(No Model.)

F. PETTEPHER.

AXLE LUBRICATOR.

No. 505,124. Patented Sept. 19, 1893.

Fig. 1.

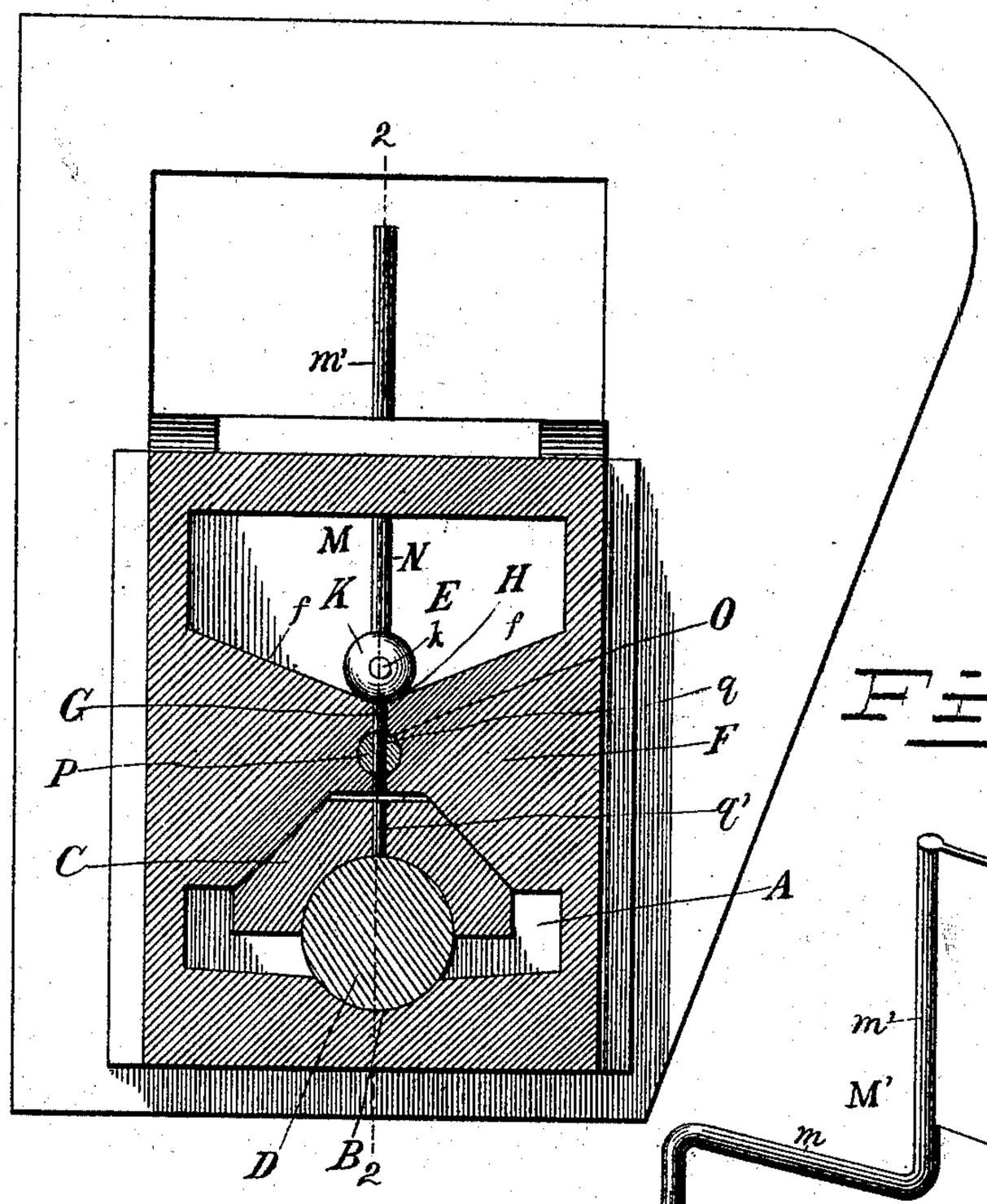


Fig. 3.

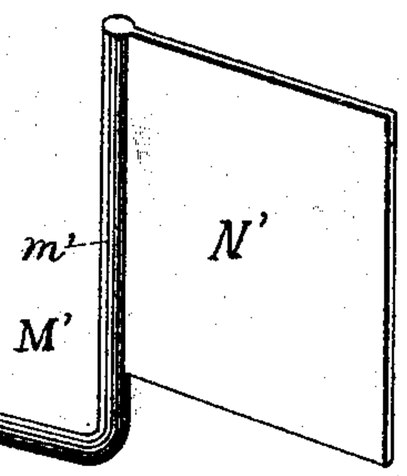


Fig. 2.

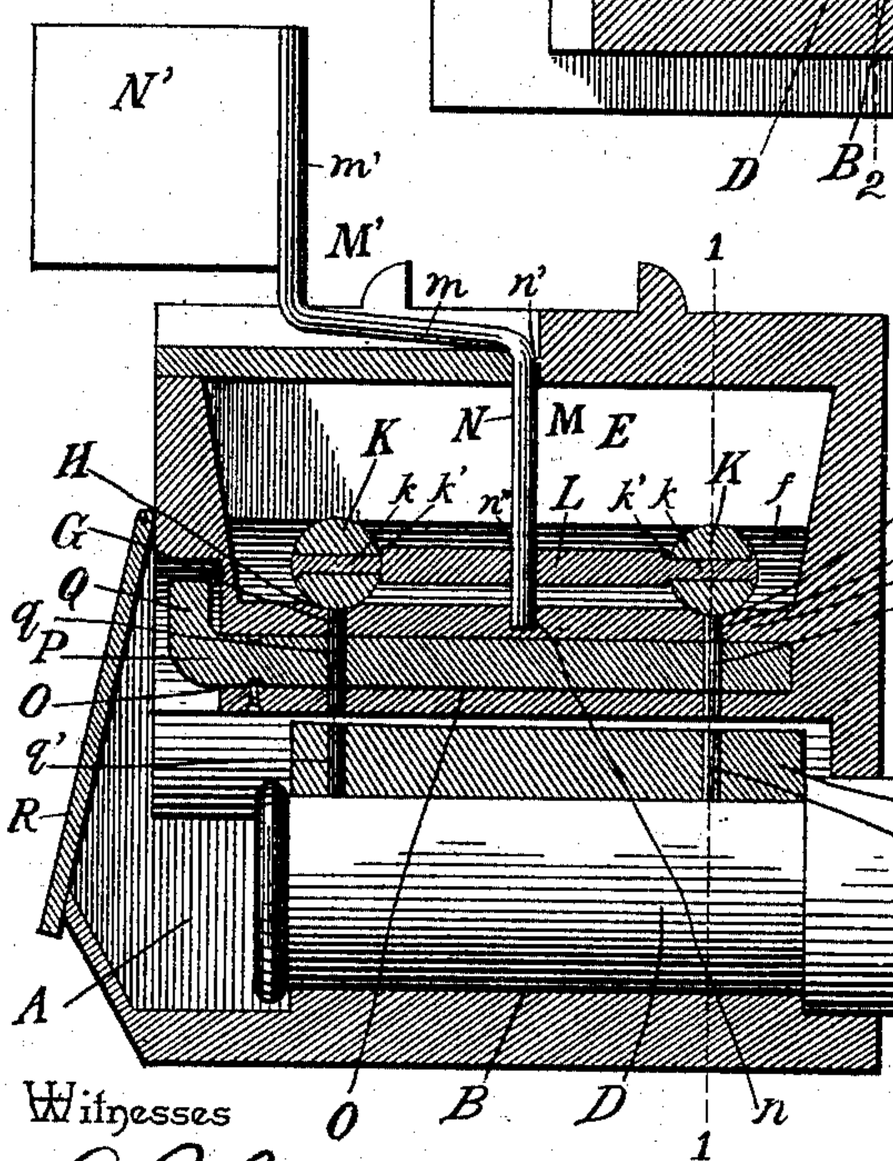
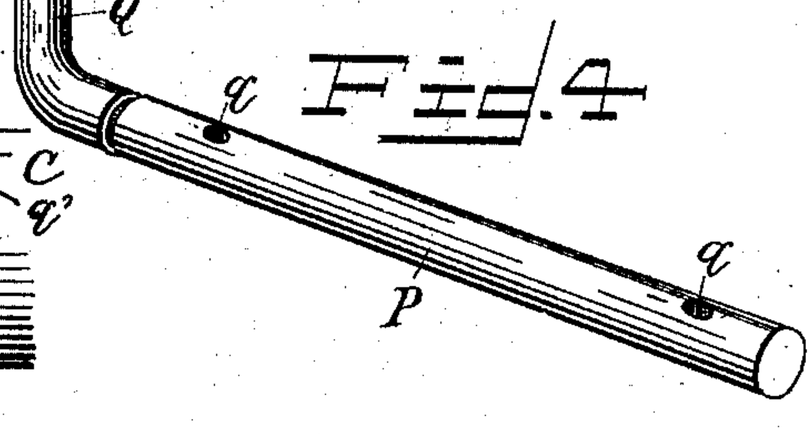


Fig. 4.



Witnesses

A. B. Mattingly

D. E. Doyle.

Inventor

Frank Pettepher

By his Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

FRANK PETTEPHER, OF MARSHFIELD, ASSIGNOR OF ONE-FOURTH TO GEORGE STRAIGHT, OF EAU CLAIRE, WISCONSIN.

AXLE-LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 505,124, dated September 19, 1893.

Application filed January 16, 1893. Serial No. 458,465. (No model.)

To all whom it may concern:

Be it known that I, FRANK PETTEPHER, a citizen of the United States, residing at Marshfield, in the county of Wood and State of Wisconsin, have invented a new and useful Axle-Lubricator, of which the following is a specification.

The object of my invention is to provide a simple, cheap and effective lubricator for axles which will operate automatically to feed the lubricant to the bearing while the axle is in motion and to check the same when the movement ceases.

My invention is designed for use, especially, in connection with railway coaches, cars, engines, &c., to obviate the necessity of frequent oiling and provide for extended runs without personal attention.

Further objects and advantages of my invention will appear as the nature of the invention becomes more fully understood, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings: Figure 1 is a transverse sectional view of the journal, upon line 1—1 of Fig. 2. Fig. 2 is a longitudinal sectional view of the journal upon line 2—2 of Fig. 1. Fig. 3 is a detail view, in perspective, of the governor and valves, detached. Fig. 4 is a detail view of the gage, detached.

A represents the journal-cavity in the floor of which is formed the bearing-seat B, and C represents the cap or block whose concave under-surface fits the upper side of the axle D which bears upon the seat B.

The journal-cavity is separated from the superjacent oil-chamber E by an interposed horizontal partition F, whose upper surface, which forms the floor of the oil-chamber, is beveled or declines toward its center, the lowest point thereof being in a line parallel with and vertically above the axis of the axle D. Feed-openings G are formed in the partition F, at its lowest point, or at the intersection of the beveled surfaces of the floor, such beveled surfaces being indicated in the drawings at *f f*, and around the upper ends of said feed-openings G are formed the valve-seats H.

K K represent twin revoluble valves or balls, (this being the number illustrated in the drawings, although a greater or less number may be employed to suit the requirements of the particular journal to which my improvement may be applied,) which are provided with diametrical bearings *k k* fitted upon the reduced ends of a horizontal rod or cross-head L, the reduction of the ends of such rod or cross-head to enter the bearings in the valves or balls forming shoulders *k' k'* to prevent the inward movement of said valves.

M represents the governor, whose stem, N, is arranged vertically in the oil-chamber with its lower end stepped in a socket *n* in the floor of the same and whose upper end extends through a perforation *n'* in the roof of the oil-chamber in vertical alignment with the socket. This stem is firmly attached, at an intermediate point to the center of the horizontal rod or cross-head L, being preferably arranged in a central aperture *n''* therein, whereby the rotation of said stem is communicated to the rod or cross-head. The stem projects at its upper end through and above the roof of the oil-chamber and is bent to form an arm M', angular in shape, having a horizontal portion *m*, parallel with the rod or cross-head, and a vertical portion *m'* rising from the outer or free end of said horizontal portion, and to this angular arm is firmly attached a wing N which is thus held in a vertical position, parallel with the rod or cross-head.

Mounted in a longitudinal bearing O, in the partition F is a gage P, provided at its outer end with a handle Q, this gage comprising a cylindrical body-portion provided at intervals corresponding with the intervals between the feed-openings in the floor of the oil-chamber with transverse oil-passages *q q*, and the cap or block is provided, at similar intervals with corresponding vertical perforations *q' q'*. When the gage is turned so that its oil-passages *q* register with the perforations *q'* and the feed-openings G, the oil, if not shut off by the valves or balls K, will flow to the bearing, and if said gage is turned so that its passages are arranged horizontally, or out of registration with said perforations and feed-openings, the flow of oil will be

checked. Access to the handle of the gage may be gained by opening the flap-door R in the outer end of the journal-box.

The arrangement of the wing of the governor parallel with the axis of the axle causes it to normally stand at right angles or transverse to the direction of movement of the coach, car, locomotive, or other vehicle to which it is attached.

The valves or balls are held by gravity upon the floor of the oil-chamber, the downwardly inclined opposite surfaces *f f* of which causing the same to automatically seek their respective seats, which, as above described, are located at the lowest point of the floor. Thus, when the car or other vehicle is at rest, and the parts are in their normal positions, the valves or balls occupy their seats, thus closing the feed-openings and checking the flow of the lubricant to the bearing. On the other hand, when the vehicle is in motion the backward pressure of the air upon the wing of the governor, caused by the forward movement of the vehicle and the resistance offered by the atmosphere through which the wing passes, represses the latter, thereby turning the rod or cross head L and removing the valves from their seats. When removed from their seats the valves ride upward upon the inclined surfaces of the floor of the oil-chamber and are thus held during the continuance of movement of the vehicle, during which time the oil is allowed to flow through the feed-openings to the bearing, and when the vehicle comes to rest the valves automatically seek their seats and said flow of oil is stopped. Hence, when the axle is in motion, and needs oil, the latter is fed thereto continuously, and when the motion of the axle ceases the flow of oil is immediately checked, thus avoiding waste of the lubricant and enabling the amount of material contained in the oil-chamber to perform the maximum amount of service. The gage is employed to stop the flow of lubricant permanently.

Changes in form proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention, and I reserve the right to make such changes within the scope of my invention.

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

1. In a journal box for vehicles, an oil chamber provided with a feed opening, a rotatable stem provided with an exterior arm carrying a lateral wing and having a lateral arm within the oil chamber, a valve revolubly mounted upon said arm to close the feed opening, and means to return the valve to its closed position after deflection by the wing, substantially as specified.

2. In a journal box for vehicles, an oil chamber having a feed opening in its floor, a gravitating valve arranged to close said feed opening, and a rotatable stem having an arm connected to said valve and provided with an exterior arm bearing a lateral wing, substantially as specified.

3. In a journal box for vehicles, an oil chamber having feed-openings in its floor, a revoluble cranked stem having the cranked portion M′, a wing secured to the vertical portion of the crank in the plane thereof, lateral arms fixed to the portion of the stem within the oil chamber in the plane of said crank-arm and wing, and gravitating valves revolubly mounted upon said arms, substantially as specified.

4. The combination with a journal-box provided with an oil-chamber having a beveled floor provided at its lowest point with feed-openings communicating with the bearing, of valves resting upon the floor of the oil-chamber and adapted to normally close said feed-openings, and a governor rotatably mounted in suitable bearings in the oil-chamber, connected to said valves and provided with a wing to receive atmospheric pressure, substantially as specified.

5. The combination with a journal box, and a superjacent oil chamber connected to the interior of said box by communicating feed-openings, of a gage rotatably fitted in a cylindrical casing between said journal box and oil chamber, intersecting the said feed-openings and provided with passages adapted to register with such feed-openings, whereby the flow of oil from the oil chamber to the interior of the box may be positively cut off, substantially as specified.

6. The combination with a journal-box and an oil-chamber communicating therewith through feed-openings and having an oppositely beveled floor, of revoluble valves or balls adapted to fit in valve seats at the upper ends of said feed-openings, a rod or cross-head carrying said valves or balls, and a governor connected to the rod or cross-head and provided with means to turn the latter when the axle is in motion, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK PETTEPHER.

Witnesses:

FRANK A. CADY,

MATTIE E. ARMSTRONG.