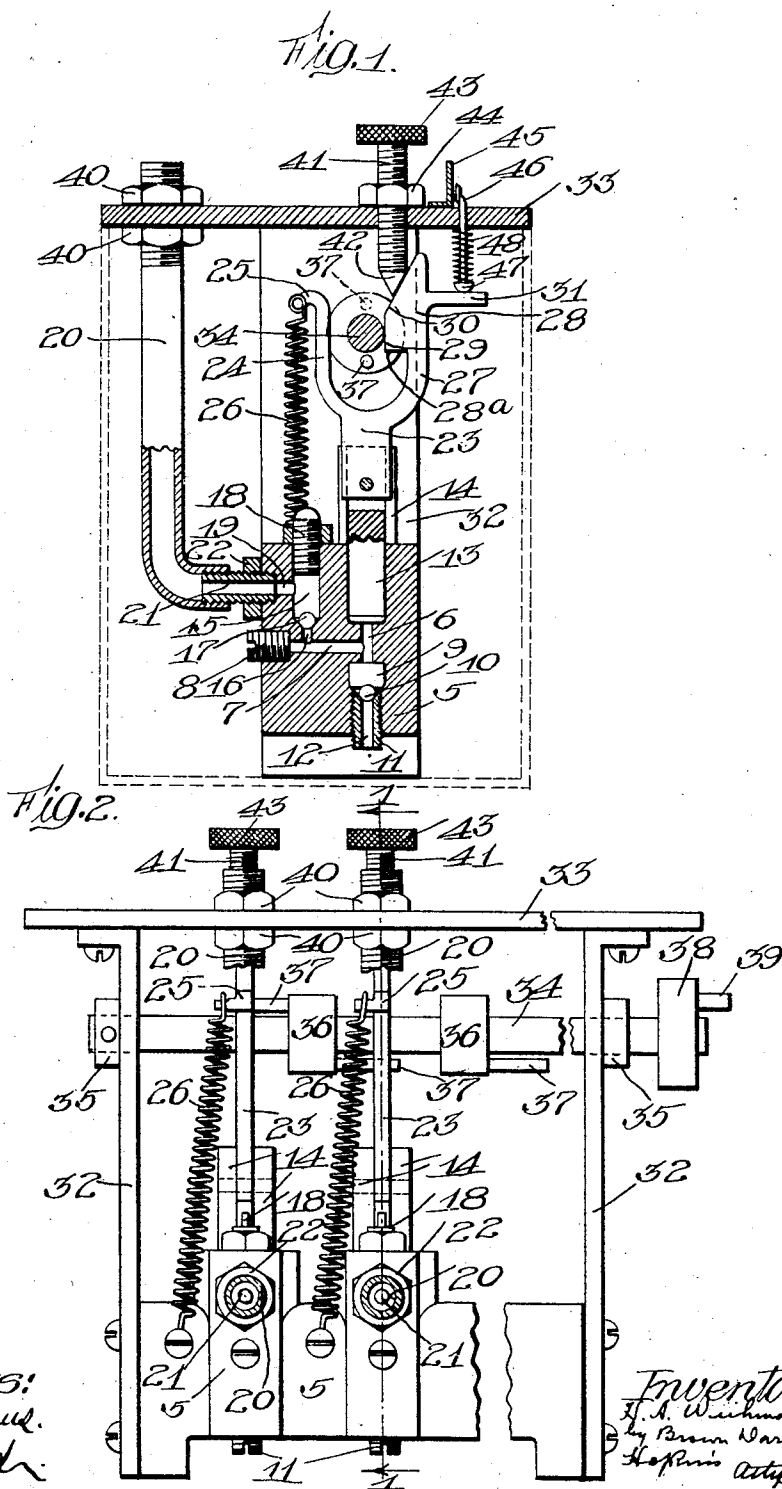


No. 864,876.

H. A. WEIHMANN.
LUBRICATOR.

PATENTED SEPT. 3, 1907.

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UNITED STATES PATENT OFFICE.

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LUBRICATOR.

No. 864,876.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed April 6, 1906. Serial No. 310,322.

To all whom it may concern:

Be it known that I, HENRY A. WEIHMAN, 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, of which the following is a full, clear, and exact specification.

This invention relates to improvements in lubricators, and more particularly to that class of lubricators wherein the lubricant is forced from the source of supply to the part to be lubricated, and the object of the same is to construct an improved device of this character in which the amount of lubricant supplied to the various parts may be regulated.

A further object is to construct an improved device of this character which may be readily inserted into a tank or receptacle containing the lubricant and which may be operated directly from the other parts of the machinery or by hand.

A further object is to construct an improved device of this character comprising a plurality of force feeders or pumps which may be independently adjusted to regulate the amount of lubricant supplied by the pumps, each pump being provided with an indicator, whereby the amount of lubricant being supplied thereby may be readily ascertained.

A further object is to provide an improved device of this character which will be sectional in construction.

A further object is to construct an improved device of this character which will be simple, and cheap in construction, and effective in operation.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawing, illustrating an exemplification of this invention, and in which—

Figure 1 is a vertical sectional view on line 1—1 of Fig. 2, illustrating in dotted lines a tank into which the lubricator is inserted. Fig. 2 is an elevation of a lubricator constructed in accordance with the principles of this invention.

In this exemplification of the invention there is shown a plurality of lubricators secured together, and as the construction of each independent lubricator or section is identical, the description of one will apply equally as well to all of them.

Referring to the drawing, the numeral 5 designates the base or body of the lubricator or pump which is provided with a vertical aperture or passage 6 extending therethrough, preferably adjacent the center thereof, and a horizontal aperture or passage 7 extending through one face thereof, terminating adjacent and com-

municating with the passage or aperture 6. This passage or aperture 7 is preferably located at a point midway of the top and bottom of the base or body 5, and is provided at its front end with screw threads adapted to receive a plug or screw 8, for closing the outer end thereof.

The lower portion of the passage or aperture 6 is preferably enlarged as at 9, for the reception of a valve 10, which is preferably shown in the shape of a ball, and 11 is a plug inserted into and secured within the bottom of the enlarged space or portion 9. This plug is provided with an aperture 12, which communicates with the enlargement 9, and a seat at the upper end thereof upon which the ball 10 rests, and is adapted to be seated for closing the aperture 12 therein. The upper portion of the passage or aperture 6 is also preferably enlarged, and within this enlarged portion is a piston or plunger 13, which is adapted to reciprocate therein and also between vertical guides or ways 14, secured to the top of the base or body 5. A second vertical passage 15 opens through the top of the body or base 5 and is preferably parallel with the passage 6, and is provided with a reduced portion 16, which communicates with the passage 7 and forms a seat for a valve 17, which is preferably in the shape of a ball. The upper end of the aperture or passage 15 is closed in any suitable manner such as a screw plug 18. An aperture 19 also passes through one side of the base or bottom 5, parallel with the aperture 7, and communicating with the aperture or passage 15. A pipe or tube 20 is secured by one end to communicate with the aperture 19, in any desired manner, such as a coupling 21, which is held from displacement by means of a jam nut 22.

Pivotaly connected to the upper end of the piston or plunger 13 is a yoke 23, which is preferably of a width to stand between the guides or ways 14, whereby said yoke may be prevented from displacement. The upper end of the arm 24 of the yoke 23 is preferably bent outward as at 25, and secured to the extremity thereof is one end of a spring 26, preferably a coil spring, the other end of which is secured to the base or bottom 5. Extending from the arm 27 is a projection 28, to form a shoulder 28*, the lower portion of the face thereof being straight as at 29, and the upper portion being beveled or inclined as at 30. Projecting beyond the outer face of the arm 27, preferably adjacent the upper end thereof, is an arm or extension 31, for a purpose to be set forth. In use any number of these sections may be coupled together, and for the purpose of illustration there is shown in Fig. 2, two of these sections coupled or secured together. Any suitable means may be employed for this purpose, but it is preferred to employ a frame, comprising standards or supports 32, which are

secured by one end to the base or body portion 5. These standards are of a suitable height to extend above the top of the arms of the yokes 23, and secured across the top thereof is a bar or plate 33. Journaled in these standards or supports is a shaft 34, which is so located as to stand between the arm 24 and the projection 28 on the arm 27 of the yoke. This shaft may be held from longitudinal displacement in any suitable manner, such as by means of collars 35 secured thereto, preferably on the outside of the standards or supports.

Secured to the shaft at any suitable point, preferably between two of the yokes 23, is a disk or collar 36, which is provided with diametrically opposite lateral extensions or pins 37 on the sides thereof, which are preferably parallel with the shaft 34.

When in position, the normal tendency of the spring 26 is to hold the straight portion 29 of the extension 28 against the shaft 34, or into such a position that the shoulder 28^a will stand within the path of movement of the extensions or pins 37, on the disks 36. Thus it will be seen that when the shaft 34 is rotated these disks and extensions form cams, by means of which said yokes may be raised against the tension of the spring 26. After the pins or extensions have passed out of engagement with the shoulders 28^a, the spring 26 will cause the yoke 23, and the plunger or piston 13 carried thereby, to spring back into place, thereby forcing the lubricant which has been sucked up by the upward stroke thereof, through the aperture 12, by the valve 10, and into the passage 6, out through the passage 7, through 16, past the valve 17 into the passage or chamber 15, out through the opening or aperture 19, and through the pipe 20, to the bearing or part to be lubricated; the valve 10 being seated by the pressure of the lubricant thereon when the plunger or piston is released. The pins or extensions 37 on the disks being disposed opposite to each other, will cause the plungers or pistons 13 to work alternately, but it is obvious that if only one section is used the lubricant would be forced out only once during a complete revolution of the shaft 34. This shaft may be driven in any desired manner either by means of a belt engaging the pulley 38, or by means of the crank pin 39. Obviously the shaft may be oscillated back and forth and produce the same result, the pivoted connection of the yoke 23 with the piston 13 permitting such motion.

The free end of the pipe 20 may be supported in any suitable manner, but preferably by passing the same through the plate or bar 33 and holding it from displacement by means of the nuts 40, on either side thereof. Suitable pipes may be connected to the free end thereof which lead to and discharge into the bearing or part to be lubricated.

Passing through the bar or plate 33 is a screw 41, provided with a tapering point or extremity 42, and a head 43, by means of which the screw may be adjusted. This screw is arranged in such a position with relation to the yoke 23, that the point 43 will engage and stand within the path of the forward movement of the inclined face 30 of the extension 28 on the arm 27, and may be adjusted vertically with relation thereto to engage the same at any desired point, and is held in its adjusted position by any suitable means such as a nut 44. The purpose of this screw is to adjust the movement and throw of the piston or plunger 13, there-

by regulating the amount of lubricant discharged by the downward stroke thereof. If the point of the screw be moved in close proximity to the shaft 34, the yoke 23 will be tilted on its pivot, thereby throwing the shoulder 28^a out of the path of movement of the extension or pin 37. If the screw be adjusted so that the point thereof will not engage the inclined face 30, the pin 37 will cause the yoke to raise the plunger 13 to its highest point, thereby discharging or forcing out the greatest amount of oil. Thus by adjusting the point of the screw so as to engage the face at any point intermediate the extremities thereof, the plunger or piston will be correspondingly raised according to the point at which the pin or extension 37 disengages the shoulder 28^a.

In operation the framework is inserted into a tank (shown in Fig. 1 in dotted lines) containing the oil or lubricant, with the bar or plate 33 thereof serving as a cover or closure for the tank. The base or bottom of the lubricators is preferably supported slightly above the bottom of the tank in any suitable manner so as to permit the entrance of the lubricant into the passage 12 of the plugs 11, the end of the shaft projecting through the side of the tank with the pulley or crank 38 thereon. If two or more of the sections are used the respective screws 41 may be adjusted and the shaft 34 rotated, thereby causing the plungers to suck in the lubricant and force the same through the pipe 20 in the same manner as an ordinary pump. It often becomes necessary to lubricate one part more than the other, and in adjusting the screws 41, to so regulate the throw of the respective piston or plunger 13, it is desirable to ascertain how much of a stroke the piston has and what amount of oil is being supplied thereby. For this purpose there is provided a gage 45 adjacent each of the screws 41, preferably on the plate or bar 33. Passing through the plate or bar 33, and in proximity to the gage, is an indicator 46, which is provided with a head or enlarged end 47, which rests upon the arm or extension 31 carried by the yoke 23, and surrounding the indicator, and disposed between the plate or bar 33 and the head or enlargement 47, is a spring 48, which tends to keep the indicator normally in engagement with the arm or extension 31. As the yoke 23 is raised, the indicator 46 is also raised, thereby indicating the length of each stroke of the respective piston or plunger and the amount of lubricant being supplied thereby.

In order that the invention might be fully understood, the details of an embodiment thereof have been thus specifically described, but

What is claimed as new is:

1. In a force-feed lubricator, the combination of a tank, a pump, a plunger, a crank, a yoke yieldingly supported by the plunger, and means on said yoke adapted to be engaged by the crank when rotated to intermittently raise the plunger.

2. In a force-feed lubricator, the combination of a tank, a pump, a plunger, a crank, a member yieldingly supported by the plunger, means on said member adapted to be engaged by the crank when rotated to intermittently raise the plunger, and means for returning said plunger.

3. In a force-feed lubricator, the combination of a tank, a pump, a spring-controlled plunger for the pump, a yoke pivotally connected to the plunger, a shaft journaled adjacent the yoke, and means on the shaft adapted to engage the yoke for intermittently raising the plunger against the tension of the spring when the shaft is rotated.

4. In a force-feed lubricator, the combination of a tank, a pump within the tank, a plunger for the pump, a yoke pivoted to the plunger, a shaft, inter-engaging means on the shaft and one of the arms of the yoke for raising the plunger when the shaft is rotated, and a spring engaging the other arm of the yoke for normally holding the inter-engaging means into cooperating position.

5. In a force-feed lubricator, the combination of a tank, a pump, a plunger in the pump, a yoke pivoted to the plunger, a shaft standing between the arms of the yoke, there being a projection on one arm of the yoke, a spring engaging the other arm for normally holding the projection against the shaft, and means on the shaft adapted to engage the projection for raising the plunger when the shaft is rotated.

6. In a force-feed lubricator, the combination of a tank, a pump, a plunger, for the pump, a yoke pivoted to the plunger, a shaft standing between the arms of the yoke, there being a shoulder on one of said arms adjacent the shaft, means on the shaft adapted to engage the shoulder for raising the yoke and plunger when the shaft is rotated, and a spring engaging the other arm of the yoke for holding the shoulder normally in the path of movement of the engaging means on the shaft, and for retracting the plunger.

7. In a force-feed lubricator, the combination of a tank, a pump, a plunger for the pump, a yoke pivoted to the plunger, guides for said yoke, a shaft journaled adjacent the yoke, and means on the shaft adapted to engage and intermittently raise the plunger when the shaft is rotated.

8. In a force-feed lubricator, the combination of a pump embodying a plunger provided with a flexible portion, a lifting means for said plunger engaging the flexible portion, said portion being disengaged from the lifting means, separate means for varying the time of disengagement, and means for returning the plunger when disengaged.

9. In a force-feed lubricator, the combination of a tank, a pump, a plunger, a yoke pivoted to the plunger, guides for the yoke, a shaft standing between the arms, there being a shoulder on one of the arms adjacent the shaft, a crank on the shaft, adapted to engage the shoulder for raising the plunger when the shaft is rotated, and means engaging the yoke for normally holding the shoulder in the

path of movement of the crank, and for retracting the plunger.

10. In a force-feed lubricator, the combination of a pump, a plunger, a yoke pivotally connected to the plunger, a crank adjacent the yoke, there being a shoulder on one arm of the yoke adapted to be engaged by the crank to raise the plunger when said crank is rotated, means engaging the other arm of the yoke for normally holding the shoulder in the path of movement of the crank, and means whereby the point of disengagement of the crank and shoulder may be varied.

11. In a force-feed lubricator, the combination of a tank, a pump within the tank, a plunger, a yoke pivotally connected to the plunger, a crank journaled adjacent one arm of the yoke, there being a shoulder on said arm adapted to be engaged by the crank when rotated for raising the plunger, the upper portion of said arm being beveled or inclined, an adjustable member adapted to engage the inclined portion of the arm for varying the point of disengagement of the crank and shoulder, and means tending to normally hold the shoulder in the path of movement of the crank.

12. In a force-feed lubricator, the combination of a tank, a framework, a pump supported by the frame, a plunger for the pump, a yoke pivotally connected to the plunger, a shaft journaled in the frame, a crank on the shaft adjacent the yoke, there being a shoulder on one arm of the yoke adapted to be engaged by the crank when rotated for raising the plunger, the upper portion of said arm being beveled or inclined, means for normally holding the shoulder in the path of movement of the crank, and an adjustable member supported by the frame and adapted to engage the inclined face of the yoke arm for varying the point of disengagement of the crank and shoulder to regulate the stroke of the plunger, said frame being adapted to be placed within the tank with the top thereof forming a closure for the tank.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 4th day of April, A. D. 1906.

HENRY A. WEHMAN.

Witnesses:

J. H. JOCHUM, Jr.,
CHAS. H. SEEM.