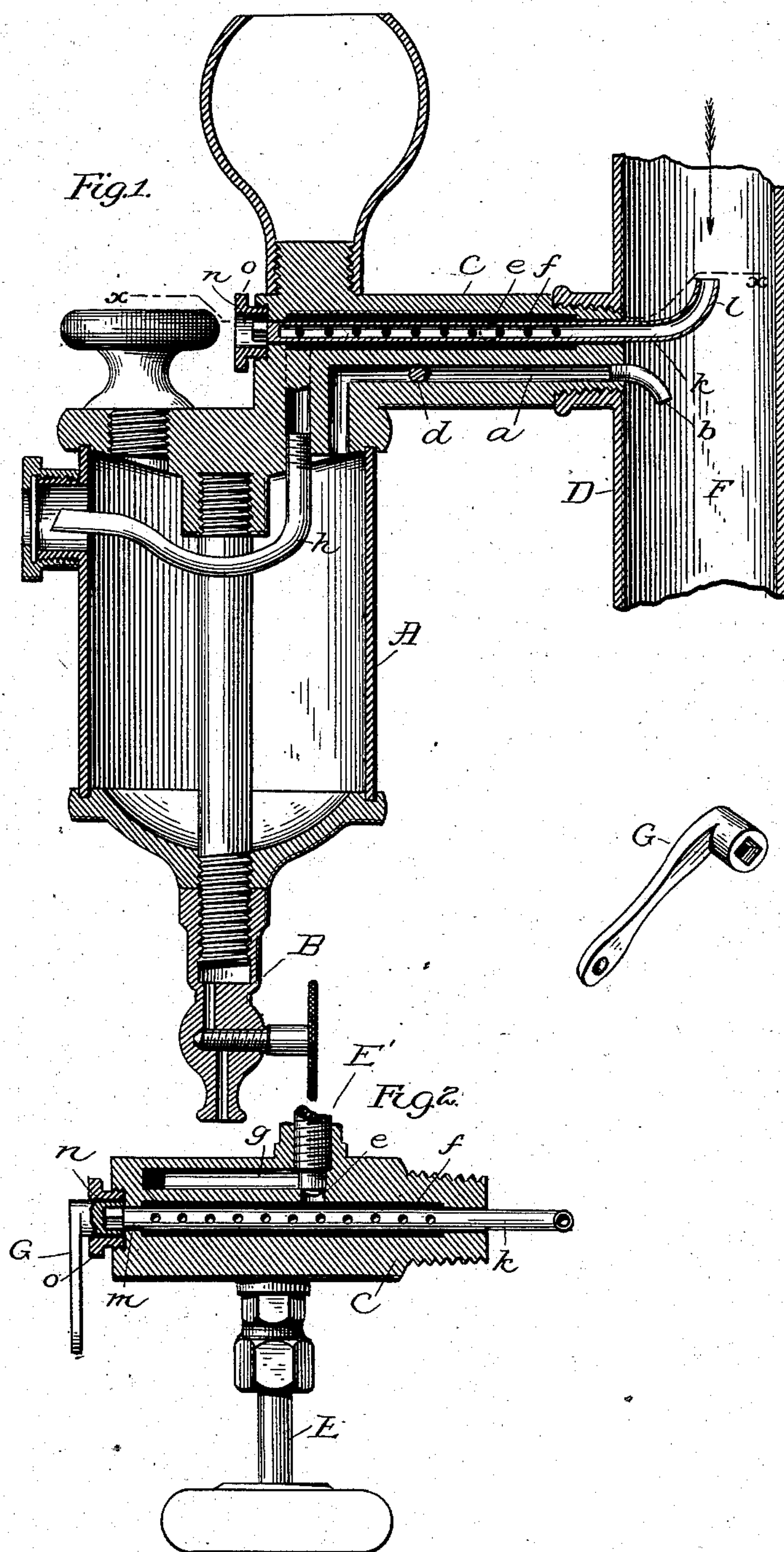


(No Model.)

R. J. HOFFMAN.  
LUBRICATOR.

No. 288,434.

Patented Nov. 13, 1883.



Attest:  
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# UNITED STATES PATENT OFFICE.

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## LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 288,434, dated November 13, 1883.

Application filed April 10, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ROSS J. HOFFMAN, of Binghamton, in the county of Broome and State of New York, have invented a new and useful Improvement in Lubricators; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to lubricators of that class in which the steam is conducted into the oil-cup, and by condensation displaces the oil and causes it to flow into the steam-pipe, where it is taken by the steam and carried to the parts to be lubricated. I have shown the invention as applied to the form of lubricator shown in Letters Patent of the United States, granted me on the 2d day of May, 1882.

The object of my invention is to more accurately and easily adjust the apparatus to receive the proper amount of steam; and, further, to lock or secure the apparatus when once set, so that the proper flow of steam shall be maintained without interference from unauthorized or unskillful persons.

My invention consists of an adjustable tube or mouth-piece extending into the steam-pipe or other source, forming a connection thereby between the said pipe and the oil-cup, and being capable of turning, whereby the mouth of the pipe may be exposed in a greater or less degree to the current of the steam; and, further, in a construction whereby the pipe, when once set, is secure from the tampering of unauthorized persons.

In the drawings, Figure 1 is a central vertical section through the lubricator, connecting-shank, and steam-pipe. Fig. 2 is a horizontal section of the shank on line *xx* of Fig. 1, the section not including the steam-pipe.

In the drawings, A shows an oil-cup such as that represented in my aforesaid patent, the details not being essentially different therefrom, except in the matters hereinafter specified. A tube, B, with a stop-cock, has been added below for the purpose of draining the cup.

C is the shank, by means of which the cup is connected to the steam-pipe D in the ordinary manner. This shank is perforated longitudinally to form the ordinary oil-duct, *a*, which extends from the interior of the oil-cup and terminates at *b* in the steam-pipe.

A valve, E, adapted to close the oil-passage,

located at a point, *d*, in the shank, is of ordinary construction, and a like valve, E', on the opposite side of the shank, is located at *e*, and serves to shut off the steam from the cup. Under the present arrangement, however, this valve is required only for the purpose of closing the steam-passage and not for the purpose of regulating the flow of steam. The regulation of the steam as heretofore done by this valve is difficult, by reason of the very fine adjustment required in the size of the orifice. It is difficult by simply turning the threaded shank of the valve to regulate with sufficient accuracy the size of the orifice; and, further, when so regulated, the steam-passage in the shank is thereby reduced at the point where the valve is located and forms a restricted passage, which is apt to clog, and thus obstruct the work of the lubricator. This renders it necessary to watch the lubricator, and when it is thus clogged to open the valve, so as to clear the obstruction and to again carefully adjust the valve. Another difficulty is found in practice, that the handles of the ordinary valves being easily accessible, the valves may be opened by unauthorized and curious persons who are watching the operation of the lubricator, and thus oil be wasted by an excessive admission of steam. By the construction hereinafter explained I am able to leave the steam-passage from the steam-source into the lubricator entirely unobstructed, and at the same time I so construct the parts that the opening for the admission of the steam cannot be varied, except by a special key or instrument, and thereby the adjusting mechanism is practically locked, and when set cannot be interfered with except by the proper attendant.

The special construction by which I accomplish the result explained is shown in Figs. 1 and 2. The steam-passage through the shank is chambered, as shown at *f*. From this chamber is a branch, *g*, in which is located a valve, E', by means of which the steam can be shut off entirely from the cup. The branch *g* communicates with the interior of the cup by means of the pipe *h*, as shown in Fig. 1. Within the chamber is located the adjustable pipe *k*. This is fitted closely in bearings in the solid part of the stem at both ends of the chamber, and extends into the steam-passage, being turned up, as shown at *l* in Fig. 1, the end which pro-



jects into the steam-pipe F being open. Within the chamber the pipe *k* is perforated, as shown in Fig. 2. The end *m* of the pipe *k* is closed, and is made square or of other polygonal form. It projects into a cavity, *n*, which may be conveniently formed by a thimble, *a*, screwed into the end of the shank. A key, *G*, fits into the cavity *n* and over the end of the pipe *k*, and by this key the pipe may be turned.

10 The current of steam is supposed to be in the direction of the arrow in Fig. 1. It will be obvious that when the mouth *l* of the pipe *k* is turned toward the arrow—that is to say, directly and squarely toward the current of steam—it will receive the full force of the steam and an amount of the current equal to the entire area of the mouth; but when the pipe is given a quarter-turn, so as to bring the end of the tube or edges of the mouth in line parallel with

15 the direction of the current of steam, the steam will be driven past the mouth and will not be forced into the steam-passage. Of course the tube may be further turned in this direction with the same effect until it is brought around

20 on the other side. The amount of steam received by the mouth of the tube will of course depend upon its position between the points indicated—that is to say, if it be turned from the position shown in Fig. 1, where its mouth meets

25 squarely the current of steam, to an inclined position, it will receive less steam, and the amount will diminish in proportion to the deflection from the position shown until it reaches a quarter-turn, when it will cease altogether,

30 as before explained.

The special form of the end *l* is not essential, only in this respect, that the opening be capable of being turned squarely to the current, or at any degree of inclination therefrom.

40 In adjusting the apparatus the operator can insert the key, as heretofore explained, and the valves *E E'* being wide open, may turn the pipe *k* until he observes the proper amount of feed. He can then withdraw the key and

45 leave the apparatus to its ordinary operation.

The same effect as that above described may be accomplished by sliding the tube *k* lengthwise, so as to cause the part of the tube containing the mouth to emerge from the bearing in the shank farther and farther into the steam-pipe. This would require longitudinal movement of the tube, and while it would operate would not be as effective under all circumstances.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a lubricator of the class described, a steam-supply tube communicating with the interior of the lubricator, and a steam-pipe or steam-source, the said tube having an opening in the steam-pipe, and being adapted to be moved in the manner and for the purpose described.

2. In combination with a lubricator of the class described, a tube forming communication between the interior of the steam-pipe and the lubricator-cup, adapted to turn to present its opening at different angles to the current of steam, said tube having a projecting end within a cavity, and adapted to be turned by a key, substantially as described.

3. In the described connection with the lubricator-cup and the steam-source, the shank *C*, having the oil-passage and chamber *f*, turning pipe *k*, communicating with chamber, branch pipe *g*, and valve *E'*, substantially as described.

4. In combination with the shank *C* of the cup, and with the turning pipe and its communications, the thimble *a*, adapted to receive the key *G*, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

R. J. HOFFMAN.

Witnesses:

F. L. MIDDLETON,  
DAVID H. MEAD.