(No Model.)

J. KELLY.

LUBRICATOR.

No. 281,699. Patented July 24, 1883.

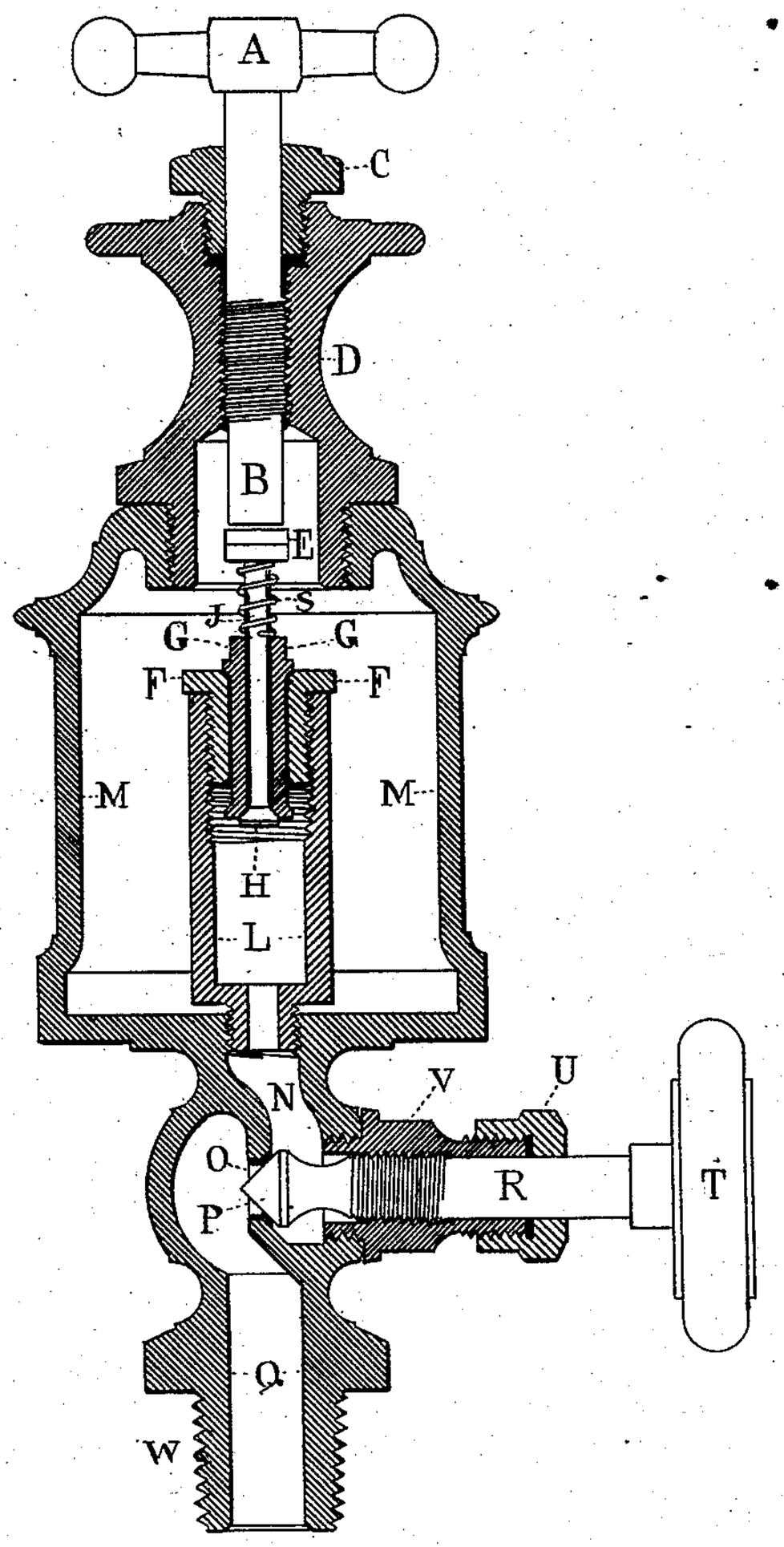

Fig. 1.

Witnesses:
H. W. Wells,
J. M. Moss.

Inventor,
John Kelly.
per A. B. Upham,
Attorney in fact.

UNITED STATES PATENT OFFICE.

JOHN KELLY, OF PEORIA, ILLINOIS.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 281,699, dated July 24, 1883.

Application filed January 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN KELLY, of Peoria, in the county of Peoria, in the State of Illinois, have invented an Improved Lubricator; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing, making a part of this specification, in which like letters of reference refer to like parts, and in which the figure on the drawing represents a vertical central section.

The object of my invention is the construction of a lubricator for steam-engine cylinders which shall work automatically.

In the drawing, M M represent the oil-cup, within which is secured the small vertical cylinder L. The aperture through the bottom of said cylinder L connects more or less directly with the steam-chest, pipe, or cylinder of the engine, as desired, and furnishes the only channel for the inlet of steam or egress of oil therefrom to the part of the engine to be lubricated. The top of said cylinder L is closed by a cap, F, having through it a vertical circular orifice, countersunk at each end. Within said orifice fits loosely the tubular drop G, having at each extremity a collar adapted to fit air-tight the countersunk ends of said orifice of the cap F. The aperture through the gravity-drop G is also round in cross-section, and has its lower end countersunk. Through it extends a slender pin, J, triangular in cross-section, having the heads E and H, the lower one, H, of which is made somewhat conical to fit air-tight the countersunk end of the aperture through the drop G. The coiled spring S, pressing between the upper end of the drop G and the head E, retains the conical head H up against the said drop G.

The operation of this automatic lubricator is as follows: The cap D is removed, the cup M filled with oil up to the top edge of the cap F, and then said cap D replaced. Before the steam is let in through the passage N, the positions of the different parts are as shown in the drawing. Now, as the steam is allowed to enter, it presses up against the head H and the lower end of the drop G; but, the other end of the pin J being in contact with the screw-rod B, the drop G moves upward alone. This allows the steam to pass between the said head H and the countersunk end of the drop G, and thence up through the aperture through the said drop G, the slimness of the pin J impeding but little the flow of the steam thereby. From thence the steam goes into the upper part of the oil-cup M, above the surface of the oil. When sufficient steam has entered to make the pressure above the surface of the oil equal to the pressure within the cylinder L below the drop H, the drop G falls again to the position shown in the drawing. In the meantime, while the drop G was being held up by the unbalanced force of the steam, the oil, which had been put into the oil-cup M, was flowing over the top of the cap F and down through its aperture, the drop being, as before mentioned, loosely fitting therein. This overflowing is caused by the condensation of the steam which first entered into the oil-cup, and the water of condensation, being heavier than oil, sinks to the bottom of the oil-cup and causes the rise in level of the oil. The steam imprisoned over the surface of the oil soon condenses, the drop G again rises, more oil passes down, equilibrium is again restored by the upward movement of the steam, and the drop G falls. In this way a continuously-intermitting supply of oil drips down into the cylinder L, from which it passes to the desired places of lubrication. By raising the screw-rod B higher, the rate at which steam can enter into the oil-cup is diminished, and increased by lowering it. This is readily understood when we notice that if said rod B is raised high enough no steam can enter the oil-cup, but simply raises both drop G and pin J.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:

1. As a steam-cylinder lubricator, the oil-cup M, having cylinder L, in combination with the vertically-perforated cap F, doubly-shouldered tubular drop G, pin J, having heads H and E, spring S, and screw-rod B, substantially as and for the purpose specified.

2. In a lubricator, the doubly-shouldered

drop G, vertically movable in a loosely-confining aperture, in combination with the pin J, having head H and spring S, substantially as and for the purpose specified.

3. In a lubricator, the combination of the doubly-headed drop G and single-headed pin J, for the purpose set forth.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 5th day of January, 1883.

JOHN KELLY.

Witnesses:
H. W. WELLS,
JESSE MOORE.