

R. M. FRYER & R. L. S. HALL.

Car-Axle Boxes.

No. 158,169.

Patented Dec. 29, 1874.

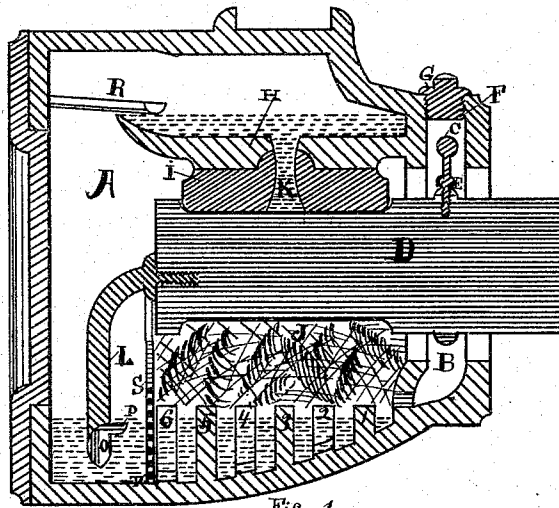


Fig. 1

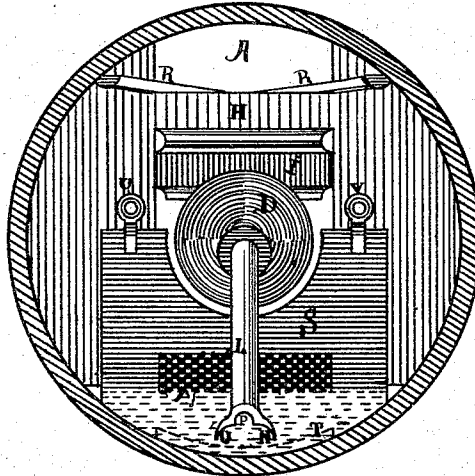


Fig. 2

WITNESSES,

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UNITED STATES PATENT OFFICE.

ROBERT M. FRYER AND ROBERT L. S. HALL, OF NEW YORK, N. Y., ASSIGNORS
TO THE EAGLE LUBRICATING AXLE-BOX COMPANY, OF SAME PLACE.

IMPROVEMENT IN CAR-AXLE BOXES.

Specification forming part of Letters Patent No. **158,169**, dated December 29, 1874; application filed
June 12, 1874.

To all whom it may concern:

Be it known that we, ROBERT M. FRYER and ROBERT L. S. HALL, of the city, county, and State of New York, have invented a new and useful Lubricating Apparatus for Car-Axles, of which the following is a specification:

Our invention relates to that class of lubricators for car-axles which elevate the oil, by means of an attachment secured to the rotating axle, to the top of the brass over the axle, where it is delivered and allowed to pass through holes provided in the top of said brass to the axle, and finally to the receptacle at the bottom of the box, where it is collected impregnated with the worn metal and other grit naturally present, in which state it is again elevated, as before, to the top of the brass, and worked over and over in a similar manner.

This is one of the difficulties to overcome, viz.: The oil must be practically ridden of the wearing metal and other foreign substances at the end of each lubricating operation. Another difficulty is in the present revolving elevator for the oil. Its form being that of a disk, access is prevented to the end of the axle from the front of the box, unless the said disk is first removed.

Now, in order to overcome the first-mentioned difficulty, we employ a filtering-agent between the lower portion of the axle and the lower receptacle for the oil; and the second difficulty we overcome by employing an arm or arms, instead of a disk, for elevating the oil to the top of the brass. We also obviate the necessity of parting the box to introduce a certain collar, hereafter alluded to, which rotates in a small chamber at the rear of said box, to prevent the oil from working its way therefrom. This we accomplish by employing an arm or arms, which are adjusted, through an opening at the top of the box, to a bead on the axle, and thus we accomplish the same result.

But in order to fully describe our invention, that its novelty and usefulness may be observed readily, we will begin the general description, having reference to the accompanying drawings, in which—

Figure 1 represents a longitudinal section of our improved lubricating apparatus through

the center of the axle. Fig. 2 is a vertical section of the same from the front of the axle.

A is the box or case, provided at the rear with an annular chamber, B, wherein rotates the arm or arms C, attached to the axle D at the bead E, therein provided. F is an opening in the top of A, through which access is gained to adjust the arm C. G is a cap or plug for closing said opening. H is a partial partition located near the top of box A, and rests upon the brass I, which is supported by the journal of axle D. J is a chamber located underneath the axle D, filled with sponge, cotton-waste, or any other suitable filtering-agent, which also impinges on the face of the said axle, keeping it moist with oil, and at the same time wiping away the wearing metal by the rotation of said axle. This filtering-agent is kept comparatively clean, at the point next the axle, by the constant supply of oil which passes through the hole K of the brass to said axle from the basin-like top of the partition H, where it is deposited by the arm L in the following manner:

At the bottom of A is a receptacle for containing a suitable quantity of oil to start with, and to receive the oil which filters down through the material contained in chamber J. L is an arm attached to the end of axle D. The said arm is provided at the outer end with two branches, N O, having grooves in the sides facing each other and uniting at the base. The said grooves form a trough or spout, P, which leads off in a lateral direction, for the purpose hereinafter mentioned. The branches N O are pointed at the end, so as to appear like the bow of a boat. This is done to retard the flow of oil therefrom, which would otherwise be thrown by centrifugal force out of the groove too soon after being gathered therein from the oil-receptacle at the bottom of the box through which the said arm passes at each rotation of the axle. The spout or trough P is so constructed and arranged that, when the axle D is revolving very slow, the oil gathered by the boat-like points will run down to the said spout, and thereby conveyed to top of partition H, which, as it will be noticed in Fig. 1, is made to protrude sufficiently in the proper direction to come underneath the said

spout when in an upward position. Hence it will be seen that when the axle is revolving rapidly, the oil gathered by the branches, as before mentioned, is thrown by centrifugal force to the top of box A, where it is caught by the grooves R, and thereby conveyed to top of the partition H. But when the said axle is revolving very slow, the said oil will be delivered to the said partition through the trough or spout P, as above stated. And should it ever occur that the motion of the axle is neither slow enough nor fast enough to perform either of these operations, the substance employed as a filtering agent in chamber J, being in constant contact with the revolving axle, and being saturated with oil, will furnish the journal ample lubrication until the proper speed is attained to effect either of the results above mentioned, which will produce a fresh and abundant supply of oil to the top of the brass to keep it cool and perfectly lubricated. The object in employing the two branches at arm L instead of one, is to provide means for elevating the oil equally well when the axle is revolving in either direction. The bottom chamber J is provided with a series of vertical diaphragms, 1 2 3 4 5 6, upon which rests the filtering-agent above mentioned, so that, after the oil has fallen from this substance, it is delivered between the said diaphragms, and is thereby conducted to the front of the box A in the following manner: Every alternate diaphragm is connected with one side of box A, the other diaphragm with the opposite side of said box, and, as the said diaphragms are shorter than the width of the said box, the result is that a space is left be-

tween one end of each diaphragm and the box; therefore, the oil flows first in one direction to end of the diaphragm 1; then, by the inclined form of the bottom of A, it flows around the end of 1 and returns, in its passage between 1 and 2, to the end of 2; from thence in an opposite direction, passing between 2 and 3, to the end of 3; and so in this order, it finally passes through the vertical filtering-plate S, which is secured in position by cleat T and buttons U V, to give easy access to chamber J.

We wish here to state that we are aware that the arm L may be formed in several shapes to elevate the oil. We are aware of the Patent of J. R. Morris, January 7th, 1873, No. 134,696, and do not claim anything therein shown and described. Nor do we claim, broadly, a filtering-chamber in an oil-box; but

What we do claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. The arm L, with the grooves R, partition H, and filtering-chamber J, combined to operate for the purpose of elevating, using, and filtering oil in box A for lubricating the journal, as set forth.

2. The arm C, in combination with chamber B, for the purpose of preventing the oil from working from the box A through the opening at the back thereof, as set forth.

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Witnesses:

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