No. 797,742. PATENTED AUG. 22, 1905.

A. C. McCORD.

LUBRICATOR.

APPLICATION FILED AUG. 8, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

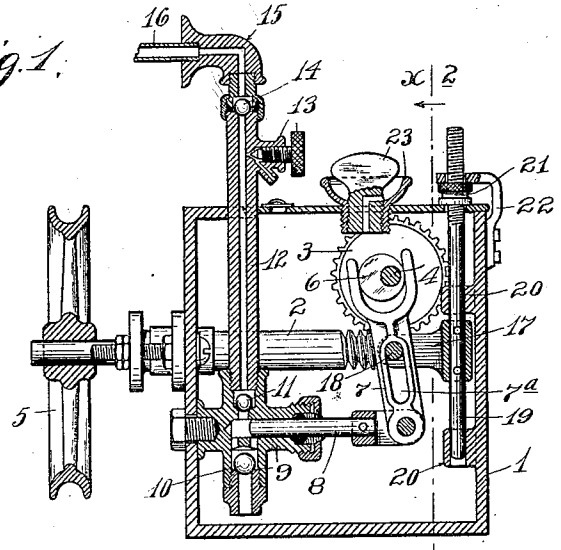
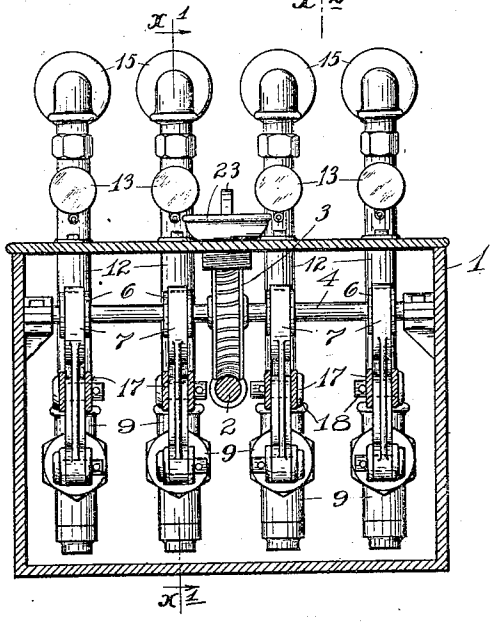


Fig. 2.



Witnesses,
H. D. Kilgore,
E. W. Jeppesen.

Inventor:
Alvin C. McCord,
By his Attorneys,
Williamson & Merchant

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2 SHEETS—SHEET 2.

Fig. 3.

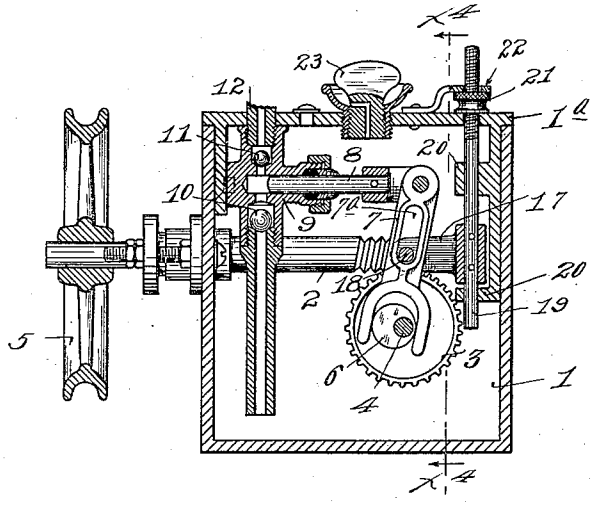
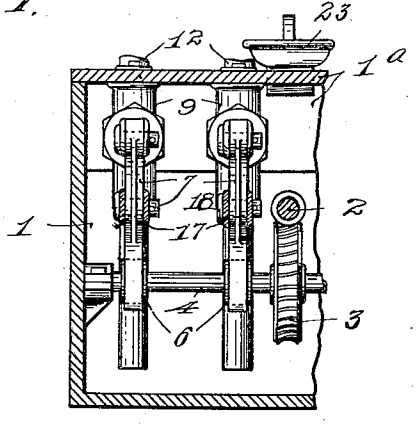


Fig. 4.



Witnesses.
A. S. Kilgore
E. W. Jeppesen.

Inventor.
Alvin C. McCord
By His Attorneys.
Williamson & Merchant

UNITED STATES PATENT OFFICE.

ALVIN C. McCORD, OF CHICAGO, ILLINOIS.

LUBRICATOR.

No. 797,742. Specification of Letters Patent. Patented Aug. 22, 1905.

Application filed August 8, 1904. Serial No. 219,852.

To all whom it may concern:

Be it known that I, ALVIN C. McCORD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lubricators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to forced-feed lubricators of the positive or pump type, and has for its object to provide certain improvements therein with a view of greater simplicity of construction and increased efficiency in action.

To these ends my invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like notations refer to like parts throughout the several views.

In said drawings, Figure 1 is a vertical cross-section through one form of my improved lubricator on the line $x' x'$ of Fig. 2. Fig. 2 is a vertical longitudinal section on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a view corresponding to Fig. 1, but illustrating the preferred form of my lubricator; and Fig. 4 is a partial longitudinal vertical section on the line $x^4 x^4$ of Fig. 3, some parts being broken away.

The numeral 1 represents the oil-reservoir.

The numeral 2 represents a worm-shaft suitably journaled in the walls of the reservoir, with the worm portion of the shaft on the interior of the reservoir, and engaging a worm-gear 3 on a cam-shaft 4, also suitably supported in the walls of the reservoir and extending at right angles to the worm-shaft 2. One end of the worm-shaft 2 projects through a wall of the reservoir and has detachably fixed thereto a driving wheel or pulley 5 for the application of power thereto. The wheel 5 in practice is connected by belt with a pulley on some rotating part of the engine or other machine which is to be lubricated. Instead of the pulley 5 the ordinary well-known pawl-and-ratchet or friction-clutch devices might be substituted for imparting the desired motion to the worm-shaft 2.

On the cam-shaft 4 are a series of eccentric cams 6, engaged by the forked ends of a corresponding series of levers 7, the opposite ends of which levers are connected to the movable members—to wit, the pistons 8—of a corresponding series of pumps, the fixed or cylinder members 9 of which are in Figs. 1 and 2 shown as detachably secured to one of the side walls of the reservoir and in Figs. 3 and 4 as detachably secured to the removable cap or cover 1^a of the reservoir. The cylinder-casting 9 is suitably constructed to afford an oil-passage at right angles to the bore of the pump-cylinder, and this passage is fitted with suitable induction check-valve 10 and eduction check-valve 11, located on opposite sides of said cylinder-bore. An outflow-pipe 12 is detachably secured to the cylinder-casting 9 and in Figs. 1 and 2 is shown as equipped outside the reservoir with a bleeder test-valve 13 and a check-valve 14.

The numeral 15 represents elbows connecting the outflow-pipes 12 with the distribution pipes or ducts 16, which lead to the bearings or other parts required to be lubricated.

The numeral 17 represents brackets having pins 18, which work through elongated slots 7^a, formed in the levers 7. Each bracket 17 is fixed to a rod 19, which works through suitable guide-keepers 20, supported from one of the walls of the reservoir 1. The rod 19 works out through the top plate of the reservoir and is fitted with a hand-nut 21, reacting between the top plate of the reservoir and a retaining guide-keeper 22, fixed to one of the walls of the reservoir and serving to prevent longitudinal motion of the nut when the later is rotated, and thus insuring the raising and lowering of the rod 19, the bracket 17, and pin 18 by the proper rotation of the nut 21. The said parts 17 18 19 constitute an adjustable fulcrum for the lever 7, thereby affording a means for varying the stroke of the lever 7, and consequently of the movable member of the pump to which the same is attached independently of any variation in the stroke of the eccentric shaft or other device which imparts motion to the said lever 7. Hence it is possible to provide an actuating device for the lever 7 which shall have a throw sufficient to impart a maximum stroke to the movable member of the pump, so as to get the full capacity of the pump at every stroke, if so desired, and then the adjustable fulcrum may be shifted and set to reduce the length of the

stroke of the piston to one of minimum length for securing a minimum feed from that particular pump. Every pump is thus independently variable in respect to the actuating device for the lever 7, and of course it follows that the several pumps are independently variable in respect to each other. It follows, of course, that all of the conditions for securing any desired feed or quantity of oil to be delivered from the respective pumps to the respective bearings or other parts to be lubricated are met. It is equally obvious, of course, that the actuating device for the lever 7, which in this instance happens to be a rotary cam-shaft, may be driven at any speed desired from the moving part of the engine or other machine which is to be lubricated, according to the character of the connections from the pulley 5, or other substitute device which may be employed to operate the worm-shaft 2 and the worm-gear 3. It is equally obvious that other forms of actuating devices might be substituted for rocking the levers 7.

In the preferred form of my lubricator, as shown in Figs. 3 and 4, the pumps, the levers 7, the adjustable fulcrums for said levers, including the parts 17 18 19 21, and the guide-keeper 22 are detachably secured to, supported by, and depend from the cover or cap-plate 1^a, which also carries the bearings or guide-keepers 20 for the rods 19. Hence all the said parts—to wit, the said pumps and the said levers 7 and the adjustable fulcrums for the same—are removable together with the cap or cover 1^a of the reservoir and are also separately or independently removable from the said cover. It is equally obvious that all the working parts, with the exception of the pulley 5 or substitute device for rotating the worm-shaft 2, work within the oil contained in the reservoir.

The numeral 23 represents the usual filling funnel and plug with air-inlet to the reservoir.

It is obvious that the lubricator above described is one of great simplicity in construction and that it is adapted to meet all the conditions peculiar to the class of service for which such forced-feed lubricators are intended.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a lubricator, the combination with an oil-reservoir and a pump, of a lever connected to the movable member of the pump, an actuating device for rocking said lever, and an adjustable fulcrum for said lever, whereby the length of the stroke of the movable member of the pump may be varied independently of any variation in the stroke of the lever-actuating device, substantially as described.

2. In a lubricator, the combination with an oil-reservoir, of a plurality of pumps, a corresponding plurality of levers connected to the movable members of the pumps, a common actuating device for all of said levers, and a plurality of adjustable fulcrum-blocks for said levers, whereby the length of strokes of the movable members of the pumps may be independently varied in respect to each other, and in respect to the stroke of said actuating device, substantially as described.

3. In a lubricator, the combination with an oil-reservoir and a pump, of a lever connected to the movable member of the pump, an actuating device for rocking said lever, and an adjustable fulcrum for said lever, with the said pump, the said lever and the said adjustable fulcrum, all supported from the removable cap or lid of the reservoir, and removable together therewith, substantially as described.

4. In a lubricator, the combination with an oil-reservoir having a removable cap or cover, of a plurality of pumps, a corresponding plurality of levers connected to the movable member of the pump, a common actuating device for rocking all of said levers, and a plurality of adjustable fulcrums for said levers, with said pumps, said levers, and said adjustable fulcrums, all supported from the said cap or cover of the reservoir, and removable therewith, and each pump, each lever, and each adjustable fulcrum, independently removable from the cover, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALVIN C. McCORD.

Witnesses:

J. W. WEINLAND,

C. J. COPELAND.