

E. SUNDVALL.
 OPERATING DEVICE FOR FORCE FEED LUBRICATORS.
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986,872.

Patented Mar. 14, 1911.

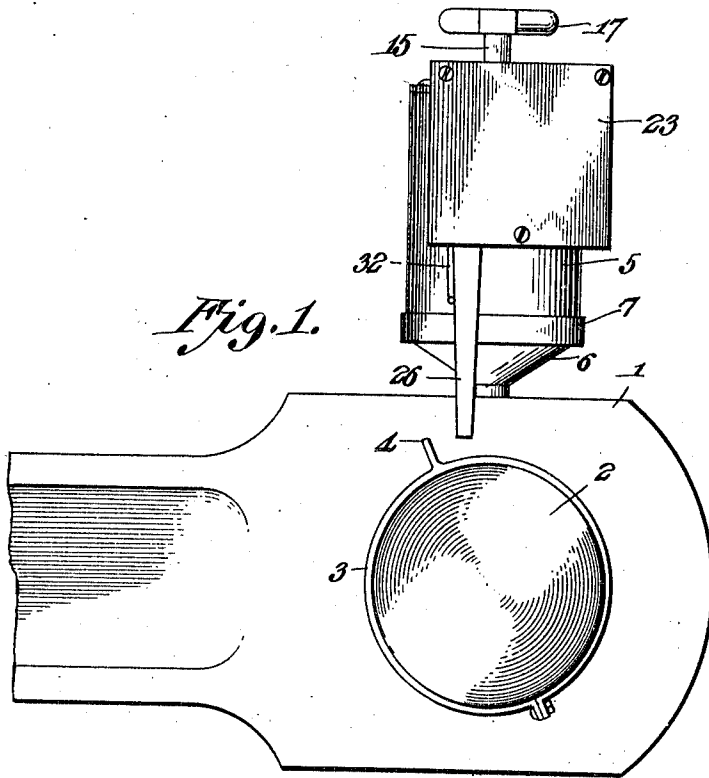


Fig. 1.

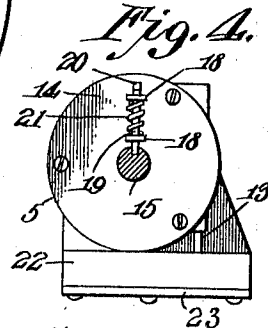


Fig. 4.

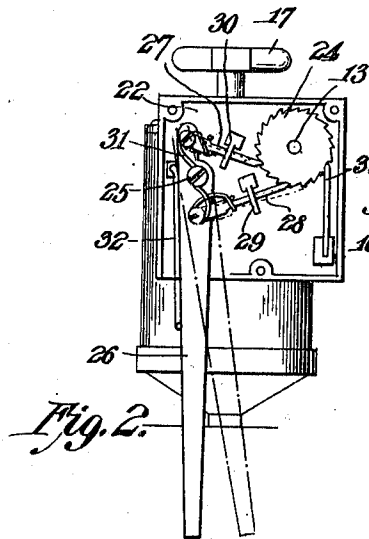


Fig. 2.

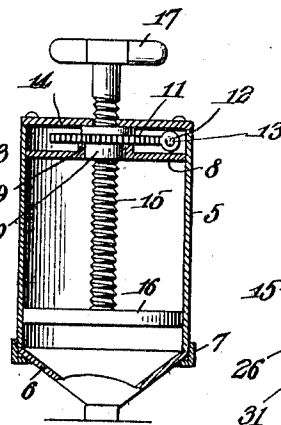


Fig. 3.

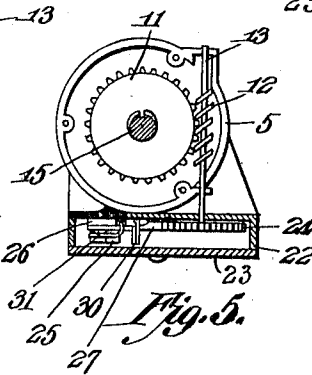


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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OPERATING DEVICE FOR FORCE-FEED LUBRICATORS.

986,872.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWIN SUNDVALL, a citizen of the United States of America, residing at Stockholm, in the county of Pepin and State of Wisconsin, have invented new and useful Improvements in Operating Devices for Force-Feed Lubricators, of which the following is a specification.

This invention relates to operating devices for force feed lubricators designed more particularly for use on connecting rods, crank pins or other movable elements on threshing machines or stationary engines, but capable of uses on locomotives or traction engines, and one of the principal objects of the invention is to provide a device of simple construction which will gradually feed the lubricant in the desired quantity to the bearing.

Another object of the invention is to provide means whereby the lubricant will be fed in the desired quantity to the bearing when the engine has been reversed, or is running in either direction.

These and other objects may be attained by means of the construction illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation of a connecting rod upon which is mounted a force feed lubricator made in accordance with my invention. Fig. 2 is a side elevation of the lubricator having the face plate removed to expose the interior mechanism. Fig. 3 is a vertical section through the lubricator cup or casing. Fig. 4 is a top plan view of the lubricator, showing the plunger stem in section and the means for preventing rotation of the same. Fig. 5 is a top plan view of the lubricator with the top or cover removed and some of the parts being shown in section.

Referring to the drawing, the numeral 1 designates a connecting rod, and 2 is the wrist pin provided with a strap or bushing 3 having a projection 4 thereon. The lubricator cup 5 is provided with a funnel-shaped bottom 6 and a threaded collar 7 which is adapted to be removed for filling the cup. Connected to the casing near its upper end is a diaphragm 8 having a central apertured boss 9 thereon. Mounted in the boss 9 is the hub 10 of a gear 11, said hub having a threaded opening there-through. A worm 12 is journaled in the casing on a shaft 13, said worm engaging the gear 11. Extending through the top 14

of the cup and through the boss 10 of the gear is a threaded stem 15 carrying a piston head 16 upon its inner end and a suitable handle 17 upon its outer end. The threads 60 of the stem 15 fit the interior threads of the hub 10 of the gear 11. Secured to the top 14 of the cup is a pair of spaced perforated lugs 18, and extending through these lugs is a bolt 19 having a finger hold 20 on its outer end, while the inner end is projected into a groove extending longitudinally of the stem 15 by means of a spiral spring 21 connected to the bolt and disposed between the two lugs 18, as shown in Fig. 4. 70

A rectangular box or casing 22 is connected to the cup 5 and provided with a removable cover 23. Mounted on the shaft 13 of the worm 12 within the box is a ratchet wheel 24. Pivotaly mounted within the box upon the screw or pin 25 is a tappet lever 26 which extends through the bottom of the box into the path of movement of the projection 4 carried by the wrist pin. Pivoted to the lever 26 upon opposite sides 80 of its pivotal point 25 are spring-actuated pawls 27 and 28, said pawls being guided in their movements by suitable keepers 29, 30 secured to the back portion of the box. A wire spring 31 is connected to the pivot 85 25 and extends around both of the pawls 27 and 28, said spring exerting its tension to hold the pawls into engagement with the ratchet wheel 24. A spring 32 suitably secured to the box or casing is connected at 90 its outer end with the tappet lever 26 to hold the same in a substantially vertical position. A back stop spring 33 secured to the casing bears upon the ratchet wheel 24 to prevent retrograde motion thereof. 95

The operation of my invention may be briefly described as follows: As the connecting rod 1 is reciprocated or the projection 4 rotated, the tappet lever 26 is moved to the dotted line position shown in Fig. 2 by 100 the projection 4 coming in contact with said lever, and the ratchet wheel 24 is rotated the distance of one of its teeth. The rotation of the ratchet wheel moves the worm 12 which actuates the gear 11 and moves downwardly 105 a very slight distance the piston head 16 and its stem 15. The stem 15 is prevented from rotation by the bolt 19, but this stem moves downwardly in the cup by means of the threaded connection between the boss 10 110 and the threads on the stem. The normal position of the tappet lever 26 is vertical,

and hence whether the projection moves toward the right in Fig. 1 in the path of said lever or toward the left, the movements of said lever will actuate the mechanism and be
5 returned to its normal vertical position by means of the spring 32.

From the foregoing it will be obvious that a device made in accordance with my invention can be used in many places upon a movable or stationary part of an engine or machine provided a movable part is arranged
10 to contact with the tappet lever for forcing the piston head or plunger down to force out the lubricant in gradual predetermined
15 quantities to the bearing.

I claim:—

In a device of the character described, operating mechanism including a worm shaft, a ratchet wheel on said shaft, a tappet
20 lever, a spring engaging said lever to main-

tain the same normally in an approximately vertical position, a fulcrum pin for the lever, pawls carried by said lever at opposite sides of the fulcrum for actuating the ratchet wheel by movement of the tappet lever in either direction to rotate the ratchet wheel in one direction, and a spring connected with the fulcrum and extending around the pawls to hold the latter in ratchet engaging position; and a rotary lever engaging member; said lever being extended into the path of the engaging member.

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

EDWIN SUNDVALL.

Witnesses:

MARTIN NELSON,
MORTON LARSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
