

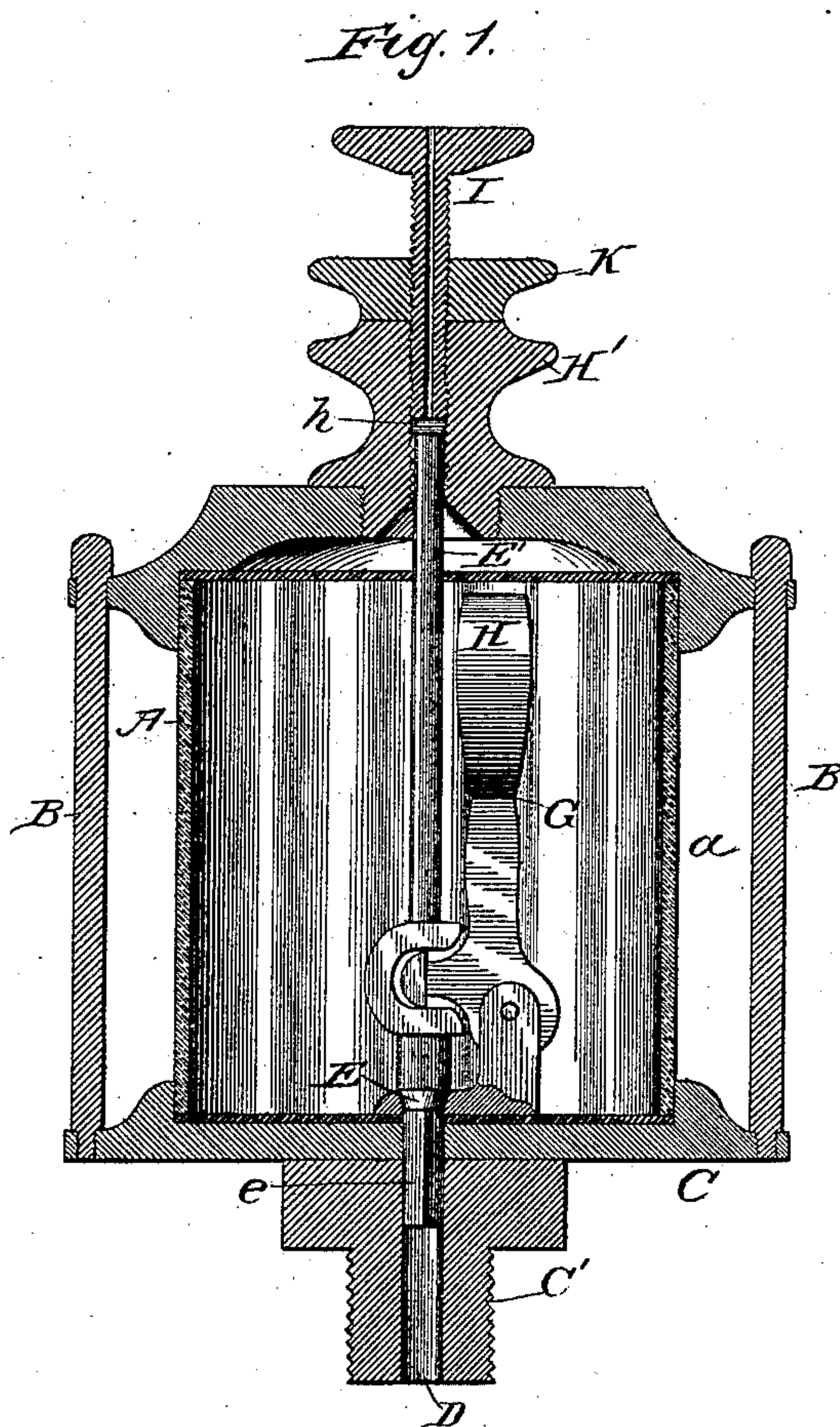
(No Model.)

2 Sheets—Sheet 1.

J. C. THAYER.
AUTOMATIC LUBRICATOR.

No. 294,163.

Patented Feb. 26, 1884.



Witnesses,

Willie Rositer.

Chas. G. Page.

Inventor,
John C. Thayer
By, Jno. G. Elliott
Att'y.

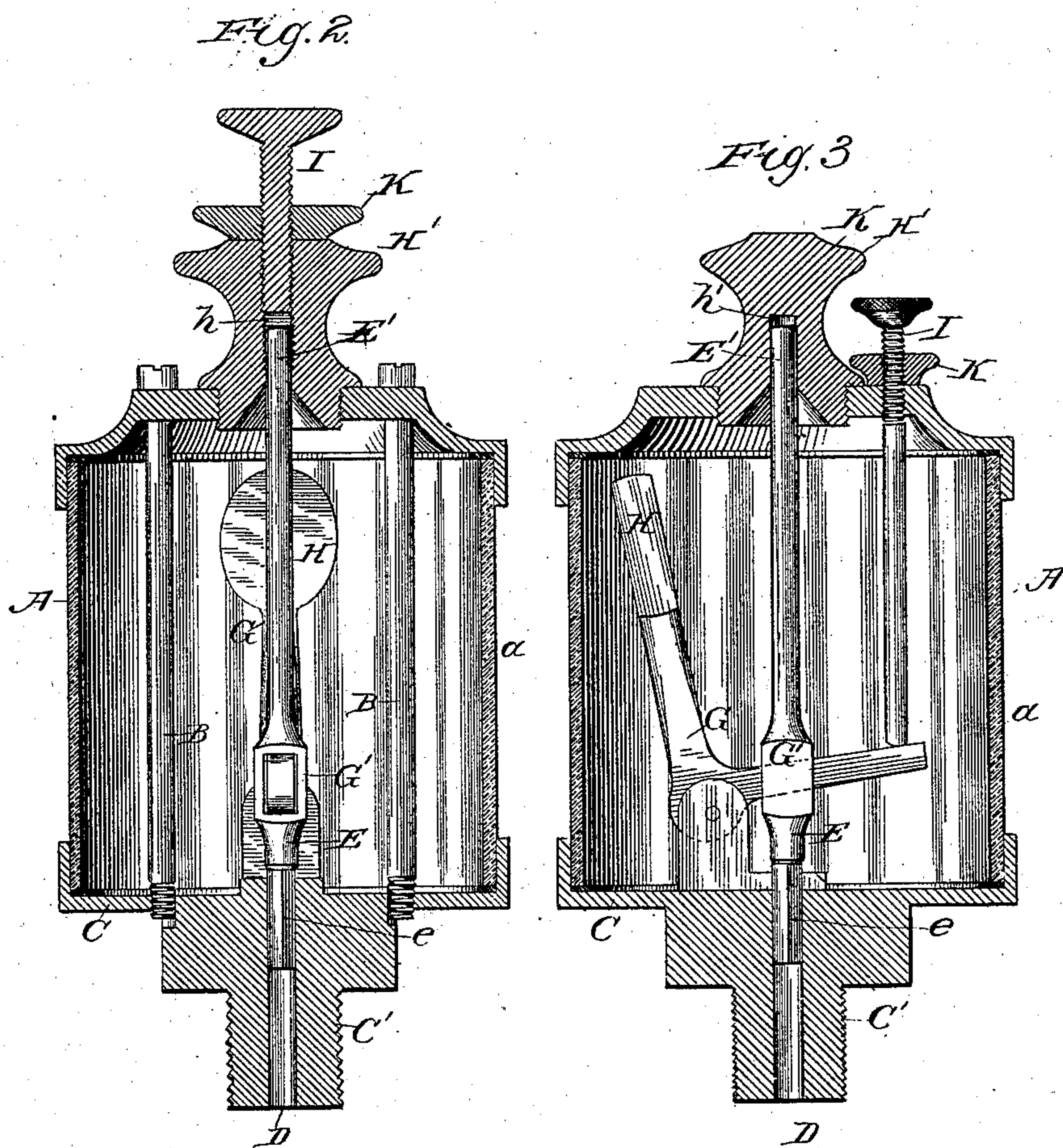
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 Chas. G. Page.

Inventor
John C. Thayer
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UNITED STATES PATENT OFFICE.

JOHN C. THAYER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
CHARLES H. MORSE, OF SAME PLACE.

AUTOMATIC LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 294,163, dated February 26, 1884.

Application filed October 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. THAYER, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Automatic Lubricators, of which the following is a specification.

It is the object of this invention to cheapen and simplify the construction of an automatic oiler or lubricator, to render the same neat, compact, light, and durable in its structure, and to accessibly inclose the operative parts of the oiler within the casing or oil-reservoir, so that the joints and bearings shall be protected from dust, and also be constantly lubricated, in order that under all circumstances the valve-operating mechanism shall work readily and easily. A further object is to provide certain improved features of construction and combination, whereby certainty of action on the part of the valve-operating mechanism at each impulse of the connecting-rod, eccentric, or other operating member of the engine by which the lubricator is carried shall be insured; also, to provide simple and efficient means for regulating the extent to which the valve can be opened, so as to regulate the quantity of oil discharged from the oil-reservoir at each time the valve is opened. These objects I attain by arranging and inclosing the valve and valve-operating mechanism entirely within the oil-reservoir, and also by providing means for limiting the play of the valve, all in the manner hereinafter described, and illustrated in the annexed drawings, in which—

Figure 1 represents a section taken on a vertical central plane through the lubricator, with the valve and its operating mechanism shown in elevation. Fig. 2 is a similar view, with a slight variation in the means for operating the valve, the tie rods or bolts, for the caps of the reservoir, passing in this instance through the interior of the latter instead of outside of the same, as in the preceding figure. Fig. 3 is also a like view, with a slight change in the arrangement of the means for regulating the valve.

Referring by letter to the several figures of the drawings, in which like letters denote like parts, A indicates the oil-reservoir, which is preferably constructed with a cylindrical

glass body, *a*, to each end of which is fitted a flanged metal cap. These caps are held securely upon the said body, and drawn tightly against any suitable packing on the end of the body, by means of the rods or bolts B, which can either be arranged outside of the reservoir, as in Fig. 1, or within the latter, as in Fig. 2, as may be preferred. In the former instance the caps will each be provided with radial lugs, or with a peripheral flange, in order to provide bearings for the bolts, or the bolts can be passed through the body of each cap, as in Fig. 2, in which case the peripheral flanges can be dispensed with, and the lubricator thereby reduced in bulk, while at the same time the bolts are inclosed by the reservoir, and hence a neater appearance given to the lubricator. The cap C at the bottom of the reservoir is provided with a passage, D, for the outflow of oil, and a suitable valve, E, is arranged within the reservoir for opening and closing the said passage D, in order to establish and cut off the outflow of oil. The valve-stem E' of this valve is shown arranged vertically and centrally within the reservoir, and is prolonged below the valve in order to admit of its being extended into the oil-passage, so as to steady and center both the valve and upper portion of the stem, and to insure the valve being properly seated when the latter drops to close the passage. This prolongation *e* of the stem is made triangular, or of other polygonal shape in cross-section, so that when the valve is lifted from its seat, oil from the reservoir can pass between the walls of the passage and that portion of the stem that is fitted to work within the latter. The weighted vibratory lever G, for operating the valve, is fulcrumed upon any suitable bearing within the oil-reservoir, and is entirely inclosed by the latter, the bearing employed for said lever being conveniently formed with or secured upon the cap which constitutes the bottom of the reservoir. This vibratory lever is provided with a pair of arms, one of which rises within the reservoir, and carries a weight, H, secured to or formed with the lever, while the remaining arm engages the valve-stem, so that a vibratory movement on the part of the lever shall reciprocate the valve-stem, and thereby cause the valve to alternately open and close the oil-passage leading from the reservoir.

It will be manifest that various modes of establishing a connection between the vibratory lever and the valve or valve-stem can be adopted without departing from the spirit of my invention. In Fig. 1, I have shown the stem formed with a substantially U-shaped bend at a point above the valve, and the lever having one of its arms extending into the bend of the valve-stem, while the remaining upper and longer arm is weighted at its upper end. Under such arrangement, when the valve is closed, the weighted arm of the lever normally stands in an upright position, from which it will be thrown by such vibratory motion on the part of the entire structure as the motion of the operating member of the machine to which the lubricator is attached will give to it. It will be seen that after the weighted arm has swung away from the stem and assumes an inclined position the weight of the stem and valve will tend to swing the lever back to its normal position and seat the valve, and that the valve and stem will therefore operate as a counter-balance to the weighted arm. In Figs. 2 and 3, however, the lower arm of the lever engaging the valve-stem is made somewhat longer than in Fig. 1, and passes through an eye or opening, G', formed in the stem, which can be enlarged at such point, in order to admit of an opening of suitable size for the lever-arm being made. This elongation of the said arm of the lever and the mode of engaging it with the stem enables the adjusting-screw for regulating the extent to which the valve can open to be arranged in a different position from that shown in Fig. 1, in which said figure the upper end of the valve-stem extends into a bore formed axially through a filling-plug, H', that is screwed or otherwise removably secured to the top cap of the reservoir. The wall of the bore *h* in this knob is made screw-threaded for all or a portion of its length, and the adjusting-screw I is fitted to turn in said bore of the knob, so that by adjusting the screw it will constitute a stop for limiting the upward movement of the valve-stem, and hence regulate the extent to which the latter can be lifted. To prevent the adjusting-screw from becoming accidentally turned, a nut, *k*, is fitted upon the screw, and by tightening this nut down on the plug the adjusting-screw will be held securely in place and prevented from working down. In Fig. 3, however, the plug is shown provided with a smooth-bore, *h'*, in its lower portion only, and while the valve-stem works in said bore, and is thereby guided and steadied, it might work through some other form of guides. The ad-

justing-screw passes through the cap, and is provided on its screw-threaded portion above the cap with a nut, *k*, that screws down on the cap, so as to prevent the screw from accidentally working out of its proper adjustment, while the lower end of the screw stands in the path of the lower arm of the vibrating lever. It will be seen under this arrangement that when the valve is open the weighted arm of the vibratory lever stands in an inclined position, while its remaining arm bears against the adjusting-screw, which acts as a stop to limit the extent of vibration of the lever one way, and hence to limit the height to which the valve can be lifted. Suitable provision, of course, will be made for admitting air to the reservoir—as, for example, the adjusting-screw can be provided with an axial passage, as in Fig. 1, or a pin-hole made in the top cap or case. The bottom cap has a neck, C', depending therefrom, made screw-threaded externally, whereby it can be conveniently fitted on an eccentric, connecting-rod, cross-head, or other member of the engine or machine having a vibratory, reciprocatory, or oscillatory movement.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a lubricator, the valve provided with a stem having an elongated opening, in combination with the right-angled lever having a fixed pivot bearing in its angle, its perpendicular arm weighted at the upper end, and its other arm working loose in the elongated opening in the valve-stem, substantially as described.
2. The reservoir and the valve provided with a stem having a bearing at each extremity of the reservoir, in combination with an angular lever connected with said stem, and having a fixed pivot bearing in its angle, and its perpendicular arm weighted, substantially as described.
3. The reservoir, the valve seated in the bottom thereof, the valve-stem extending the length of the reservoir, and an angular lever pivoted in its angle for automatically actuating said valve, in combination with a filling-plug provided with an axial bore receiving said stem, and an adjusting-screw working in said plug, substantially as and for the purpose described.

JOHN C. THAYER.

Witnesses:

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