No. 798,083. PATENTED AUG. 29, 1905.

J. A. SWENSON.

LUBRICATOR.

APPLICATION FILED DEC. 27, 1904.

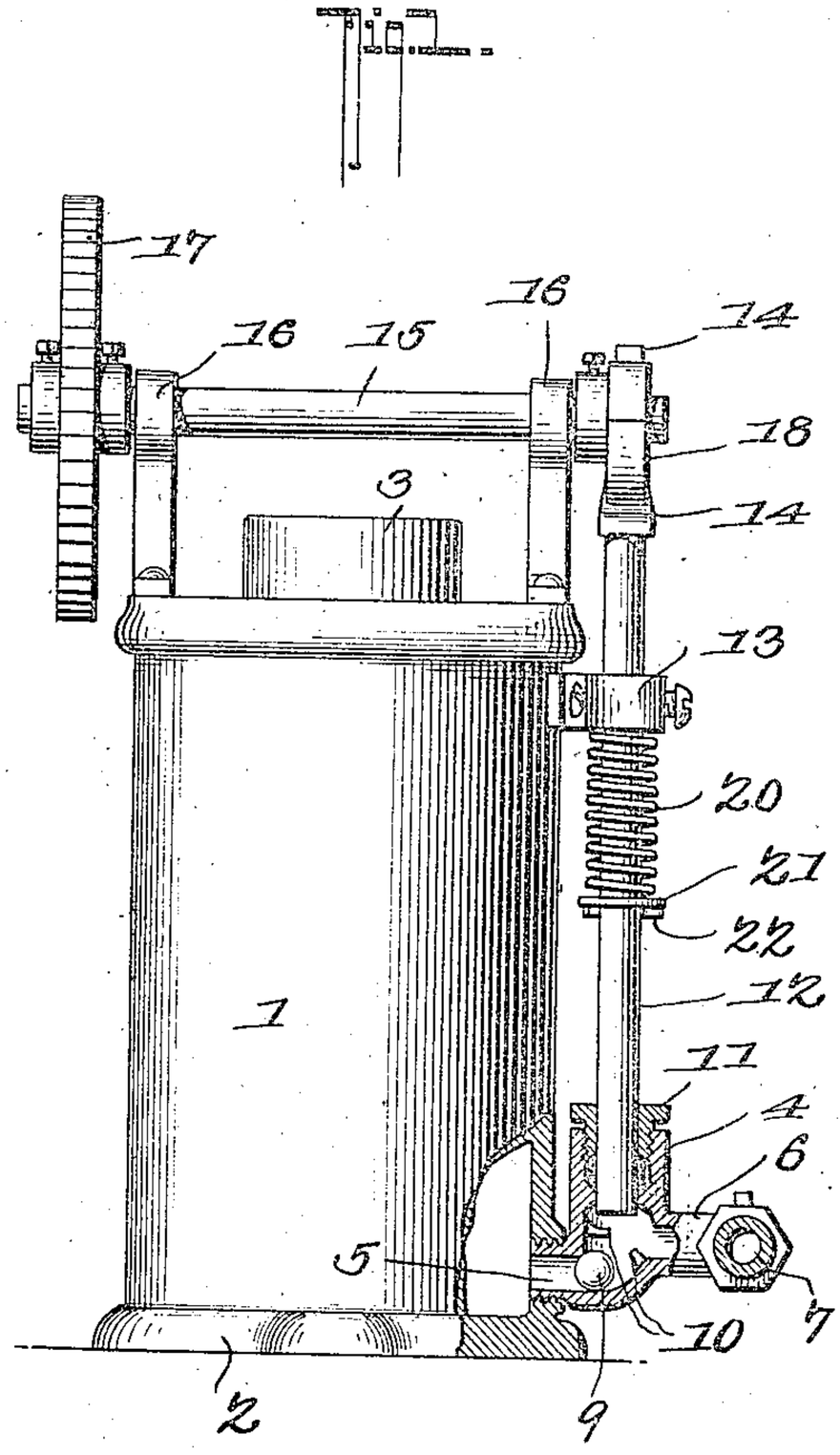

Fig. 1.

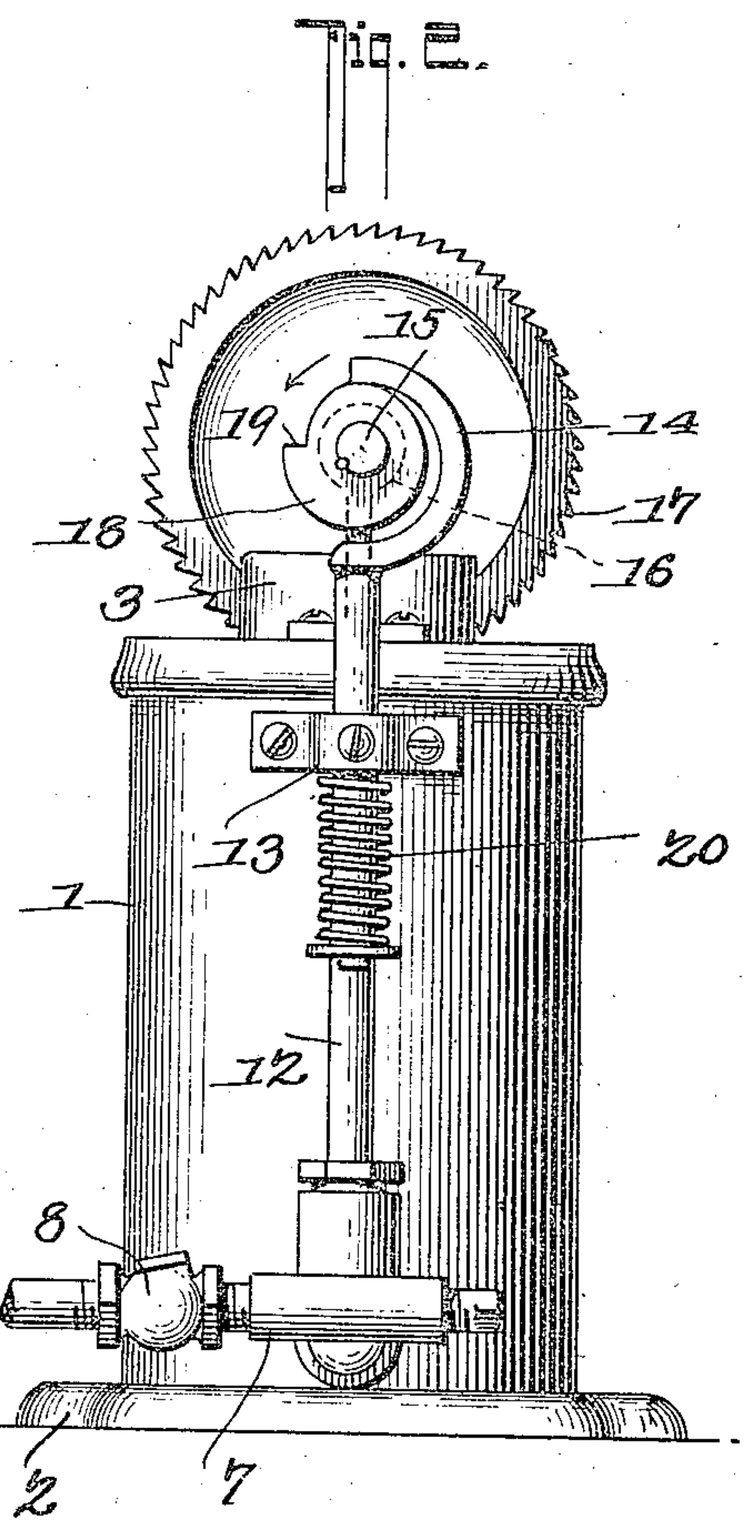

Fig. 2.

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UNITED STATES PATENT OFFICE.

JONAS A. SWENSON, OF McPHERSON, KANSAS.

LUBRICATOR.

No. 798,083. Specification of Letters Patent. Patented Aug. 29, 1905.

Application filed December 27, 1904. Serial No. 238,427.

To all whom it may concern:

Be it known that I, JONAS A. SWENSON, a citizen of the United States, residing at McPherson, in the county of McPherson and State of Kansas, have invented a new and useful Lubricator, of which the following is a specification.

This invention relates to forced-feed lubricators wherein a plunger is employed, and has for its object to effect operation of the plunger in a simple and improved manner and in this connection to obtain a slow withdrawal or rearward movement of the plunger and a quick positive forward movement of the plunger to force the lubricant from the reservoir to the distributing-points.

With this object in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claim without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation of a lubricating device embodying the features of the present invention, parts being broken away to show the interior of the cylinder in which the operating-plunger works. Fig. 2 is a similar view at right angles to Fig. 1.

Like characters of reference designate corresponding parts in both figures of the drawings.

The present apparatus includes a tank or reservoir 1 of suitable capacity and having a base 2 for the support thereof. A suitable closure 3 is provided at the top of the reservoir to permit filling thereof. Adjacent the lower end of the reservoir and upon the exterior thereof is an upstanding pump-cylinder 4, having an inlet-passage 5 leading from the reservoir to the bottom of the cylinder and an outlet pipe or passage 6, having a service-pipe 7 connected to the outer end thereof and including a check-valve 8. A suitable check-valve is included in the inlet-passage 5—such, for instance, as a ball 9—there being a cage or suitable stop device 10 to limit the upward movement of the ball-valve. The top of the cylinder is provided with a suitable stuffing-box 11, through which works an upright plunger-rod 12, the lower end of which constitutes a plunger for drawing oil from the reservoir 1 into the cylinder and then forcing the same outwardly through the passage 6 to the service-pipe 7. A suitable guide-bracket 13 is provided upon the upper portion of the tank and receives the upper portion of the plunger-rod, which latter rises above the top of the reservoir and terminates in a substantially semicircular hook 14.

Disposed horizontally across the top of the reservoir is a shaft 15, mounted in bearings 16, rising from the top of the reservoir and provided at one end with a ratchet-wheel 17, adapted to be driven with a step-by-step movement from any suitable moving portion of the machinery to be lubricated. Upon the opposite end of the shaft is a cam or eccentric 18, which is provided with an abrupt peripheral shoulder 19 at the point of greatest width of the eccentric, the eccentric-hook 14 of course frictionally embracing the periphery of the eccentric with a working fit. To maintain the eccentric-hook 14 in proper engagement with the periphery of the cam, there is a helical spring 20, embracing the plunger and bearing at its upper end against the under side of the guide-bracket 13, while its lower end bears upon an annular shoulder 21, carried by the plunger-rod, preferably in the nature of a ring or collar supported upon a pin 22, piercing the plunger-rod.

In the operation of the apparatus the tank or reservoir 1 is of course filled with the lubricant, and when the machinery to be lubricated is in operation a step-by-step rotary movement will be imparted to the shaft 15 by any suitable means, which is not shown in the present application, for the reason that it forms no part of the present invention. The shaft 15 is of course rotated so as to turn the cam or eccentric 18 in the direction of the arrow on Fig. 2 of the drawings, whereby the cam or eccentric acting against the upper end of the eccentric-hook 14 gradually elevates the plunger 12 against the action of the spring 20, thereby relieving pressure from the front side of the valve 9 and permitting the lubricant to flow from the reservoir into the cylinder and the adjacent portion of the service-pipe. When the eccentric has been rotated until its greatest diameter reaches the upper

free extremity of the eccentric-hook 14, the latter will be freed from the periphery of the cam and be quickly drawn downward by the spring 20 for a distance equal to the length of the shoulder 19, whereby the lower end of the plunger acting upon the lubricant within the cylinder 4 will close the valve 9 and force the lubricant out through the passage 6 and the service-pipe in a very simple and efficient manner. During the downward stroke of the plunger the valve 9 is of course closed, while the valve 8 opens; but during the upward movement of the plunger the check-valve 8 is closed, so as to prevent back pressure, while the valve 9 is open to supply the necessary quantity of lubricant from the reservoir to the cylinder.

From the foregoing description it will be noted that with the exception of the valve 9 all of the parts of the present apparatus are upon the exterior of the reservoir and are therefore conveniently accessible for repairs and adjustment. Moreover, the invention provides exceedingly simple mechanism for actuating the plunger, and the latter is slowly withdrawn through its cylinder, but is quickly shot forward by the spring 20, so as to feed the lubricant in a prompt and efficient manner.

Having fully described the invention, what is claimed is—

A force-feed lubricator comprising a reservoir, a cylinder disposed externally of the reservoir and having a valved communication therewith, a guide-bearing carried by the reservoir in alinement with the top of the cylinder, a plunger having its lower end working in the cylinder and its upper end portion working through the guide, a drive-shaft disposed at substantially right angles to the plunger adjacent its upper free end and mounted upon the top of the reservoir, a cam carried by the shaft and provided with an abrupt peripheral shoulder, an eccentric-hook carried by the upper end of the plunger and frictionally embracing the periphery of the eccentric, and a helical spring embracing the plunger and bearing in opposite directions against the latter and the guide to move the plunger forwardly when the hook trips from the shoulder of the eccentric.

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

JONAS A. SWENSON.

Witnesses:
J. J. TOEVS,
D. HARMS.