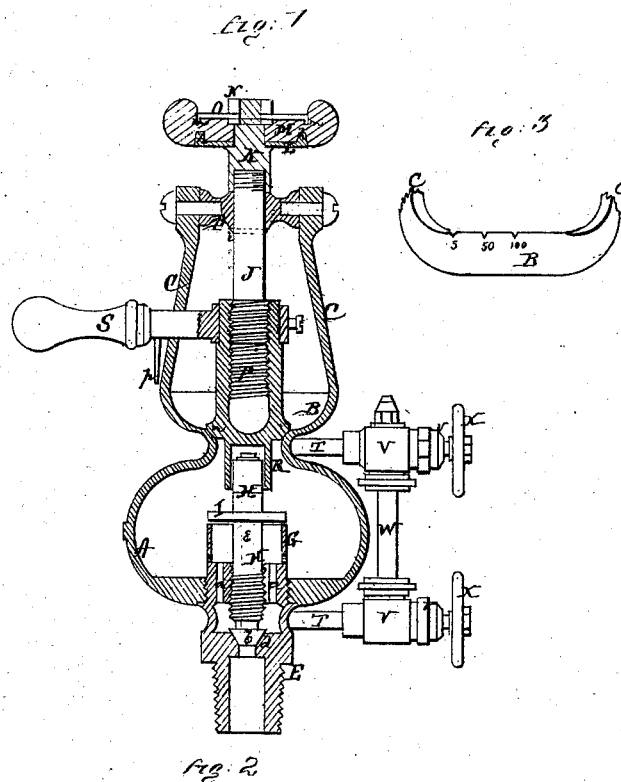


L. F. Smith,

Lubricator.

No. 107,326.

Patented Sept. 27, 1870.



Witnesses
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Letters Patent No. 107,826, dated September 27, 1870.

IMPROVEMENT IN LUBRICATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LEVI F. SMITH, of Philadelphia, in the county of Philadelphia and in the State of Pennsylvania, have invented certain new and useful Improvements in Steam-cylinder Lubricator; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a "graduating-lubricator," for steam-cylinders, or other places where a lubricator is necessary, and in which oil, tallow, or suet may be used at pleasure, the flow of the lubricating material being graduated so as to supply any desired number of drops per minute.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a longitudinal-vertical section of my entire lubricator;

Figure 2 is a vertical section of the top oil-gauge, attached to my lubricator; and

Figure 3 is a side view of the cup that forms a funnel, for pouring in oil or melted tallow.

A represents the bowl or globe, which contains the lubricating substance, having a single opening in its top, around which is formed a cup, B, acting as a funnel, for pouring in oil or melted tallow.

From the cup B two arms, C C, extend upward a suitable distance, and between the upper ends of said arms is pivoted a rock-shaft, D, the object of which will be presently described.

In the bottom of the bowl A is screwed the base E, which extends downward a suitable distance, and is provided with screw-threads on its outer side, to be screwed into the cylinder, or other place where the lubricator is to be used.

At or on the upper end of the base E is formed the strainer G, to prevent any foreign substance, contained in the lubricating material, from passing down to the valve, especially when suet is used where there are always more or less substances which are not consumed.

From the inside of the strainer, passages, *a a*, lead downward, conducting the lubricating material to the valve *b*, which fits snugly in its seat, *d*, formed within the base E.

The valve *b* is formed upon or attached to the end of a stem, *e*, which passes up through a hollow screw, H, and is held by a nut at its upper end.

The screw H is screwed through the center of the

base E, and upon it is formed, at a suitable point, a disk, I, which forms the cap for the strainer G. By turning the screw H in one direction the valve *b* will be raised and opened, and when turned in the other direction it will be lowered and closed. The means for turning the screw will be hereafter set forth.

The valve *b* being loose—that is, can turn around at the lower end of the screw H—it will last much longer than if it was fixed, and, when necessary, it can readily be ground in.

Through the rock-shaft D is passed a stem, J, provided with a collar or enlargement, *i*, which bears against the under side of the shaft, preventing the stem from moving up through the shaft.

On the upper end of the stem J are screw-threads, for screwing into a socket, K, the lower end of which bears against the upper side of the rock-shaft. The socket K, after being screwed in place on the stem J, is fastened by a pin passing through.

On the socket K is formed a disk, L, having on its upper side, near the circumference, lugs, *h h*, which project upward, and fit in notches, made for that purpose, in the under side of the wooden handle M. This handle is, also, on its under side, provided with a circular recess, in which the disk L fits.

From the center of the disk L a screw passes upward through a hole in the center of the handle M, and on said screw, on the upper side of the handle, is placed a nut, N, surrounded by a cap or flange, O, having a downward-projecting rim, *m*, around its periphery. This cap and rim fit in corresponding recess and groove in the upper side of the handle M, as shown in fig. 1, whereby the said handle is held firmly, and prevented from splitting, which is very often the case with such wooden handles.

The lower end of the stem J is screwed into a hollow sleeve, P, upon which is formed a valve, *n*, to fit in the opening to the bowl A, and the lower end of said sleeve extends down into the bowl, and provided with a wrench, R, which fits upon the upper end of the hollow screw H. The upper end of this screw H has square corners, but is longer one way than the other, so that, when the sleeve P is lowered to fit the wrench, it can only be put on in one way.

By turning the handle M in one direction, the sleeve P will be raised so as to open the valve *n*; when oil or tallow may be poured into the bowl. The oil or tallow passes down on one side of the sleeve, and the air escapes on the other, thereby obviating the necessity of a separate air-hole. As soon as the bowl is filled, the sleeve is lowered so as to close the valve.

When it is desired to use suet, the sleeve is raised entirely up, so as to clear the wrench R, when it may be turned to one side by the rock-shaft D turning up-

on its pivots, leaving the entire opening to the bowl free. When filled, the sleeve is turned back and lowered again.

On the sleeve is secured a lever, S, by means of which the same may be turned with the stem J, to raise or lower the valve *b*, to allow more or less of the lubricating material to pass out.

From the lever S a finger, *p*, points to the side or edge of the cup C, which is graduated, so that the said finger will show how many drops per minute the valve *b* allows to escape.

From the top and bottom of the bowl A, a pipe, T, leads horizontally outward, each to a valve-chamber or box, V, which two chambers are connected by a vertical glass tube, W, by means of which the amount or height of the lubricating material in the bowl can be seen at all times.

Each of the valve-chambers V is provided with a valve, *s*, upon the end of a stem, *t*, which passes through the outer side of the chamber, and provided with a wheel or handle, X, for turning.

Upon a collar on the outer side of the valve-chamber is screwed a nut, *r*, through which the stem *t* is also screwed.

The valve *s* is formed, as shown in fig. 2, conical on both sides, and suitable valve-seats are formed in the box, both where the pipe T enters, and where the stem *t* passes through.

When it is desired to have the valve *s* open, the stem is screwed out, so that the valve will fit in the seat in the outer end of the chamber, thus obviating the necessity of a stuffing-box or packing, to keep this joint tight.

If the glass tube W should break, or, from any other cause, it is desired to close the valve *s*, the stem is at once screwed in, so that the valve fits in the seat at the entrance of the pipe T. The only time when the joint of the stem *t* and nut *r* can possibly leak is while the valve *s* crosses from one side of the chamber to the other.

This arrangement may be used with great advantage on water-gauges, or for other purposes.

Having thus fully described my invention,

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

1. The combination of the bowl A, cup B, standards C C, and base E, with strainer G, passages *a a*, and valve-seat *d*, all constructed and arranged substantially as and for the purposes herein set forth.

2. The arrangements of the hollow screw H, with cap I, stem *e*, and valve *b*, all substantially as shown and described.

3. The hollow sleeve P, provided with valve *m*, wrench R, and lever S, and used in combination with the stem J and rock-shaft D, substantially as and for the purposes herein set forth.

4. The combination of the disk L, lugs *h h*, handle M, nut N, cap O, and rim *m*, all constructed and arranged substantially as and for the purposes herein set forth.

5. In combination with the hollow sleeve P and lever S, the finger *p* and graduated edge of the cup B, substantially as and for the purposes herein set forth.

6. The combination of the valve-chamber or box V, with two valve-seats opposite each other, as described, double valve *s*, stem *t*, and nut *r*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

7. The combination of the bowl A, base E, tubes T T, valve-chambers V V, with their seats and double valves, and the gauge W, all constructed and arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of June, 1870.

LEVI F. SMITH.

Witnesses:

C. L. EVERT,
A. N. MARR.