R. WOOD.

LUBRICATOR.

APPLICATION FILED AUG. 15, 1914.

1,171,825. Patented Feb. 15, 1916.

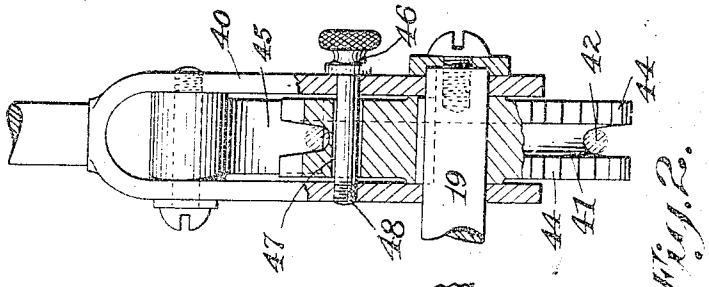


Fig. 2.

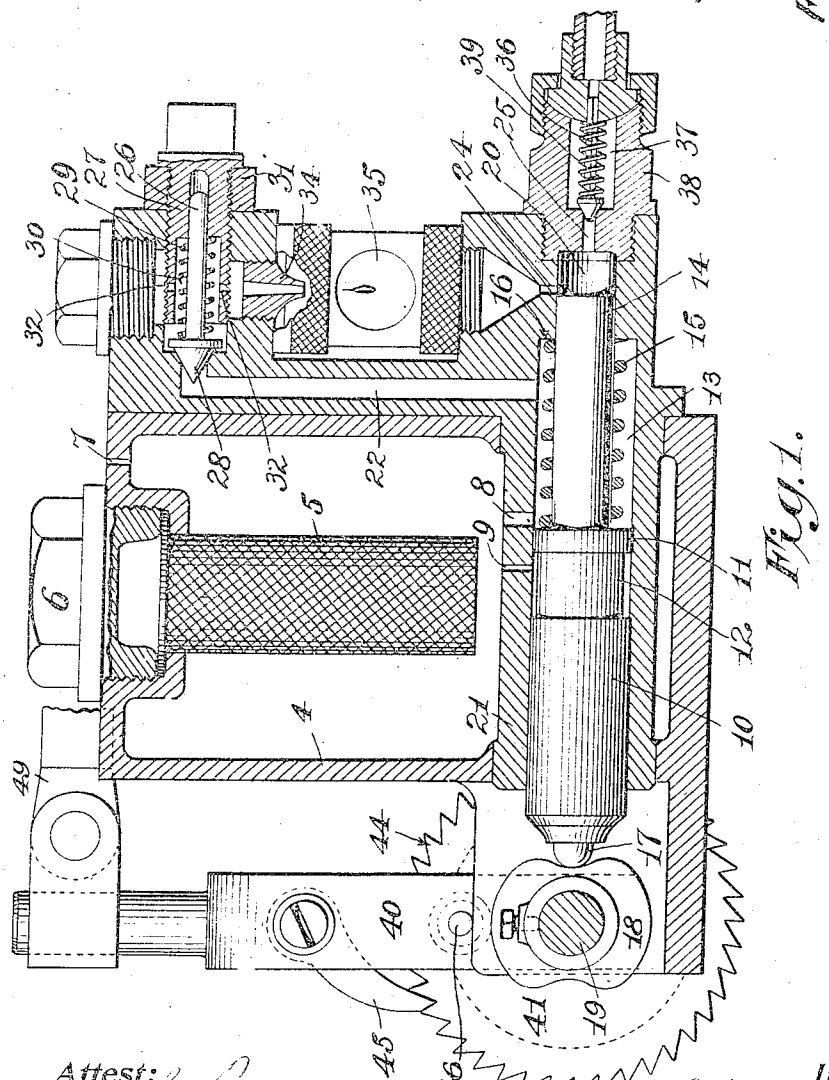


Fig. 1.

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UNITED STATES PATENT OFFICE.

ROBERT WOOD, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE NATHAN MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

LUBRICATOR.

1,171,825. Specification of Letters Patent. Patented Feb. 15, 1916.

Application filed August 15, 1914. Serial No. 856,924.

To all whom it may concern:

Be it known that I, ROBERT WOOD, a subject of the King of Great Britain and Ireland, residing at 435 East Fourth street, Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Lubricators, of which the following is a specification.

This invention relates to force feed lubricators, and one of the objects of the invention is to provide a lubricator of this type which is substantially without any valves or valve mechanism to control the oscillation of a portion of lubricant or its discharge from the apparatus.

The further object of the invention is to provide actuating means for such a lubricator, including a plurality of selectively actuable parts whereby the apparatus may be caused to feed more or less lubricant in a given time.

Other objects and aims of the invention, more or less broad than those stated above, together with the advantages inherent, will be in part obvious and in part specifically referred to in the course of the following description of the elements, combinations, arrangement of parts and applications of purpose constituting the invention; and the scope of protection contemplated will appear from the claims.

In the accompanying drawings, which are to be taken as a part of this specification, and in which I have shown a merely preferred form of embodiment of the invention, Figure 1 is a view in vertical section, with parts in elevation, showing the apparatus embodying the invention, and Fig. 2 is a detail sectional view with parts in elevation showing the multiple actuating device.

Referring to the numerals on the drawings there appears at 4 a reservoir which may be provided with the usual strainer 5 and closure cap 6 and vent 7.

In the bottom of the reservoir there is an outlet 8 and another outlet 9. These outlets 8 and 9 open into a cylindrical space formed beneath the reservoir 4, in the body 21, and in this cylindrical space is adapted to reciprocate a plunger 10. This plunger 10 has a head 11 and a lubricating groove 12, with which lubricating groove the outlet 9 is always in communication, and beyond the head 11 the plunger carries a reduced portion 14. The plunger 10 is moved in one direction by means of the coiled spring 15, that bears between the head 11 and the end wall 16 of the cylindrical space, while it is moved in the other direction by means of the engagement with its end portion 17 of a cam 18 mounted on a shaft 19, which shaft is caused to rotate or oscillate in a manner hereinafter to be described. The reduced portion 14 of the plunger enters a corresponding cylindrical space 20 formed in the body 21, and there are also provided passages 22 and 24, communicating respectively with the cylindrical space 13 and the cylindrical space 20. There is also a passage 25 that leads out from the end of the cylinder space 20. The plunger 10 is shown in Fig. 1 at its limit of movement in one direction, in which position the outlet 8 from the reservoir is in communication with the cylindrical space 13. It will be evident that if the plunger be now moved toward the right in Fig. 1 against the force of the spring 15, the oil within the space 13 will escape by way of the passage 22. This passage 22 is controlled at its upper end by means of a regulator which is in the form of a rod 26. This rod 26 is slidable in a plug 27, and this plug 27 is screw-threaded in the housing 31. The end of the rod is provided with a conical member 28, which controls the upper end of the passage 22, and the head 28 is driven into closing position by means of a coiled spring 29 which bears between the head 28 and the end wall of the bore 30 of the plug. As the plug is screwed up more or less the tension of the coiled spring 29 will be adjusted accordingly.

31 indicates a jam-nut which may be used in coöperation with the plug. The hollow part of the plug is provided with apertures 32 in its side walls, from which may escape any oil that finds its way from the passage 22 into the space 30, and from these apertures 32 the oil finds its way through a perforated plug 34, through a sight-glass

35, and by way of the passage 24 into the space 20, whence it is driven by the movement of the reduced part 14 through the passage 25 and past the spring-pressed regulator 36 into a space 37 formed in a thimble 38 that is screw-threaded into the body 21. The regulator comprises a rod and a cone head controlling the passage 25, and a coiled spring 39 which bears between the cone head and the apertured outer end of the thimble, the said rod extending within the apertured end of the thimble, and being longitudinally reduced or grooved to permit of the passage of oil from the space 37 past it and out of the thimble. With each reciprocation of the plunger 10 and the reduced portion 14 toward the right in Fig. 1, there will be a portion of lubricant sent up through the passage 22, and simultaneously the portion of lubricant previously left in the cylindrical space 20 will be forced out through the passage 25. The quantity of oil delivered at each stroke will, of course, depend upon the length of the stroke in connection with the cross-sectional area of the plunger and reduced part 14 respectively.

The reciprocation of the plunger 10 may be accomplished by means of the apparatus shown. That is to say a shaft 19 may be mounted to rock or rotate in some fixed relation to the apparatus, and this shaft may carry a cam 18, having one or more bulges. Obviously if this shaft rocks or rotates the bulges will cause the movement of the plunger against the force of the spring 15; and with a cam substantially like that shown in Fig. 1, an oscillation of the shaft through an arc of ninety degrees would accomplish the proper reciprocation of the plunger.

In order that the device may be utilized with what is shown as a ratchet driver, or with a pulley drive, or with an oscillating drive, selectively at will, I mount upon the shaft 19 a fork 40, and between the bifurcations I provide a pulley 41 mounted upon the shaft 19 and having a groove for the accommodation of a belt 42. On either side of the groove the periphery of the wheel is provided with alined ratchet teeth 44, and in the upper end of the fork 40 there is mounted a ratchet 45 which under certain circumstances is intended to coöperate with the ratchet teeth 44. I also provide a pin 46, which passes through an aperture in one leg of the fork, thence through an aperture 47 that extends through the wheel, and thence into screw-threaded engagement with the other leg of the fork as indicated at 48. The fork 40 may be moved about its pivot, which is the shaft 19, by means of a connecting rod 49 that may comprise or be actuated from some moving part of a machine. If the pin 46 be in place, however, as shown in Fig. 2, it is obvious that there can be no movement of the wheel 41 relatively to the fork 40, so that any oscillation of the fork 40 will result merely in oscillation of the shaft 19 and consequently of the cam 18. If the pin 46 be not in place, oscillation of the fork 40 will result in advancing the wheel 41 step-by-step and rotation of shaft 19, on account of the engagement of the ratchet 45 with the teeth 44. The consequence will be a very much slower feed of the lubricant. If a very rapid feed is desired, the pin 46 may be left out and the wheel 41 driven by means of the belt 42, at any speed desired.

Inasmuch as many changes could be made in the above construction, and many apparently widely different embodiments of my invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim:

1. In a device of the kind described, a reciprocating plunger and means for actuating the same comprising a shaft, a cam mounted on the shaft, a fork secured to the shaft, a ratchet wheel mounted on the shaft between the legs of the fork, said wheel being provided with ratchet teeth and with a peripheral groove, a pin passing through the fork and the wheel, and a pawl carried by the fork and engaging the teeth.

2. In a device of the kind described, a reciprocating plunger and means for actuating the same, comprising a shaft, cam means mounted upon the shaft, and optional means for operating the cam, one being rotary another oscillatory.

3. In a device of the kind described, a reciprocating plunger and means for actuating the same, comprising a shaft, cam means mounted upon the shaft, and optional means for operating the cam, one being constant, said constant means consisting of a pulley drive.

4. In a device of the kind described, a reciprocating plunger and means for actuating the same, comprising a shaft, cam means mounted upon the shaft, and optional means for operating the cam, one being constant and the other intermittent, and means for rendering said constant means inoperative when said intermittent means is operative.

5. In a device of the kind described, a reciprocating plunger and means for actuating the same comprising a shaft, a cam mounted thereon, a wheel mounted on the shaft, means for operating the wheel, and means for locking the wheel when desired to the wheel operating means.

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

ROBERT WOOD.

Witnesses:
MARY H. LEWIS,
ALDA L. MILLER.