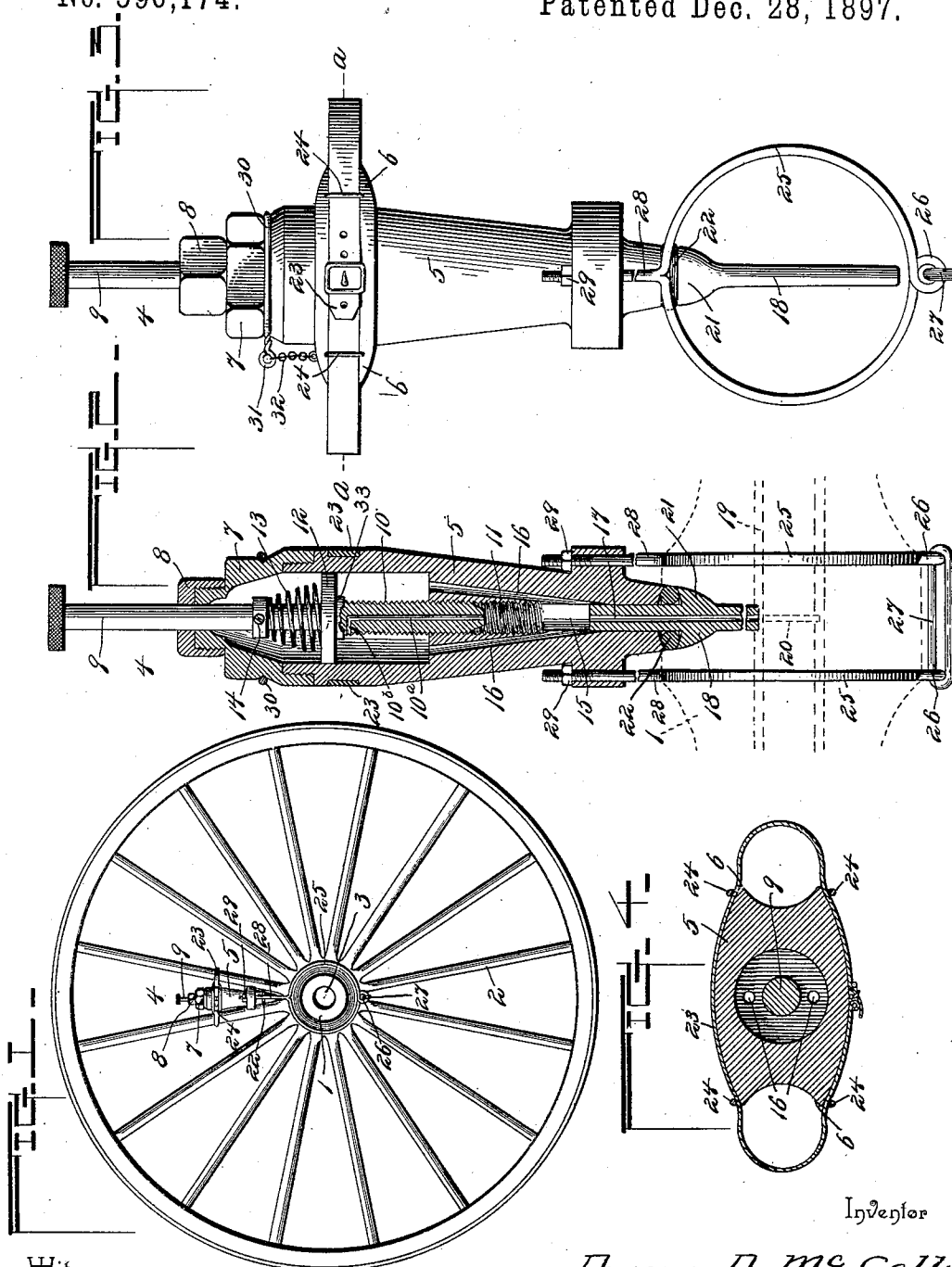


(No Model.)

D. D. McCALL.
LUBRICATOR.

No. 596,174.

Patented Dec. 28, 1897.



Inventor

Witnesses

Duncan D. McCall,

By his Attorneys,

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UNITED STATES PATENT OFFICE.

DUNCAN D. McCALL, OF JOSSE RAND, TEXAS, ASSIGNOR TO JOSIE McCALL,
OF SAME PLACE.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 596,174, dated December 28, 1897.

Application filed April 7, 1897. Serial No. 631,134. (No model.)

To all whom it may concern:

Be it known that I, DUNCAN D. McCALL, a citizen of the United States, residing at Joss-
erand, in the county of Trinity and State of
5 Texas, have invented a new and useful Lubricator, of which the following is a specification.

This invention relates to certain improvements in lubricators, such as are adapted for
10 use in connection with the wheels of wagons, carriages, and other vehicles; and the object of the invention is to provide a device of this character of a simple and inexpensive nature which shall be provided with improved
15 means for holding it on the wheel of the vehicle in position for convenient regulation of the feed of lubricant to the axle-box.

The invention consists in certain novel features of the construction, combination, and
20 arrangement of the various parts of the improved lubricator, whereby certain important advantages are attained and the device is made simpler, cheaper, and otherwise better adapted and more convenient for use, all as
25 will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In order that my invention may be the better understood, I have shown in the accompanying drawings a lubricator constructed
30 according to my invention, in which drawings—

Figure 1 is a side elevation showing a carriage-wheel with my improved lubricator thereon in position for use. Fig. 2 is an enlarged sectional view taken axially through the lubricator, detached, and showing the devices for holding the lubricator to the wheel-hub. Fig. 3 is a side elevation of the lubricator, drawn to the same scale as Fig. 2. Fig.
40 4 is a transverse section, enlarged, taken in the plane indicated by the line *a a* in Fig. 3.

In the views, 1 indicates the hub of the wheel whereon my improved lubricator is arranged, and 2 indicates the spokes, centered at said hub in the ordinary way. The hub 1 will have a box to turn on the axle 3, as will
45 be readily understood.

4 indicates my improved lubricator as a whole, this device being, as shown in Fig. 1,

secured to the wheel between two of the spokes 2.

As shown in Fig. 2, the lubricator comprises a body 5, having an oil-reservoir formed in it and having at the top and bottom of its opposite sides spaced ears 6, adapted to engage
55 on opposite sides of the spokes 2, between which the lubricator is arranged, as clearly shown in Fig. 4. The upper part of the body 5 is open to permit oil to be supplied to the
60 oil-reservoir within, and said open top of the body is adapted to be closed by a screw-cover 7 of a general cone shape, having at its upper end a stuffing-box 8, through which passes a plunger-stem 9, which extends axially in
65 the body portion 5 of the lubricator, and is screw-threaded at its lower end, as shown at 10, to engage a screw-socket 11 in the bottom of the oil chamber or reservoir within the
70 body portion 5.

The plunger rod or stem 9 is threaded for a part of its length only, the threads being at the lower part of the stem to leave the upper part thereof smooth and cylindrical, a shoulder being formed at the point where the screw-threads terminate adjacent to the smooth cylindrical part of the stem, as indicated at 33
75 in Fig. 2. On the smooth part of the stem 9, above the screw-threaded section thereof, is loosely fitted a slidable diaphragm 12, which is capable of a limited movement longitudinally along the stem or rod 9, said diaphragm arranged to fit snugly against the inner walls of the oil-chamber in the body portion 5. The diaphragm is normally pressed downward by the action of a volute spring 13, which encircles the stem 9 and has its upper end fastened to a collar 14, fitted on the stem 9, and fastened thereto adjustably by a set-screw, as shown by Fig. 2, to enable the collar
80 to be adjusted along the stem 9 and relatively to the diaphragm, so as to increase the tension of the spring, as may be desired.

In the body portion 5 of the lubricator, beneath the oil-reservoir therein, is formed a
95 chamber 15, communicating with the oil-chamber at its upper part by means of ducts 16 at opposite sides and also through the screw-threaded socket 11, into which the threaded lower end 10 of the stem or rod 9
100

screws, and the lower part of said chamber 15 is adapted for communication with a duct 17, extending axially through a nozzle 18, fitting in the open lower end of the body portion 5, as shown in Fig. 2, being tapered at its lower end and extending into an opening in the hub 1 of the wheel to the axle-box 19 thereof. The extremity of the nozzle 18 is rounded and the duct 17 opens at said rounded end and is adapted to feed oil to a channel 20 in the axle-box 19.

The lower screw-threaded end 10 of the screw stem or rod 9 is provided with an axial duct or channel 10^a, as shown in Fig. 2, the upper end of which connects by lateral openings 10^b with the oil-reservoir within the body portion 5 of the lubricator and the lower end of which opens at the lower extremity of the screw stem or rod 9, so that when said stem or rod 9 is screwed down to its farthest extent, so that its lower end abuts against the upper end of the reduced portion of the nozzle 18, said duct or channel 10^a will still afford connection between the oil-reservoir and the duct in the nozzle of the lubricator.

In order to form a tight joint between the body portion 5 and the nozzle 18 of the lubricator, the lower end of the body portion is provided with an annular recess surrounding its lower end, and the nozzle 18 is also provided with a flange 21, having a recessed upper face opposite said recess in the lower part of the body portion, the recesses being arranged to receive a washer or ring 22, of rubber or other material, which forms a cushion between these parts of the device, permitting a slight play of the reduced upper end of the nozzle 18 in the lower end of the body portion and relieving the parts from jolting.

To hold the upper part of the lubricator in place to the spokes 2 on its opposite sides, I provide a strap or band 23 of any suitable kind, passing through eyes 24 on the body portion 5, or otherwise attached thereto, and passing around the spokes, as shown in Figs. 1 and 2, and in order to hold the lower end of the lubricator in place to the hub I provide an attaching device comprising rings or loops 25 to fit over opposite ends of the hub, these rings having eyes 26, with which are engaged opposite ends of a link 27, passing between two of the spokes 2 opposite the lubricator and serving to hold the rings against displacement. If desired, a bolt may be used to couple said rings in lieu of said links.

The rings 25 are provided opposite the eyes 26 with stems or arms 28, which extend radially and parallel with each other between two spokes 2 and have their upper ends engaged with eyes or perforations on opposite sides of the lower part of the body portion 5 of the lubricator, and the extremities of said stems or arms 28 are threaded to receive nuts 29 to hold the body portion in place at its lower end. In order to prevent the screw-cover from being detached from the body of the

device and lost, I prefer to provide a ring or loop 30, formed of wire or other suitable material, fitting loosely on the cover and provided at one side with an eye 31, with which is engaged one end of a chain 32, the other end of which is connected with the body portion 5, as clearly shown in Fig. 3.

In operation when the oil-reservoir is full it will be evident that no oil will be fed ordinarily to the axle-box, since there is no air-inlet to the reservoir, and when it is desired to lubricate the axle-box it will only be necessary to press in the stem or rod 9 until its screw-threaded end 10 is engaged with the screw-socket 11 in the bottom of the oil-reservoir. When the rod or stem is screwed downward into the threaded socket in the body portion 5, the collar 14 is carried down with it and the spring bears on the loose diaphragm, which presses against the body of oil contained in the chamber of the body portion 5. As the diaphragm fits tightly in the oil-chamber, the body of oil offers resistance to the descent of the loosely-mounted diaphragm under the pressure of the spring, so that the loosely-mounted diaphragm exerts pressure on the oil and forces it to find escape through the ducts 16, thus feeding the lubricant to the axle-box under pressure. The pressure of the loose spring-pressed diaphragm on the liquid continues until sufficient oil has escaped to bring the diaphragm to the collar 31, formed by the terminal screw-thread where it joins with the plain smooth face of the plunger. At this time it is necessary to again adjust the spindle by screwing it into the socket in the body portion 5, which operation lowers the collar 14 and puts the spring under tension between said collar and the diaphragm to press the diaphragm upon the body of oil and force the latter through the ducts 16 to the axle-box.

From the above description it will be seen that my improved lubricator is of an extremely simple and inexpensive construction, and is especially adapted for use on carriages, wagons, agricultural implements, &c., being adapted to feed the oil or other lubricant to the axle-box in a substantially uniform and gradual manner, so as to prevent waste of oil and clogging of the ducts; and it will also be obvious from the above description that the invention is susceptible of some modification without material departure from its principles and spirit, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the parts herein set forth.

Having thus described the invention, I claim—

1. In a lubricator of the class described, the combination of a body provided with an open, recessed, lower extremity, a nozzle reduced at its upper end to form a stem fitted loosely in said body and provided with an annular ledge, recessed on its upper face to lie opposite to the recess in the lower edge of

said body, a cushion-gasket interposed between, and fitted in the recessed faces of, the body and said nozzle, and means for securing the device to a vehicle-wheel and to clamp the nozzle between the wheel-hub and said body, as and for the purposes described.

2. In a lubricator, the combination of a body portion having an oil-reservoir, provided in its bottom with a screw-socket, said body portion having a bottom below the oil-reservoir and adapted for connection therewith by ducts at opposite sides of the screw-socket in the bottom of the reservoir, a screw-stem engaging the screw-socket in the bottom of the reservoir, a diaphragm carried by the stem for forcing the oil from the reservoir when the stem is moved endwise, and a nozzle having a duct and provided with a reduced end portion extending into the bottom of the lower part of the body portion, said screw-stem having an axial duct the upper end of which is connected by lateral openings with the oil-reservoir and the lower end of which is open at the end of the stem, said duct being always adapted for connection between the oil-reservoir and the duct of the nozzle, substantially as set forth.

3. In a lubricator, the combination of a body provided with a threaded bearing, a threaded stem adjustably connected to said bearing, a plunger fitting tightly within said body and loosely upon the stem, and a pressure-spring carried by, and adjustable with, said stem, and bearing upon the plunger to force the latter downwardly, as and for the purposes described.

4. In a lubricator, a body provided with spaced chambers which communicate by in-

termediate ducts in a partition provided with a threaded bearing, combined with an adjustable, threaded stem fitted in said bearing, a diaphragm fitted in tight engagement with the walls of the oil-chamber and arranged loosely on the stem, a collar fast with the stem, and a pressure-spring interposed between said collar and the diaphragm, as and for the purposes described.

5. A lubricator for vehicle-wheels having a body portion provided with eyes at its opposite sides, in combination with rings loosely connected together and adapted to engage over opposite ends of the wheel-hub, rods carried by the rings and passing through the eyes in the body portion of the lubricator, and nuts screwing on said rods, substantially as set forth.

6. A lubricator for vehicle-wheels having a body portion provided with eyes at opposite sides, in combination with rings to engage over the opposite ends of the wheel-hub and provided with alined eyes, a link engaging the eyes and adapted to pass between the spokes of the wheel to hold the rings in place on the hub, rods carried by the rings opposite said eyes on the rings and adapted to pass through the eyes in opposite sides of the body portion of the lubricator, and nuts screwing on said rods, substantially as set forth.

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

DUNCAN D. McCALL.

Witnesses:

WIRT N. WOOD,
C. J. HINSON.