H. GARDINER.

CAR AXLE LUBRICATOR.

No. 188,619. Patented March 20, 1877.

Fig. 1

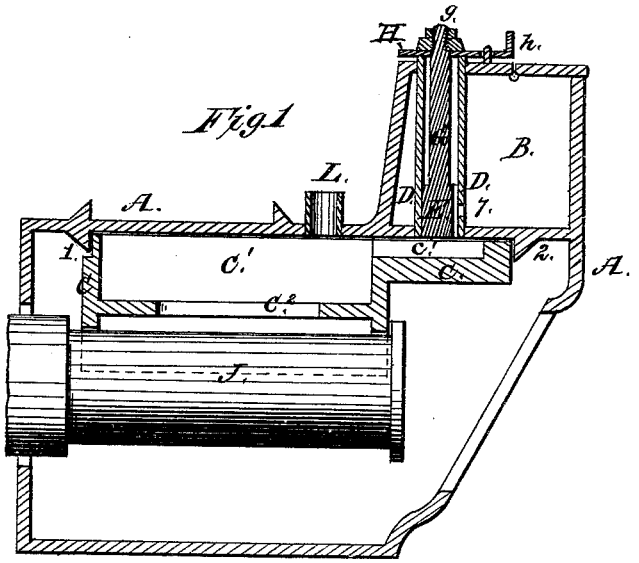


Fig. 2.

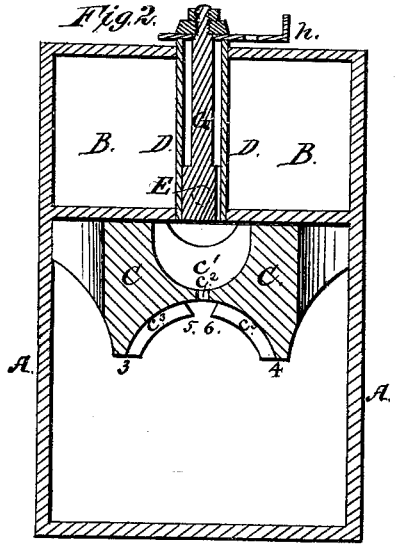


Fig. 4.

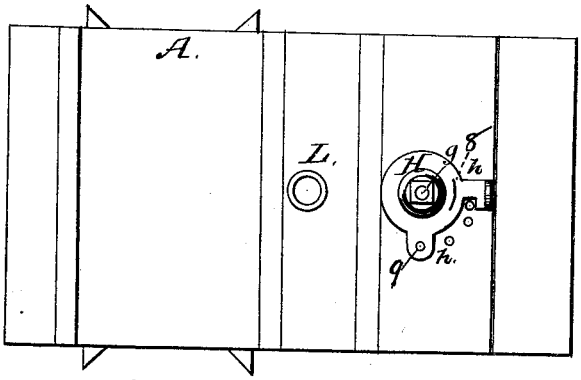


Fig. 3.

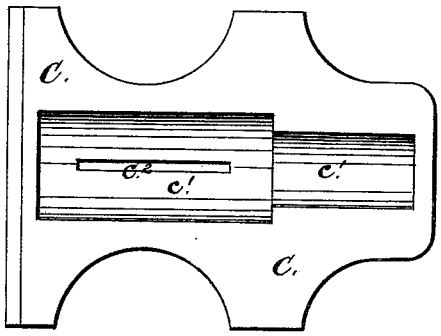


Fig. 5.

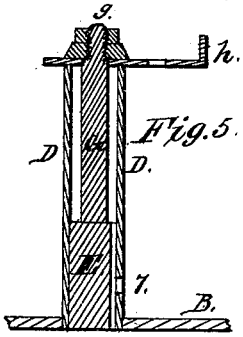
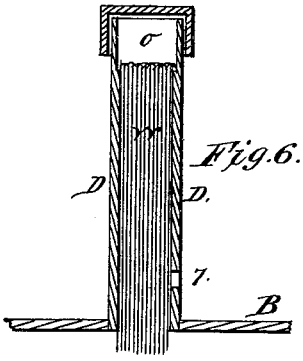


Fig. 6.



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IMPROVEMENT IN CAR-AXLE LUBRICATORS.

Specification forming part of Letters Patent No. **188,619**, dated March 20, 1877; application filed November 6, 1876.

To all whom it may concern:

Be it known that I, HEMAN GARDINER, of the city, county, and State of New York, have invented new and useful Improvements in Lubricators for Railroad-Car Journals; and that the following is a full and exact description of my said invention, reference being had to the drawing accompanying and making part of this my specification.

The object of my invention is to operate, adjust, and regulate the flow and feed of the oil from the reservoir to the journal, so that no more oil will be distributed to the journal than the journal requires and consumes, and to reduce in number and to simplify the parts and arrangement of the means by which the lubricating process is effected; also, to effect a close and water and oil tight connection between the journal and reservoir and the intermediate passage, and to provide for the cleansing the journal from gummy or hard incrustations without removing the casing or taking off the journal-box or interfering with the oil-chamber.

The nature of my invention and its construction will be fully set forth in the following description and claims, taken in connection with the references to the drawing.

In the accompanying drawing, Figure I represents a vertical longitudinal section of the oil tank or reservoir, the valve-stem and indicators upon the head of the stem, the journal, the journal box or bearing, the cup or secondary oil-chamber and conduit, the tube which communicates with the journal for introducing the cleansing-fluid, and the outer case or fixture upon which sits the pedestal of the car. Fig. II represents a vertical cross-section through the oil-tank, valve and stem, and journal box or bearing, at right angles to section in Fig. I. Fig. III represents a top or plan view of the journal box or bearing, and the secondary oil-chamber and conduit therein. Fig. IV represents, in plan, the top of the outer case and cover of the oil-tank, the indicators attached to the head of the valve-stem, and the head of the tube through which the cleansing-fluid is introduced. Fig. V represents separately, in detail, the tube, the valve, the valve-stem, and the opening port into and through the valve, in vertical central cross-section. Fig. VI represents, in vertical central cross-section, a tube in which is suspended a bundle of straight metallic wires, or of cotton wicking, or any suitable fibrous material, and which is a modification of my invention, to be substituted, if desired, in place of the valve and stem.

In all the figures similar parts are designated by similar letters or numbers.

The general external form of the case which incloses and contains the operating parts of the lubricator is shown at A A. The oil tank or reservoir is of rectangular form, and is shown in longitudinal section, vertical, in its position upon the case at B, Fig. I, and in cross-section in Fig. II. This tank is to be filled with the lubricating-oil, and it is provided with a suitable opening in the cover, through which to pour in the oil, and which may be closed so as to be entirely tight, and exclude dirt or dust.

C, Figs. I, III, IV, is the journal box or bearing, which rests upon the journal J, and sustains the weight above it. It is made of iron, cast solid in one piece, and is sufficiently thick to reach to the under face of the top of the casting A, and furnish the required support to it. It is shown in vertical longitudinal section in Fig. I, in vertical cross-section in Fig. II, and in plan in Fig. III. It extends laterally over the upper half of the journal; and it is also extended longitudinally, so as to reach beneath the oil-tank B. Its sides are flush with the interior faces of the sides of the casing, though they may be cored out in part, as shown in Fig. III, for lightness. It is held fixed longitudinally by the projecting lips or ridges 1 2. Upon the upper side of the box or bearing C is cored out the cup or secondary oil-chamber and conduit c^1, which is made deeper, and of greater capacity in the part which lies over the journal, and narrows and becomes more shallow where it extends under the oil-tank A, and under the foot of the valve.

In the bottom of the cup c^1, over the journal, is a slot or long narrow opening, c^2, Figs. I, II, III, through which the oil comes in contact with the journal. The under semicircular surface of C is cored out or recessed to the extent of the actual bearing upon the journal, and this recess is lined with a metallic anti-friction composition, so as to fit exactly the

upper surface of the journal. It is shown in cross section in Fig. II, at c^3. It is held securely in its place by the lips 3 4, and by the ribs c^5 c^6, which project from the core or recess, so as to form a dovetail. When this lining is properly adjusted upon the journal it forms a close joint, stopping and preventing the flow of oil out of cup c^1, excepting when the journal rotates and lubricates and feeds itself in its rotation.

The top of C is to be covered over with felt, which is to be fastened upon the upper surface of C by a cement of white lead, or any suitable adhesive substance, so that the felt cover will completely close the cup c^1, and no oil can rise over or be thrown out of the cup. The under side of the top casing A rests immediately upon this felting, which prevents any rattle.

The vertical tube D is inserted in the tank B, and through the bottom of it, directly over the narrow part of cup c^1, and also up through the cover of tank B. Within this tube is placed, at the bottom, the valve E, which fills the space in the lower portion of the tube, and this is secured at its center to the stem G, which passes up through the cover of the tank, and turns in its bearing there. It has a square head. (Shown in Fig. IV.) Upon this square head of the stem is adjusted and secured a circular plate, H, Fig. IV, to which are attached the indicators *h h*, placed at a right angle to each other. There is an opening in tube D, at 7, opposite to the valve. This valve K is attached to stem G, and completely fills the space in the bottom of tube D, above and below the opening 7. To form the valve and passage through from the tank B to the cup c^1, a vertical semicircular groove is cut out of the side of E, so as to extend just above the opening 7, and open at the bottom into the cup c^1. When the groove is directly opposite the opening 7, the oil will flow out of the tank, through into cup c^1; but when the groove is turned away from the opening, it will arrest or diminish the flow of oil, according to the degree to which it is turned from the opening. In order to mark the position of the groove when the valve and passage is open, a curved line corresponding to a cross-section of the semicircular groove, and in a straight line above it, is cut into the face of plate H, at 8, and which will also indicate the degree of opening or closing of the valve. The indicators *h h* are so arranged that when the valve is wide open they will be in the position shown in the drawing, Fig. IV. The valve may be held fixed to any desirable degree of opening or closing by a pin or stud through a hole, 9, in one of the indicators, and passing into a corresponding hole in the tank-cover, or by means of a thumb screw or nut.

In order to cleanse the journal from gumming or hard incrustations without removing the journal box or bearing, or the casing, the tube L is inserted into the top of the casing, and communicates with the cup c^1. This tube is provided with a cap or cover, to make the top of the tube entirely close and tight. When the cap is removed, kerosene or any suitable dissolving and cleansing fluid may be poured in, and will be conducted by the opening in the bottom of cup c^1 directly to the journal, the rotation of which causes the kerosene or other fluid to act upon the gummy matter or incrustation, and remove it without interfering with the oil-tank or the cup and conduit c^1, or taking off the box or bearing.

In Fig. VI is shown a modification of a part of my invention, in which, instead of the valve and stem and indicators, is substituted within the tube D a bundle of metallic wires, *w*, closely arranged parallel to each other, or of cotton wicking or other fibrous material, suspended so as to leave a space, *o*, above, in the tube, through which the oil percolates into the cup c^1.

By my invention and improvements above set forth, the oil from the reservoir-tank descends, by force of gravity, by a direct communication, to the journal, where it comes in contact with the upper face of the journal, which is fed and lubricated by its rotation. The flow, adjustment, and arresting of the oil from the tank to the journal are regulated, and great simplicity and economy are effected in the construction; there is a saving in the amount of oil required, and all waste from overflow or leakage is guarded against, both when the journal is in motion and at rest.

Although I have described the wedge or part above the journal as cast solid, or in one piece, I wish it understood that this is not necessary nor claimed as my invention; nor do I claim the cup or conduit c^1. The communication between the valve-port and the journal may be made without any cup or secondary reservoir, and the communication may be made by a passage or passages, cast or bored, in the wedge and solid part over the journal, without altering the nature or use of my invention.

Having thus described my invention and the construction of the apparatus, what I claim therein, and desire to secure by Letters Patent, is—

1. The tube D, the stem G, constituting the valve, placed and operating within the oil-tank, and the stem and tube extending above the cover of the oil-tank, so that the valve can be adjusted and regulated from the outside, combined, constructed, and arranged substantially as set forth.

2. The combination of the tube D and valve E within the oil-tank outside the journal-box, and the tube and stem extending above the cover of the oil-tank, with the arms or indicators *h*, constructed, arranged, and operating substantially as set forth.

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