(Model.) 2 Sheets—Sheet 1.

G. H. FLOWER.

Lubricator for Steam Machinery.

No. 229,242. **Patented June 29, 1880.**

Witnesses:

W. B. Corlies,

Jno. C. MacGregor.

Inventor:

George H Flower,

By Coburn & Thacher,

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Fig 3

Fig 4

Fig 5

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UNITED STATES PATENT OFFICE.

GEORGE H. FLOWER, OF CHICAGO, ILLINOIS.

LUBRICATOR FOR STEAM MACHINERY.

SPECIFICATION forming part of Letters Patent No. 229,242, dated June 29, 1880.

Application filed March 1, 1880. (Model.)

To all whom it may concern:

Be it known that I, GEORGE H. FLOWER, of Chicago, county of Cook, and State of Illinois, have invented a new and useful Lubricator for Steam Machinery; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a side view of my invention; Fig. 2, a vertical sectional view of the same; Fig. 3, a horizontal section on the line *x x*, Fig. 1; Fig. 4, a horizontal section on the line *y y*, Fig. 1, including a plan view of those parts whose upper surfaces are below the line of section; and Fig. 5, a horizontal section on the line *z z*, Fig. 1.

The same letters represent the same parts in all the figures.

My invention relates to improvements in lubricating apparatus for steam machinery; and the object of it is to facilitate the automatic distribution of the lubricant from a reservoir by the aid of the steam to the cylinder, piston, piston-rod, and valves, and to give a more compact and economical form than any hitherto in use to the apparatus for this purpose.

A represents the reservoir for oil, closed at the top, and having the detachable cap or stopper B, and opening at the bottom into the short tube O, through which it may be emptied by a valve.

The steam-pipe C C′ passes from the steam-chest horizontally through the upper part of the reservoir without opening into it, and leads into the metallic cap D of the glass tube E, whose cavity rises just high enough to receive C. The portion within the reservoir may be cast in one piece with it, as shown in Figs. 2 and 3.

H is a small pipe or tube opening into the steam-pipe, and is open at the top into a condenser, I. Between this tube and the steam-chest a valve of any suitable construction may be placed so as to admit of opening and closing at will the communication between the apparatus and the steam-chest. The condenser I covers the tube H, whose upper end is a short distance below the top of I.

The condenser is entirely closed except at the bottom, where it admits the tube H to pass up into its interior, and where it opens into the water-tube K. This tube K passes downward and opens into the bottom of the oil-reservoir A. This portion of the machine is so arranged that the portion C′ of the steam-pipe on the right of the oil-reservoir, as shown in the drawings, the lower part of the tube H, and the upper part of the water-tube K may all be cast in a single piece, as shown in Figs. 2 and 3 of the drawings.

The valve L, which may be of any suitable construction, is placed in the lowest part of the tube K, so as at will to arrest or permit the passage of water into the oil-reservoir.

Within the reservoir A is the oil-outlet M—a tube extending vertically almost to the top of the reservoir, and open at its upper end. It passes out through the bottom of the reservoir and into the otherwise closed metallic bottom of the glass tube E, and terminates therein a short distance above the bottom in the small orifice *m*. The valve or cock L′ is placed in M, so as at will to arrest or permit the passage of oil through it.

N is a wire, which extends vertically from the oil-outlet M, through the orifice *m*, up the middle of the glass tube, and into the metallic cap D, nearly to the point where the latter receives the steam-pipe C.

To put the machine into operation, the valve connecting the whole apparatus with the steam-chest being closed and the valves L L′ being also closed, the reservoir A is filled with oil through the opening made by removing the cap or stopper B. B is then replaced and the steam is let in from the steam-chest. It passes through the steam-pipe C C′ into the glass tube E, and through the steam-inlet H into the condenser I. This steam, by condensation, deposits water in the water-tube K and in the glass tube E; but no steam or water finds access to the interior of the reservoir. When E is full of water and I partly so the valves L L′ are opened, and the water in the condenser, standing at a higher level than the fluid in any other part of the machine, is forced by hydrostatic pressure through the water-tube K into the bottom of the receiver A. Here it forces up the lighter oil, so that the latter flows over into the oil-outlet M, and through M and *m* into the glass tube E, where it passes

up the wire N into the cap D. Here it is taken up by the steam in the steam-pipe C C′, and is carried into the steam-chest; thence it passes into the valves and cylinder, and is deposited on the surfaces of the piston and piston-rod. As in its entire circuit through the apparatus it never reaches the height of the water-level in the condenser, it is constantly under the propelling influence of the hydrostatic pressure.

When the quantity of water in the oil-reservoir becomes too great, so as to cause an overflow of water into the oil-outlet, the water will be seen rising through the orifice *m* in the glass tube E. The valves L L′ should then be closed, preventing any further passage of water into the reservoir or the glass tube, and the tube O opened by means of its valve or cock, letting the water out of the reservoir, which may then be refilled with oil.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The wire N, in combination with the glass tube E, and the oil-outlet M, whereby the constant flow of the oil is regulated and conducted in sight through the middle of the tube E into the steam-pipe C C′, substantially as described.

2. The oil-reservoir A, in combination with the condenser I, opening into the oil-reservoir, and the tube E, receiving oil from the oil-reservoir, and the steam-pipe C C′, opening freely into the condenser I and the tube E, whereby the oil is forced from the reservoir and carried out through the same pipe that supplies steam to make the pressure, as above described.

3. The steam-pipe C C′, passing horizontally through the upper part of the oil-reservoir and having the portion within the reservoir capable of being cast in one piece with it, as shown and described.

4. The base P P′, including the lower portions of the water-tube K and outlet M, the discharging-tube O, and the seats for the valves L and L′, and capable of being cast in one piece, substantially as and for the purpose described.

5. The joint C′ of the steam-pipe C C′, containing the lower portion of the steam-inlet H, the upper portion of the water-tube K, and the two ports *c* and *c′*, forming the passage for the steam around said inlet and tube, the whole capable of being cast in a single piece, as shown and described.

GEORGE H. FLOWER.

Witnesses:

JNO. C. MACGREGOR,

W. C. CORLIES.