

T. T. McGRATH & T. HILL.
STEAM-ENGINE LUBRICATOR.

No. 176,026.

Patented April 11, 1876.

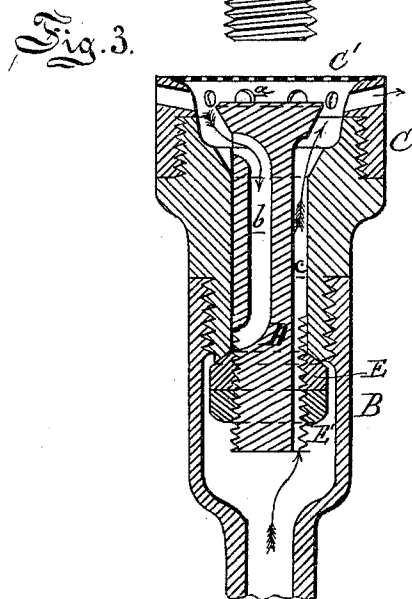
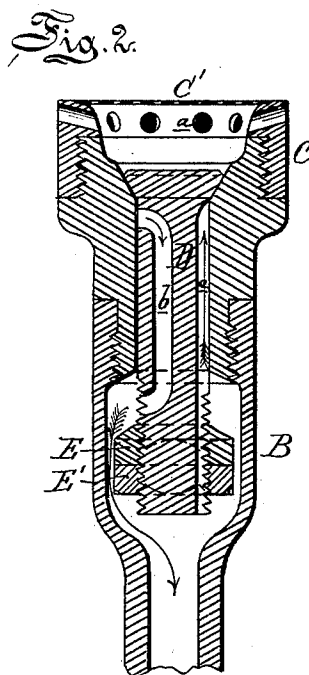
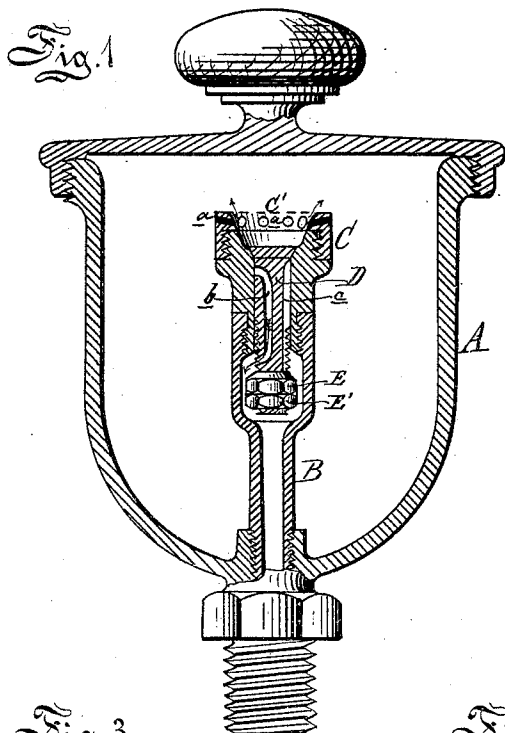


Fig. 4.

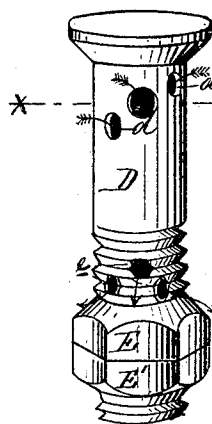


Fig. 5.

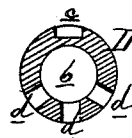
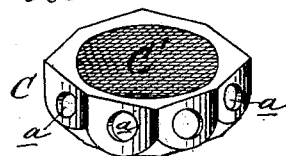


Fig. 6.



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UNITED STATES PATENT OFFICE.

THEODORE T. McGRATH, OF JACKSON, AND THOMAS HILL, OF IONIA, MICH.

IMPROVEMENT IN STEAM-ENGINE LUBRICATORS.

Specification forming part of Letters Patent No. **176,026**, dated April 11, 1876; application filed November 23, 1875.

To all whom it may concern:

Be it known that we, THEODORE T. McGRATH, of Jackson, in the county of Jackson, and THOMAS HILL, of Ionia, in the county of Ionia and State of Michigan, have invented an Improvement in Steam-Engine Lubricators, of which the following is a specification:

The nature of this invention relates to an improvement in devices for automatically lubricating steam-engine cylinders and valve-seats, and more particularly to that class wherein the pulsation of pressure is utilized to actuate the lubricator-valve. The invention consists in the novel and peculiar construction of the various parts, as more fully hereinafter set forth.

Figure 1 is a vertical section of an oil-cup, fitted with our improvement. Fig. 2 is an enlarged vertical section of the hollow standard in the cup and the tubular valve, showing the latter seated and feeding oil. Fig. 3 is a similar section, showing the valve raised to fill the oil-passage. Fig. 4 is a detached perspective view of the tubular double valve. Fig. 5 is a cross-section of the same at *xx*. Fig. 6 is a perspective view of the cap of the standard and its strainer.

In the drawing, A represents an oil-cup having a threaded stem at its base to screw into a cylinder, steam-chest, or steam-pipe of a steam-engine. B is a hollow standard, screwed into the bottom of the cup, its bore being a prolongation of that of the stem, and is covered at the top by a screw-cap, C, fitted with a wire-cloth strainer, C', to catch any foreign substance in the oil which might impede the working of the valve. At the sides of the cap there is a row of perforations, *a*, drilled through it, through which steam may escape into the cup. D is a hollow or tubular valve, having a flaring top, which is ground to fit in a seat at the top of the standard B, inside the cap. The lower end is threaded to receive a nut, E, and a check-nut, E', the former of which is ground to a seat against the shoulder at the top of an enlargement in the bore of the standard. *b* is a curved oil-channel, cored in the valve between the upper valve-face and the valve-nut E. On the opposite side of the valve there is cut an open channel, *c*, from the upper valve-face down to the lower end.

By adjusting the nuts, the lift of the valve can be varied at will.

The operation of the device is as follows: The full pressure of the steam being on the valve, the latter is raised until the nut E is seated, which discloses the upper end of the channel *c*, allowing a jet of steam to blow through the holes *a* in the cap into the oil-cup, in which it is condensed, settling to the bottom, and floating the oil on top. The top of the oil-port *b* is now above the valve-seat, and it may be partially or wholly filled with oil flowing in through the apertures *d d d* drilled into it at different planes. As soon as the pressure of the steam is lowered, or is entirely off, the valve drops, closing the upper end of the oil-duct and steam-channel. The oil contained in the oil-duct is sucked out through the apertures *e* at the bottom of said duct, and passes into the cylinder, mingling with and absorbed by the steam, which conveys it directly to the surfaces needing lubrication.

When the engine is not at work the valve is down, and prevents oil from flowing out of the cup. The flow of oil may be regulated by adjusting the lift of the valve, so as to fill the oil-duct more or less, as may be required.

What we claim as our invention is—

1. The tubular valve D, adapted for the purposes set forth, having a flaring top, the nuts E E', the passages *b c*, and the apertures *d e*, all constructed and arranged substantially as described and shown.

2. The combination, with the cup A, of the hollow standard B, and the tubular valve D, the said tubular valve being entirely inclosed by the said standard, and operating as set forth.

3. The combination, with the cup A, of the tubular standard B, having the screw-cap C, which is provided with the strainer C', and apertures *a*, and the tubular valve D, entirely inclosed by said standard and provided with the oil-duct, substantially as described and shown.

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THOMAS HILL.

Witnesses:

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W. R. WHITE.