J. D. CLUTE.

CAR-AXLE LUBRICATOR.

No. 180,112. Patented July 25, 1876.

Fig. 1.

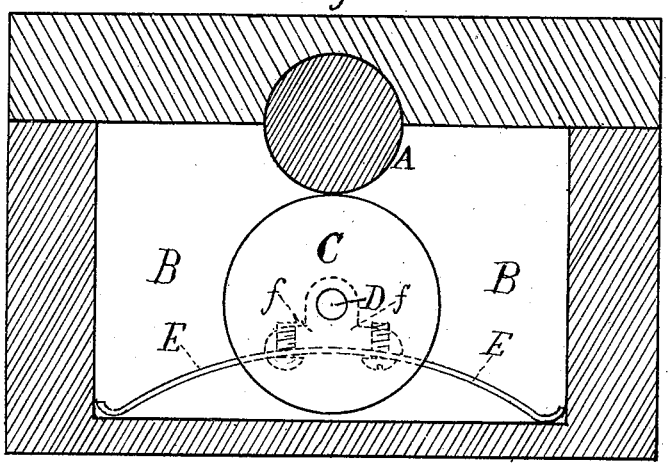


Fig. 2.

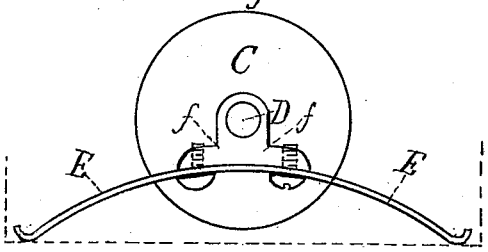
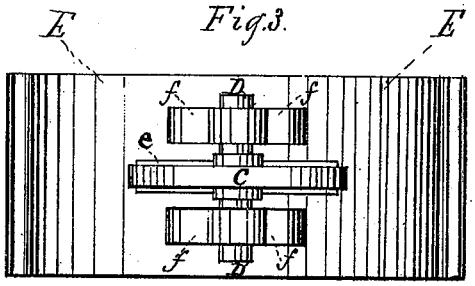


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JACOB D. CLUTE, OF COHOES, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO DANIEL McELWAIN, OF SAME PLACE.

IMPROVEMENT IN CAR-AXLE LUBRICATORS.

Specification forming part of Letters Patent No. **180,112**, dated July 25, 1876; application filed June 26, 1876.

To all whom it may concern:

Be it known that I, JACOB D. CLUTE, of Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Lubricating Device for Car-Axle Journals, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention belongs to that class or family of lubricating devices in which an oiling-wheel is upheld by a yielding force against the journal of a car-axle, or other axle or shaft, and receives its rotary movement from the revolutions of such axle or shaft, to throw up oil and deliver it to the journal and its bearings.

When spiral springs have been employed to support the oiling wheel or roller the arrangement has been complex, at least four springs and four supporting-posts being required, as well as a frame to sustain them; and there is always more or less inequality in the relative pressure of the several springs, besides the liability of their being easily impaired and damaged from various causes, among which may be named the unequal loss of their resilience, due to the constant jarring of the vehicle during travel.

When flat springs have been used for this purpose they have generally been applied with one end free, and with the oiling-wheel attached to such free and swinging end, and with the other end either permanently fixed to the housing or axle-box, or else free to shift about loosely in such box. To this mode of application the objections are, that if the spring be once bent a little too much downward or away from the journal, it takes a set, and the oiling-wheel will then no longer come into contact with the journal, and its efficiency is gone; and when permitted to shift about in the box, the oiling-wheel is constantly liable to assume positions in which the line of its axis, instead of remaining always parallel with the axis of the journal, becomes inclined thereto, so as not to be properly caused to revolve, nor properly to lubricate the journal, or perhaps not receive any rotary motion from it; and when such a spring is in its best condition, and in proper position, its free end that sustains the roller is apt to vibrate, especially when the axle rotates rapidly.

Where an oiling-wheel has been so arranged that its axis rests upon an incline, the wheel falling by gravity against the journal, there is a tendency that the oiling action will be spasmodic and irregular, inasmuch as the rapid revolution of the journal of the car or other axle is apt to throw the roller up the incline every time it rolls down into sudden contact with it, and hence preventing a continuous and uniform contact of the roller with the journal, and consequently preventing a continuous spray or shower of the oil.

By my improvement I avoid all these as well as other objections incident to roller-lubricators as heretofore constructed, and attain positive beneficial results, rendering the device, it is believed, practically perfect, while at the same time simple, economical, and at all times reliable.

In the drawings, Figure 1 is a vertical section through a housing or box adapted for the reception of the oil, and having my invention applied thereto. Fig. 2 is an elevation of the oiling-roller and its sustaining spring-bow support, ready for insertion in the box; and Fig. 3, a plan of the same.

A represents the journal of a car-axle or other axle to be lubricated; B, a box or housing, which may be of any known construction; C, the oiling wheel or roller; D, its shaft; E, a flat plate-spring of bow shape, in the center of which is a longitudinal slot, *e*, to receive the wheel, the bearings *f f* for which are screwed, bolted, or otherwise secured to the central and upper portion of the spring at its highest point or crest, as shown.

The plate bow-spring is of a breadth nearly equal to that of the cavity of the box, and in its bent shape, when in place in the box, is of a length about equal to the length of such cavity, so that it cannot tort or twist, or in any manner get out of true position, and needing no appliance of any sort to hold it in such position; and it has just enough freedom of

motion at its ends to allow the required compression by the journal, when the roller or wheel is put to place beneath it, to keep the two in the proper close and continuous contact.

The dotted lines in Fig. 2 indicate approximately the positions of the ends of the bow-spring relatively to the ends of the box prior to any compression of the spring. The ends of the spring are preferably curved upward, so that they shall ride easily on the bottom of the box, and never catch or scrape.

It will now be seen that the upward pressure is equal on both sides of the center of the spring; that the strain on the spring is always uniformly distributed on both sides its center; that the roller cannot shift from the central position assigned it, but that its axis will always remain in a vertical line with that of the axle; that the contact of the peripheries of the roller and of the axle cannot be intermittent or spasmodic, and that consequently there will be a continuous shower of oil thrown up and over the axle when the wheel or roller revolves; that the spring and its wheel cannot twist or tort out of proper line with reference to the axial line of the journal; that, as the spring may yield equally on either side of its center, the roller can adapt itself to any irregularity in the periphery of the axle-journal, and to any known form of journal, whether cylindrical, tapering, concave, or convex; that when a car is run backward the true action of the spring is undisturbed and the wheel performs its duty equally well, with no change whatever except in the direction of its revolution; that the spring needs no supporting frame-work connected with it; that the device is free from all complication or liability to get out of order, and is exceedingly simple and economical; that it may be instantly applied or removed, needing no tools or skilled workman; and that it is applicable to the existing, and, indeed, to most, if not to all, styles of journal-boxes, as well as to eccentric or crank pins. Two or more revolving wheels can be used on the bow or elliptic spring, which depends upon the length of the journal to be lubricated.

I am aware that flat springs have been used or described having their ends hung or sustained and fixed in the side walls of the box; but in my invention the free ends of the bow-spring rest loosely on the bottom of the box, while the arch of the spring holds the roller up away from the bottom, and the play of the ends of the bow allows all the action required, while the spring and its roll may be at any time readily lifted up from the bottom of the box for removal or otherwise.

I claim—

As a lubricating device for insertion in the oil-box of a car or other axle, the centrally-slotted bow-shaped plate-spring E, in combination with the wheel C, mounted in bearings at the center or crest of the spring, the whole being adapted to hold its true position in the box or housing without the need of any fastening or other appliances.

JACOB D. CLUTE.

Witnesses:

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