

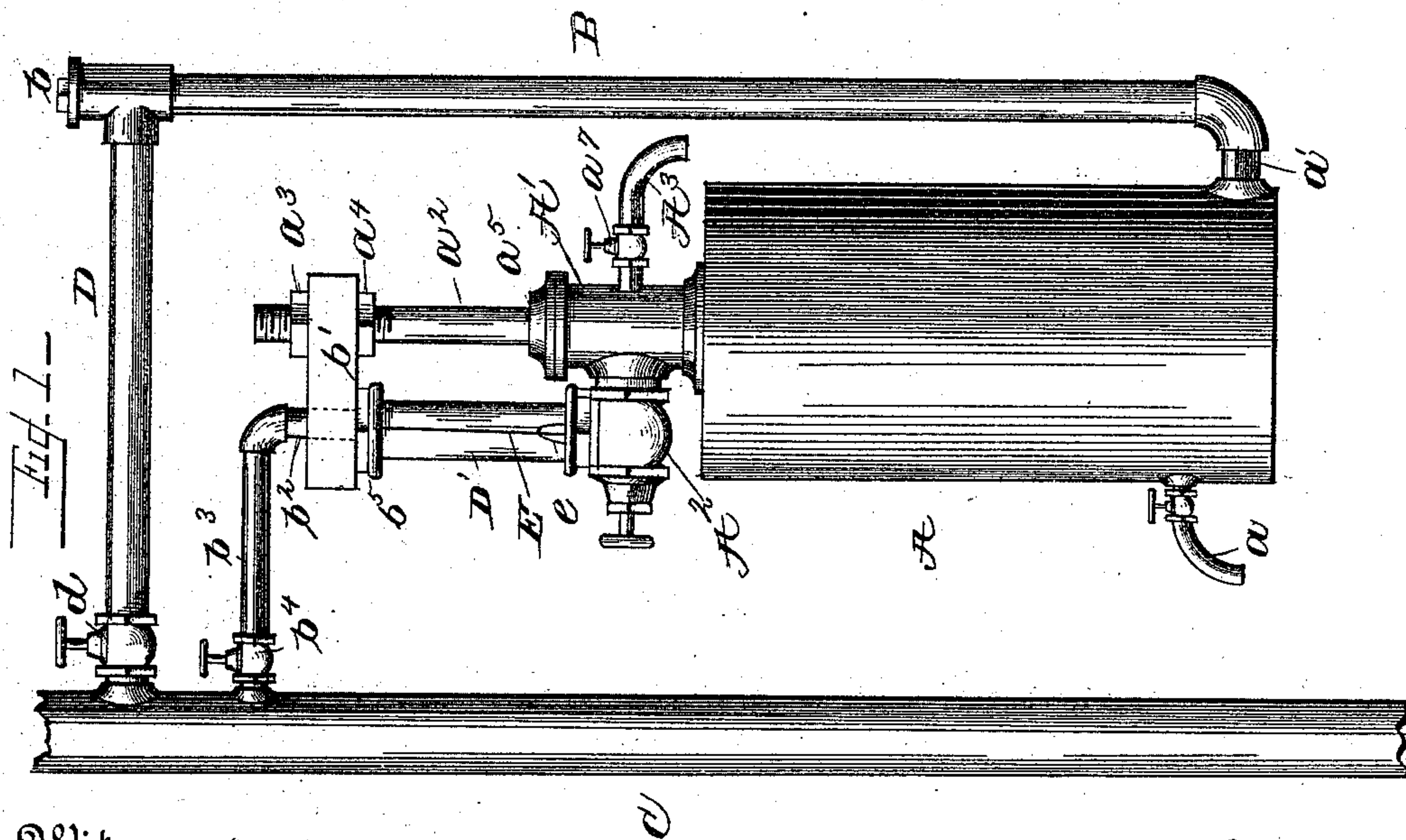
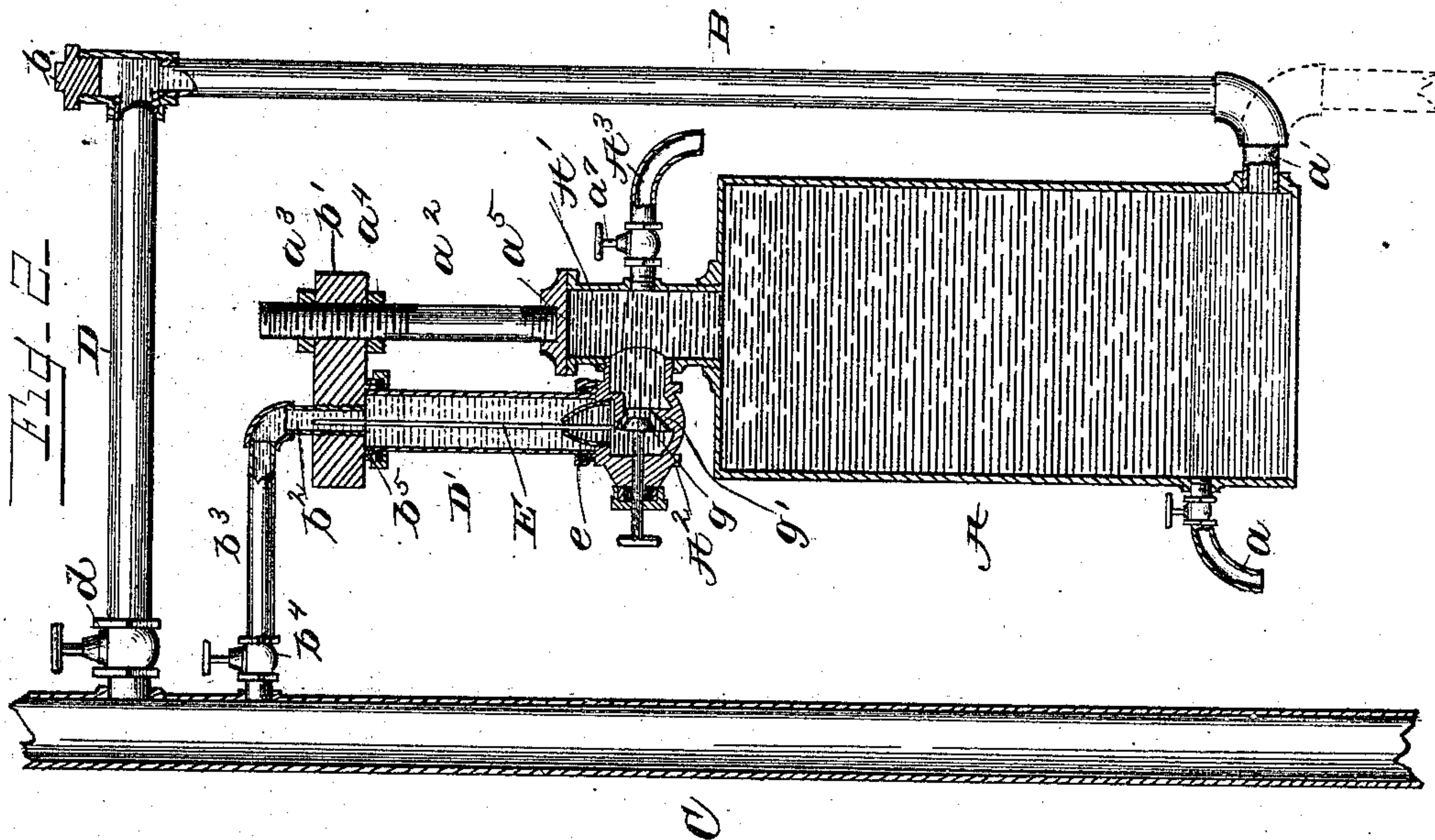
(No Model.)

H. E. KAY.

# STEAM ENGINE LUBRICATOR.

No. 412,393.

Patented Oct. 8, 1889.



Witnesses

J. A. Taubenschmidt,  
L. B. Whitaker.

Inventor  
Henry E. Kay  
By his Attorney,  
Whitaker & Trewash



# UNITED STATES PATENT OFFICE.

HENRY E. KAY, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF  
TO ALBERT S. PALMER, OF SAME PLACE.

## STEAM-ENGINE LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 412,393, dated October 8, 1889.

Application filed June 7, 1889. Serial No. 313,476. (No model.)

### *To all whom it may concern:*

Be it known that I, HENRY E. KAY, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Steam-Engine Lubricators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to lubricators for steam-engine cylinders; and it consists of certain novel and useful features of construction, clearly set forth in the following specification and claims, reference being had to the accompanying drawings, illustrating my device, and of which—

Figure 1 represents a side elevation of an oil-reservoir and pipes connecting it with the steam-pipe, and Fig. 2 is a sectional view of the same.

Similar letters of reference indicate identical parts throughout.

A is an oil-reservoir, provided with a cock  $a$  and a projecting pipe  $a'$  or other means for connecting the reservoir with the pipe B, which is closed, preferably, by means of a removable plug  $b$  or its equivalent. The pipe B is also connected with the steam-pipe C by the pipe D, provided with a valve  $d$ . The reservoir A is provided upon its top with a dome or chamber  $A'$ , which is simply a continuation of the main chamber and may be cast integrally therewith, if desired. This chamber  $A'$  is provided with a lateral projection  $A^2$  and with a faucet  $A^3$ . The top of the chamber  $A'$  is secured in place by means of screw-threads or in any preferred manner, and is provided with a screw-threaded socket  $a^5$  for the reception of a rod or pipe  $a^2$ , which may be termed a "support," also screw-threaded at a portion of its length near each of its ends. The support  $a^2$  is provided at its upper extremity with two nuts  $a^3 a^4$ , between which is placed one end of the block  $b'$ , projecting laterally from the support, and this lateral projection passes loosely over the end of the part  $a^2$  and is adjustable thereon, being raised or lowered by means of the nuts  $a^3$

$a^4$ . The opposite extremity of this lateral projection is provided with a screw-threaded opening to permit the insertion of a section of pipe  $b^2$ , also screw-threaded, which connects with the pipe  $b^3$ , having a valve  $b^4$  and leading into the steam-pipe. A socket  $b^5$  is provided on the under side of the block or lateral projection  $b'$  around the mouth of the pipe  $b^3$ , for the reception of the upper end of the glass  $D'$ , which I term a "sight-feed," and a similar socket is provided in the part  $A^2$  to receive the lower end of said sight-feed glass. The part  $A^2$  is also provided with a valve  $g$  and valve-seat  $g'$ , of ordinary construction, with the exception that the part in which the valve-seat is formed is constructed so as to form a support for the wire E, which passes through the glass and through a nipple  $e$  in the part  $A^2$  and enters the pipe  $b^2$ . The block or lateral projection  $b'$  being adjustable on both the rod  $a^2$  and pipe  $b^2$ , it is obvious that glasses of different lengths may be used, as desired.

The operation of my device is as follows: The stop-cocks  $d$  and  $b^4$  in the pipes D and  $b^3$  are closed, also the cocks  $a$  and  $a^7$ , the valve  $g$  being left open. Water is then admitted to the pipe B by removing the plug  $b$  until the reservoir A, chamber  $A'$ , glass, and pipe  $b^3$  are filled. The plug  $b$  is then replaced, and the faucet  $A^3$  is connected by rubber tubing or other preferred means with an oil-supply tank and the valve  $g$  closed. The stop-cocks  $a$  and  $a^7$  are then opened, permitting the water to escape from the reservoir and the oil to flow in. As the water passes out, a vacuum is formed in the upper portion of the reservoir A, and the oil enters through the faucet  $A^3$ , and is allowed to flow in until the water stands at the level of the faucet  $a$ , when the supply is cut off and the cock  $a$  closed, leaving the main portion of the reservoir filled with oil, while the lower portion contains water to the height of the faucet  $a$ . The pipe B, connected with the lower extremity of the reservoir, is also filled with water, as is the sight-feed glass  $D'$ . The valves  $g$ ,  $b^4$ , and  $d$  are then opened, when the weight of the column of water in the pipe B will force the oil against the undersurface of the water



in the glass. The lower extremity of the wire E is in contact with the oil, and the pressure of the water in the pipe B forces small particles of oil through the water in the glass and along the wire, which acts as a guide until it enters the pipe  $b^3$ , from which it flows into the pipe C, where it mixes with the steam as it enters the cylinder and serves to lubricate the action of the piston.

10 The water-supply in the pipe B is maintained by means of the condensation of steam, which enters the pipe D from the pipe C.

15 Instead of using the column of water in the pipe B for the purpose described, I may, if I desire, connect the oil-reservoir with the ordinary water-supply of a city or town, as shown in dotted lines.

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

20 1. In a lubricator, the combination of an oil-reservoir and tubular connections leading from its upper and lower extremities into the steam-pipe, the said reservoir having a supplemental chamber provided with an oil-inlet for supplying the reservoir, substantially as described.

2. In a lubricator, the combination, with an oil-reservoir, of a supplemental chamber attached to the same, having a lateral hollow projection and a sight-feed glass supported at one end by said hollow projection and connected therewith, the opposite end of said glass being held in place by a vertically-adjustable connection, substantially as described.

3. In a lubricator, the combination, with an oil-reservoir, of a supplemental chamber opening into the same, having a lateral hollow projection, a valve and valve-seat within said projection, a sight-feed, and an oil-guide within the same, the said oil-guide being supported by the valve-seat, substantially as described.

4. In a lubricator, the combination, with an oil-reservoir, of a sight-feed glass and an adjustable support for one end of the same,

whereby glasses of different lengths may be used, substantially as described.

5. In a lubricator, the combination, with an oil-reservoir, of a support extending from the same and a lateral projection from said support, adjustable thereon, for the reception of one end of the sight-feed, substantially as described.

6. In a lubricator, the combination, with an oil-reservoir, of a support extending from the same and a lateral projection from said support, adjustable thereon, for the reception of one end of a sight-feed glass, the said lateral projection being adapted to permit the passage through it of a pipe connecting the sight-feed glass with the steam-pipe, substantially as described.

7. In a lubricator, the combination, with an oil-reservoir, of a supplemental chamber above the same, a rod secured to the top of said chamber, screw-threaded a portion of its length near the upper extremity, a movable part fitting loosely upon said rod and extending laterally and adjustable thereon by means of nuts, a sight-feed glass, one end of which is supported by said movable part, and a pipe passing through said movable part, adjustable therein, for the purpose of connecting the sight-feed glass with the steam-pipe, substantially as described.

8. In a lubricator, the combination, with an oil-reservoir, of a water-supply for forcing the oil into the steam-pipe, a sight-feed glass, pipes connecting said reservoir and said sight-feed glass with said steam-pipe at two points, one above the other, both of said points being above the reservoir, and a wire extending through the sight-feed glass for guiding the oil, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY E. KAY.

Witnesses:

ALFRED H. HOOD,  
ARBA N. LINCOLN.