(No Model.)

W. H. CRAIG.

STEAM ENGINE LUBRICATOR.

No. 331,772. Patented Dec. 8, 1885.

Fig. 1.

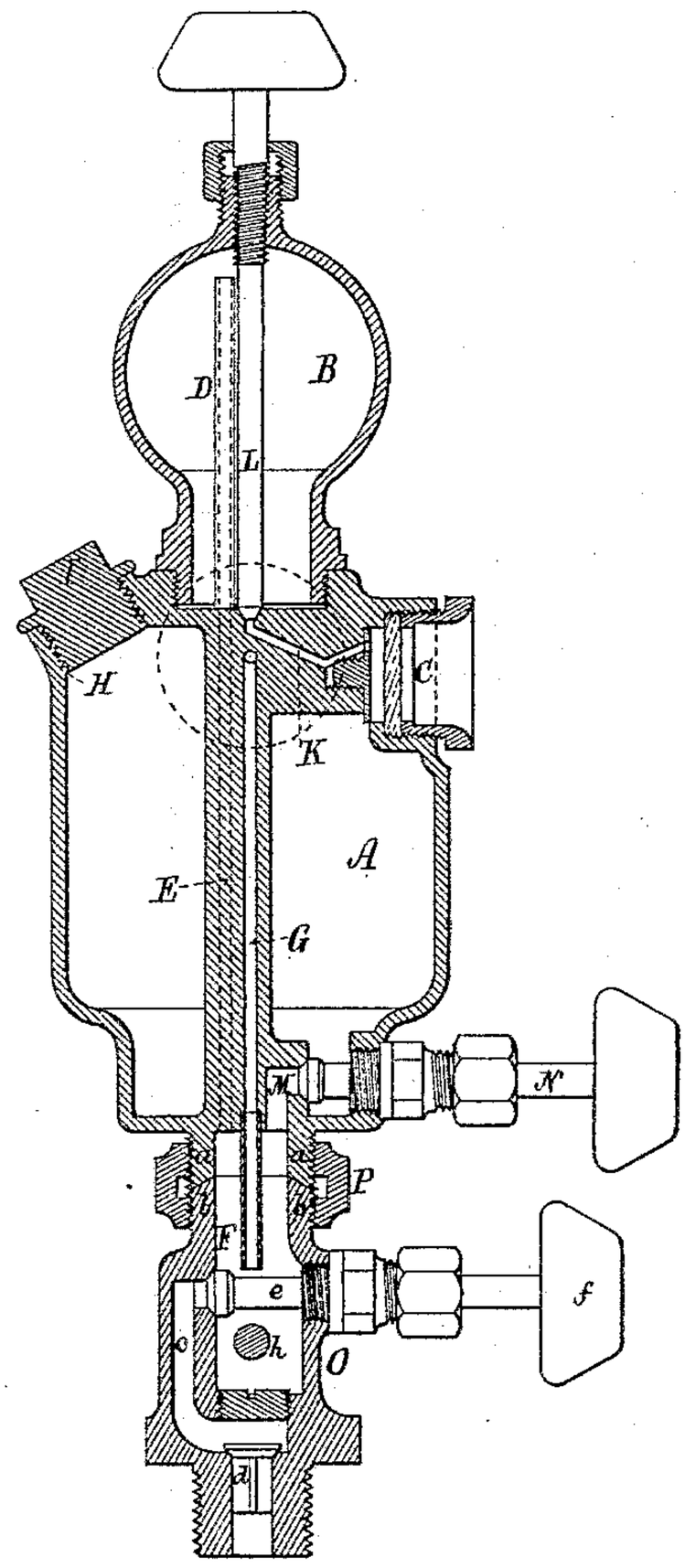


Fig. 2.

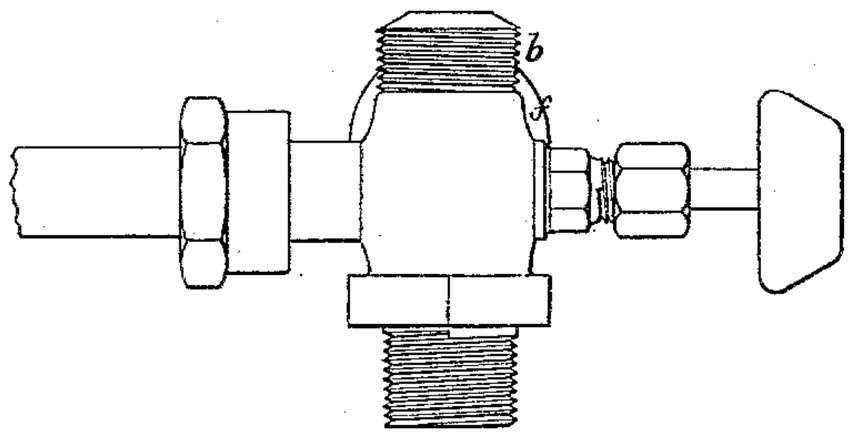
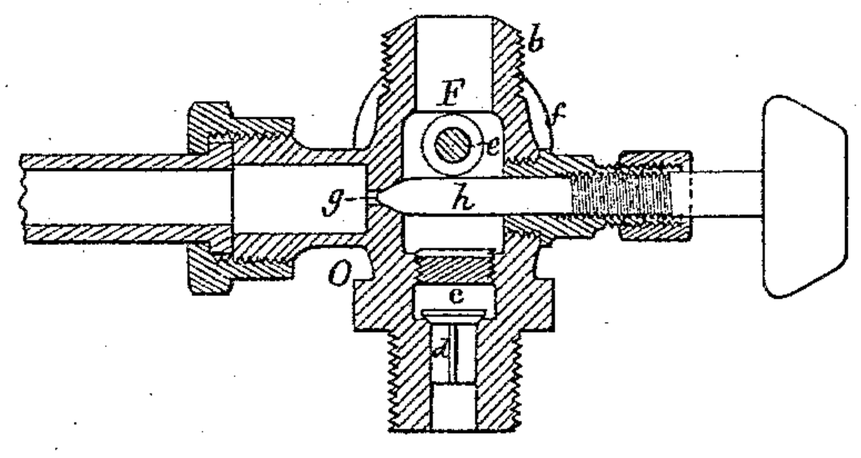


Fig. 3.



Witnesses.

S. N. Piper

R. B. Towy

Inventor.

Warren H. Craig.

by R. H. Eddy atty

UNITED STATES PATENT OFFICE.

WARREN HILLIARD CRAIG, OF LAWRENCE, MASSACHUSETTS.

STEAM-ENGINE LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 331,772, dated December 8, 1885.

Application filed October 14, 1885. Serial No. 179,844. (No model.)

To all whom it may concern:

Be it known that I, WARREN HILLIARD CRAIG, of Lawrence, in the county of Essex, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Steam-Engine Lubricators; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a vertical and median cross-section of a lubricator having my invention, the nature of which is duly defined in the claims hereinafter presented. Fig. 2 is a side elevation, and Fig. 3 a longitudinal section, of the part of the lubricator that is below the oil-reservoir, and serves to connect the said reservoir with a steam-engine and its boiler. The plane of section of said Fig. 3 is at right angles to that of Fig. 1.

The lubricator shown in Fig. 1 is what is termed a "sight-feed oiler," its oil-reservoir being shown at A, the steam-condenser at B, and the sight-feed or observation window or port at C. D is the pipe that leads from the steam-passage E upward into the condenser, nearly to the top thereof, the said passage extending from a chamber, F, through the oil-reservoir. G is the oil-discharge passage, which at its lower end opens into the chamber F. H is the oil-reservoir filling-opening, provided with its closing screw-plug I. K is the water-passage, leading from the condenser to the observation-chamber, that opens into or communicates, as usual, with the oil-reservoir, the screw-plug of such passage being shown at L. M is the passage for draining oil or water from the reservoir into the chamber F, such passage being provided with a screw-plug, N.

The above-mentioned parts, with the exception of the connection O, provided with the chamber F, are common to the sight-feed lubricator. The said chamber F, or the connection, O, containing it, is joined to the oil-reservoir by a right-and-left screw-coupling, P, screwed on necks *a* and *b*, extending, as shown, from the said connection and the oil-reservoir. Such chamber F has aside of it in the connection O a passage, *c*, to lead steam into such chamber from the boiler, there being in the lower part of such passage a valve-seat provided with a valve, *d*, to open upward. At the opening of the said passage *c* into the chamber F there is a screw-plug, *e*, whose operative knob is shown at *f*. Extending out of the chamber F is another passage, *g*, to lead to the valve-chest of the engine-cylinder, such passage at its mouth being provided with a screw-plug, *h*, arranged as represented.

When the lubricator is in use, steam from the boiler passes up through the passage *c* into the chamber F, the screw-plug *e* being supposed to be drawn back to allow of the flow of steam into the said chamber. From the chamber F the steam passes through the passage E and the tube D into the condenser B, wherein such steam becomes condensed, the water of condensation passing in drops through the observation-chamber, and thence into the oil-reservoir, oil from such reservoir at the same time flowing into the passage G at its top and down through such passage into the chamber F. With the steam escaping from the said chamber through the passage *g*, the oil will be carried to the valve-chest.

By means of the chamber F, with its passages, valve, and screw-plugs arranged as described, I am enabled to maintain a practically-uniform pressure of steam within the lubricator while it is automatically performing its work, such being effected by opening the screw-plugs more or less, as may be required, to attain such uniformity of pressure as the pressure in the valve-chest may change. Furthermore, in case of a derangement of the lubricator from any cause that will prevent it from so operating, the steam may be shut off by closing the plug *e*, and opening the plugs *h*, N, and I, and turning oil into the feeding-orifice H. Oil from the reservoir will then flow into the chamber F, and from thence through the passage *g* to the valve-chest, the throttle-valve of the engine being closed while such is being done. Furthermore, in case of it becoming necessary to remove the oil-reservoir from the part O, the latter, with its chamber F, can be used temporarily as a means of supplying oil to the valve-chest. In this case the plug *e* should be closed and the plug *h* opened. On oil being poured into the chamber F, such oil will be sucked therefrom into and through the passage *g*, provided the en-

gine may be in operation after the closing of its throttle-valve.

The valve *d* is to prevent any oil from being discharged into the boiler by back-pressure from the valve-chest.

Without the drainage-passage M and its plug N to the lubricator, the connection O, having the chamber F, steam-inlet passage *c*, and oil-outlet passage *g*, with their screw-plugs, can be employed to advantage.

I claim—

1. The combination, with the oil-reservoir of a lubricator provided with the steam and oil passages E and G, and with the drainage-passage M and its screw-plug N, as described, of the connection O, having the chamber F, the steam-inlet passage *c*, the oil-outlet passage *g*, and the screw-plugs *e* and *h* thereto, all being arranged substantially and to operate as set forth.

2. The combination, with the oil-reservoir of a lubricator provided with the steam and oil passages E and G, as described, of the connection O, having the chamber F, steam-inlet passage *c*, oil-outlet passage *g*, and the screw-plugs *e* and *h* thereto, all essentially as set forth.

3. The connection O, having the chamber F, steam-inlet passage *c*, valve *d*, oil-outlet passage *g*, and the screw-plugs *e* and *h*, arranged substantially as represented, such connection having its upper part provided with a neck opening out of the chamber and screw-threaded for joining the connection to the oil-reservoir of the lubricator, as specified.

WARREN HILLIARD CRAIG.

Witnesses:
R. H. EDDY,
R. B. TORREY.