elevation of the journal-box with the cap removed. Fig. 2 is a rear elevation of the cap, showing the axle in the slot. Fig. 3 is a plan view of the inner face of the cap, showing the axle between the rollers. Fig. 4 is a vertical sectional elevation of Fig. 1. Fig. 5 is a horizontal section of the cap shown in Fig. 2. Fig. 6 is a vertical transverse section of the cap, showing a yielding or springy frictional mechanism to support the sides of the axle against horizontal wabbling.

A is the journal-bearing mounted in a box-frame in any ordinary way and provided with the side shoulders 1, which support the lower ends of the springs in the usual way.

The bearing consists of a hollow body 2 and a cap or cover 3, closing the open or inner side of the bearing. Within this body I place a loose cylindrical ring 4, of smaller external diameter than the bore of the body. A shaft 5 is mounted in the body in substantially a vertical line below the axle 6.

Upon the shaft I mount the roller 7, grooved in its periphery, so as to freely receive the ring between the flanges 8.

Between the roller and the ring, and bearing against both of them, I mount the idler friction-rollers 9 upon shafts mounted in the body, and these rollers, rotating with the grooved roller and ring, aid in the rotation of the ring and support and steady it and maintain it in proper vertical alignment and prevent it from wabbling and twisting.

The axle 6 is inserted into the box through an enlarged opening 10 in the cap or cover, and the ring 4 lies upon the top thereof and is carried upon the axle and is thus carried by the axle, the grooved roller, and friction-rollers, and the ring thus constitutes a suspended bearing for the axle within the box.

In a casing 11 upon the cap I mount the friction-rollers 12 in such a manner that, being in longitudinal and horizontal alignment with the axle, they bear against the opposite sides thereof and operate to steady it against horizontal oscillation through the swinging of the car or truck.

In Fig. 6 I show vertical plates 16, each provided with graphite or other anti-frictional facing 17, which bears against the sides of the axle, and behind these plates I place an elastic cushion of rubber, springs, or other material, so that either plate can give a little when the axle bears strongly against it with a sudden lurch of the car. These facings 17 may be concaved to more closely fit the periphery of the axle, if desired. Adjusting set-screws bearing against the plates can also be inserted, if desired, to take up the wear.

Through the front of the body I insert a threaded rod 13, having a squared head 14

and set-nut 15 external to the body, and upon the inner end I mount a flat disk or roller 18, of graphite or other anti-friction material, which bears against the edge of the ring when properly adjusted, and operates to hold said ring in a vertical position, preventing it from wabbling or twisting. It will be observed that through the connections of this bearing to the truck or frame of the car the weight is primarily carried upon the shaft 5 and grooved roller 7, and through them upon the inner face of the ring 4, through the ring upon the idler-rollers 9 and upon the axle 6, and that with the rotation of the axle the ring is frictionally rotated, rotating the grooved roller and the idlers, and that the joint operation of the flanges upon the roller and the graphite disk is manipulated in a vertical position, so that its inner face always remains flat and true.

What I claim is—

1. The combination, with the outer end of a car-axle, of a metallic ring larger than the axle and suspended thereon, a roller within the ring and receiving it between its flanges, and idlers between the roller and ring upon either side of the axle, as set forth.

2. The combination, with the outer end of a car-axle, of a metallic ring larger than the axle and suspended thereon, a roller within the ring and receiving it between its flanges, and idlers bearing against the ring between the roller and the axle on either side, and a disk engaging with the edge of the ring, as set forth.

3. The combination, with the outer end of a car-axle inserted into the journal-box case, of a metallic ring suspended from the axle, a grooved roller, and idlers mounted upon separate arbors and bearing with frictional contact against the inner surface of the ring and all frictionally rotated by the rotation of the axle, as set forth.

4. The combination, with a car-axle loosely inserted through the journal-case, of frictional supports bearing horizontally against the opposite sides of the axle, a metallic ring suspended from the axle, a grooved roller, and idlers mounted upon separate arbors and bearing with frictional contact against the inner surface of the ring and frictionally rotated by the rotation of the axle, as set forth.

5. The combination, with the car-axle loosely inserted through the journal-case, of frictional supports bearing horizontally against the opposite sides of the axle, a metallic ring suspended from the axle, a grooved roller, and idlers mounted upon separate arbors and bearing with frictional contact against the inner surface of the ring and all frictionally rotated by the rotation of the axle, and a disk adjustably mounted in the case and bearing frictionally against the edge of the ring, as set forth.

6. The combination, with a car-axle loosely inserted through the journal-case, of frictional supports bearing yieldingly and horizontally against the opposite sides of the axle, a metallic ring suspended from the axle, a grooved roller, and idlers mounted upon separate arbors and bearing with frictional contact against the inner surface of the ring and all frictionally rotated by the rotation of the axle, as set forth.

In witness whereof I have hereunto set my hand this 11th day of October, 1889.

MARION A. ANDREWS.

In presence of—
HOWARD P. DENISON,
LUCY E. SMITH.