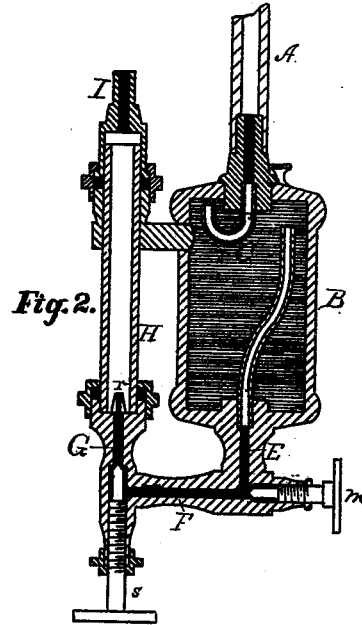
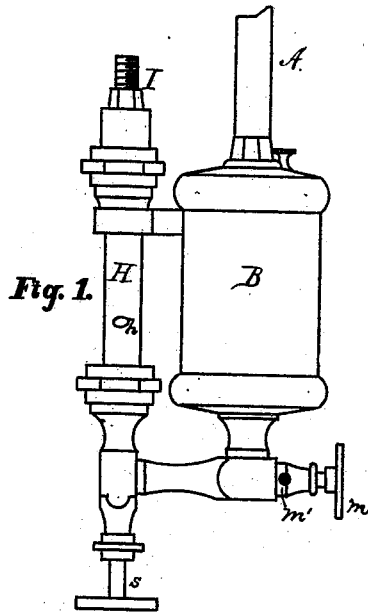


G. H. FLOWER.
Lubricator.

No. 196,650.

Patented Oct. 30, 1877.



Witnesses
Forse R. Smith
Silas Hightmoody

Geo. H. Flower Inventor
Munday and Evans, his

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE H. FLOWER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN LUBRICATORS.

Specification forming part of Letters Patent No. **196,650**, dated October 30, 1877; application filed September 3, 1877.

To all whom it may concern:

Be it known that I, GEORGE H. FLOWER, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Lubricators, of which the following is a specification:

My lubricator belongs to the class used in supplying the valves and cylinders of steam-engines with lubricating medium; and my object therein has been to obtain a perfectly regular and at the same time a sure flow of the oil into the cylinder and valves.

The nature of my invention will fully appear from the accompanying drawing, forming a part of this specification, and the following description.

In the drawing, Figure 1 shows a side elevation, and Fig. 2 a central vertical section, of my invention.

The same letters of reference used therein indicate the same parts in both figures.

The letter A represents the condensing-pipe, which should receive the steam a sufficient distance from the lubricator to insure condensation by the time it has reached the point shown in the drawing. This condensing-pipe opens into the oil-reservoir B, a trap, C, being added at the lower end of the opening and within the reservoir, to prevent the upward flow of the oil, which is likely to take place under certain circumstances. The orifice of this trap should be preferably near the top of the reservoir, as shown. D is a tube placed within the reservoir, extending well up toward the top thereof, and leading down through the bottom of the same into a small passage-way or duct, consisting of a downward part, E, a horizontal part, F, and an upward part, G. The part G leads through orifice *r* into a vertical glass tube, H, which I call the "water-tube," and which, in turn, leads into the passage-way I, whereby the oil is conducted into the steam-pipe, and mixes with the steam on its way to the steam-chest and cylinder. Suitable valves are inserted in both the condensing-pipe and the duct I at points beyond the part shown in the drawing.

The operation of my invention is as follows: The oil-chamber being filled with oil, steam is admitted at both sides of the apparatus, and condenses both in the condenser and water-tube. The column of water thus formed in the condenser descends slowly through the trap into the oil-chamber, and, of course, falls to the bottom of the latter, and

displaces an equal amount of oil, which latter finds exit through the tube D and the connecting-ducts into the water-tube H. From this point the oil is carried upward by the action of the water until it mingles with the steam in the steam-pipe, and is taken up thereby. Its passage through the glass tube is visible to the eye of the attendant, and, when properly regulated, it will be seen to float up through the water in regularly-timed drops *h*. It may, however, be so regulated as to flow almost in a continuous stream, if desired.

The matter of regulating the flow of the oil is performed by the valves in the tubes A or I, or one of them. It may also be additionally performed or solely performed by the valve *s*, inserted in the connecting-duct below the oil-chamber, as shown. This valve I do not consider a necessity, though it sometimes is a convenience.

The oil-chamber is filled through the opening occupied by the screw-stopper *b*. When it is desired to remove the accumulated water from the oil-chamber the valve *m* is opened, the water finding exit through the opening *m'*.

It is not essential that the oil-chamber and the water-tube should be near together, as in the drawing. On the contrary, they may be widely separated without interfering with the operation of the apparatus. I believe, however, that the column of water in the condenser should be higher than that in the water-tube, or, in other words, that greater pressure should be present in the former than in the latter; and inasmuch as the steam-pressure is equal in both, I obtain that difference through the medium of the column of water. Of course, the difference need be very slight.

I find it possible, by this apparatus, to give a uniform, and, what is equally important, a never-failing, supply of oil to the cylinder and the steam-valves.

The apparatus is automatic entirely in its operation, and, when once regulated, it may be safely left to perform its service.

I claim as my invention—

A lubricator, consisting of a condensing-tube, an oil-chamber, and a water-tube, connected together and operating essentially as described, and for the purposes set forth.

G. H. FLOWER.

Witnesses:

C. J. ENBORG,
FORDE R. SMITH.