(No Model.)

E. LUNKENHEIMER.

SIGHT FEED LUBRICATOR.

No. 457,998. Patented Aug. 18, 1891.

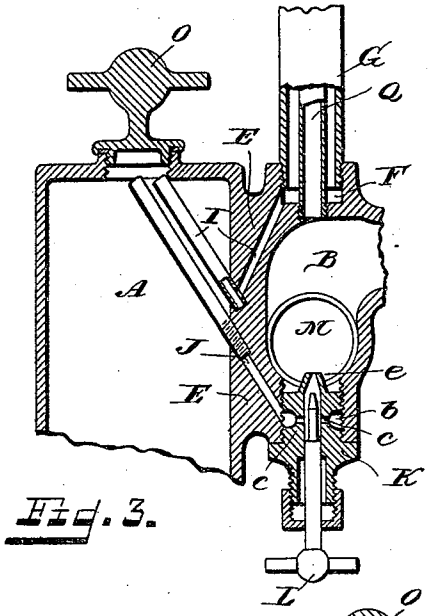


Fig. 3.

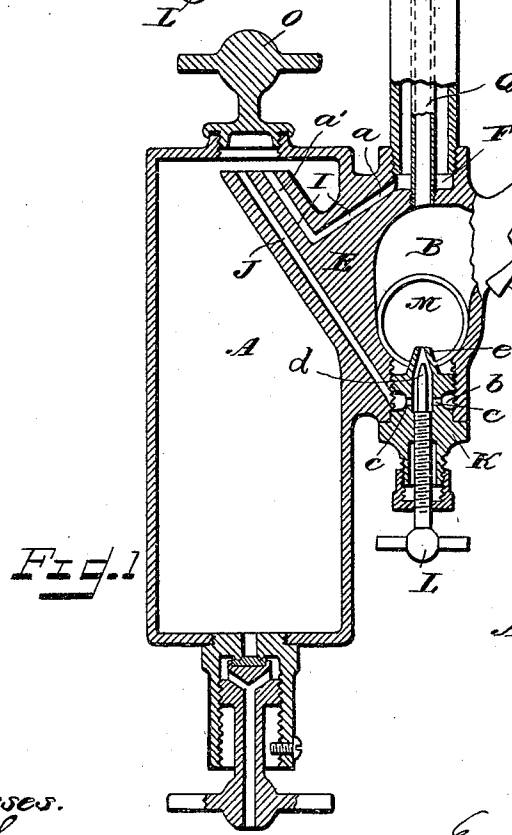


Fig. 1.

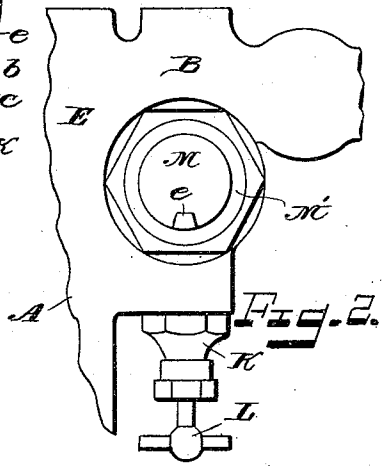


Fig. 2.

Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDMUND LUNKENHEIMER, OF CINCINNATI, OHIO.

SIGHT-FEED LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 457,998, dated August 18, 1891.

Application filed February 6, 1891. Serial No. 380,483. (No model.)

To all whom it may concern:

Be it known that I, EDMUND LUNKENHEIMER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Sight-Feed Lubricators, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to simplify and cheapen the construction of this class of lubricators; and its novelty will be herein set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 represents a central vertical section of my improved lubricator, part of the condensing-pipe and the valve-chamber and connection being shown in elevation. Fig. 2 is a detail side elevation of part of the lubricator shown in Fig. 1. Fig. 3 is a sectional detail illustrating a modification.

The same letters of reference are used to indicate identical parts in all the figures.

The principal feature of novelty in my improved lubricator, and that from which its increased simplicity and cheapness over old forms of lubricators are chiefly derived, consists in casting the sight-chamber directly upon the side of the oil-reservoir and forming water-inlet and oil-outlet passages in the integral shank which joins them. In my preferred construction (shown in Fig. 1) the passages are formed entirely in the integral shank, part of which extends into the interior of the reservoir for that purpose; but the passages may, as shown in Fig. 3, be formed partly in the integral shank and consist partly of pipes connected therewith.

My improved lubricator may have either a single or double connection with the steam-supply, though I have illustrated only a double-connection lubricator in the drawings.

In the construction shown in Fig. 1 the body of the oil-reservoir A, the sight-chamber B, valve-chamber C, and connection D are all cast integral, though the valve-chamber and connection D may be separate, if desired. The sight-chamber B is joined to the body of the reservoir A by the shank E, which projects into the interior of the reservoir, as shown. In the upper side of the casting, preferably just above the sight-chamber, is an interiorly-threaded recess F, into which is screwed the lower end of the condensing-pipe G. From the bottom of the recess F a hole *a* is drilled into the shank E obliquely downward toward the interior of the reservoir, and from the upper side of the shank beneath the filling-hole of the reservoir a second hole *a'* is drilled obliquely downward in a transverse direction until it intersects the hole drilled from the recess F. These two holes form the water-inlet passage I, by which water is delivered from the condensing-pipe to the reservoir, and the shape of the passage is such as to form a trap which prevents the oil from passing from the reservoir to the condensing-pipe G.

From the interior of the lower open end of the sight-chamber B a hole J is drilled obliquely upward through the shank E, opening into the reservoir adjacent to the upper end of the passage *a'*. This hole forms the oil-delivery passage for conveying oil from the upper part of the reservoir to the bottom of the sight-chamber. The lower end of the passage J may communicate with the sight-chamber through any suitable valve and nozzle. In the drawings I have shown a familiar construction, in which the interiorly-threaded lower end of the sight-chamber is closed by a screw-plug K, provided with an exterior annular groove *b*, communicating by radial openings *c* with the central vertical passage *d*, which terminates in the feeding-nozzle *e* in the sight-chamber. The lower end of the passage J opens into the annular groove *b*, so that the oil delivered from said passage passes through the openings *c* into the vertical passage *d* and up through the feeding-nozzle *e*. A valve-stem L, carried by the plug K, controls the passage through the nozzle *e*. The circular openings in the opposite sides of the sight-chamber are closed by glass disks M, held in place by the usual screw-rings M' and packing, and through which the feeding of the oil may be observed.

The lower end of the oil-reservoir is provided with a suitable drain-cock N, and the filling-hole in its upper end is closed by a screw-plug O. The passage through the valve-chamber C for the delivery of the oil

(and the admission of steam where the lubricator has only a single connection with the steam-supply) is controlled by a valve P.

Where the lubricator has a double connection with the steam-supply, as indicated in that shown in the drawings, I provide an equalizing-pipe Q within the condensing-pipe G, the lower end of said pipe Q being screwed into an opening through the bottom wall of the recess F. The object of this pipe is to furnish direct passage for steam from the condensing-pipe G through the valve-chamber C and connection D back to the steam-pipe to prevent "siphoning," as will be understood by those familiar with the use of this class of lubricators. Where the lubricator has only a single connection with the steam-supply, such equalizing-pipe is unnecessary. In such case the only change from the construction shown in the drawings is to dispense with such pipe and leave the bottom wall of the recess F solid and to substitute for the condensing-pipe G an inverted-**U**-shaped condensing-pipe, the lower end of whose right-hand branch will be screwed into the upper side of the valve-chamber C and the lower end of its left-hand branch into the recess F, as is common in single-connection lubricators now on the market, and as illustrated, for instance, in Letters Patent of the United States No. 386,596, granted me July 24, 1888. In such case the left-hand branch of the condensing-pipe may have a condensing-bulb interposed in it, if desired.

The operation of my improved lubricator will be apparent from the above description of its construction, but may be briefly stated as follows: After filling the reservoir with oil and replacing the plug O the valve P is opened, and if the lubricator has a double connection with the steam-supply the valve interposed between the pipe G and such supply is also opened. The steam entering the sight-chamber B condenses and fills the latter with water up to the level of the passage through the valve-chamber C. The water formed from the steam condensing in the pipe G flows from the bottom thereof through the passage I into the top of the reservoir, whence it sinks through the oil to the bottom of the reservoir, displacing the oil and lifting it to the top of the reservoir and forcing it down the passage J and into the annular groove *b*. Upon now opening the valve L, which has been closed, the oil is forced through the passages *c d* and delivered by the nozzle *e* in drops, which float up through the water in the sight-chamber and pass out through the valve-chamber C and connection D to the steam-pipe and parts to be lubricated.

In Fig. 3 I have shown the inner side of the integral shank E terminating flush with the inner surface of the oil-reservoir and the left-hand branch of the water-inlet passage I supplied by a pipe inserted through the filling-hole of the reservoir and screwed into a seat in the shank E or side of the reservoir at the lower end of the right-hand branch of the passage I. The upper portion of the oil-delivering passage J is likewise composed of a pipe screwed into a seat in the shank E or side of the reservoir and communicating with the annular groove *d* around the plug K through the hole drilled in the shank E.

I prefer the construction shown in Fig. 1 of the drawings, since it is cheaper, more substantial, and fewer parts are required; but my invention may not be evaded by such modifications as last above described. The construction shown in the drawings may also be modified without departing from my invention by dispensing with the upwardly-extending left-hand branch *a'* of the water-inlet passage and instead drilling the right-hand branch *a* of such passage downward through the shank E and screwing into the lower end a pipe of proper length to extend nearly to the bottom of the reservoir. In such case the shank E would be cast thick enough to afford room for the passage *a* to be drilled past the passage J without the two interfering with each other. A downwardly-extending water-inlet passage opening into the reservoir near its bottom will trap the oil and prevent it from escaping to the condensing-pipe, just as will an upwardly-opening passage at the top of the reservoir, and as both arrangements are well-known substitutes for each other an illustration of such modification is deemed unnecessary.

Having thus fully described my invention, I claim—

1. In a sight-feed lubricator, the combination, with the oil-reservoir, of a sight-chamber, valve-chamber, and steam-pipe connection, all arranged, as described, upon one side of the reservoir, the sight-chamber being located immediately between the oil-reservoir and the valve-chamber and cast directly upon the side of the reservoir, with water-inlet and oil-outlet passages through their integral connecting-shank, substantially as described.

2. In a sight-feed lubricator, the combination of the oil-reservoir, sight-chamber, valve-chamber, and steam-pipe connection, all arranged as described and cast in a single piece, the sight-chamber being cast directly upon the side of the oil-reservoir and their integral connecting-shank projecting into the reservoir and provided with water-inlet and oil-outlet passages, substantially as described.

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Witnesses:
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