(No Model.)

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J. V. RENCHARD.

LUBRICATOR.

No. 288,665. Patented Nov. 20, 1883.

Fig. 1.

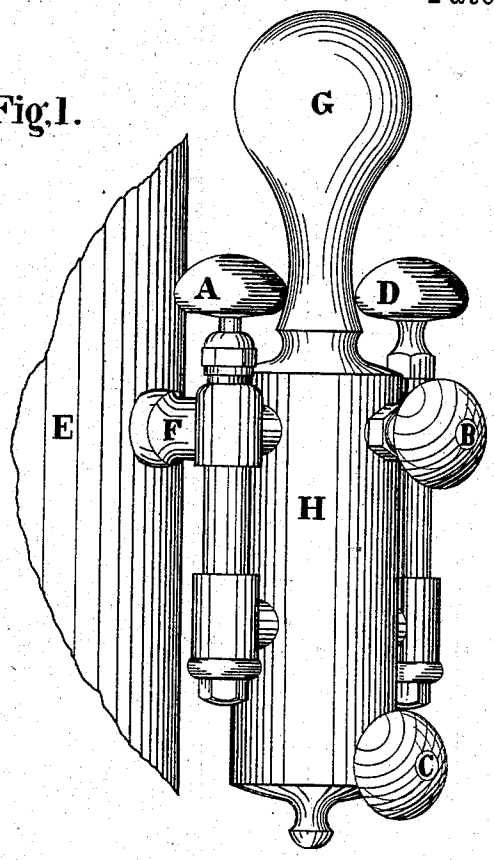
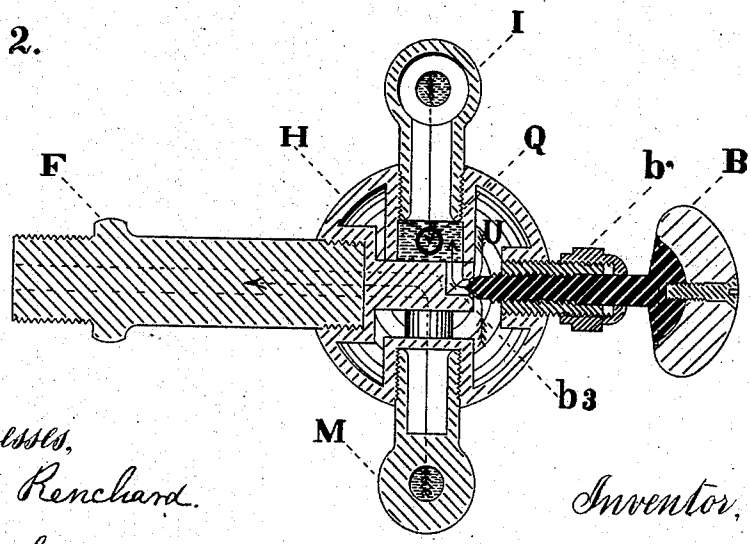


Fig. 2.



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J. Vincent, Renchard.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.)

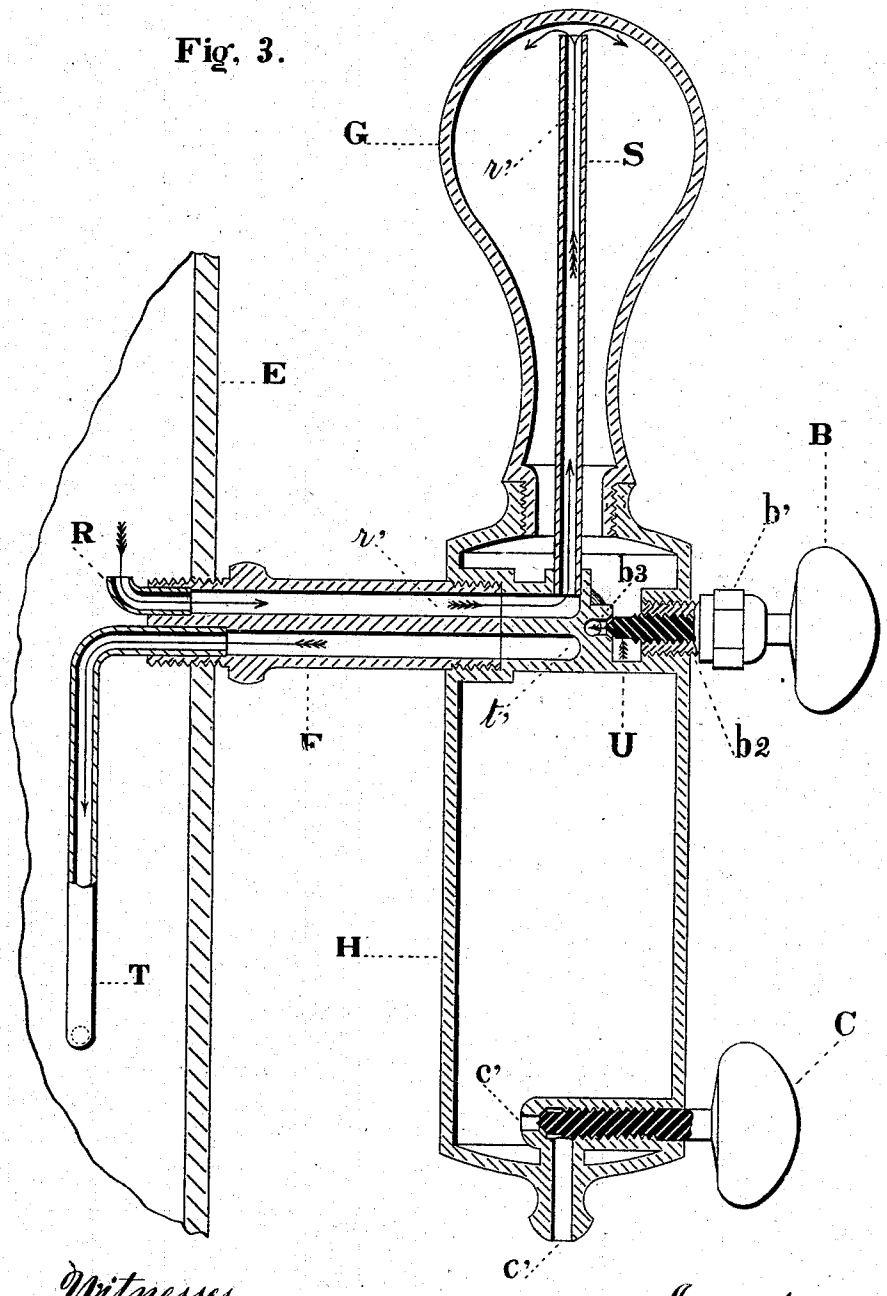
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Fig. 3.



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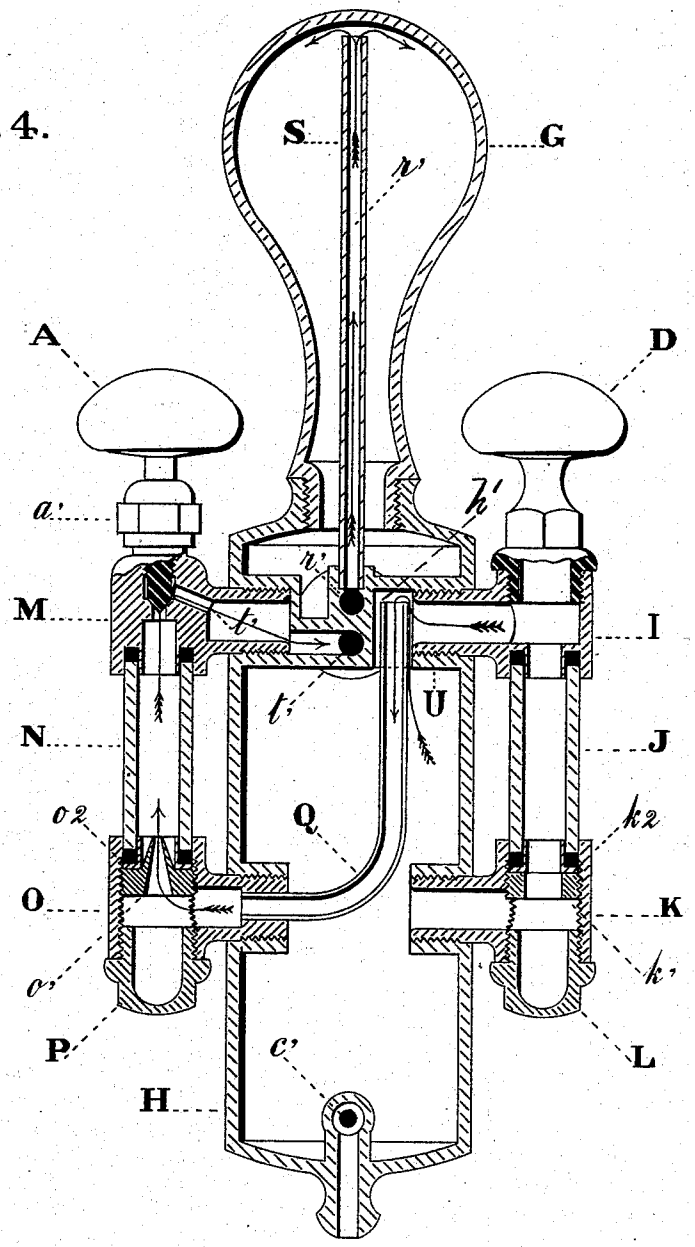
(No Model.) 3 Sheets—Sheet 3.

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Fig. 4.



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UNITED STATES PATENT OFFICE.

J. VINCENT RENCHARD, OF WINDSOR, ONTARIO, CANADA.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 288,665, dated November 20, 1883.

Application filed February 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, J. VINCENT RENCHARD, a citizen of the United States, residing at Windsor, Province of Ontario, Canada, have invented a new and Improved Lubricator, of which the following is a specification.

My improvement in this application is a further concentration into compact embodiment of the various details entering into the construction of a lubricator intended for a wide range of application, and of such construction as to enable persons who may be isolated from the confines of mechanical conveniences to readily replace an indicator-tube, or otherwise overcome any trifling contingency, without the aid of an expert; and as these lubricators find sale in nearly all countries on the globe, the advantages of a self-contained and easily maintained device is evident.

From a point of utility the construction of my device embraces a cylinder in one casting, which forms the oil-magazine and base of the condenser, and to which are attached, by means of screw-threads, the connecting-trunk condenser proper, valve-sockets, glass indicator-holders, filling-plug, and oil-valve. This concentration secures an isothermal condition in the various channels—steam, water, and oil—and in the contents of the device—water and oil—so that any changes of temperature or pressure which may affect one channel readily affects the others, thus permitting by a single adjustment of the regulating-valves a proper and regular feed of lubricant.

All elaborate projections for display or incongruities of construction are in this device avoided. Its compactness therefore insures cleanliness, ease of application, accessibility, and presents at once a reduction of experience to practice, while its cost of production is lessened and its adaptability augmented.

In the accompanying drawings, Figure 1 is a vertical elevation of my device, viewed at an angle of forty-five degrees, and shown as attached to a portion of the steam-pipe of an engine. Fig. 2 is a plan section through the center, horizontally, of the connecting-trunk F, Fig. 3. Fig. 3 is a side vertical central section. Fig. 4 is a front vertical central section. Fig. 1 presents only the leading letters of reference, while the other views relatively contain letters of reference which embrace principal features and details.

In all the drawings, E represents the steam-pipe between the boiler and engine; F, the connecting-trunk; G, the condenser; H, the oil-magazine; A, the oil-inlet valve; B, the water-regulating valve; C, the discharge-valve; D, the filling-plug; R, the steam-inlet tube; S, a continuation of the latter (or a steam-tube;) T, the oil-discharge tube; M O K I, indicator-tube holders; N J, indicator-tubes, (glass;) P L, indicator-caps; Q, oil-descent tube; a', packing-nut; o^2 and k^2, packing-thimbles.

The four black spaces at the tops and bottoms of the indicator-tubes are flexible packing-rings.

k' and o' are compression rings, (screw-threaded.) The latter converges into an upward aperture, and forms an oil-discharge nozzle; c', discharge-channel; r', steam-inlet channel; b', packing-nut; b^2, valve-sleeve; b^3, angular water-channel; t', oil-discharge channel; U, diaphragm separating water-base and oil-magazine. (See Figs. 2, 3, and 4.)

Principle of operation: Upon being attached to the steam-pipe of an engine, the device is blown through. This is done by opening or unscrewing the valves A, B, and C. Steam enters inlet R and oil-outlet T, and finds escape through condenser G and oil-magazine H and valve C, after which the valves A, B, and C are closed and plug D unscrewed, and water is poured in the aperture and enters the oil-magazine, filling the latter and the indicator J, also the tube Q and indicator N, after which the valve C is again opened, when the water in H and indicator J will escape, the tube Q and indicator N remaining filled; closing valve C, oil is poured into the aperture of plug D until the magazine H and indicator J are full. D is then replaced. By this time the condenser G will have become filled with condensed steam or distilled water. Then, to operate the device, the valve B is opened slightly, when the water in the condenser-base will enter the angular channel b^3, Figs. 2 and 3, and pass into the oil in the top of the

cored extension contiguous to the opening in the glass-holder I, and descend in the oil adjacent to the tube Q, but not into the latter. The oil in consequence becoming elevated, flows into and through the water in the tube Q and up into the nozzle *o'*, accumulating at the orifice of the nozzle until sufficiently large, when, by its lesser gravity, it swiftly ascends the water contained in the indicator N. The valve A being next opened, the oil enters the channel *t'*, continues through the lower channel in the trunk F, and through the oil-tube T, discharges into the current of the steam, which it infuses with foam of oil, the water in the condenser being supplied in ample quantity by the steam, which has a continual inlet therein through the channel R *r' r'*. The upward transit of the oil in drops is visible through the water in the indicator N.

The downward transit of the drops of water through the oil might take place in the oil-level indicator-tube J, similar to the visible feed in my device patented November 14, 1876, No. 184,426; but as a doubly-visible feed would appear Utopian, it is avoided, as it would not contribute to the usefulness of the device.

The original features patented to me in the above-mentioned patent, embracing the single connecting-trunk having separate steam and oil channels, in combination with an elevated condenser, a steam-tube therein, and a suspended oil-magazine, a water-feed-regulating valve, are still the basic features in my present device, yet there are novel features which time and experience have developed, which are herein embraced in such perfect arrangement as to prove advantageous in points of construction and utility, and are contributive to elegance and symmetry of design. In the construction a simple cylinder, H, with inwardly-projecting bosses or sockets for receiving the glass holders I, K, M, and O, the valve-sleeve b^2, the trunk F, and valve C, and threaded at its upper end to receive the condenser G, and provided with a horizontal or transverse diaphragm, U, it is quickly turned and finished, its opening bored and threaded, when the finished details are then easily attached and subsequent alignment of all the parts assured, there being no organic joints in the main cylinder. Nearly all that portion in the cylinder H above the diaphragm U constitutes the base of the condenser, and effects the cooling of the surface of the oil under the diaphragm.

Contiguous to the inward opening of the glass holder I the oil-magazine has an upward cored extension, *h'*, above the level of the diaphragm proper, the object being to enable the indication of the oil by the indicator J to the level of the bottom of the diaphragm proper, so that nearly the last of the oil can be indicated to insure its presence in the magazine. It also enables the inlet-orifice of the oil-descent tube Q to absorb nearly every part of the lubricant in the magazine. The water-valve B enters directly into the water-base, where it opens and closes the water-outlet channel b^3. This feature has been put in practice by myself in the early part of 1877; but in this device it is used in combination with the entire cylinder, composing nearly all of the oil-magazine and the water-base.

At the bottom of the cylinder H there is an inwardly-projecting bar, which is drilled to receive the valve C, and provided with the horizontal and downward discharge-channel *e'*, all confined within the general surface of the cylinder-casting.

The glass indicators J and N are entered through the bottoms of the lower glass-holders, K and O, which holders are internally threaded, enabling the packing of the indicator-tubes by screwing up the rings *k'* and *o'* against the packing-thimbles k^2 and o^2, upon which are laid the flexible washers, represented by black spaces, the holders being finally closed by the caps L and P.

Having described my invention, I desire to secure by Letters Patent the following claims:

1. In a lubricator, the combination of the oil-magazine H, provided near its upper end with the diaphragm U, its upward continuation forming a water-base which is surmounted with the condenser G, with the upwardly-cored extension *h'*, glass indicator-holders I and K, and glass indicator J, whereby the highest general level of the lubricant in the oil-magazine is shown, substantially as specified.

2. In a lubricator, the oil-magazine H, as described, having an upwardly-cored extension, *h'*, in combination with the oil-descent tube Q, glass holders O and M, and glass indicator N, whereby the entire lubricant contained in the magazine H may be absorbed, substantially as specified.

Signed this 27th day of January, 1883.

J. VINCENT RENCHARD.

Witnesses:
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A. M. GRAHAM.