JAMES S. STEWART.

Improvement in Lubricators for Steam Engines.

No. 125,704. Patented April 16, 1872.

Fig. 1

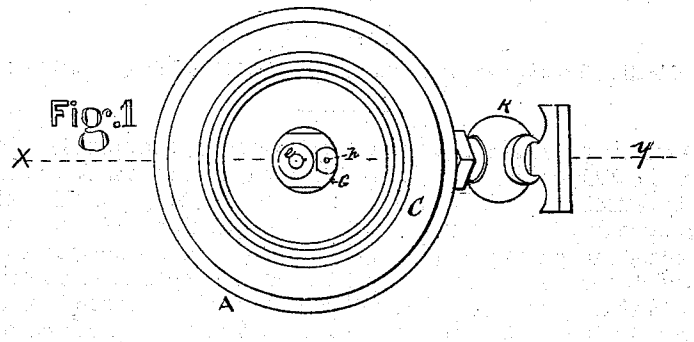


Fig. 2

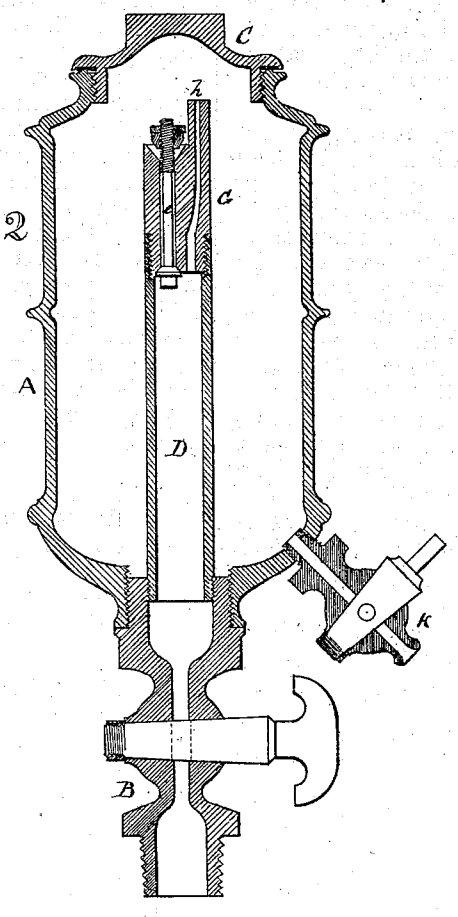
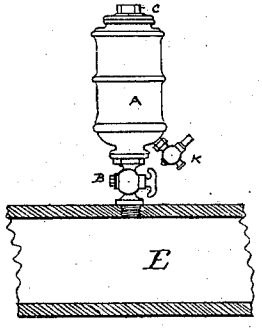


Fig. 3



Witnesses { Edw. F. Brown
John A. Grant.

James S. Stewart

UNITED STATES PATENT OFFICE.

JAMES S. STEWART, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN LUBRICATORS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. 125,704, dated April 16, 1872.

Specification describing certain Improvements in Oil and Tallow Cups for Steam Cylinders, invented by JAMES S. STEWART, of Philadelphia, Pennsylvania.

My invention consists in placing a tube inside the oil-cup, which reaches nearly to the top, and attaching to the top of the said tube a small passage-way for the inlet of steam to the oil-cup, and also combining therewith a double-acting valve to regulate the admission of oil to the cylinder. This oil-cup is placed upon the steam-chest of the cylinder, or the steam-pipe leading thereto; and the pulsations of the steam in the pipe operate upon the valve for the admission of the oil.

Referring to the drawing making part of this specification, Figure 1 is a plan of the oil-cup. Fig. 2 is a section on the line X Y. Fig. 3 shows the oil-cup fixed in the steam-pipe.

The body of the oil-cup A is secured to the cock B, which is screwed into the steam-pipe E close to the steam-chest of the cylinder. C is the cap, screwed steam-tight upon the body A. A tube, D, is screwed into or cast in one piece with the cock B. At the top of this tube is fitted a small casting, G. This casting G has a small hole or passage, *h*, communicating with the interior of the tube D and also the interior of the oil-cup. This fitting G also has another larger passage, containing a double-beat valve, *e*, in it. The lower valve is solid with the spindle; the upper one is adjustable on a screw on the spindle, so as to regulate the height to which it is raised from the seat. K is a cock for emptying the oil-cup.

The operation is in this way: The engine being in motion, the cup is filled with oil or tallow, the cap C is screwed on, and the lower cock opened. The steam passing through the hole *h* fills the top of the oil-cup at a mean pressure of that in the steam-pipe. The action of the piston causes the steam in the pipe E to pulsate or vary in speed and pressure. At one instant it will be about forty-nine pounds, at the next fifty-one pounds; the pressure at the top of the oil-cup will be a mean or fifty pounds. The valve *e* thus being in equilibrium will rise and fall with every beat of the piston, thus admitting a small quantity of oil at every other stroke of the piston. The quantity admitted will depend on the lift of the valve and the speed of the stroke; but no more can be admitted at once than will fill the chamber of the valve. The condensation of the steam floats the oil up to the upper valve.

What I claim as my invention is—

The arrangement and combination of the double-beat valve *e* and the small steam-passage *h*, operating in an oil-cup, as and for the purpose herein described.

JAMES S. STEWART.

Witnesses:

EDWD. BROWN,

JOHN F. GRANT.