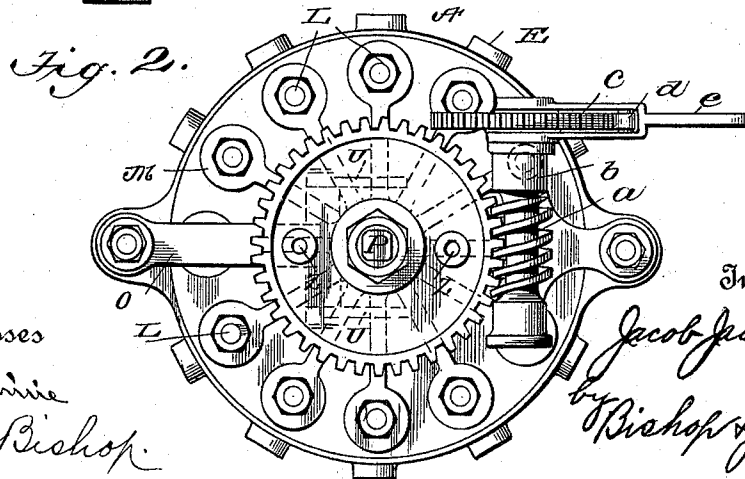
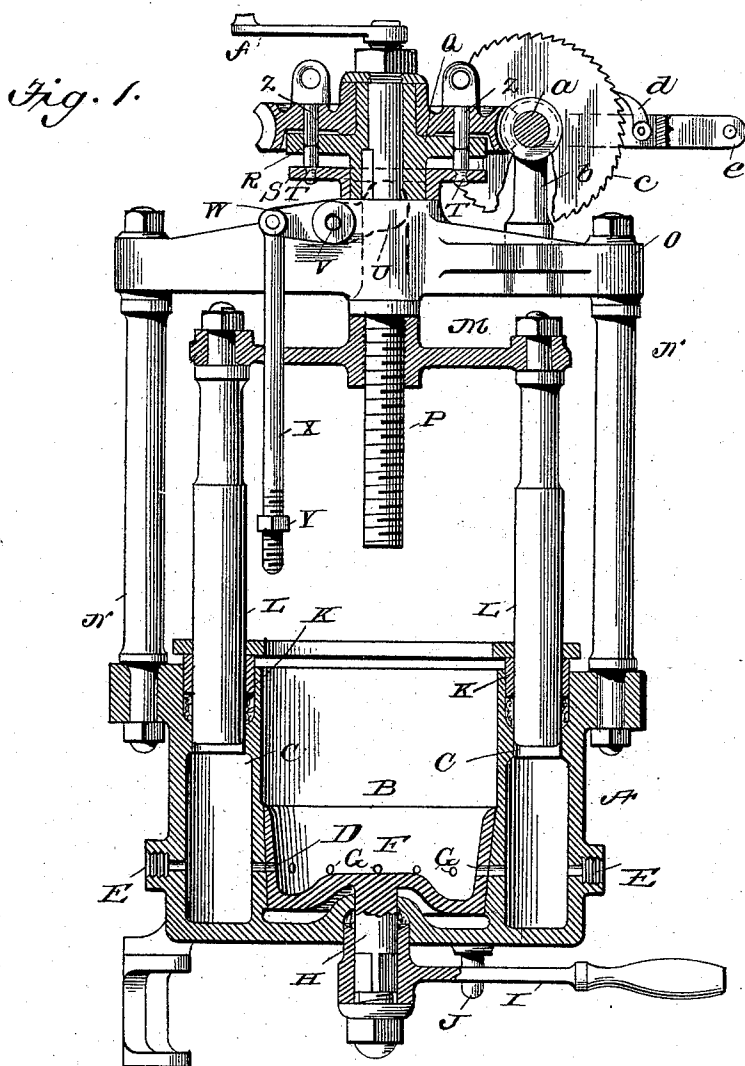


(No Model.)

J. JACOBSEN.
LUBRICATOR.

No. 540,389.

Patented June 4, 1895.



Witnesses

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UNITED STATES PATENT OFFICE.

JACOB JACOBSEN, OF TRONDHJEM, NORWAY.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 540,389, dated June 4, 1895.

Application filed January 4, 1895. Serial No. 533,805. (No model.) Patented in Norway February 15, 1893, No. 3,146.

To all whom it may concern:

Be it known that I, JACOB JACOBSEN, a subject of the King of Sweden and Norway, residing at 4 Bakkegaden, Trondhjem, Norway, have invented certain new and useful Improvements in Lubricators, (for which I have obtained a patent in Norway, No. 3,146, dated February 15, 1893;) and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a lubricator for engines in which the lubricant will be automatically fed to the proper points in a steady constant flow, and also to provide means for automatically stopping the operation of the device at a predetermined point of time. These objects I accomplish by the use of the device illustrated in the accompanying drawings and the invention consists in certain novel features of the same as will be hereinafter first fully described and then pointed out in the claims.

In the drawings referred to, Figure 1 is a central vertical section of a lubricator constructed in accordance with my invention, and Fig. 2 is a plan view of the same.

In carrying out my invention, I employ a circular shell, A, which may be supported in any suitable or convenient manner and comprises a central tank, B, and a number of cylinders, C, arranged around said tank, as clearly shown. These cylinders communicate with the tank through the ports D near their lower ends and are provided with exit or discharge ports, E, from which pipes or tubes lead to the various parts of the engine to be lubricated.

Within the tank, at the bottom of the same, I arrange a rotary valve or cut-off, F, which fits oil tight therein and is provided with a series of ports or openings, G, corresponding in number with the ports in the tank and adapted to register therewith.

The valvestem or pivot, H, depends through the bottom of the shell and is angular in cross section, being engaged by an angular opening in the end of a wrench or operating lever,

I, whereby it may be rotated to open or close the ports and control the passage of the lubricant to the cylinders. In order that the play of the wrench or lever may be limited and proper closing of the ports assured, I provide stops, J, on the bottom of the shell against which the said wrench or lever impinges when moved to one side.

The upper ends of the cylinders are open and stuffing boxes, K, mounted therein form bearings and guides for the pistons, L, the upper ends of the pistons being secured in a slide or cross-head, M. This slide or cross-head may be a solid disk but it is preferably in the form of a spider in order to reduce the weight.

Rising from opposite points of the shell are two or more posts or standards, N, which support a head plate, O, upon which the operating mechanism is mounted. Journaled centrally in this head plate is a screw or worm shaft, P, the lower threaded portion of which passes through and engages a central threaded opening in the slide or cross head. The upper end of this screw has keyed upon it a disk, Q, having openings R at diametrically opposite points. On the lower portion of the hub of this disk I mount a sliding plate or disk, S, which carries pins, T, at diametrically opposite points which register with and partly enter the openings R in the disk Q. This sliding plate S rests upon the arms U which extend from a rock shaft, V, journaled in the head plate and provided with a crank arm, W, from which a rod, X, depends through the cross head or slide M, said rod having an adjustable stop, Y, at its lower end adapted to be struck by the cross-head in the operation of the device.

On the upper portion of the hub of the disk Q, I mount the worm gear wheel which carries the loose pins Z at diametrically opposite points normally extending into the openings in the disk and resting on the upper ends of the pins T, as clearly shown. The pins Z are not secured to the gear wheel but rest loosely therein so that if they be raised the wheel will be disconnected from the disk below it. The worm gear wheel meshes with and is driven by a worm shaft, a, mounted in bearings, b, on the head plate O and having a ratchet wheel, c, keyed to one end. This

ratchet wheel is driven by a pawl, *d*, pivoted to a lever, *e*, which is mounted loosely on the end of the worm shaft and is adapted to be connected to or with the pitman of the engine.

5 At the upper extremity of the screw P, I secure a handle, *f*, by means of which the slide or cross head may be raised as will presently be more fully set forth.

The construction and arrangement of the
10 several parts of the device being thus made known, the operation and advantages of the same will be readily understood. The ports leading from the tank being closed, the oil or other lubricant is placed in the tank. The
15 pistons are raised and, the valve being then rotated to open the ports, the oil will flow into and fill the cylinders after which the valve is reversed to close the ports and cut off the flow of the lubricant. The engine is now per-
20 mitted to operate and will vibrate the lever, *e*, and thereby rotate the ratchet wheel and consequently turn the worm shaft. The motion of the worm shaft will be imparted di-
25 rectly to the worm gear wheel and through the same to the disk Q, as will be readily understood, the pins Z engaging the openings in the said disk and consequently causing the same to move with the worm gear wheel. The said disk being keyed to the screw rod
30 or shaft P will rotate the same and the cross-head M will thus be forced toward the shell A and the pistons pushed toward the bottoms of the cylinders. As the pistons descend in the cylinders the lubricant will be forced out
35 through the exit ports and driven to the different parts of the engine, as will be readily understood. As the crosshead descends it moves along the rod X and just as the pis-
40 tons near the bottoms of the cylinders the crosshead impinges against the stop Y and consequently pulls downward on the said rod X. The downward pull exerted on the rod X will vibrate the rock shaft V so as to throw the arms U upward against the sliding plate
45 S and thereby lift the said plate. The pins T, carried by the said plate, will be thereby forced upward through the openings R and the pins Z pushed from said openings thereby disconnecting the worm gear wheel from the
50 disk Q. The further movement of the worm shaft will consequently impart mere idle motion to the gear wheel without causing any operation of the other elements of the device. The pistons are raised by imparting a reverse

55 motion to the screw P, through the medium of a handle, *f*, at the upper end of the same. The valve can then be rotated to admit a fresh supply of lubricant to the cylinders and the former operation is repeated.

It will be readily seen from the foregoing
60 description, that I have provided a lubricator which is automatic in its operation and positive and certain in its results. The device requires very little attention and consumes
55 all of the oil without any waste. As the oil is driven from the lubricator by the pressure of the engine, there is no clogging of the tubes and the only attention required is to occasion-
ally refill the tank. The tank should be of
70 such a capacity as to hold a supply of lubricant sufficient for a day's use but the capacity may be varied and the stop on the rod X ad-
justed to correspond.

Having thus described my invention, what I claim, and desire to secure by Letters Pat-
75 ent, is—

1. A lubricator consisting essentially of a tank, a series of cylinders having inlet ports leading from said tank, means for expelling
80 the lubricant from the cylinders, and a rotary valve mounted in the bottom of the tank and adapted to open and close the ports leading into the cylinders.

2. The combination of a central tank, a series of cylinders surrounding the same, a valve
85 in the bottom of the tank controlling the flow from the same into the cylinders, a sliding crosshead arranged above the tank, mechanism for operating said cross-head, and a series of pistons depending from said crosshead into
90 the cylinders.

3. The combination with the frame and a screw rod mounted therein, of a disk keyed on the said rod, a sliding plate mounted on the screw below the said disk and carrying
95 pins adapted to enter openings in the disk, means for raising said plate, a gear wheel mounted on the screw above the disk and pins loosely mounted in the said gear wheel and entering the openings in the disk and rest-
100 ing on the pins carried by the sliding plate.

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

JACOB JACOBSEN.

Witnesses:

ALFRED SELROD,
JACOB MAE.