

(No Model.)

G. F. GEAR.
CAR AXLE BOX.

No. 305,748.

Patented Sept. 30, 1884.

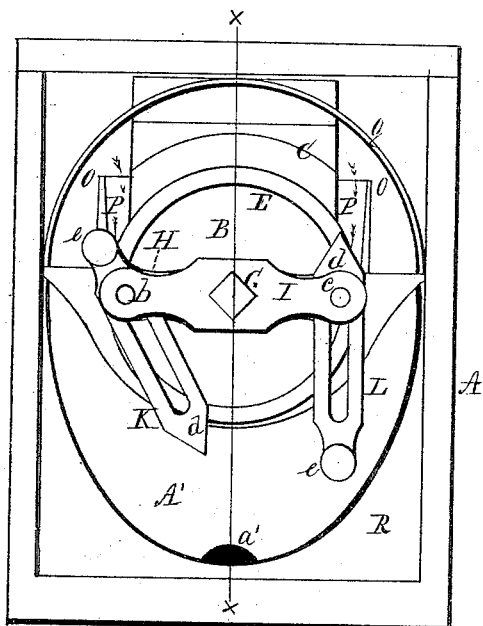


Fig. 1.

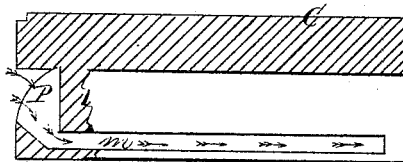


Fig. 3.

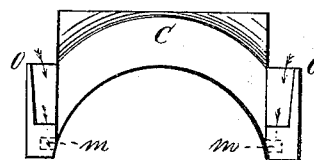


Fig. 4.

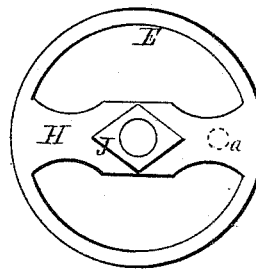


Fig. 5.

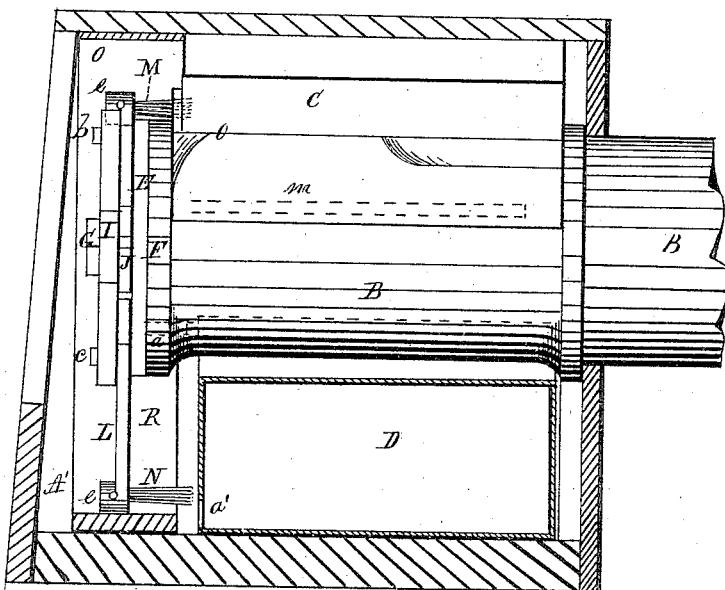


Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

GILES F. GEAR, OF CLEVELAND, OHIO.

CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 305,748, dated September 30, 1884.

Application filed September 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, GILES F. GEAR, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Railway Journal-Box Lubricators; and I do hereby declare that the following is a full and complete description thereof.

The aforesaid improvement is for the purpose of rendering the journal of the car-axle self-lubricating, thereby avoiding a heating of the journal, a waste of oil, and delay in the movement of the train, which sometimes occur when the journal is supplied with a lubricant in the ordinary way.

The invention is an improvement on a device for the same purpose for which a patent was granted to me, bearing date the 5th day of October 1880, No. 232,811.

The improvement above alluded to is fully described in the following specification, and shown in the annexed drawings, making a part of this specification, in which—

Figure 1 represents an end view of a car-axle journal, journal-box, and case inclosing the same, and having applied thereto the improvement above mentioned. Fig. 2 is a side view, partly in section. Figs. 3, 4, and 5 are detached sections.

Like letters of reference refer to like parts in the several views.

A represents a case in which the journal B and journal box or brass C are inclosed; also an oil-reservoir, D, located in the case immediately under the journal, as seen in Fig. 2. In said figure the case and the reservoir are represented in sectional views. The exact construction of these several parts, as shown in the drawings, is not insisted upon, as the same may be more or less modified as circumstances may require, without changing the nature of the invention, which consists in attaching to the end of the journal B a lubricator constructed as follows:

E is a ring, the diameter of which coincides with that of the end of the collar F of the journal, and which is secured thereto by a screw-bolt, G, passing through a cross-piece, H, extending across the ring, as shown in Fig. 5. The ring is further secured to the journal by a dowel-pin (indicated by the dotted line *a*) projecting from the said cross-piece into the end of the journal.

I is a bar similar in shape to the cross-piece H, which is also secured to the end of the journal by the bolt G, alluded to.

Between the bar I and the cross-piece H is a space formed by the thickness of a diamond-shape boss, J, which may form a part of the bar of the ring, as shown in Fig. 5, or it may be an integral part of the bar I, as may be desired. In the space formed by the said boss are fitted, so as to move freely therein, a pair of slotted arms, K and L, which are secured in place by pins *b* and *c*, passing through the bar I into the slots of the arms, thence into the cross-piece of the ring, as seen in the drawings.

It will be observed that one end of each of the arms is pointed, as shown at *d*, and that the opposite ends of the arms terminate in a head, *e*, in which are secured at right angles to the arms wire brushes, respectively M and N. Said brushes project inwardly from the arms so far as to extend over the end of the journal, or the collar thereof, as shown in Fig. 2. The use of said brushes will presently be shown.

In each side of the journal-box C, above alluded to, is a groove, *m*, Fig. 3. Said figure represents a longitudinal section of the journal-box, showing one of the grooves, *m'*, in the side thereof. Said groove is indicated by the dotted lines *m* in Fig. 4.

From the ends of the shoulders O of the journal-box extends down to the groove *m* an oil-passage, P.

In Fig. 3 a portion of the journal-box is represented as broken away that the oil-passage may be seen. By said passage the inner side of the journal-box is in open communication with the outside thereof.

Q, Fig. 1, is a guard, consisting of a semi-ring of metal extending around over the end of the journal, and wide enough to cover the brushes and mechanism above described as attached to the end of the journal. Below said mechanism and brushes is a guard, R, consisting of a section of a ring of about the same width as the ring Q. The ring R is not a true semicircle, its vertical radius being longer than the horizontal radii, as seen in Fig. 1, thereby making a deep curve below the end of the journal, into which may drop the slotted arms K and L, with their respective brushes. Said ring R may form an in-

tegral part of the axle-case A by being cast therewith; or it may be a separate part and inserted in the case and made fast therein by any suitable means.

5 The oil-reservoir D, above referred to, is a vessel occupying the space under the journal. The upper side of the reservoir is concave, to adapt it to the shape of the journal, so that the sides thereof may extend up around it
10 about half of its diameter, but without touching. Said reservoir is entirely closed, excepting an opening, *a'*, near the bottom, whereby it is in open communication with the space A' in the front end of the case, in which the
15 brushes are arranged.

Practically the operation of the above-described lubricating device is thus: The reservoir D is filled with oil by pouring it into the space A', which runs therefrom into the reservoir D through the opening *a'*. The oil-vessel being full, the space A' will also be full
20 up to the same height, in which the brushes will be immersed repeatedly as they are carried around by the revolving axle, the centrifugal force of which will cause the arms K and L to throw out radially to the guard-rings Q and R, by which the arms are prevented from extending into the corners of the case and impinging against the sides thereof; but
25 at the same time the arms are permitted to dip into the oil in the space A' by the major length of the radius of the ring or guard R, so that when the oil may have become low in the space A' and reservoir the brushes will
30 continue to dip into the oil, which, as they revolve, each takes up a portion thereof and scatters it upon the end of the journal-box C, portions of which flow down the openings P into the grooves *m*, along which it flows the
35 length of the journal in contact therewith, thereby automatically supplying it with the lubricant during the revolving movement of the journal. If the lubricant is supplied to the journal in excess of actual need, the excess
40 of oil drips from the journal onto the top of the reservoir, from which it flows back into the space A', to be again carried up by the brushes to be again used in lubricating, as hereinbefore mentioned.

The object in pointing the ends of the arms 50 K and L, and for giving a diamond shape to the boss J, is to prevent the boss from interfering with the radial movement of the arms. The pointed ends of the arms and angular corners of the boss allow the arms to slip by said 55 boss when the arms are pushed inward by the guard-rings.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. In journals for railway-car axles, the ring 60 E secured to the end of the journal of said axle, bar I, angular boss interposed between the said bar and ring, slotted arms secured between the ring and bar by pins inserted in the slots of the arms, that they may have a free 65 radial movement, and said arms having one end pointed, and the opposite end provided with a brush, in combination with the journal and journal-box, substantially as described, and for the purpose set forth.

2. The semicircular guard Q and guard R, 70 arranged in relation to and in combination with the revolving radial movable arms and their terminal brushes, substantially as described, and for the purpose set forth.

3. In railway-car-axle journals and axle-boxes, the combination therewith of the ring 75 E, bar I, and angular boss interposed between the said bar and ring, slotted revolving radial movable arms, with their terminal brushes 80 es and pointed ends, guard-rings, oil-reservoir, and journal-box provided with a groove along each of its inner edges, and oil-passages extending from the outer side of the said journal-box to the said grooves, respectively, and 85 case inclosing the lubricating mechanism, constructed and arranged to operate in the manner substantially as described, and for the purpose specified.

In testimony whereof I affix my signature in 90 presence of two witnesses.

GILES F. GEAR.

Witnesses:

J. H. BURRIDGE,
W. H. BURRIDGE.