

No. 614,816.

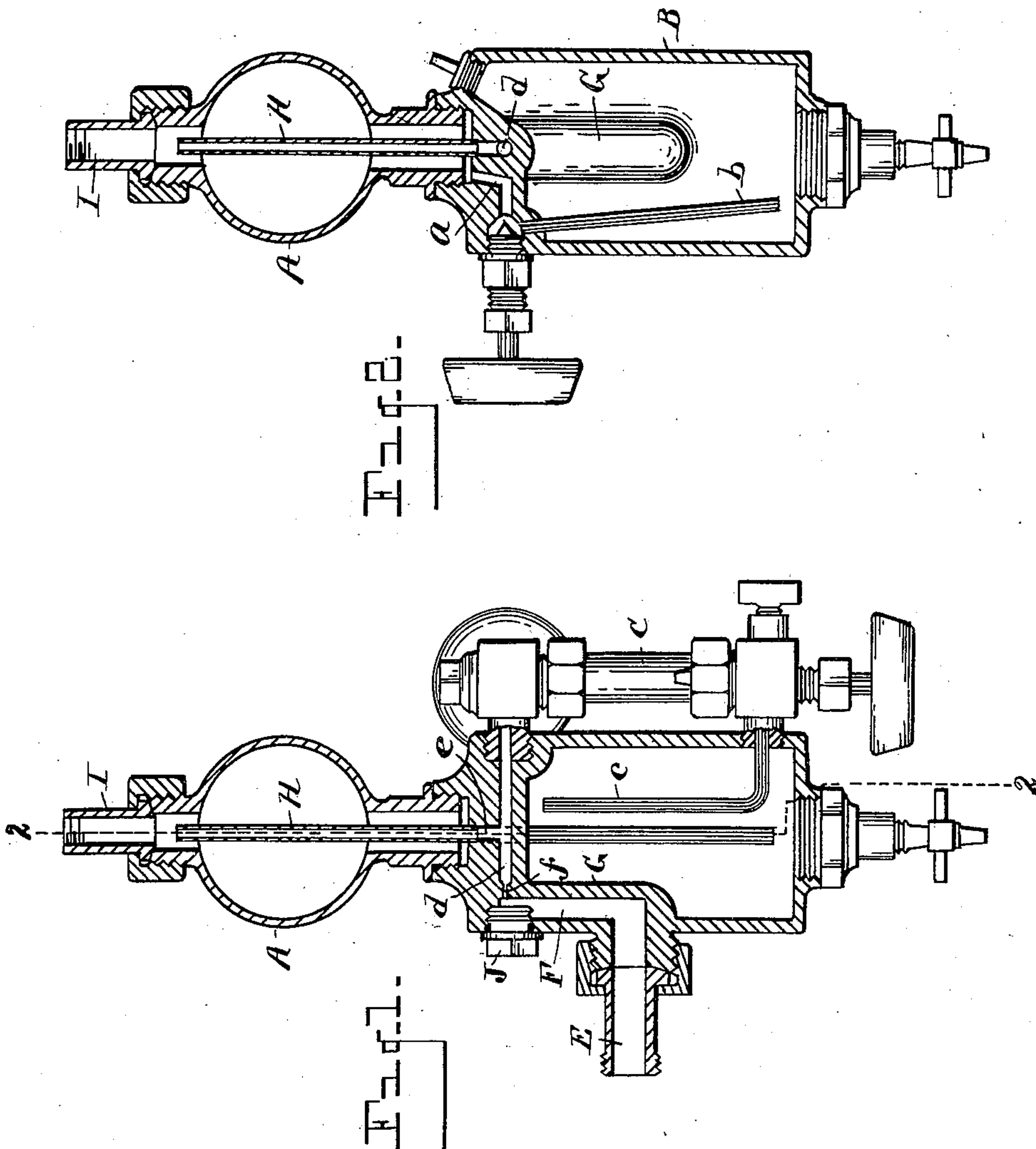
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LUBRICATOR.

(Application filed Apr. 14, 1897.)

(No Model.)



WITNESSES

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UNITED STATES PATENT OFFICE.

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LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 614,816, dated November 22, 1898.

Application filed April 14, 1897. Serial No. 632,119. (No model.)

To all whom it may concern:

Be it known that we, FRANK W. MARVIN and GEORGE B. ESSEX, citizens of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Lubricators; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to lubricators of the class known as "sight-feed-cylinder" lubricators; and it consists in the construction and arrangement of parts hereinafter set forth, and pointed out particularly in the claims.

The object of the invention is to provide for maintaining a body of live steam within a diaphragmed chamber in the oil-reservoir for the purpose of keeping the parts of the lubricator warm and maintaining the oil in a good fluid condition in cases where the condenser of the lubricator is connected with the steam-dome or with the boiler end of the steam-supply pipe, and the oil-discharge is connected with the cylinder end of said steam-pipe—in effect, "straddling the throttle" with these connections, as it is commonly termed. This object is attained by the peculiar construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section through the condenser and oil-reservoir of our improved lubricator. Fig. 2 is a like section at right angles thereto as taken on line 2 2 of Fig. 1.

It is often necessary, especially on traction-engines, owing to the shortness of the steam-pipe, to connect the steam-induct pipe communicating with the condenser of the lubricator with the steam-supply pipe at a point between the throttle and boiler and to connect the oil-discharge pipe of said lubricator to the steam-supply pipe at a point between the throttle and cylinder, in which case when the throttle is closed steam is cut off from the oil-reservoir or oil-discharge of the lubricator,

permitting said parts to become chilled, greatly impairing the effectiveness of the lubricator and in cold weather often resulting in the breaking of the sight-feed glass through freezing. By means of the presence of our diaphragmed chamber within the oil-reservoir, which is at all times in communication with the steam-supply of the boiler, these difficulties are entirely obviated, as the parts of the lubricator are thereby kept well heated and the oil is maintained in a good fluid condition.

Referring to the letters of reference, A designates the condenser, from which the water of condensation passes through the passageway *a* (see Fig. 2) into the tube *b* and discharges into the bottom of the oil-reservoir B, causing the oil to rise therein and flow into the upper end of the tube *c*, downward through said tube, and upward through the sight-feed glass C, thence through the horizontal oil-port *d*, crossing the top of the oil-reservoir, and downward to the oil-discharge pipe E, which connects with the steam-supply pipe (not shown) in a manner well understood in the art.

It will be observed on referring to Fig. 2 that the connecting opening between the small oil-port *d*, crossing the top of the oil-reservoir and the oil-discharge pipe E, consists of a chamber F, which is formed by a diaphragm or inner wall G, extending into the interior of the reservoir.

Projecting into the condenser is a vertical tube or stand-pipe H, whose lower end communicates through the opening *e* with the horizontal oil-port *d* and through said port with the chamber F, thereby providing for the presence at all times within said chamber of a body of live steam.

It will be understood that where the steam-inlet pipe I is connected with the main steam-pipe between the throttle and boiler and the oil-discharge pipe E is connected with said steam-pipe between the throttle and engine or steam-chest upon the closing of the throttle steam will be cut off from the lubricator through the oil-discharge pipe E, allowing the oil-reservoir in cold weather to become chilled in lubricators of this character as ordinarily constructed. In our improved lubricator, however, this objection is overcome

by means of the steam-chamber F within the oil-reservoir and the stand-pipe H within the condenser, which communicates with said chamber F through the port *d*, whereby upon
 5 the closing of the throttle steam is supplied to said chamber F through the tube or stand-pipe H, whereby the oil-reservoir and contents are maintained at a high temperature.

Upon the opening of the throttle the oil-
 10 discharge pipe and chamber F are at once filled with steam from the cylinder end of the steam-pipe, which balances the steam entering said chamber through the stand-pipe H, neutralizing the effect thereof and insuring
 15 at all times a circulation of live steam through the chamber F of said reservoir whether or not the throttle is open or closed.

The screw-plug J (shown in Fig. 1) affords access to the oil-port *d* and allows said port
 20 to be readily cleaned should it become choked from any cause.

As shown at *f* in Fig. 1, the outer or discharge end of the oil-port *d* is contracted, so as to reduce the discharge of said port to a
 25 very small opening, the purpose of which is to overcome or subdue the pulsations within the steam-pipe, so that the lubricator will not be affected thereby.

Having thus fully set forth our invention, what we claim as new, and desire to secure by
 30 Letters Patent, is—

1. In a lubricator, the combination with the oil-reservoir, the steam-chamber therein, the oil-port crossing the top of said reservoir and
 35 communicating with said steam-chamber,

the oil-discharge pipe also communicating with said chamber, the stand-pipe communicating at its upper end with the steam-induct pipe and at its lower end with the oil-port leading to said steam-chamber. 40

2. In a lubricator, the combination with the oil-reservoir, the steam-chamber therein, the oil-port crossing the top of said reservoir and communicating with said chamber, the oil-discharge pipe also communicating with said
 45 chamber, two passages leading from the sources of steam-supply and communicating with said steam-chamber, one of which is by way of and through said oil-port.

3. In a lubricator, the combination with the
 50 oil-reservoir, the steam-chamber therein, the condenser in communication with said reservoir, the oil-supply pipe communicating with said chamber, the oil-discharge pipe also communicating with said chamber, two passages
 55 leading from the sources of steam-supply, one communicating with said chamber through the oil-discharge pipe, the other communicating with the condenser, a stand-pipe within the condenser communicating at its upper end
 60 with the steam-supply pipe connected therewith, and at its lower end with the oil-supply pipe leading to said steam-chamber.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK W. MARVIN.
 GEORGE B. ESSEX.

Witnesses:

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 WALTER BARLOW.