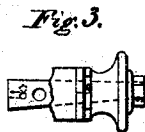
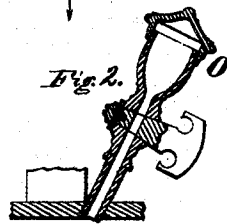
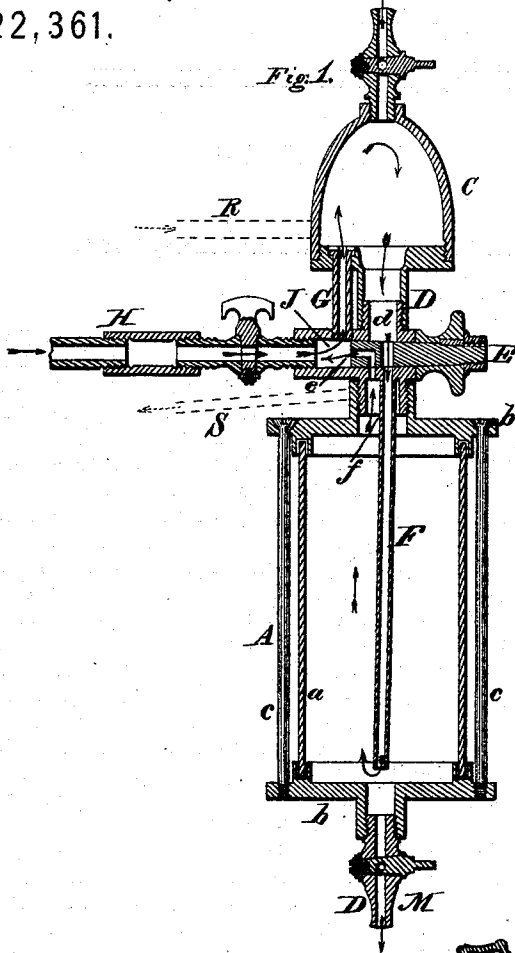


(87.)

WILLIAM A. CLARK.
Improvement in Lubricators.

No. 122,361.

Patented Jan. 2, 1872.



Witnesses.

Harry King.
Phil F. Dodge.

Inventor.

Wm A. Clark.
By Dodge & Munn.

UNITED STATES PATENT OFFICE.

WILLIAM A. CLARK, OF WESTVILLE, CONNECTICUT.

IMPROVEMENT IN LUBRICATORS.

Specification forming part of Letters Patent No. 122,361, dated January 2, 1872.

To all whom it may concern:

Be it known that I, WILLIAM A. CLARK, of Westville, in the county of New Haven and State of Connecticut, have invented certain Improvements in Lubricators, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to lubricators for use on steam-engines and pumps; and consists in constructing the same with an upper steam-chamber and a lower oil-chamber, so that the oil shall be displaced and fed out by water resulting from the condensation of steam in the upper chamber, as hereinafter described.

Figure 1 is a vertical section through the center of my lubricator, and Figs. 2 and 3 are views of detached parts of the same.

In constructing my lubricator I first provide an oil-reservoir or chamber, A, consisting of a glass cylinder, having two metal heads or end pieces, *b*, applied to it, and held in place by screw-rods or bolts *c*, as shown in Fig. 1. I next provide a tight metal steam-chamber, C, and connect its lower end with the top of the oil-chamber A, by means of a tube D, as shown. The connecting-tube D I provide with a cock, E, by which the communication between the steam and oil-chamber may be closed; and to the cock I connect a depending-tube, F, extending down to near the bottom of the oil-chamber A, as shown, the tube being so connected that everything passing through the opening *d* of the cock flows down through the tube into the bottom of the oil-chamber A, as shown in Fig. 1. On the side of the connecting-tube D, at the back end of cock E, I form a small chamber, J, and connect the same by a tube, G, with the steam-chamber C. I also make in the back end of the cock E an L-shaped hole or passage, *e*, one end of which opens through the side of the cock, and the other through the end of the same into chamber J, so that when the cock is set in the position shown in Fig. 1 the hole *e* forms a communication between the oil-chamber A and chamber J, which communication may be closed or graduated by turning the cock E. The passages *d* and *e* in the cock are so arranged that by turning the cock far enough communication may be closed between the steam and oil-chambers, and between the oil-chamber A and chamber J at

the same time; but the passage *d* is made larger than *e*, so that it does not close until after the other, whereby the flow of oil may be regulated without shutting off completely the down-flow of the water. To the chamber J, I connect a pipe, H, which serves both to convey steam to the chamber or condenser C, and oil from the chamber A to the parts to be lubricated. In applying the lubricator to the steam or valve-chest of an engine I place it above the same and connect the pipe H therewith, and then fill the chamber or reservoir A with oil, and open the cock E, as shown. The steam flows through the pipe H into chamber T, and thence through pipe G into the chamber C, which remains constantly filled therewith. As the outside of the chamber C is in contact with the atmosphere, a portion of the steam therein is constantly undergoing condensation or conversion into water, and this water, as fast as produced, flows down through the passage *d* in the cock, and through tube F into the bottom of the oil-chamber A. The water being heavier than the oil displaces the same, and causes it to rise and flow through the passage *e* in the cock into the chamber J, from whence it flows down in the bottom or lower part of pipe H to the engine. This operation continues until the oil-chamber A is filled with water, and all the oil forced out, when the water is drawn off and the chamber refilled with oil. The oil-chamber is provided with a cock, M, at its lower end for drawing off the water, and a funnel and cock, O, at its top to allow the ready introduction of oil. The steam-chamber C is also provided with a cock which is opened to permit the escape of the air therein when commencing operation.

It will be observed that when the lubricator is in operation the steam passes to it and the oil from it through one and the same pipe, H, which is the only communication or connection between the lubricator and the engine. The steam passes along through the upper portion of the pipe, and the oil through the lower portion of the same, both passing through the pipe at the same time but in opposite directions. By turning the cock E the size of the opening *e* may be regulated so as to vary the flow of oil, as may be necessary. To aid in regulating or adjusting the cock, and to indicate

the amount of oil being fed out, I provide the cock with marks or graduations, and its seat with a single mark or line, as shown in Fig. 3, so that the positions of the cock are indicated by the presence of one or another of the graduations opposite the line.

Instead of using the cock E, chamber J, and pipe G, as shown, they may be dispensed with, and then instead of using the pipe H a steam-pipe, R, may be connected directly to the chamber C, and an oil-pipe, S, carried from the upper end of the oil-chamber A directly to the engine, as shown by dotted lines in Fig. 1. In such case the operation will be substantially the same as before, the steam condensing in chamber C, flowing down through into the chamber A, and there displacing the oil and causing the same to flow off through pipe S.

When this modified arrangement is used an ordinary cock placed in the pipe D will serve to control the flow of the oil.

It is obvious that the tube F may be dispensed with, as the water would, of course, sink and displace the oil without its use; but

the lubricator works better with the tube than without.

My lubricator, constructed as described, is simple and cheap; it feeds the oil evenly and steadily to the engine; permits the flow to be regulated at will; and having no movable parts is not liable to become disarranged or choked up.

Having thus described my invention, what I claim is—

1. A lubricator, consisting of the condensing-chamber C and oil-chamber A, with a cock, E, for controlling and regulating the escape of the oil, all constructed and arranged to operate substantially as described.

2. The combination in a lubricator of the condensing-chamber C, steam-pipe G, tube D, cock E, tube F, and reservoir A, all constructed and arranged for joint operation, as set forth.

WILLIAM A. CLARK.

Witnesses:

J. MCKENNEY,
P. T. DODGE.

(87)