

D. A. MORRIS.
Car-Axle Boxes.

No. 157,534.

Patented Dec. 8, 1874.

Fig. 1.

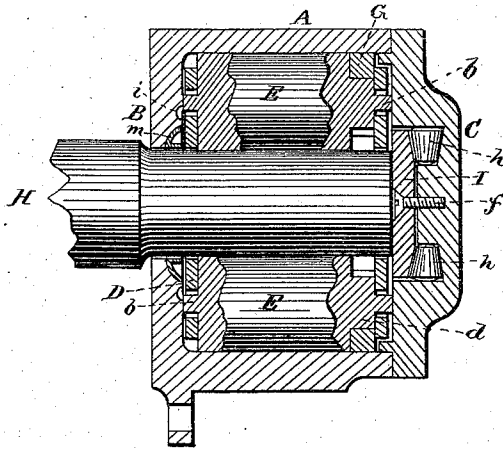


Fig. 2.

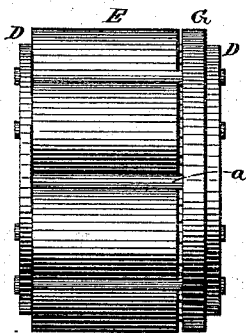
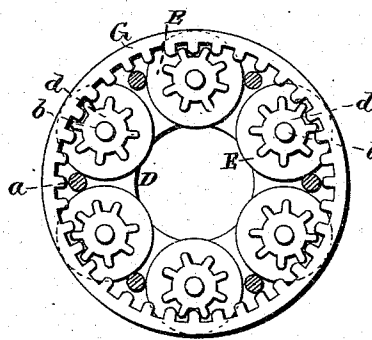


Fig. 3.



Witnesses:
Henry N. Miller
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UNITED STATES PATENT OFFICE.

DAVID A. MORRIS, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **157,534**, dated December 8, 1874; application filed March 26, 1874.

To all whom it may concern:

Be it known that I, DAVID A. MORRIS, of New York, county of New York and State of New York, have invented certain new and useful Improvements in Anti-Friction Journals for Railway-Cars, of which the following is a specification:

My invention relates to that class of journal-boxes for railroad-car axles in which a series of rollers are held in a cage placed within a cylindrical box, and the journal is inserted through the center of the cage between the rollers.

The nature of my invention consists in a loose ring provided with cogs on its interior circumference, which gear with pinions upon the journals of the rollers, for the purpose of controlling the action of the rollers, and compelling them to revolve uniformly, thereby keeping them true and round; also, in a revolving plate and cones inserted in the cap of the box, to reduce the friction caused by the lateral play of the axle. It also consists in a washer and annular groove in the head or back end of the box, to form oil-stops and prevent the oil from being drawn out of the box by the axle.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a vertical section of a journal-box embodying my invention. Fig. 2 is a side view of the cage and rollers with the loose ring, and Fig. 3 is a front view of the same with the front plate removed.

A represents a cylindrical journal-box, of which B is the head or inner end, and C the cap or outer end. The cage within this box is composed of two annular rings or plates, D D, connected by means of rods *a a*, and the plates provided with slightly-elongated slots, in which the journals *b b* of the rollers E E are placed, and allowed to play radially to and from the center for a short distance. Each roller-journal *b*, on one side, is provided with a small cog-wheel or pinion, *d*, between the rollers and the plate on that side, and around all these pinions is placed a loose ring, G, which is provided with cogs

around its inner circumference, and gears or meshes with the pinions. H represents the car-axle inserted through the center of the cage and rollers.

When the car is in motion it will be seen that the loose ring G, or "controller," as I term it, travels with the rollers, but it moves very slow, as compared with the axle. On a full-sized car-box I have found that the axle makes a little more than thirteen revolutions while the controller makes one; and there is an ease of action that cannot be had with a fixed controller.

The pinions or cog-wheels *d* upon the roller-journals are to be made as small as possible, thereby reducing the travel of the pitch-line.

With the movable controller there is no great strain on any of the cogs at any time. The work they have to do is very slight and yet very important. While the rollers are making about two-thirds of the revolution around the cylinder there is no pressure on them, and it is then that the controller does its duty, by compelling the rollers to continue revolving at the same speed they revolve at when and where the pressure is on. Then, by having the rollers a little larger or a little smaller than the axle, the line of pressure from the axle to the top or supporting side of the cylinder, through the axis of the rollers, will be forever varying. This prevents the rollers from becoming flattened, and ceasing to revolve at all.

In the cap C of the journal-box is made a circular recess, the bottom of which is made annular for the reception of a series of cones, *h h*, which fill said annular portion of the recess. On top of these cones is placed a plate, I, filling the recess, said plate revolving around a center-bolt, *f*, when the axle comes in contact therewith, thus materially reducing the friction caused by the lateral play of the axle. Around the axle H, and fitting in the beveled opening in the head B of the box, is a hollow or grooved washer, *m*, which forms an oil-stop, to throw back any oil that tends to be drawn out by the revolving axle. In the inner face of the head B is made a circular groove, *i*, concentric with, and a suitable distance from, the washer *m*, which groove prevents the oil from reaching the axle behind the washer.

I am aware that a cage has heretofore been used for holding rollers in their proper position, such as may be seen in Letters Patent granted to me March 21, A.D. 1854, No. 10,676, and I do not, broadly, claim such.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The loose cogged ring G, gearing with the pinions *d d* upon the roller-journals, in combination with the rollers E, cage D *a*, and cylinder A, substantially as and for the purposes set forth.

2. The revolving plate I and cones *h h*, com-

bined in the cap C of the journal-box, substantially as and for the purposes set forth.

3. The head B of the journal-box, having groove *i* and the washer *m* sunk in a groove, all combined to operate substantially as set forth.

In testimony that I claim the foregoing as my invention I hereunto affix my signature this 25th day of March, 1874.

DAVID A. MORRIS.

Witnesses:

WM. W. LUYSTER,
R. A. MORRISON.