

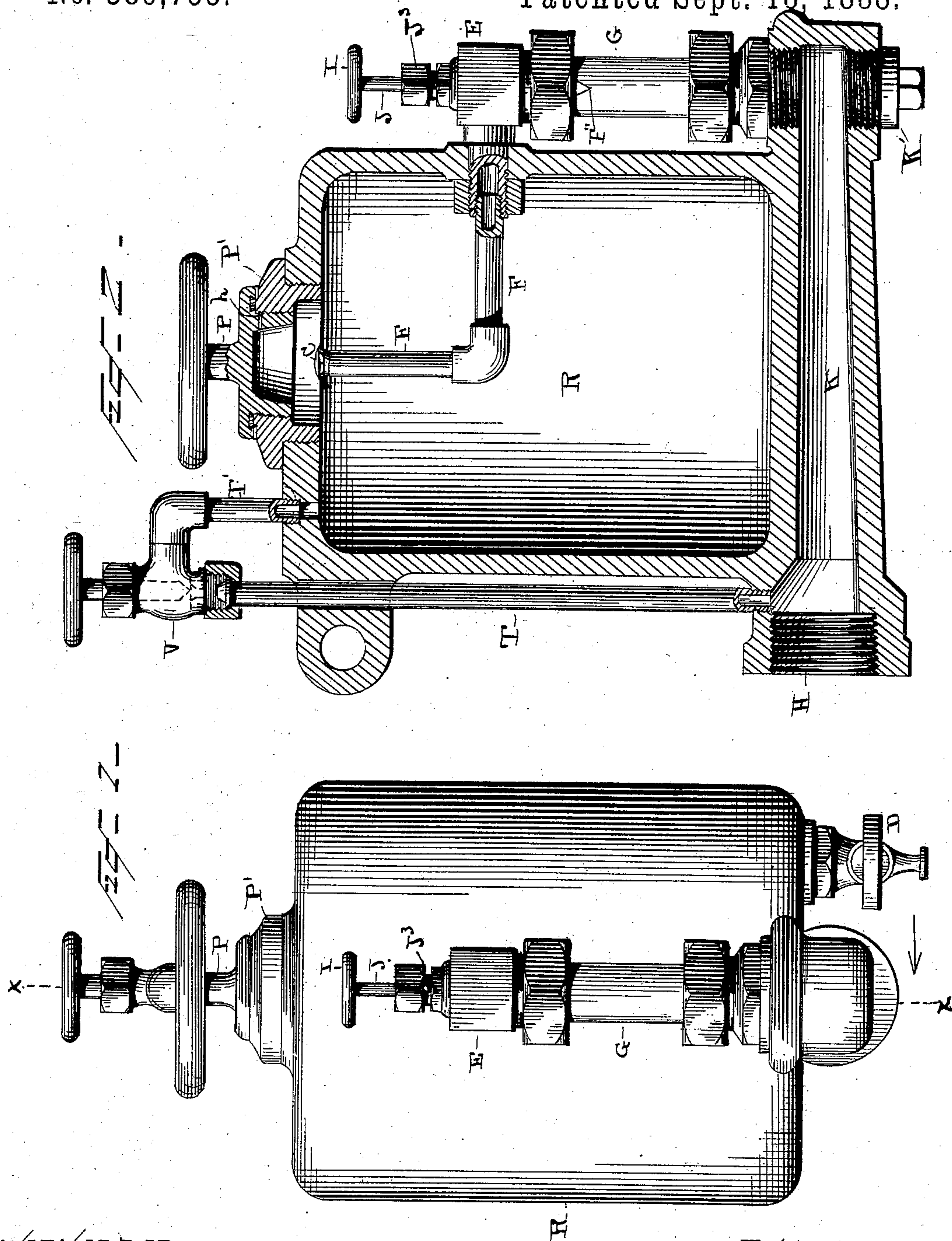
(No Model.)

2 Sheets—Sheet 1.

W. F. MATTES & J. F. LEWIS.
LUBRICATOR.

No. 389,755.

Patented Sept. 18, 1888.



WITNESSES

Louis A. Clark
Van Buren Hillyard.

INVENTOR

William F. Mattes
John F. Lewis

By R. B. & A. Lacey
Attys

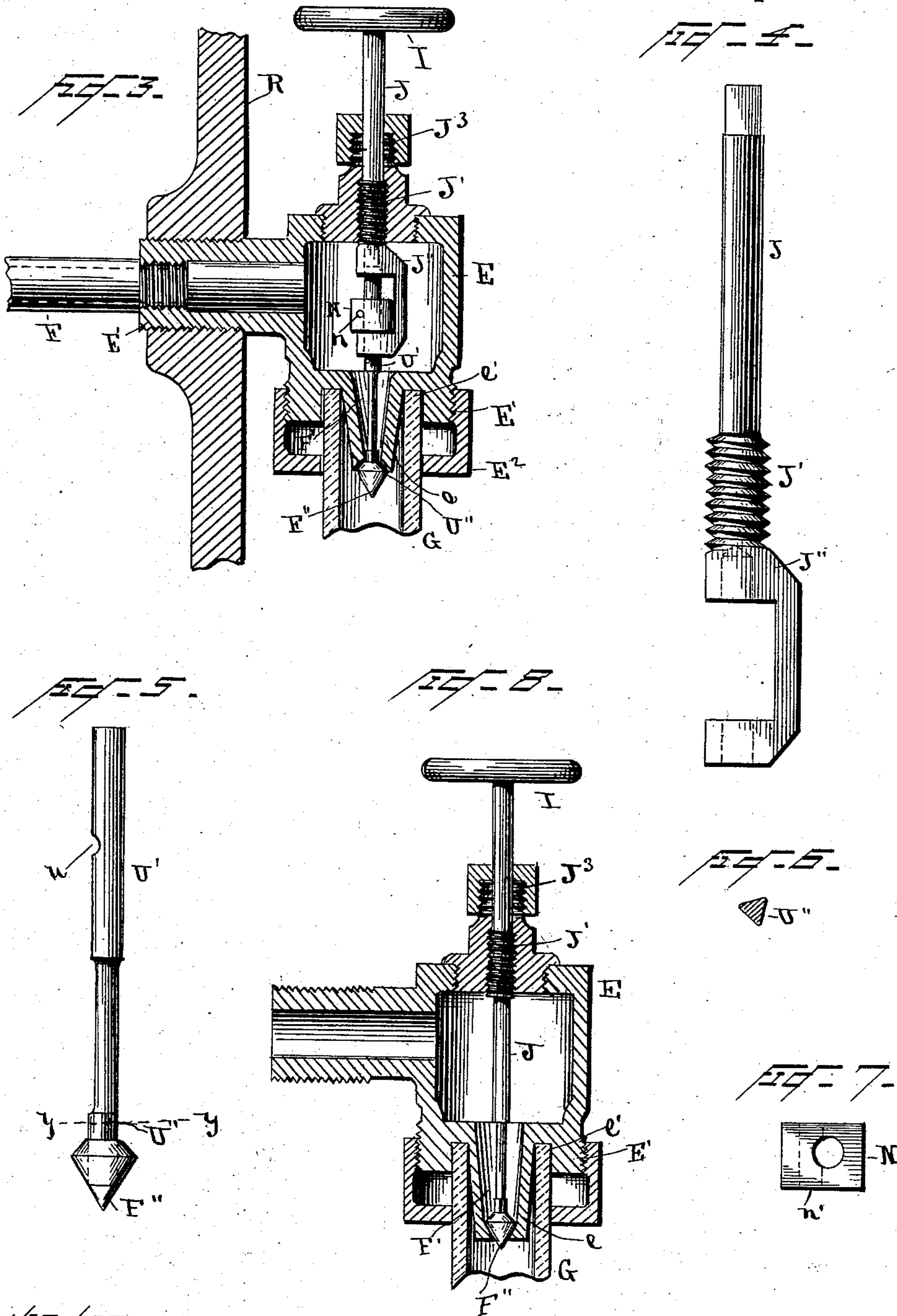
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UNITED STATES PATENT OFFICE.

WILLIAM F. MATTES AND JOHN F. LEWIS, OF SCRANTON, PENNSYLVANIA,
ASSIGNORS TO WILLIAM F. MATTES, TRUSTEE, OF SAME PLACE.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 389,755, dated September 18, 1888.

Application filed March 7, 1888. Serial No. 266,419. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. MATTES and JOHN F. LEWIS, citizens of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, 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 and figures of reference marked thereon, which form a part of this specification.

This invention relates to lubricators of that class in which the lubricant is displaced by water of condensation and is fed through a sight-tube filled with steam.

The object of the invention is to improve this class of devices generally and to increase their efficiency and render more certain the operation of the same.

The improvement consists of the peculiar construction and combination of the parts, which will be more fully described hereinafter, and pointed out in the claims.

In the drawings, Figure 1 is a front view of a lubricator of my invention; Fig. 2, a vertical section of the lubricator on the line X X of Fig. 1, showing the fitting and the glass tube in full lines; Fig. 3, a vertical section of the fitting and a part of the oil-reservoir and glass tube on the line X X of Fig. 1 on an enlarged scale; Fig. 4, a detail view of the valve-operating stem on an enlarged scale; Fig. 5, a detail view of the hanger or rod provided with the valve; Fig. 6, a cross-section of the rod on the line Y Y of Fig. 5; Fig. 7, a top plan view of the collar; and Fig. 8, a sectional view of a fitting, showing a modification.

R is the oil-reservoir, which is filled through a hole in the top, shown closed by the plug P.

H is a shank or socket for attachment to the steam-supply pipe or chest.

K is a steam-passage with open communication to the glass tube G and with the tube T, by means of which steam is introduced to the top of the cup. An interior tube, F, is the feed-tube, which conveys oil to the fitting E, which is the regulating valve case.

I is a hand-wheel.

J is the yoke stem, working through an ordinary stuffing-box, J³.

J' is a screw, and J'' a yoke formed with or fastened to the stem J.

F'' is the regulating-valve, suspended by the rod or hanger U' U'', the latter being guided by the yoke J'' and upheld by the collar N, which is fastened to the rod by a pin, n, passing through an opening, n', in the said collar and fitting in the notch or depression u in the side of the rod U'. A tube-shaped extension, e, of the fitting E within the glass G conveys the oil to and forms a seat for the valve F''. As the collar N is free to rise within the limits imposed by the yoke J'', the valve, when open, may be automatically closed by a pressure of steam in the glass tube G unless it is balanced by a nearly equal pressure above the valve. When the pressures are balanced, the collar will rest, as shown, upon the lower part of the yoke, and the valve may be closed by means of the hand-wheel I operating the screw J'. At U'' the valve-rod is formed with three sides, the corners of which serve the double purpose of centering the valve in the tube e and of reaming the hole clear of any obstruction whenever the hand-wheel I is turned. To insure that the valve-rod shall always revolve when the hand-wheel is turned, the collar N is made flat on the side next to the vertical part of the yoke J''.

In Fig. 2 is shown a cap or hood, C, suitably supported on the end of the tube F, so as to leave a space between it and the end of the tube for the escape of the lubricant. This cap or hood C is sufficiently large to shed the water of condensation that accumulates and drops from the plug P and prevent it from entering the said tube with the lubricant. A small hole, h, is drilled through the plug P a little below the joint between the plug and the top of the bushing P', that is screwed in the top of the cup, which serves two useful purposes: First, if a little steam-pressure should remain in the cup when the plug is screwed out it can escape through the hole without annoyance to the operator; second, it prevents the imprisonment of air within the plug when the latter is replaced, and thereby reduces its displacement and prevents it from forcing too much oil up into the steam-tube T', which would cause siphoning.

The operation of the cup after it has been attached by means of the shank H to the main steam-pipe is as follows: The passage K, the

steam-tube T, and the glass tube G fill with steam. If the valve V, which is located in the tube T, is closed, the pressure in the glass tube will not be balanced by a pressure in the oil-reservoir R, and the regulating-valve F'' will be automatically forced against its seat. The plug P is then withdrawn and the cup filled with oil or any other lubricant which is fluid at the temperature of steam, and which will float upon water. The plug is then replaced and the valve V opened, which admits steam to the interior of the cup and thus balances the pressure existing in the glass tube G, with the result that the valve F'' opens automatically and the oil at once begins to flow into the glass tube and through the passage K into the main steam-pipe. As the oil is withdrawn from the cup its place is supplied by the water formed by the condensation of the entering steam. The water will accumulate in the bottom of the cup, and will float the oil up until the supply of the latter is exhausted. The oil will feed, drop by drop, or faster, through the glass tube, according to the position given by the operator to the regulating-valve F''. To refill the cup the operator will first close the steam-valve V, then open the drain-cock D, withdraw the plug P, close the drain-cock as soon as the water is drawn off, refill the cup with oil, replace the plug, and open the valve V.

We are aware that oil-cups have been patented in which oil is fed through a glass tube filled with live steam by means of a drip-tube having a regulating-valve at the top, and do not claim such, broadly; but we claim the combination most particularly shown in Fig. 3, with the valve placed at the bottom of the extension-tube, thus excluding steam from the tube, and forming the drop upon the exterior of a suitably-shaped valve instead of upon the interior surface of the tube, as novel and essential to a satisfactory operation. Where steam has access to the interior of the tube interior condensation results, and the drippings are part oil and part water, and apt to be delivered with an irregular pulsating action, which is entirely overcome by our device.

In some cases the yoke J'', the collar N, and the rod or hanger U' U'' may be dispensed with, and the stem J will be continued down through the fitting E and its tubular extension e and terminate in the valve F'', which is seated within the said tube e, the inner end being contracted, as shown in Fig. 5. In either case the oil will collect on the end of the valve F'', where it will be plainly exposed to view through the glass tube G, through which it will descend to the passage K and from thence to the parts to be lubricated.

The lower end of the case is externally threaded, and between this threaded portion E' and the tube e an annular groove, e', is formed, which receives the end of the glass tube. The cap E'', screwed on the threaded end E', receives packing material and forms a

tight joint between the tube G and the fitting E.

The steam-passage K has a threaded opening in its lower end in line with the glass tube G, which is closed by the plug K'. By removing the plug K' the passage K and the tube G can be cleaned out.

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

1. In a steam-condensing displacement-lubricator, the combination, with the oil-reservoir having a steam-ingress at its top and a steam-passage at its bottom, of the fitting communicating with the upper portion of the reservoir and having a tubular extension, the glass tube connecting the fitting with the said steam-passage, and the valve arranged to close the lower end of the said tubular extension and having its stem extending through and working in the said extension, substantially as and for the purpose described.

2. The combination, with the oil-reservoir and the fitting communicating with the upper portion of the oil-reservoir and having a tubular extension, of the valve for closing the lower end of the said tubular extension and the valve-stem screwed in the aforesaid fitting, substantially as set forth.

3. The combination, with the oil-reservoir, the fitting having an extension provided with an oil-exit, and the stem J, having the yoke J'', of the valve having a rod, which rod is loosely connected with the yoke, substantially as and for the purpose described.

4. The combination, with the oil-reservoir, the fitting having an oil-duct, and the stem J, having the yoke J'', of the collar, the rod, and the valve F'', substantially as specified.

5. The combination, with the oil-reservoir and the steam-pipe T and T', of the delivery-tube F, extending to near the top of the oil-reservoir, and the cap C, placed over the end of the said tube F, substantially as and for the purpose described.

6. In a steam-condensing displacement-lubricator, the combination of the reservoir having a steam-passage, K, in its base, the steam-pipe T, exterior to the reservoir and connecting with the passage K, the tube T', communicating with the top portion of the reservoir and connecting with the pipe T, the valve V, for opening and closing the passage in the tubes T and T', the tube F, fitting E, and glass tube G, establishing communication between the top of the reservoir and the other end of the passage K, the fitting having a tubular extension and provided with a valve closing the lower end of the said extension, substantially as described.

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

WILLIAM F. MATTES.

Witnesses: JOHN F. LEWIS.

W. L. JONES,

C. L. KIRKPATRICK.