J. HARPER.

LUBRICATORS FOR STEAM-ENGINES.

No. 187,849. Patented Feb. 27, 1877.

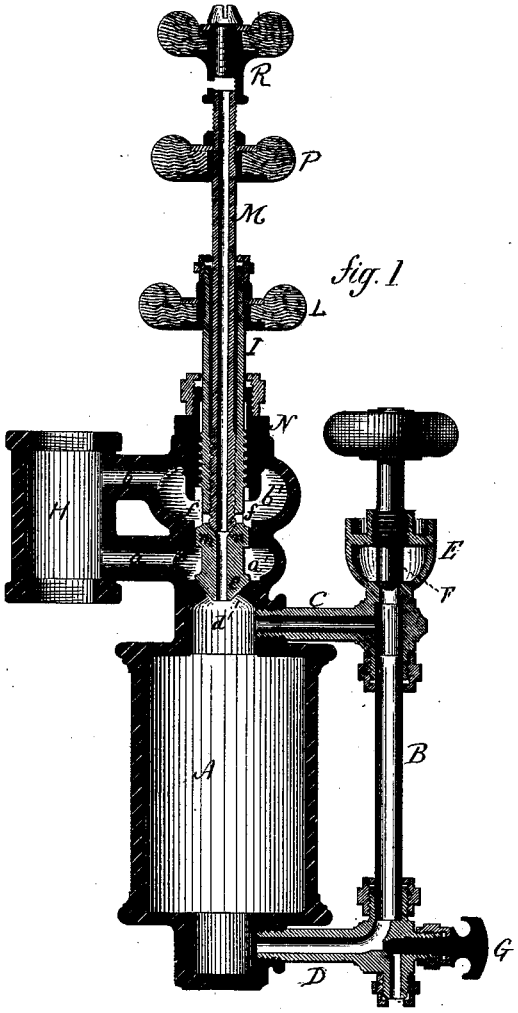
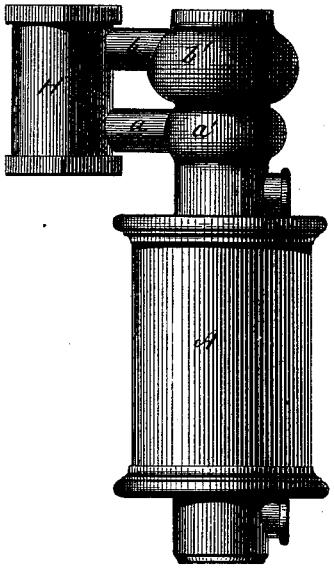


fig. 1

fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES HARPER, OF WESTVILLE, CONNECTICUT.

IMPROVEMENT IN LUBRICATORS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **187,849**, dated February 27, 1877; application filed February 5, 1877.

To all whom it may concern:

Be it known that I, JAMES HARPER, of Westville, in the county of New Haven and State of Connecticut, have invented a new Improvement in Lubricator for Steam-Engines; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a vertical central section; and, in Fig. 2, a side view of the body and pipe connections, as formed in a single piece.

This invention relates to an improvement in the lubricator for steam-engines for which Letters Patent of the United States were granted to this applicant, dated September 26, 1871, and December 12, 1871.

In the said constructions the condensation from the steam passed into the lubricating-chamber through the same passage by which the oil passed out; hence it was necessary that the oil should flow against the pressure of the steam.

The object of the first part of this invention is to form a passage for the condensation to enter the chamber independent of the passage through which the oil flows out; and the object of the second part of the invention is to construct the body, which has hitherto been made in numerous pieces, necessitating expensive joints, in a single casting.

It consists, first, in combining, with the valve through which the lubricating material flows outward, an independent passage for the condensation to flow into the said chamber; and, second, in constructing the lubricating-chamber and its connections with the steam-pipe in one and the same piece of casting.

A is the chamber for the lubricating material; B, a tube of glass or other suitable material, and arranged so as to open into the top and bottom of the chamber by passages C D, so that the quantity of fluid in the chamber will be indicated in the tube B; E, the filling-cup, arranged in connection with the tube B, through which the lubricating material may be conducted into the chamber A; F, valve for closing the filling-passage; G, cock for drawing off the contents of the lubricating-chamber; H, the coupling or connection to which the steam-pipe is attached, so that the steam, in passing to the engine, passes through this part H. From this part H a passage, *a*, leads to a chamber, *a'*, and above this a second passage, *b*, to a chamber, *b'*—both chambers above the lubricating-chamber. Between the chamber *a'* and the chamber A a valve-seat, *d*, is formed, to which a valve, *e*, is fitted, which valve is attached to, or made a part of, a hollow spindle, I. To this a suitable hand-wheel, L, is attached, so that it may be conveniently turned, and the spindle is threaded through a stationary nut, N, substantially as in the previous patents, so that, by turning the wheel L, the valve *e* is raised accordingly. Within the chamber *b'* one or more apertures, *f*, are made into the spindle I, so as to make a communication from the chamber *b'*, through these apertures *f*, with the lubricating-chamber A, and below these apertures, and in the spindle, a valve-seat, *n*, is formed, closed by a valve, *m*, on the end of a spindle, M. This spindle is provided with a hand-wheel, P, or other turning device, and it is threaded within the spindle I, so that by turning the spindle M the valve *m* will be raised accordingly. The chamber A having been filled with lubricating material, say, up to the valve-seat *d*, and the valve *e* opened, so as to allow the requisite flow of lubricating material, steam passes into the chamber *b'* and there condenses. The valve *m* having been raised from the valve-seat *n*, to open communication between the chamber *b'* and chamber A, the water formed therein by condensation passes through the apertures *f* into the interior of the spindle I, and thence flows down through the lubricating material to the bottom, causing the material to correspondingly rise and flow out over the valve-seat *d* through the steam-pipe, there to be carried with the steam to the steam-chest.

By this arrangement an independent passage to the lubricating-chamber is made for the condensation, so that the lubricating material may pass out without the resistance of the inflowing water, and an equilibrium is produced, so that the pressure of steam does not offer any resistance to the outward flow

of the lubricating material. The tube M is made tubular, and closed at its upper end by a cap, R, to form a passage for the escape of air when the chamber A is being filled. The chamber A, coupling or steam-pipe connection H, with the chambers *a' b'* and the passages *a b*, are all formed complete in one casting. This avoids a large amount of the labor heretofore required in fitting these several parts together, when made in separate pieces, and not only enables the production of the article at much less cost, but is greatly superior, in that the many joints where leakage may occur are avoided.

I claim—

1. In a lubricator, substantially such as described, the combination of an adjustable valve to regulate the outflow of the lubricating material, and a passage independent of the passage opened by the said valve for the inflow of condensation, substantially as specified.

2. In a lubricator for steam-engines, substantially such as described, the lubricating-chamber, the steam-pipe coupling, the valve-chamber, and connections, all constructed in one and the same piece, substantially as set forth.

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Witnesses:

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