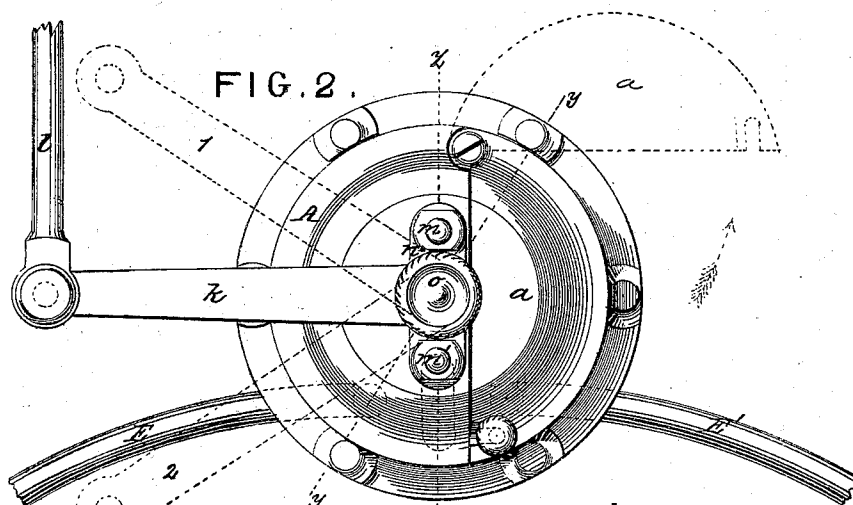
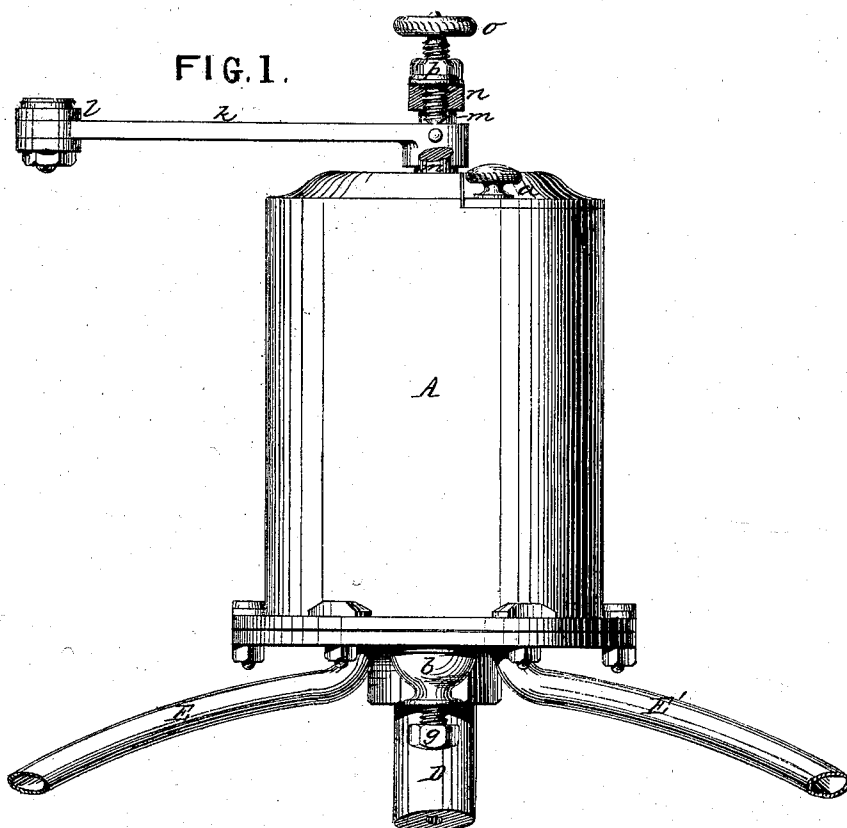


H. W. REGAN.
Lubricators.

No. 138,436.

Patented April 29, 1873.



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FIG. 3.

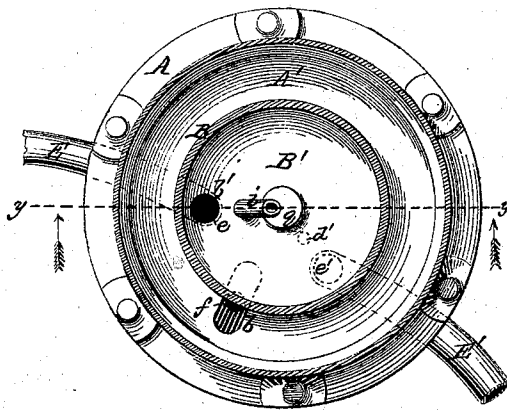


FIG. 4.

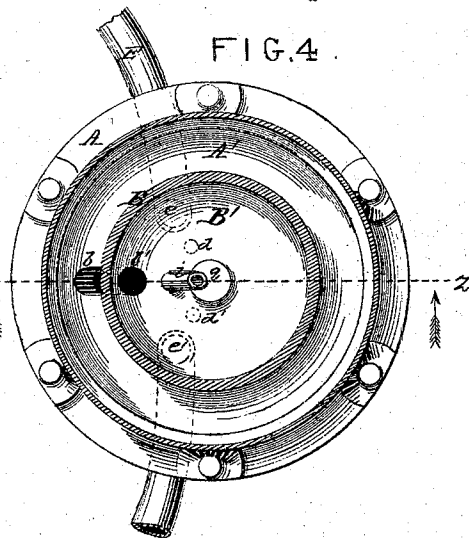
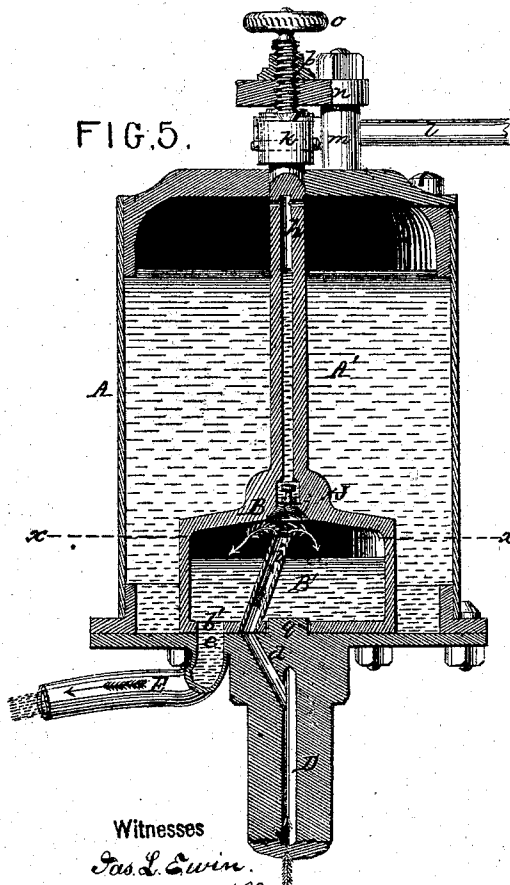
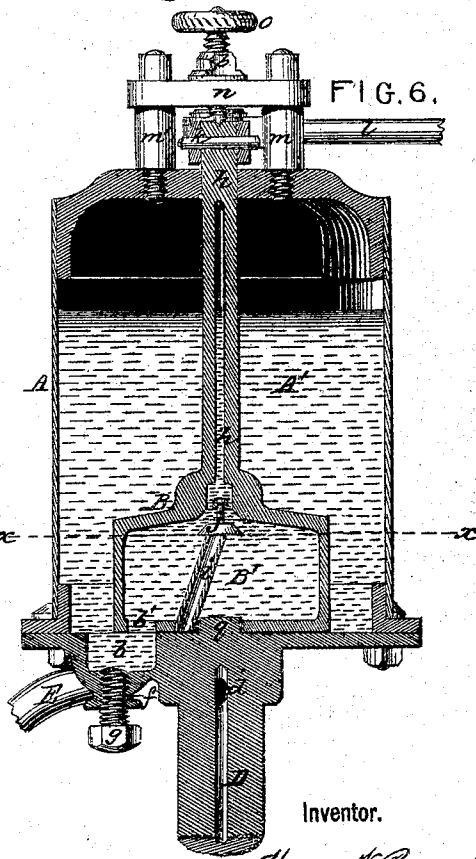


FIG. 5.



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FIG. 6.



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UNITED STATES PATENT OFFICE.

HENRY W. REGAN, OF RENOVO, PENNSYLVANIA.

IMPROVEMENT IN LUBRICATORS.

Specification forming part of Letters Patent No. **138,436**, dated April 29, 1873; application filed October 18, 1872.

To all whom it may concern:

Be it known that I, HENRY W. REGAN, of Renovo, in the county of Clinton and State of Pennsylvania, have invented an Improved Lubricator, of which the following is a specification:

Nature and Objects of the Invention.

The subject-matter of this invention is a lubricator, more especially intended and adapted for oiling or greasing the valve-seats and cylinders of steam-engines.

The first part of the invention consists in the employment of a combined measuring-cup and valve, which receives the proper quantity of oil or grease, and discharges the same, as desired, through different apertures in the bottom of the main cup, which constitutes its seat. The second part of the invention consists in a hollow vertical stem as means for equalizing the air pressure within the lubricator, and for holding the valve on its seat, and for operating the same. The third part of the invention consists in means for properly introducing steam into the measuring-chamber to discharge the oil or grease therefrom, or to balance the steam pressure in the valve-chest and cylinder.

Description of the Drawing.

Figure 1 is a front elevation, partly in section, of a lubricator for locomotive steam-engines, illustrating this invention. Fig. 2 is a plan view of the same, illustrating, by dotted lines, the movements of certain parts. Figs. 3 and 4 are horizontal sections through the measuring-chamber with the valve in different positions. Fig. 5 is a vertical section on the lines *z*, Figs. 2 and 3. Fig. 6 is a vertical section on the line *y*, Figs. 2 and 4. The lines *x*, Figs. 5 and 6, indicate the plane of Figs. 3 and 4. Figs. 1, 2, and 6 illustrate, by full lines, the closed or receiving position of the measuring-valve, and Figs. 3 and 5 an open or discharging position of the same.

General Description.

This lubricator is primarily intended for steam-engines—locomotive or stationary—and for oiling or greasing the valve-seats and cylinders of the same; but it is adapted for other

uses, and admits of several modifications. In the illustration the lubricator is adapted for application to the top of a locomotive, behind the smoke-stack, to be operated by the engineer or fireman from the cab, and to serve for the two valve-chests and cylinders. The device is composed of a main cup or holder, A, a combined measuring-cup and valve, or measuring-valve, B, within the former, a combined standard and steam-induction pipe, D, and pipes E E' to conduct the lubricant to the respective valve-chests. The cup A may be of any preferred form, and is designed to contain the supply of lubricant, say, sufficient for a trip of the locomotive. It is furnished with an opening at top, closed by a swinging lid, *a*, Fig. 2, through which to introduce the oil or tallow, and its base constitutes a seat for the valve B. A well, *b*, extends the supply-chamber A' beneath the valve, and ports *e e'* and *d d'* communicate with the conducting-pipes E E', and with the steam-pipe D. An orifice, *f*, extending outward from the well *b* and closed by a plug, *g*, provides for drawing off sediment. A cavity, B', of proper size, in the valve B constitutes the measuring-chamber. An orifice, *b'*, in the bottom of the valve serves, with the well *b*, to connect the supply and measuring chambers, and for the discharge of the oil or grease through the ports *e e'* and pipes E E'. The valve is constructed with a hollow axial stem, *h*, with lateral openings at the top of the supply-chamber A', so as to equalize the air pressure within said chamber and the measuring-chamber. A tube, *i*, extends downward through the bottom of the valve from the upper part of the measuring-chamber to communicate with the steam-ports *d* in the valve-seat. A puppet-valve, *j*, is suspended at the bottom of the valve-stem so as to close the equalizing-tube during the continuance of steam pressure in the measuring-chamber. The aperture *b'* of the valve B and the opening of the steam-tube *i* are arranged in the same radial line, and a steam-port, *d*, of the valve-seat is correspondingly arranged in line radially with each of the discharge-ports *e e'*, and they are so proportioned that the respective sets of ports shall be opened and closed simultaneously, as illustrated in Figs. 3, 4, and 5. There is, therefore, simply at-

mospheric pressure in the measuring-chamber as well as in the supply-chamber when the discharge is cut off. Under this condition, when the aperture b' of the valve is brought over the well b in the cup bottom, as represented in Figs. 1, 2, 4, and 6, the oil or melted grease flows into and fills the measuring-chamber, as illustrated in Fig. 6. When the valve is turned so as to bring the orifice b' of the valve over the discharge-port e , for instance, as represented in Figs. 3 and 5, steam, entering through the standard D , port d , and tube i into the upper part of the measuring-chamber B' , closes the valve j , and pressing on the top of the liquid, as illustrated in Fig. 5, ejects the same, or, balancing the steam pressure in the valve-chest, permits the oil or grease to flow through the aperture b' , port e , and pipe E into the valve-chest, where it is distributed by the action of the valve. The valve-stem h is extended through the top of the cup A , above which an arm or lever, k , projects from the stem, and a rod, l , extending from the cab of the locomotive, is attached to the outer end of this arm as means for working the valve. A pair of posts, m m' , forms stops for regulating the movement of the arm k , and a bar, n , connecting the same, constitutes an abutment through which a screw, o , presses upon the end of the valve-stem to hold the valve against its seat. A jam-nut, p , locks the screw as adjusted. A central stud, q , in the valve-seat forms the lower pivot of the valve. When the arm k is in central position the valve is held in its closed or receiving position, as illustrated in Figs. 1, 2, 4, and 6. When the arm is in contact with the stop m , as represented by the dotted outline 1, Fig. 2, the valve is so held as to discharge through the pipe E , as illustrated in Figs. 3 and 5. When against the stop m' , as represented by the outline 2, Fig. 2, the valve is held so as to discharge through the pipe E' . Before shifting the valve to either discharging position it is allowed to rest a moment in central position, so that the measuring-chamber may fill. The arm k may con-

stitute a handle, or, where the rod l is employed, gage-notches in the rod or in a lever-sector may serve to hold the arm in its different positions.

As adapted for stationary engines the lubricator would be substantially similar to the one particularly described above, except in having one discharge-pipe, and consequently but one set of ports, in the valve-seat, and a different arrangement of the stops. For some uses the steam devices may be dispensed with.

It will be observed that the device has but one valve, and this constitutes the measuring-cup.

Claims.

The following is claimed as new:

1. The measuring-valve B B' arranged within the supply-cup A A' , and filled from its bottom through well b and orifice b' , and emptied through the same orifice, in conjunction with ports e e' and conducting-pipe E E' , one or more, substantially as herein shown and described, for the purpose specified.
2. The measuring-valve B B' arranged within the supply-cup A A' , and having its axial stem h perforated, as described, to connect the measuring and supply chambers for equalizing the air-pressure within the same, as set forth.
3. The supporting and adjusting screw o , in combination with the valve B having the measuring-chamber B' , and axial stem h , posts m m' , and cross-bar n , as described, for the purpose specified.
4. The combined standard and steam-induction pipe D , the steam-ports d d' , steam-tube i , and valve j , in combination with the measuring-valve B B' and supply-cup A , as means for discharging the oil or grease from the measuring-chamber by steam pressure.

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