O. H. Dunham,

Lubricator.

No. 37,036. Patented Dec. 2, 1862.

Fig. 1.

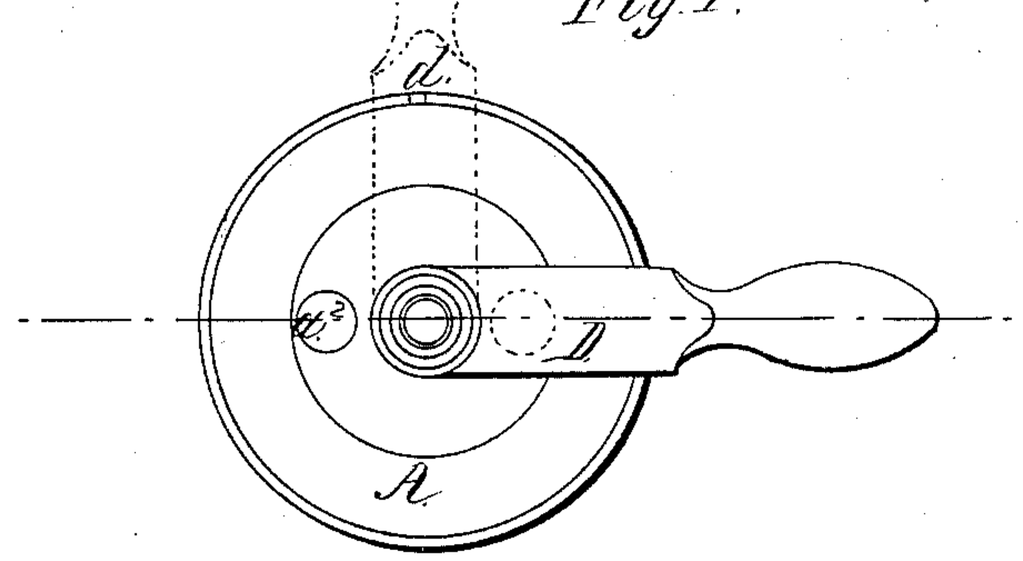


Fig. 2.

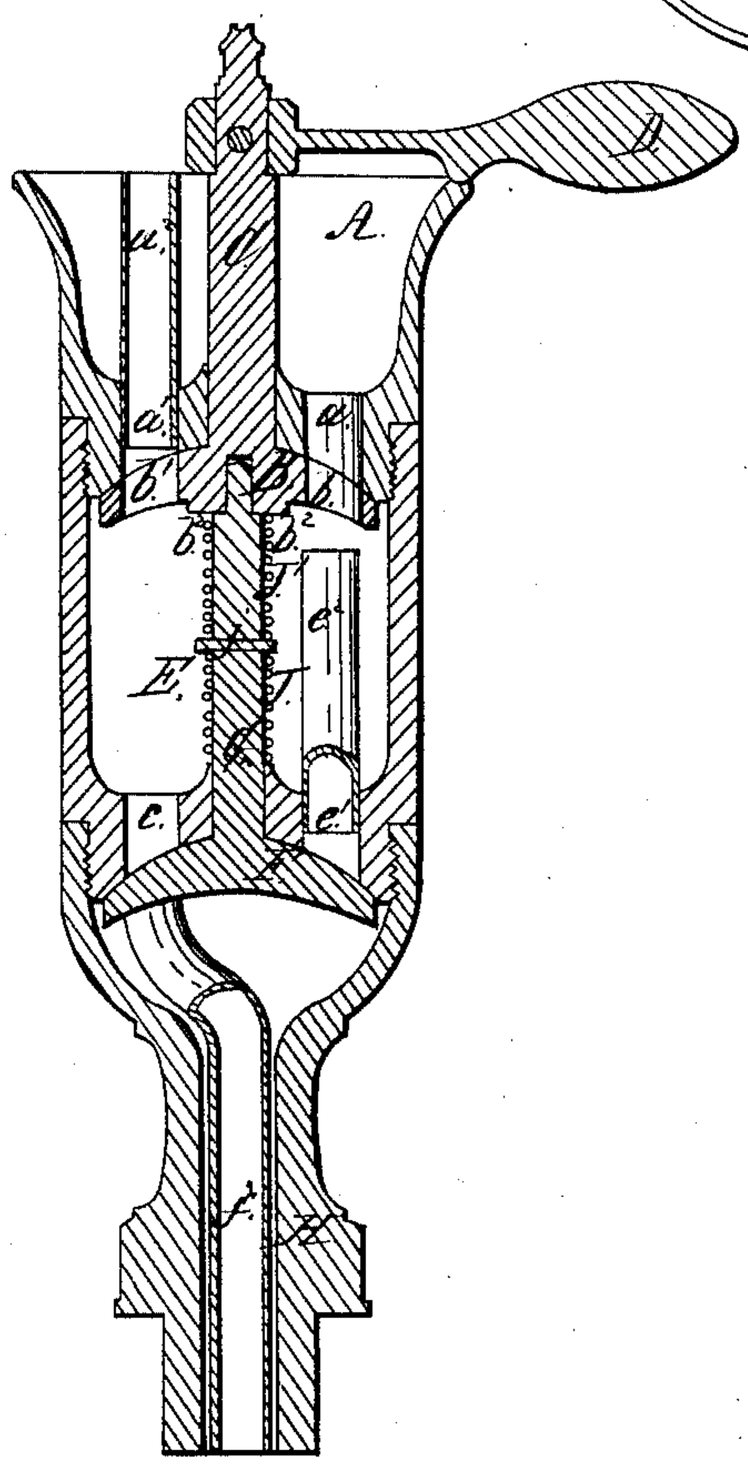
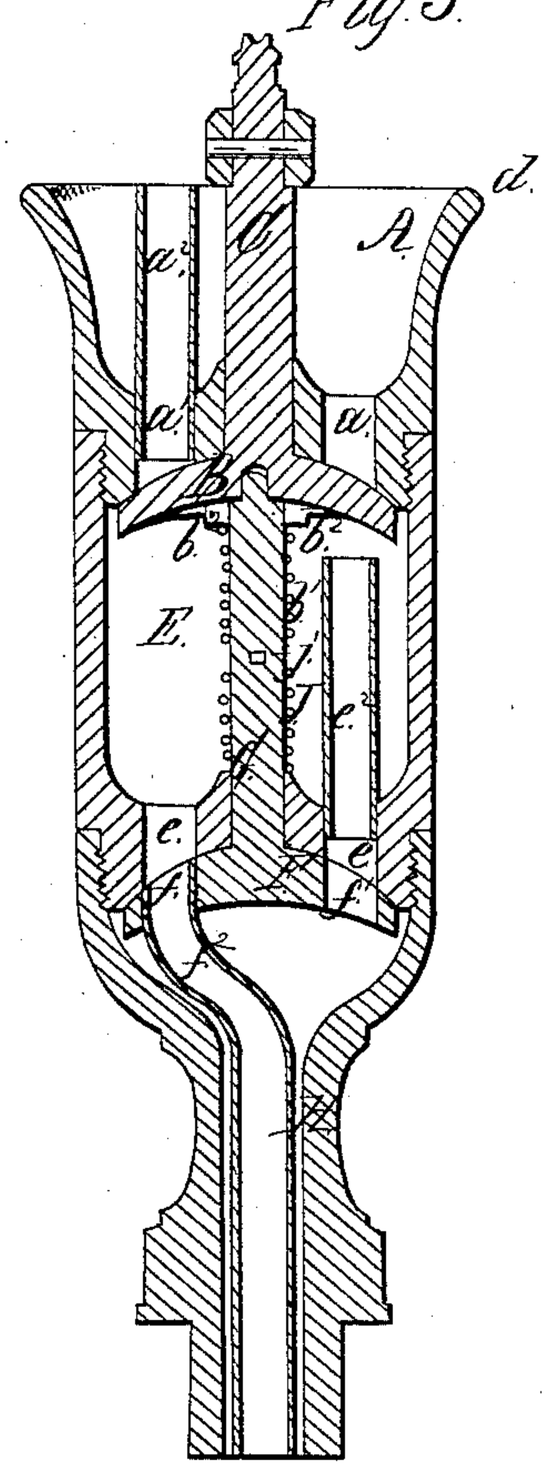


Fig. 3.



Witnesses;
Octavius Knight.
J. A. Zaubershmidt.

Inventor;
O. H. Dunham

UNITED STATES PATENT OFFICE.

O. H. DUNHAM, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVED LUBRICATOR FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **37,036**, dated December 2, 1862.

To all whom it may concern:

Be it known that I, OCTAVIUS H. DUNHAM, of the city of Washington, in the District of Columbia, have invented a certain new and Improved Oil-Cup for Lubricating the Pistons of Steam-Engines; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a top view of the said oil-cup. Fig. 2 is an axial section of the same, showing the reservoir open above to receive oil. Fig. 3 is an axial section showing the reservoir closed above and open below to supply the oil to the interior of the steam-cylinder.

Similar letters of reference indicate corresponding parts in the several views.

My invention relates to that class of oil-cups in which two connected disk-valves are operated simultaneously to close the ports below the internal reservoir, while those above the said reservoir are opened, and vice versa; and the invention particularly consists in the combination, with the said valves, of tubes arranged, as hereinafter described, to afford independent and unobstructed passages for the oil and steam.

To enable others skilled in the art to fully understand and use my invention, I will proceed to describe its construction and operation.

A is the open basin at top, in which the oil is first placed. The bottom of the said basin has two apertures, *a a'*, on opposite sides, from the latter of which apertures a tube, a^2, rises to about the height of the sides of the basin.

B is a disk-valve seated beneath the bottom of the basin A, and perforated to correspond with the apertures *a* and *a'*.

C is a stem secured to the center of the valve B, and rising through the basin A to a short distance above the top, where it is furnished with a lever, D, for the purpose of rotating the said valve.

E is the internal reservoir, the bottom of which has also two apertures, *e e'*, at opposite sides, from the latter of which apertures a tube, e^2, rises nearly to the top of the reservoir.

F is a disk-valve seated beneath the bottom of the reservoir, and having perforations *f f'* at opposite sides corresponding with the apertures *e e'*.

G is a stem secured to the center of the valve F, and extending upward through the reservoir and centered at top in the valve B.

b^2 b^2 are flanges projecting from the bottom of the valve B on each side of a flattened part of the stem G, for the purpose of communicating the rotation of the upper to the lower valve.

H is the neck by which the apparatus is secured to the steam-cylinder.

f^2 is a tube extending downward from the aperture *f*, for the purpose of conducting oil through the neck without being interfered with by the steam which rises into the reservoir.

D is the lever by which the valve-stem G is operated. The said lever may be retained in either position by notches *d d* or by any other suitable means.

J is a strong spiral spring, resting on the bottom of the reservoir and bearing upward against a pin, *j*, upon the stem G, so as to draw the lower valve, F, against its seat.

J' is a somewhat weaker spiral spring, resting upon the pin *j* and bearing upward against the bottom of the valve B, so as to press the latter against its seat.

The operation of the apparatus is as follows: The receiving-basin A being filled with oil, and the parts being placed in the position shown in Figs. 1 and 2, the oil will flow down through the aperture *a* into the reservoir E, the air or steam in the latter escaping through the tube a^2 without interfering with the descending oil. When the reservoir has become full, and it is desired to introduce the oil into the cylinder, the lever I is moved to the position shown in red in Fig. 1, which closes the apertures *a a'* above the reservoir and opens the apereture *e f* and *e' f'* below it. The steam will now rush up through the neck H on the outside of the tube f^2, and through the passage *f' e' e²* into the reservoir, instantly producing a pressure in the reservoir equal to that in the cylinder. The oil will then flow by its gravity down through the aperture *e f* and tube f^2 into the cylinder until the reservoir is depleted, steam passing upward, as before explained, to take the place of the oil. On the lever being again restored to its former position, the lower valve is closed and

the upper one opened, and the steam within the reservoir will then escape through the tube a^2, while the reservoir is again supplied with oil from the basin A.

The upper ends of the tubes a^2 and e^2, being always above the surface of the oil in the respective compartments, preserve constantly a free upward passage for the steam unobstructed by oil. By elongating the aperture f' the pressure of the steam may be admitted to the reservoir E slightly before the passage $e\,f$ is opened for the flow of oil, and in like manner the aperture b' may be elongated, so that the steam within the reservoir will be allowed to escape before the passage $a\,b$ is opened.

Having thus described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

The combination of the simultaneously-operating disk-valves B F with the tubes a^2, e^2, and f^2, arranged to provide independent and unobstructed passages for the oil and steam, in manner substantially as and for the purposes explained.

O. H. DUNHAM.

Witnesses:
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