(No Model.)

W. H. DANIELS.

CAR AXLE LUBRICATOR.

No. 422,011. Patented Feb. 25, 1890.

Fig. 1.

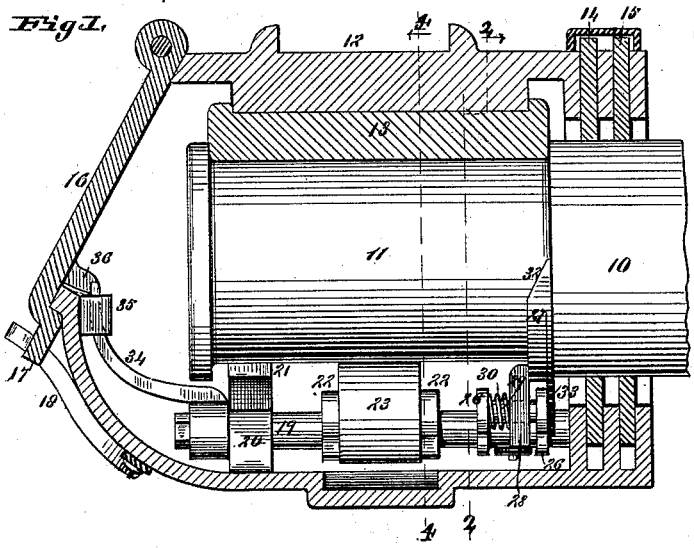


Fig. 2.

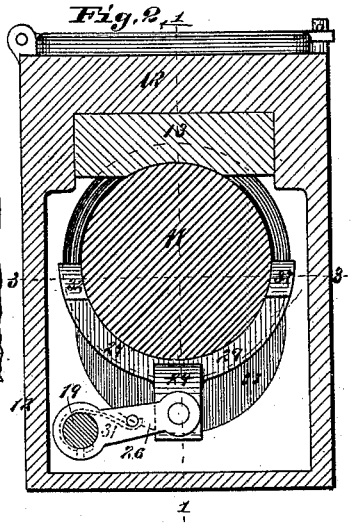


Fig. 3.

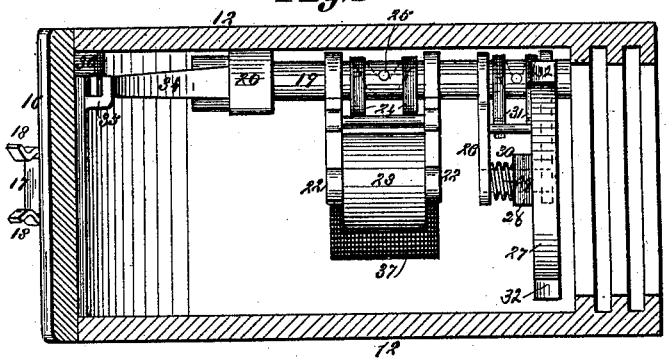


Fig. 4.

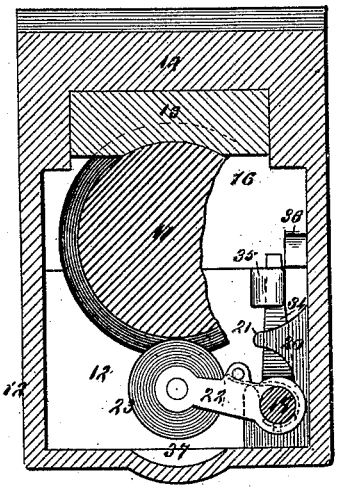


Fig. 5.

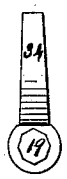


Fig. 6.

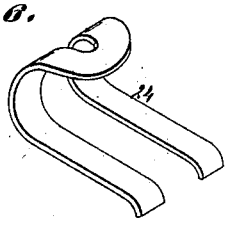
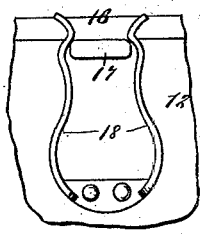


Fig. 7.



Witnesses;
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UNITED STATES PATENT OFFICE.

WILLIAM H. DANIELS, OF ST. LOUIS, MISSOURI.

CAR-AXLE LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 422,011, dated February 25, 1890.

Application filed December 6, 1889. Serial No. 332,789. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DANIELS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Car-Axle Lubricator, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to that class of car-axle lubricators in which a roller is interposed between the oil carried in the lower part of the box and the journal, in order to convey the oil to the journal as it and the roller rotate. The level of the oil in the box must, of necessity, be below the level of the opening between the lower part of the axle and the box; otherwise the oil would flow through said opening. The journal itself, therefore, cannot be made to run in oil, and some means must be interposed between the oil in the lower part of the box and the journal to convey the oil to the journal.

The invention consists in a roller swung from a shaft journaled by the box itself, the lower part of which roller dips in oil or other lubricant in the bottom of the box and conveys the oil to the lower part of the journal by being frictionally rotated by said journal as it revolves.

The invention also consists in a novel means for holding said shaft in its keyed-up position, and in means for permitting play of the drip-collar, and in certain other details of arrangement and construction, which will be set forth in full, and particularly pointed out in the claims making a part hereof.

Figure 1 is a sectional elevation, in the direction of the axle and journal, of a car-axle lubricator made in accordance with my invention, the same being taken on the line 1 1 of Fig. 2. Fig. 2 is a vertical cross-section of the same on the line 2 2 of Fig. 1. Fig. 3 is a horizontal cross-section on the line 3 3 of Fig. 2; Fig. 4, a vertical section on the line 4 4 of Fig. 1, and Figs. 5, 6, and 7 views of details.

10 is the car-axle, 11 the journal thereof, and 12 the ordinary box that surrounds the journal and supports the body of the car.

13 is the usual brass or anti-friction metal held in the upper part of the box, and which rests upon the journal and takes up the wear.

14 and 15 are plates that surround the axle near the journal, and which are carried by the box to form a double dust guard or chamber to prevent the dust from entering the box and commingling with the lubricant.

The entrance to the box is by the usual lid 16, which is hinged to the box and has a nose 17, that is adapted to catch over the free ends of a spring 18, which is secured to the under side of the box.

The foregoing features form no especial part of my invention.

In the lower part of the box, to one side thereof, I arrange a shaft 19, which is journaled at one end in the box and is journaled at the other end by a notched lug 20, that is secured to the side and bottom of the box and may form a part thereof. The lower part of the notch forms a bearing for the journal, and the notch is so shaped that the end of the shaft may be easily inserted and withdrawn from the notch by lifting up the end of the shaft. Said lug has a nose 21, that overhangs the notch and prevents the shaft 19 from being vertically displaced from its bearing therein. To said shaft, at or about the middle thereof, I rigidly attach a hanger 22, which carries a roller 23, the upper part of which is adapted to bear against the lower side of the journal 11, and the lower side of which runs in oil or other suitable lubricant carried in the lower part of the box. This roller and hanger are preferably held up to the journal 11 by means of a bent flat spring 24, of the form shown in Fig. 6, the bend of which takes around a pin 25, projecting from the shaft 19. The free ends of the spring 24 bear against a part of the hanger 22, and thus the roller is kept up to its work.

To the shaft 19, near the dust-guards, is rigidly secured a second hanger 26, which supports a drip-collar 27, that is placed about half around the lower part of the journal, near the axle, and abuts against the shoulder of the axle. The drip-collar 27 is carried by a small upright 28, which is loosely mounted on the shaft 29 of the hanger 26 and plays between the two ends of said hanger. Encircling the shaft 29 is a spiral spring 30, which bears against the upright 28 and holds

the drip-collar 27 against the shoulder of the axle, but allows it to play back and forth as the axle works back and forth in its bearing, which it is liable to do, especially when the wear of the brass 13 is considerable. This second hanger 26 holds the drip-collar up to the journal by means of a bent flat spring 31, secured to the shaft 19 in the manner previously described with reference to the bent spring 24. I bevel the upper ends of the drip-collar 27 at 32 in order to have the surplus oil that is on the journal 11 as it rotates delivered back to the box, instead of passing out around the axle 10 as it ordinarily would. The thin beveled end of the drip-collar skims the surplus oil off of the journal near the axle and causes this surplus oil to flow down the incline of the bevel back into the box, instead of passing out between the axle and box.

To prevent the oil or lubricant in the lower part of the box from passing out between the lower part of the box and the lower part of the axle 10 as the oil surges back and forth, I provide the drip-collar 27 with wings 33, which the oil will strike against as it swashes back and forth in the box, and thereby prevent the lubricant from passing out between the lower part of the axle and the box. In practice the hanger 26 may be made to serve the purpose of one of the wings 33, and prevent the oil as it surges back and forth in the lower part of the axle-box from passing out through the opening between the lower part of the axle and the box.

The end of the shaft 19, near the lug 20, is made angular and preferably octagonal in shape, and is provided with a curved arm 34, which is made to correspond with the octagonal end of said shaft 19. The end of the curved arm 34 engages an angle-iron 35, secured to the box near the lid 16. A certain amount of play is allowed between the arm 34 and the shaft 19 in the direction of the arm and length of said shaft, so that said arm can be moved from the path of the angle-iron 35. The lid 16 carries a lug 36, which, when the lid is down in place, closes the open side of the angle-iron 35, and thus securely locks in position the arm 34. The object of the arm 34 is to hold the shaft 19 when keyed up, so as to make the roller 23 and the drip-collar 27 bear against the axle and maintain said parts in contact with the axle at any required pressure, so that when the brass 13 wears away the roller and drip-collar can still be kept up to their work against the journal. The shaft 19 may be keyed up by a wrench, and when the roller and drip-collar bear against the axle with the required force the shaft is held in position and the arm 34 slipped over the angular part of the shaft and made to engage the angle-iron 35.

In order to be able to place a new brass in the box without unshipping the parts of the lubricator, I provide the box with a depression 37 beneath the roller 23, so that said roller and drip-collar may be sufficiently depressed in order to allow the old brass to be taken out and a new one inserted without removing the lubricator.

My lubricator can be applied to any ordinary car-axle box by providing a journal-bearing for the shaft 19 at one end of the box, and furnishing said box with a notched lug 20 and an angle-iron 35, and securing to the lid 16 a lug or other means to lock the arm 34 in place. By raising the lid 16 the arm 34 may be disengaged from the angle-iron 35, the play of the arm, before referred to, allowing it to be moved out of the path of the angle-iron, and the shaft 19, carrying the roller 23 and drip-collar, may then be removed from the box. The parts are very compactly arranged and the construction very simple. All the parts of the lubricator may be removed from and replaced in the box without in any way disturbing the journal and brass.

Various changes may be made in the construction of the apparatus without departing from the spirit of my invention, and I do not wish to limit myself expressly to the exact devices herein described.

What I desire to claim is—

1. A car-axle lubricator consisting of a shaft journaled by the box thereof, a roller swung about said shaft, the lower part of which runs in oil and the upper part of which bears upon the lower part of the journal and distributes oil to the same, and an arm engaging with an angular portion of said shaft for keying up the same and keeping the roller to its work.

2. A car-axle lubricator consisting of a shaft journaled by the box thereof, a roller swung about said shaft, the lower part of which runs in oil and the upper part of which bears upon the lower part of the journal and distributes oil to the same, a drip-collar carried by said shaft, and an arm engaging with an angular portion of said shaft for keying up the same and keeping the roller and drip-collar to their work.

3. The combination, with a car-axle lubricator, of a drip-collar swung about a shaft journaled in the axle-box and having means for allowing considerable play of said drip-collar in the direction of the axis of the journal and axle to accommodate the longitudinal play of said journal and axle.

4. A car-axle lubricator in which a roller is journaled in the axle-box and bears against the lower part of the journal, the lower part of which roller runs in oil contained in the journal-box, and thereby distributes the lubricant to the journal, having a depression in the box beneath the roller, for the purpose described.

5. The combination, to form a car-axle lubricator, of a shaft journaled at one end in the lower part of the box and having a bearing at the other end in a notched lug secured to the box, a hanger carried by said shaft, a roller journaled by means of the latter and bearing upon the lower side of the journal, a spring for holding the roller to its work,

and a curved arm engaging an angular portion of said shaft and held in position by means of an angle-iron.

6. The combination, to form a car-axle lubricator, of a shaft journaled at one end in the lower part of the box and having a bearing at the other end in a notched lug secured to the box, a hanger carried by said shaft, a roller journaled by means of the latter and bearing against the lower side of the journal, a spring for holding the roller to its work, a curved arm engaging an angular portion of said shaft and held in position by means of an angle-iron, and a lug on the inside of the lid of the box adapted to come between the curved arm and angle-iron and the side of the box to hold said curved arm in place, substantially as described.

7. The combination, with a car-axle lubricator, of a hanger swung about the shaft that supports said lubricator, a drip-collar carried by said hanger, a spring for holding said shaft and drip-collar up to their work, and a second spring for permitting the drip-collar to play within the hanger as the journal and axle play back and forth, and to hold said drip-collar against the shoulder between the journal and axle, for the purpose described.

8. The combination, to form a car-axle lubricator and drip-collar, of a shaft journaled at one end in the box, a notched lug for journaling the other end of said shaft, a hanger swung about said shaft, a roller journaled in said hanger and bearing against the lower part of the journal, the lower end thereof running in oil contained in the lower part of the box, a spring for keeping said hanger to its work, a second hanger swung about said shaft, a second spring for keeping said hanger up in position, a drip-collar carried by said second hanger and having means for allowing said drip-collar to play back and forth, and an arm engaging an angular portion of said shaft for keying it up, an angle-iron on the box for holding the end of said arm in place, and a lug upon the lid or cover of the box for keeping said arm in engagement with the angle-iron, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand and affixed my seal, this 3d day of December, 1889, in the presence of the two subscribing witnesses.

WILLIAM H. DANIELS. [L. S.]

Witnesses:
A. C. FOWLER,
M. S. REEDER.