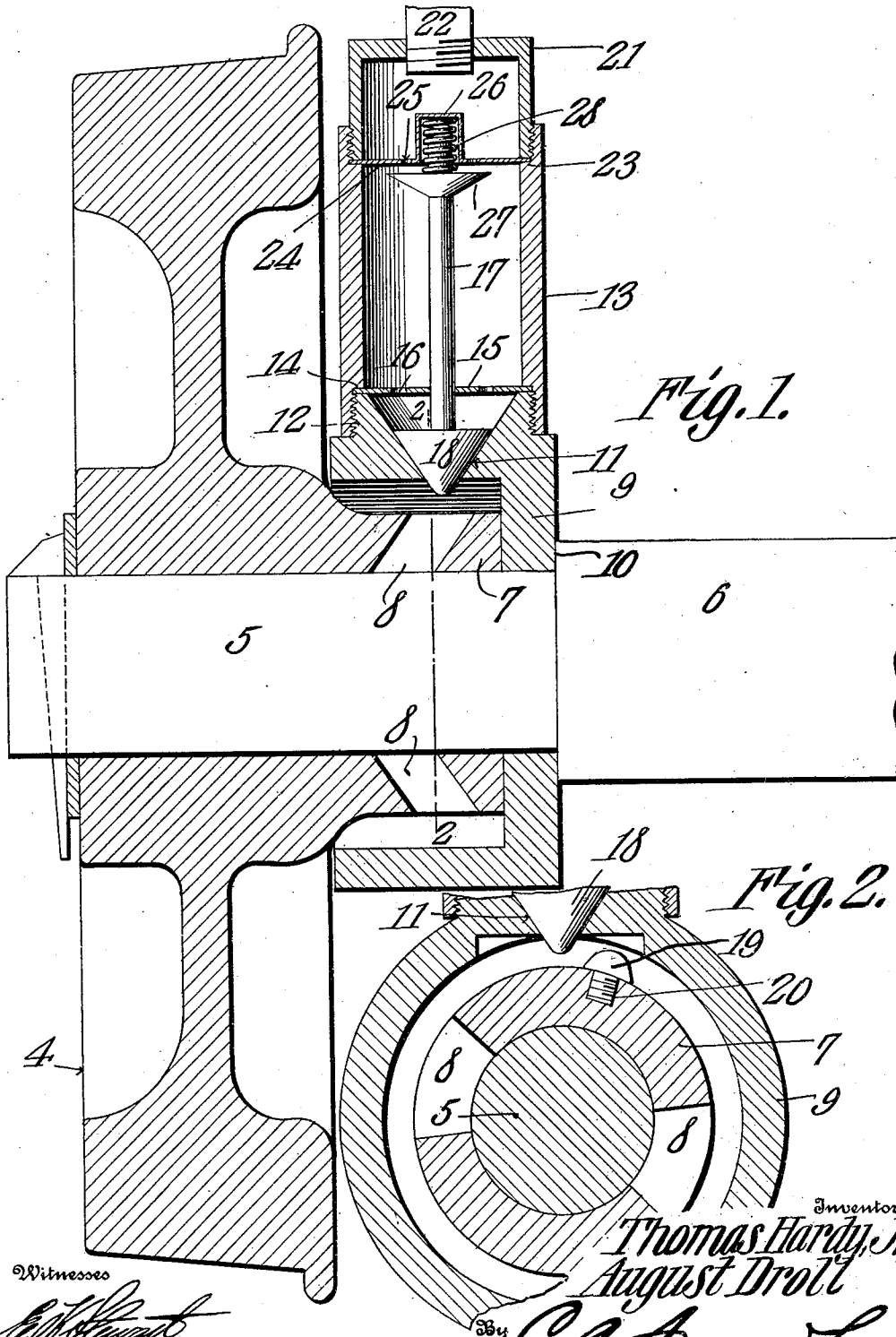


T. HARDY, JR. & A. DROLL.
CAR AXLE LUBRICATOR.
APPLICATION FILED MAR. 16, 1909.

938,852.

Patented Nov. 2, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS HARDY, JR., AND AUGUST DROLL, OF TROY, ILLINOIS.

CAR-AXLE LUBRICATOR.

938,852.

Specification of Letters Patent.

Patented Nov. 2, 1909.

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To all whom it may concern:

Be it known that we, THOMAS HARDY, JR., and AUGUST DROLL, citizens of the United States, residing at Troy, in the county of Madison and State of Illinois, have invented a new and useful Car-Axle Lubricator, of which the following is a specification.

This invention is an automatic lubricating device designed more particularly for the axles of mining car wheels, its object being to provide a device of this kind which is simple in construction, and which will effectually serve to supply a lubricant to the axle during the entire time the car is running.

The invention also has for its object to provide a lubricator of the kind stated in which a supply of lubricant is periodically supplied from a container, the flow of lubricant from the latter being controlled by a valve which is operated at every revolution of the wheel.

With the foregoing objects in view, as well as others which will be apparent as the nature of the invention is better understood, the same consists in a novel construction and arrangement of parts to be hereinafter described and claimed, reference being had to the drawing hereto annexed forming a part of this specification, in which drawing—

Figure 1 is a vertical sectional view of the wheel and its lubricating device. Fig. 2 is a section on the line 2—2 of Fig. 1.

In the drawing 4 denotes one of the wheels of a mining car mounted on the journal 5 of an axle 6. The wheel is held on the journal against lengthwise movement thereon in any suitable manner. The hub of the wheel is elongated on one side as indicated at 7, and in this portion of the hub, at diametrically opposite points, are lubricant openings 8 which extend through the hub, and through which the lubricant is adapted to flow to the journal 5.

The portion 7 of the wheel hub is inclosed by a box or housing 9 which is open at its end next to the inner side of the wheel, and has a central opening through which the journal 5 extends. The box may therefore be slipped over the journal before the wheel is placed in position with the portion 7 of the hub extending into the box as shown in Fig. 1 of the drawing. The wall of the box opposite the open end thereof fits between the end of the hub portion 7 and the shoulder 10 at the junction of the journal 5 and

the axle 6. The box is preferably cylindrical in form, and its inner surface is spaced a suitable distance from the periphery of the hub portion 7.

In the wall of the box 9 is made a valve seat 11, and said wall is also formed with a screw-threaded nipple 12 on which is screwed a lubricant container 13 which is in the form of a cylinder. On the interior of this cylinder is a shoulder 14 between which shoulder and the outer end of the nipple is clamped a disk 15 having a series of perforations 16, and also a central perforation to receive the stem 17 of a valve 18 which engages the seat 11. The perforated disk 15 being located above the valve seat, serves as a guide for the valve stem. The valve is in the shape of a conical plug, the apex of which projects for a short distance into the interior of the box 9, so as to extend into the path of a cam 19 mounted on the hub portion 7. This cam rotates with the hub, and at every revolution thereof wipes across the apex of the valve, and lifts the same off its seat, whereupon the lubricant flows from the container 13 into the box 9 and is discharged through the openings 8 onto the journal. The cam 19 has a reduced screw-threaded stem 20 which screws into a threaded opening made in the outer surface of the hub. Any other method may be employed for mounting the cam on the hub.

The lubricant container 13 is closed by a cap 21 to which is connected the supply pipe 22 leading to a suitable tank or reservoir, and carrying the lubricant to the container. The cap 21 screws into the container 13, and the latter is formed with a shoulder 23 between which and the inner end of the cap is clamped a disk 24 having perforations 25. Located centrally on the disk is a housing 26 into which the valve stem 17 extends. This stem carries a secondary valve 27 which is so located on the stem as to close the perforations 25 when the valve 18 is open, and to uncover the same when said valve is closed. Between the face of this valve 27, and the inner end of the housing 26 a spring 28 is coiled around the valve stem, which spring serves to normally hold the valve 18 to its seat.

The operation of the lubricator will be apparent from the foregoing description, but it may be summarized as follows: The valve 18 is held normally seated by the

spring 28. In this position of the valve, the openings 25 are uncovered, and the lubricant is free to flow into the container 13. At every revolution of the wheel, the cam 19 lifts the valve 18 and opens the same, whereupon the lubricant flows into the box 9, and through the openings 8 to the journal 5. When the valve 18 opens as stated, the valve 27 closes the perforations 25 and thus cuts off the supply to the container 13. When the cam 19 clears the valve 18, the latter is pushed back to its seat by the spring 28, and the openings 25 are then uncovered by the valve 27, thus again opening the container to the source of supply.

Although we have shown the invention applied to a car wheel, it will of course be understood that it may be applied with equal facility to any rotatable element requiring lubrication.

What is claimed is:

1. The combination with a rotatable element having lubricant openings, and its journal, of a box inclosing said openings, a lubricant container having an outlet communicating with the box, a valve controlling said outlet, and means on the rotatable element operating automatically to periodically open said valve.

2. The combination with a rotatable element having lubricant openings, and its journal, of a box inclosing said openings, a lubricant container having an inlet and an outlet, the latter communicating with the box, valves controlling said inlet and outlet, one of said valves closing when the other opens, and vice versa, and means on the rotatable element for periodically operating said valves.

3. The combination with a rotatable element having lubricant openings, and its journal, of a box inclosing said openings, and having a valve seat, a valve for said seat, a lubricant container in communication with the valve-seat, and means on the rotatable element operating automatically to periodically open said valve.

4. The combination with a rotatable element having lubricant openings, and its journal, of a box inclosing said openings and

having a valve seat, a valve for said seat, a lubricant container in communication with the valve-seat, and a cam on the rotatable element engageable with the valve for opening the same.

5. The combination with a rotatable element having lubricant openings, and its journal, of a box inclosing said openings and having a valve seat, a valve for said seat, a lubricant container in communication with the valve-seat, means for normally holding the valve seated, and means on the rotatable element operating automatically to periodically open said valve.

6. The combination with a rotatable element having lubricant openings, and its journal, of a box inclosing said openings, and having a valve seat, a valve for said seat, a lubricant container in communication with the valve-seat and containing a perforated partition, means on the rotatable element for periodically opening the valve, and means carried by the valve for closing the perforations of the aforesaid partition when said valve opens.

7. The combination with a rotatable element having lubricant openings, and its journal, of a box inclosing said openings, a lubricant container having a valve seat, a valve for said seat, a stem on said valve, a perforated partition in the lubricant container and having a housing into which the valve stem extends, a disk on the valve stem located thereon to close the perforations when the aforesaid valve opens, and to uncover the same when said valve seats, a spring coiled around the valve stem between the disk and the end of the housing, and means carried by the rotatable element for periodically opening the valve.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

THOMAS HARDY, JR.
AUGUST DROLL.

Witnesses:

C. S. SMITH,
P. W. FEENEY.