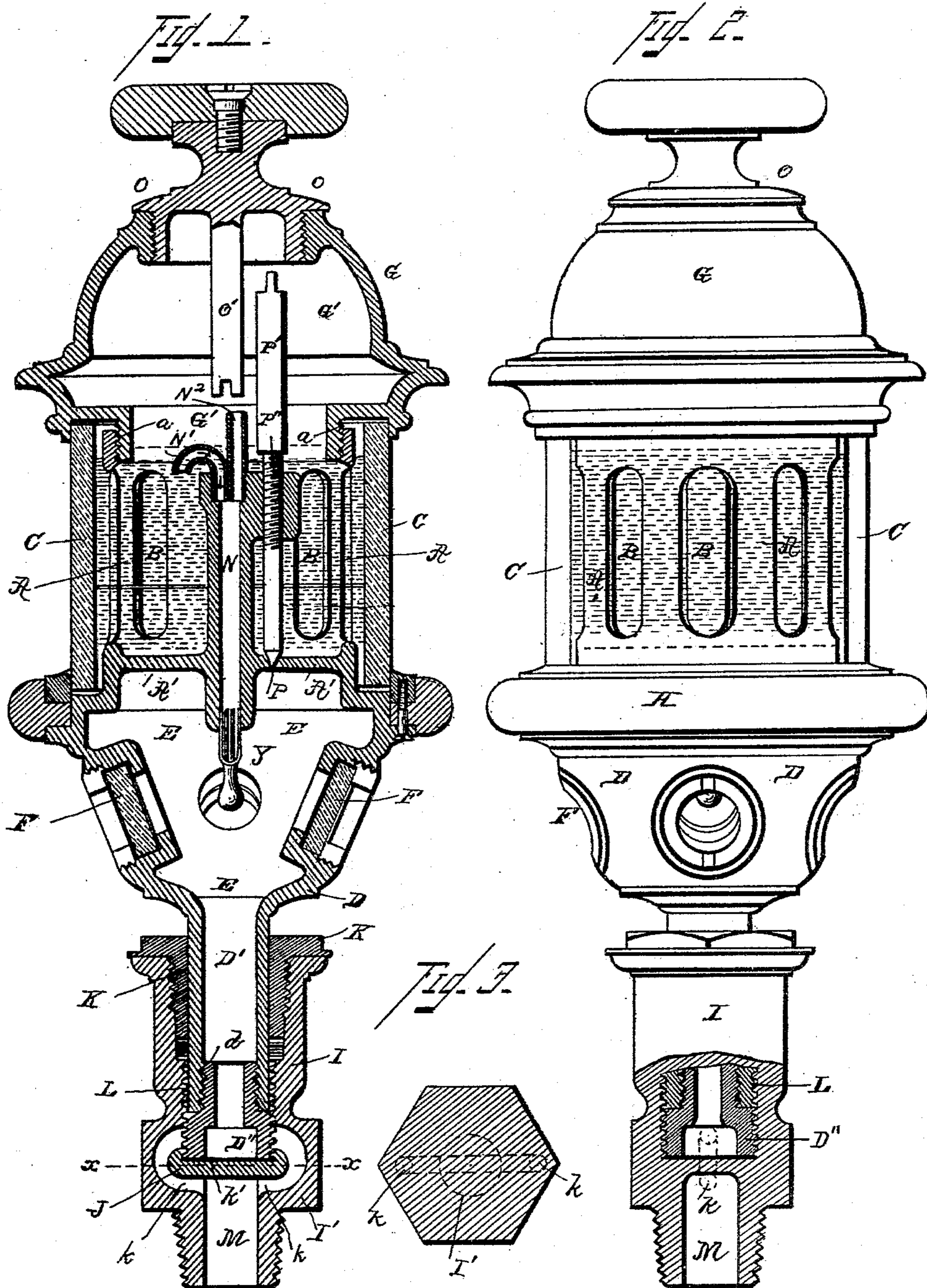


(No Model.)

M. SPITZER.
LUBRICATOR.

No. 414,599.

Patented Nov. 5, 1889.



Witnesses
F. L. Ourand.
J. B. Liore

Inventor
Maurice Spitzer.
Attorney *Arthur Stern.*
per Geo M Finckel

UNITED STATES PATENT OFFICE.

MAURICE SPITZER, OF DAYTON, OHIO.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 414,599, dated November 5, 1889.

Application filed May 29, 1889. Serial No. 312,597. (No model.)

To all whom it may concern:

Be it known that I, MAURICE SPITZER, a native of Austria-Hungary, but who has made application to become a citizen of the United States, a resident of Dayton, in the county of Montgomery, in the State of Ohio, have invented a certain new and useful Improvement in Lubricators for Steam-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of lubricators in which the lubricant is fed drop by drop to the steam-chamber, where it lubricates the valves. It is also provided with windows for observing the feed and means for operating and regulating it.

The details of my invention will be more fully hereinafter set forth.

In the accompanying drawings, Figure 1 is a vertical section of my improved lubricator; Fig. 2, a side elevation, partly in section; Fig. 3, a horizontal section through the line $x x$, Fig. 1.

Like letters of reference indicate identical parts in the different figures.

The main body of the lubricator consists of a circular cup, which holds the lubricant. The inner metal walls $A A$ of this cup are provided with openings $B B$, and the whole is surrounded with a glass jacket or casing C , permitting the contents of the cup to be seen. From the bottom A' of this cup there extend the converging flanges or sides $D D$, ending in a vertical tube or pipe D' . These converging walls $D D$ form a second chamber E below the oil-cup A , which opens directly into the steam-pipe D' . The interior of this chamber E is made visible by the windows F . On the top of the cup A is fastened the dome-shaped cap G , fastened to the cup A by screw-threads, as seen at a . This dome-shaped cap G provides a dome-shaped chamber G' beneath or within it and above the open top of the cup A .

H is a wooden zone around the oil-cup, by which the cup or lubricator is handled. Wood is used to provide a cool surface for the hand, as the cup itself becomes quite hot.

As it is undesirable to have water in the steam-chest, that which flows thereinto from

the lubricator is removed through the usual petcock.

One of the advantages which results from my construction of lubricator is that the necessity for an additional cock or opening on the lubricator is obviated.

At the lower end of the pipe D' is provided a valve constructed as follows: A tubular casting I is provided to embrace the lower end of the tube D' and enlarged around the opening of the pipe or tube D' , as at I' . Inside of this enlargement is a seat J . The lower end of the tube D' is made in two pieces to permit the adjustment of the stuffing-box K , the lower piece D'' being screwed into the lower end of D' , as seen at d , after the stuffing-box K has been put into place. On the outside of the lower end of the pipe $D' D''$ are large screw-threads L , corresponding with similar threads on the inside of the casting I . The lower end of the tube D'' rests upon the seat J .

$k k$ are ports formed in the inside of the casting I and opening above the seat J , and affording direct communication from the opening M in the casting I to the pipe D' when the pipe D' is lifted from the seat J .

k' is a washer to form a tight joint.

The casting I is screwed directly into the steam-chest by the screw-threads around the outside of its lower end, and steam is discharged through the opening M and ports k .

The casting I is stationary, so that when the cup or lubricator is turned slightly the screw-threads L lift it, raising the lower end of the tube D'' from the seat J and opening the ports $k k$ into the tube D' .

Through the center of the cup A is the vertical pipe N , open at both ends, the lower end opening into the chamber E and the upper into the chamber G' above the oil-cup. Near the upper end of the pipe N is a dip-pipe N' , bending downward into the oil-cup A . In the bottom of the oil-cup A is a valve P , provided with a stem P' , extending up into the chamber G' . This valve is provided with a collar at any convenient point, as at P'' , into which it is screw-threaded, so that it can be opened or closed by turning in its collar. For convenience the cap or covering G is provided with an opening covered with the cap O , which is screwed down perfectly tight. This cap O is also provided with an arm O' , extending

down into the chamber G', whose lower end is formed into a wrench, which can be used when the cap O is lifted to turn the valve-stem P'.

5 The operation is as follows: The casting I being screwed firmly into the steam-chamber, where it remains stationary, the cup A is filled with oil and closed up tight. The lubricator is then turned slightly by the handle or
10 zone H and the lower end of the pipe D' lifted from the seat J, opening the port *k* and permitting the steam to enter. This steam fills the chamber E and passes up through the pipe N, through the shaft-tube N², into the
15 chamber G'. Some of it may be condensed in the chamber E. More is condensed in the chamber G'. The water thus formed falls to the bottom of the cup A, causing the oil to rise and flow through the dip-pipe N' and pipe N.
20 The lower end of the pipe N is provided with a wire cage to cause the oil to adhere until a large drop is formed, as seen at *y*. The oil thence drops through the tube or pipe D' and passes through the open ports *k* into the steam-
25 chest, where it lubricates the parts. The flow of the lubricant can be regulated by the turning of the lubricator and increasing or diminishing the openings in the ports *k*. Its operation can be observed through the windows
30 C and F. When water accumulates from condensation in the cup A, I discharge it back into the steam-chest instead of outside. This is done by closing the ports *k*, taking off the cap O, and opening the valve P, through which
35 the water passes to the chamber E. The valve P is closed. The cup is then filled with oil, the cap O replaced, and the ports *k* opened, and the water flows through them into the steam-chest.

40 Having thus fully described my invention

what I claim, and desire to secure by Letters Patent, is—

1. In a lubricator in which the lubricant is discharged by water of condensation, an oil-chamber having a tube N, provided at its up- 45 per end with two separate tubes, one of which—the curved tube N'—dips into the oil-chamber, while the other—the straight tube N²—affords an outlet for steam into the condensing-chamber, substantially as described. 50

2. In a lubricator in which the lubricant is discharged by water of condensation, an oil-chamber provided with an outlet in its bottom, a valve for closing said opening, provided with a valve-stem, the said valve and its stem 55 being located wholly within the space inclosed by the outer walls of the lubricator, and the cap O, provided with a wrench adapted to be applied to the valve-stem to turn the same, substantially as described. 60

3. In a lubricator, substantially as described, the combination, with the parts forming the lubricant and steam-condensing chamber and the tube D', all of which constitute the body of the lubricator, of the tube I, pro- 65 vided with a seat J, constructed to receive the lower end of the tube D', which may be operated by turning the body of the lubricator to open or close the opening through the tube I, as set forth. 70

4. In a lubricator for steam-engines, in which the lubricant is discharged by the condensed steam, the oil-discharge pipe provided with a wire cage for causing the oil to form in large drops, substantially as and for the 75 purpose described.

MAURICE SPITZER.

Witnesses:

DAVID GROSS,
EDWARD T. HALL.