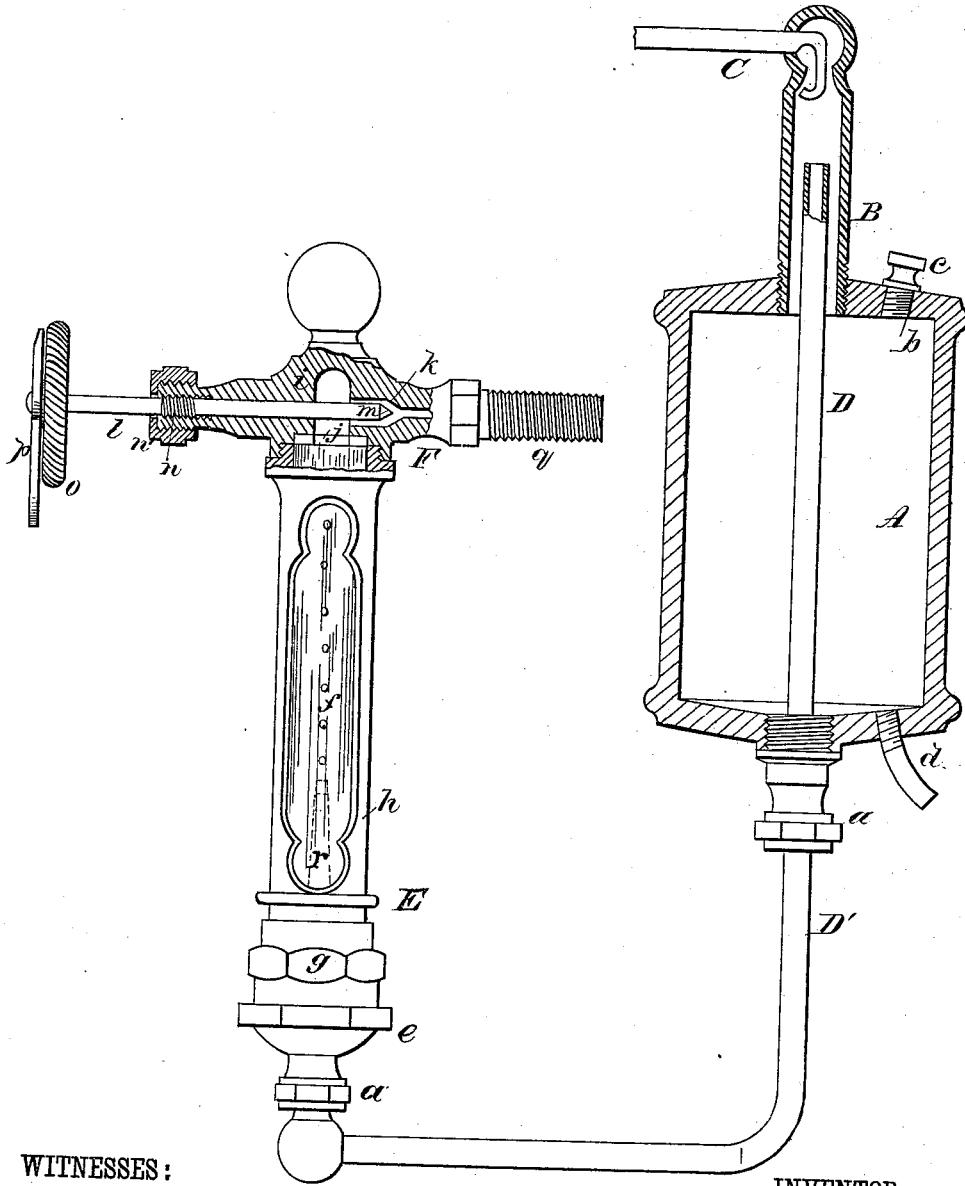


G. H. FLOWER.
Lubricator.

No. 200,446.

Patented Feb. 19, 1878.



WITNESSES:

Henry N. Miller
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UNITED STATES PATENT OFFICE.

GEORGE H. FLOWER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN LUBRICATORS.

Specification forming part of Letters Patent No. **200,446**, dated February 19, 1878; application filed December 21, 1877.

To all whom it may concern:

Be it known that I, GEORGE H. FLOWER, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Lubricator, of which the following is a specification:

The invention will first be described in connection with drawing, and then pointed out in the claims.

Referring to the drawing, which is a side elevation, partly in section, A is an oil-reservoir, which may be of any convenient form or size, and B is a pipe projecting from the head of the reservoir, for receiving and condensing steam, which is introduced through the pipe C, terminating inside the pipe B, bent downward and its end turned upward, so as to discharge the steam in an upward direction. The upper end of the pipe B is closed, and a tube, D, extends from the bottom of the reservoir A into the pipe B. A tube, D', is connected with the tube D by the coupling *a*, and extends downward, and is bent at right angles, and connected with the indicator E by means of a coupling, *a'*.

The oil-reservoir A is provided with a filling-aperture, *b*, in its top, which is closed by the screw-plug *c*, and a tube, *d*, is inserted in the bottom of the reservoir, for drawing off the water when the oil becomes exhausted and it is desired to fill the reservoir with oil.

The indicator E consists of a socket, *e*, for receiving the glass tube *f*, the said socket being threaded externally to receive the internally-threaded sleeve *g*, which receives the apertured tube *h*, that contains and protects the glass tube *f*, and to the upper end of which the valve F is attached. The lower end of the apertured tube *h* and the upper end of the internally-threaded sleeve *g* are provided with finer screw-threads than the lower end of the said sleeve and the exterior of the socket *e*, so that the apertured tube *h* is drawn toward the socket by the difference in the two threads. The upper end of the apertured tube *h* is screwed into the side of the casing *i* of the valve F. The ends of the glass tube rest upon elastic packing-disks *j* at each end, which prevents the escape of oil or water.

The valve F consists of a casing, *i*, containing a valve-seat, *k*, and spindle *l*, upon the inner end of which a valve, *m*, is formed, which is adapted to the seat *k*. The spindle is provided with a threaded portion, *n*, which is fitted to internal threads in the casing *i*, and the casing is provided with a stuffing-box, *n'*, which prevents the escape of oil or water around the valve-spindle. To the outer end of the valve-spindle a hand-wheel, *o*, is secured, which is graduated on its outer face, and to the center of which an index, *p*, is pivoted, which is weighted, so that its indicating-point is always directed vertically. A nipple, *q*, is formed on the valve-casing, for receiving the pipe by which it is connected with the cylinder or steam-chest of the engine. A tapering nozzle, *r*, is connected with the socket, and is in communication with the tube D', and projects upward into the glass tube.

The operation of the lubricator is as follows: The reservoir A being filled with oil, and steam being admitted through the pipe C to the pipe B, and the valve F being open, a perfect equilibrium is established in the lubricator, so far as steam-pressure is concerned. The water resulting from the condensation of steam in the pipe B falls to the bottom of the reservoir, and displaces a quantity of oil equivalent in bulk to the quantity of water condensed in the tube B. The oil thus displaced runs over the top of the tube D, and is conducted by the tube D' to the nozzle *r*. The glass tube *f* contains water, but its position is lower than the oil in pipe B, so that the column of oil contained by the pipe B overbalances the pressure of the water on the nozzle *r*, and the oil rises drop by drop from the nozzle through the water in the tube *f* and through the opening of the valve F, and is led to the engine-cylinder by a pipe connected with the valve.

The rate at which the oil is displaced in the reservoir A may be known by observing the rapidity with which the drops of oil leave the nozzle *r*, and the amount of oil passing from the lubricator may be controlled by the valve F. Uniformity in the adjustment of the valve is secured by observing the graduations on the face of the wheel *o*.

The indicator E may be used with any lubricator in which steam is condensed to displace the oil.

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

1. The indicator E, consisting of the glass tube *f*, contained by a suitable support, and the nozzle *r*, in combination, substantially as shown and described.

2. The stand-pipe B, in combination with

the oil-reservoir A, for receiving the steam-pipe C and oil-conducting pipe D, substantially as herein shown and described.

3. The combination of the indicator E and reservoir A, having the steam-tube C and oil-tube D, substantially as herein shown and described.

GEORGE H. FLOWER.

Witnesses:

HIRAM F. HOLCOMB,
W. P. BRAINARD.