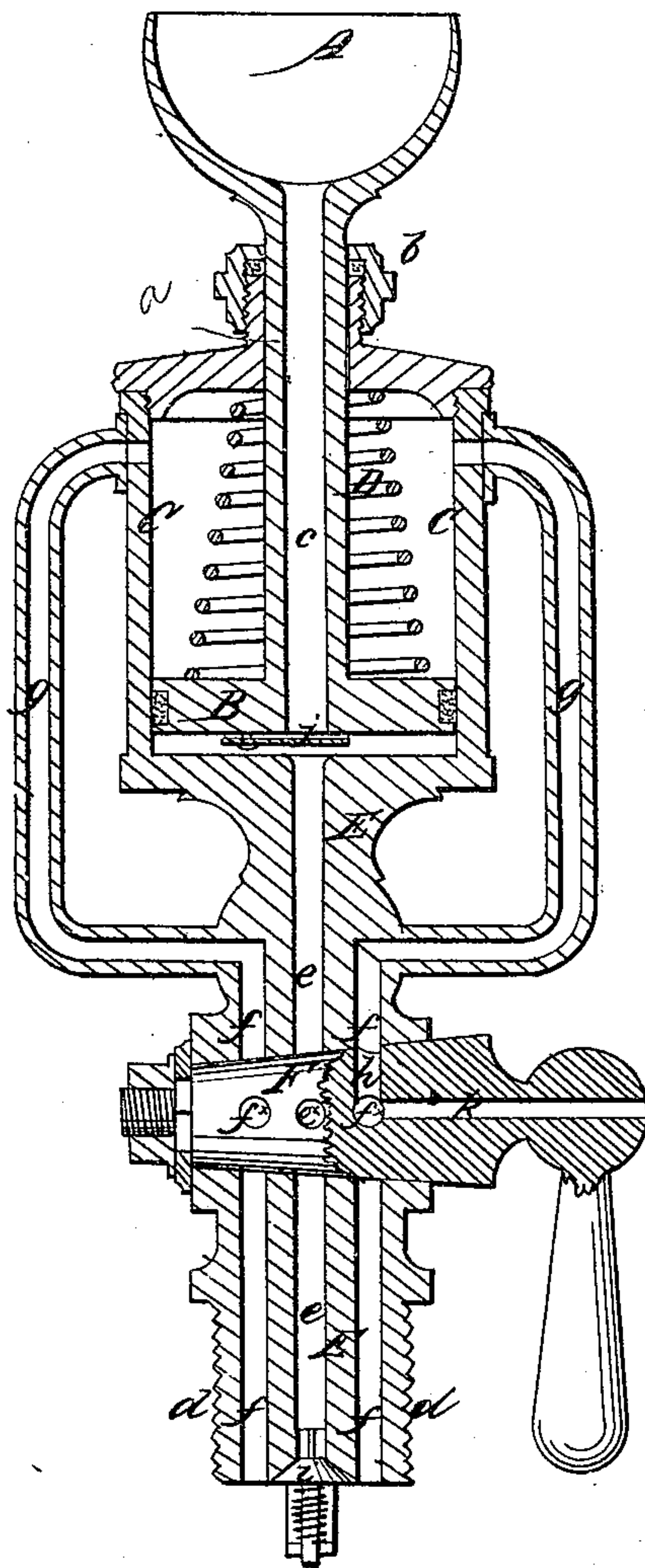


J. HENWOOD.
LUBRICATOR

No. 16,796.

Patented Mar. 10, 1857.



UNITED STATES PATENT OFFICE.

JOHN HENWOOD, OF NEW YORK, N. Y.

LUBRICATOR FOR STEAM-ENGINE CYLINDERS.

Specification of Letters Patent No. 16,796, dated March 10, 1857.

To all whom it may concern:

Be it known that I, JOHN HENWOOD, of the city, county, and State of New York, have invented a new and useful improvement in lubricators for cylinders, valve-chests, and other parts of steam-engines or other apparatus to which oil or other lubricating material has to be forced against a pressure of steam or other fluid; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification and represents a vertical central section of a lubricator.

A, is the oil cup which receives the oil or other lubricating material, attached by a hollow rod *a*, to a piston B, fitting to an upright cylinder C, which has a stem E, at the bottom provided with a screw thread *d*, which screws into the steam cylinder, valve-chest or other part to an engine or other apparatus, the said rod fitting to a stuffing box *b*, in the cover of the cylinder. At the bottom of the piston B, there is a flap valve *j*, which covers the passage *c*, that leads from the oil cup through the piston and its rod, said valve closing by an upward pressure.

D, is a light spiral spring placed between the top of the piston B, and the cylinder cover and exerting a tendency to force down the piston, just sufficient to overcome the friction of the same within the cylinder. The stem E, contains three passages *e*, *f*, *f*, the first of which leads directly from the bottom of the cylinder C, to the interior of the part to be lubricated, and the other two lead from the interior of the part to be lubricated through two pipes *g*, *g*, outside the cylinder C, to the upper part of the said cylinder, above the piston B.

F is a cock-plug fitted to a seat made transversely in the stem E, the said plug containing three passages *e**, *f**, *f**, running through it parallel with each other, and corresponding with the three passages *e*, *f*, *f*, in the stem E, also two other passages *h*, *k*, the first of which *h*, runs from one of the passages *f**, at right angles thereto through the side of the plug, and the other *k*, runs from the said passage *f**, through one end of the plug. *i*, is a small valve fitted to the

bottom of the passage *e*, through the stem, and closing by an upward pressure. This valve has a spring *f*, applied below it of sufficient strength to lift the weight of it.

The operation of the lubricator is as follows: When it is at rest the piston B, is supposed to be at the bottom of the cylinder, the cock F, to be turned to a position to close all the passages *e*, *f*, *f*, as shown in the drawing, and the cup A to be full of oil. When the oil is to be applied the piston B, is pulled upward by hand, using the cup A, as a handle, or any handle properly applied for the purpose, and by that means a vacuum is formed below the piston within the cylinder and the valve *j*, is opened by the pressure of the atmosphere and weight of the oil above it and the oil rushes from the cup A, into the cylinder below the piston B. The passages *h*, and *k* now being in communication with one of the passages *f**, *f**, provide for the escape of air from the upper part of the cylinder C. The oil cup A is supposed to have contained oil enough to fill the cylinder. The cylinder being filled, the cock F, is turned to bring the passages *e**, *f**, *f**, into communication with the passages *e*, *f*, *f*, in the stem E, and by that means a communication is opened through the passage *e*, from the lower part of the cylinder C, to the part to be lubricated and at the same time steam is admitted from the part to be lubricated through the passages *f*, *f*, and pipes *g*, *g*, to the upper part of the cylinder above the piston B, and the piston being thus placed in equilibrium, the spring D, overcomes the friction of it and causes it to follow the oil as the latter opens the valve *i*, and descends into the part to be lubricated by gravitation.

The piston B, with the oil cup A, attached, may be made heavy enough to overcome the friction of the piston without employing a spring D, as the piston does not require to fit very tightly to the cylinder C. Both sets of passages *f*, *f*, and *f**, *f**, and pipes *g*, *g*, are not absolutely necessary as one will answer the purpose; and the valve *i*, may if desired be dispensed with, the only advantage of it being to shut off the steam from below the piston B, at the instant when it is first admitted above the said piston, in order that by a sudden opening of the cock F, the

steam may be made to act percussively on the top of the piston to start it in case of its sticking or not being inclined to move at once.

What I claim as my invention and desire
5 to secure by Letters Patent, is:

The piston B, having the oil-cup attached by a hollow stem, and provided with a valve, *j*, working in an oil-cylinder C, that is provided with an arrangement of passages, *e*,
10 *f*, *f*, substantially such as herein described,

leading to the steam cylinder, valve chest or other part to be lubricated, and with a cock, having an arrangement of passages, *e**, *f**, *f**, *h*, *h*, to correspond with said passages from the oil-cylinder, the whole operating substantially as herein specified. 15

JOHN HENWOOD.

Witnesses:

JAMES F. BUCKLEY,
W. TUSCH.