

(No Model.)

J. A. HOLMES.  
LUBRICATOR.

No. 418,410.

Patented Dec. 31, 1889.

Fig. 1.

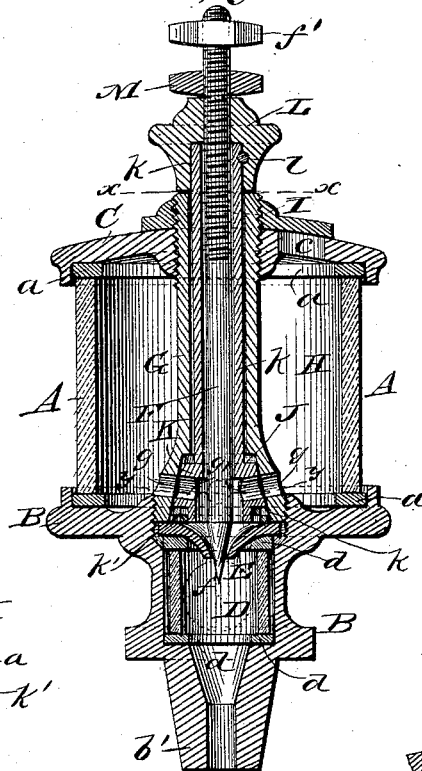


Fig. 3.

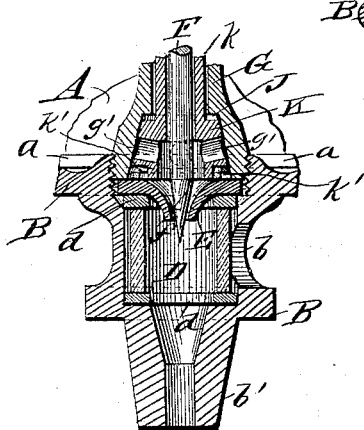


Fig. 4.

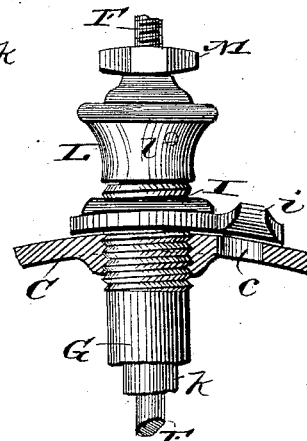


Fig. 2.

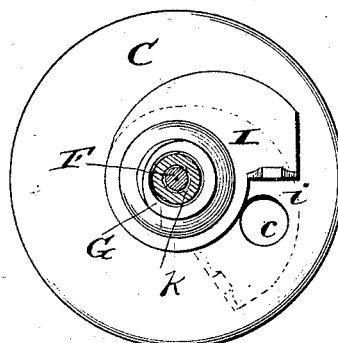
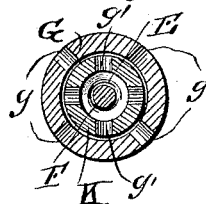


Fig. 5.



WITNESSES:

*Phil C. Dirterich*  
*C. Sedgwick*

INVENTOR  
*J. A. Holmes*  
BY *Munn & Co*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

JOHN A. HOLMES, OF SALT LAKE CITY, UTAH TERRITORY.

## LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 418,410, dated December 31, 1889.

Application filed February 6, 1889. Serial No. 298,844. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. HOLMES, of Salt Lake City, in the county of Salt Lake and Territory of Utah, have invented a new and Improved Lubricator, of which the following is a full, clear, and exact description.

My invention relates to lubricators of that class intended more particularly for supplying oil or other lubricant to relatively stationary bearings—such as pillow-blocks and hangers of line shafting or boxes of general machinery; and the invention has for its object to provide a simple, comparatively inexpensive, and efficient lubricator of this character, by using which any desired uniform feed of lubricant may be maintained without waste of oil and with economy of time of engineers or attendants.

The invention consists in certain novel features of construction and combinations of parts of the lubricator, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a central vertical section of my improved lubricator as adjusted to feed oil to a bearing to which it may be applied. Fig. 2 is a plan view of the lubricator with the vent-valve swung to one side to open the filling-hole and with the stem of the main discharge-controlling valve in horizontal section on the line *xx* in Fig. 1. Fig. 3 is an enlarged detail vertical section of the lower central parts of the lubricator, showing the main valve adjusted to cut off discharge of oil. Fig. 4 is a sectional side elevation of upper central parts of the lubricator with the vent-valve partly raised to give vent to assure flow of heavy oils from the device; and Fig. 5 is a detail horizontal section through the main valve and central tube of the lubricator, taken on the line *yy* in Fig. 1.

The body portion of the lubricator is provided with the usual glass wall A, placed preferably between suitable packings *a a*, held, respectively, in the base B and cap C of the device. The base has a neck provided with one or more side apertures *b*, giving full view of the flow or feed of oil from the needle-valve

to and through the lubricator-stem *b'*, which will be fitted into any stationary bearing or box or part of a machine to be oiled.

In the hollow neck of the base B is placed, preferably between suitable upper and lower packings *d d*, a piece D of glass tubing, through which the oil falls from the needle-valve presently described.

Above the upper packing *d* of the sight-feed tube D is placed a removable downwardly-concaved valve-seat or oilway E, in and through the central orifice of which the long tapering point *f* of the needle-valve F passes. The valve-seat E is held firmly to place and the packings *d* of the sight-feed glass D are compressed tightly to said glass by the lower exteriorly-threaded end of a central tube G, which is screwed into threads formed at the upper part of the recess or bore of the base of the lubricator. The upper part of the tube G has outside threads onto which the lubricator cap or cover C is screwed, and this cap thus serves as a compressor to tighten the packings *a a* to the main glass A and between the cap and base to make a perfectly-tight reservoir or chamber H within the glass to receive the oil or lubricant, which is supplied through a filling-hole *c* in the cap when said hole is not covered by a vent-valve or plate I, which is fitted to screw-threads on that portion of the tube G which projects above the cap. Should the sight-feed glass D not be used, the removable valve-seat or oilway E would be supported on a shoulder in the base and would be held to place by the tube G. The lower end of the tube G is preferably enlarged to form a valve-chamber J, which is preferably tapered upward and has communication with the oil-reservoir H through a series of apertures *g* made through the tube G, four of said apertures being shown in the drawings.

In the chamber J is fitted a round tapering hollow valve K, which has a long stem *k*, which projects upward through the tube G, and at its upper end is made fast by a pin *l*, or otherwise, to a milled head or finger-piece L, which in the preferred construction is bored and screw-threaded to receive the upper threaded end of the needle-valve F, which may slide freely in the valve-stem and valve,

and by its tapered inner end *f* enters the orifice of the valve-seat E, above mentioned. A coiled or helical spring *k'*, preferably placed between the valve-seat and a shoulder of the valve K, normally holds the latter to the walls of its chamber with a fluid-tight joint to prevent passage of oil from the reservoir H to the interior of the valve K and the needle-valve seat E, when a series of apertures *g'*, made through the side wall of the valve, are moved out of line with the series of apertures *g* in the tube G, as shown in Fig. 5 of the drawings; but when the valve is turned to bring its holes *g'* to coincide more or less fully with the tube-holes *g*, as shown in Fig. 1 of the drawings, free passage of oil is allowed from the reservoir H to the interior of the main valve K and valve-seat E around the point of the needle-valve, from which the oil drops or flows slower or faster, accordingly as the needle-valve point is set farther downward or upward by turning the valve in the relatively-stationary head-nut L, which, as before stated, is fixed to the stem of the main valve K, and serves as a finger-piece by which to turn the main valve to control flow of oil from the reservoir H to the needle-valve.

The needle-valve F is provided with a fixed collar or finger-piece *f'*, by which it may be conveniently turned in the main-valve nut or head-piece L, to regulate the position of the valve-point *f* relatively to the orifice of the seat E, to control to a nicety the feed or flow of oil past the needle-valve to the bearing when the tube and main-valve orifices *g* *g'* coincide, and when the needle-valve is once set to suit the nature of the oil or other lubricant being supplied to the bearing said valve will preferably be positively and permanently locked at this adjustment by turning a jam-nut M, threaded onto its upper part, down onto the head L of the main-valve stem.

Figs. 2 and 4 of the drawings most clearly show that the vent-valve or plate I, which is threaded to the upper end of the tube G, above the cap C, is extended to one side of said tube in eccentric or cam-like form, and is provided at its outer part with an upturned lip *i*, serving as an finger-piece by which it may be turned on the threaded tube. It is obvious that when this vent-valve is turned one way or the other on the tube the pitch of the tube-threads will cause the valve to rise and fall slightly on the tube. When the vent-valve I is turned fully downward, or to the position indicated by the dotted lines in Fig. 2 of the drawings, the valve will be drawn very closely by the threads on the tube G down to the lubricator-cap C, and will not only exclude dust from the filling-hole *c*, which it then covers, but will also exclude air from the oil-reservoir H; but should it be desirable or necessary in using heavy oils to give more or less vent to prevent vacuum in the oil-reservoir and allow proper feed of the lubricant past the needle-valve, this may be done by turning the vent-valve I a little

to the left hand on the threaded tube G, to lift it slightly from the cap C, as shown in Fig. 4 of the drawings, to allow passage of more or less air below the valve and into the oil-reservoir H through the filling-hole *c*, which will still be covered by the valve, so as to exclude dust and dirt while giving necessary vent to assure proper feed of oil from the lubricator. When the oil or other lubricant is to be replenished, the vent-valve I will be turned backward sufficiently to uncover the filling-hole *c*, as shown in full lines in Fig. 2 of the drawings, to allow oil from any vessel to be poured into the reservoir through the filling-hole.

It will be noticed that the vent-valve is not used to bind the cap, glass, and base of the reservoir together at their packings, as this office is performed wholly by the cap C, screwing onto the tube G, which is screwed or fastened into the base B of the lubricator; hence this tube G serves not only as a support to the valves K F, but it serves, also, as a stay-bolt or device to the entire body of the lubricator. It is also manifest that the base B of the device may be unscrewed from the tube G to allow renewal of the lower sight-feed glass D or its packings *d*, the spring *k'*, and the concave or tapering seat E of the needle-valve F.

The valve-chamber J in the tube G may be made cylindrical instead of tapering; and the valve K would then have a correspondingly-cylindrical form; but the tapering form of the chamber and valve is preferred in practice.

An important advantage of this form of lubricator over other style of oil-cups is that when the needle-valve F is once set by turning it in the main-valve head or finger-piece L and locking it by the jam-nut M the feed of oil past the needle-valve will always be uniform when the main valve K is turned to align its apertures *g'* with the apertures *g* of the tube G, and when supply of oil to the bearing is no longer needed it is only necessary to turn the valve K until its apertures *g'* are out of register with the tube-apertures *g*, which cuts off flow of oil from the lubricator. When the bearing again needs oil, the valve K will be turned to align the apertures *g'* *g*, and oil will flow to the bearing at the precise rate of feed maintained before the supply was shut off, as will readily be understood.

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

1. In a lubricator, the combination, with a recessed hollow base having screw-threads at its upper central part, and a removable valve-seat or oilway supported on a shoulder in the base-recess, of a central tube provided with oil-passages at its lower part and screwed into the base to hold the valve-seat or oilway therein, said tube having a screw-threaded upper end, a side wall forming with the base

a main oil reservoir or chamber, and a cap screwed onto the upper end of the tube and binding the main parts of the oil-reservoir together, substantially as herein set forth.

2. In a lubricator, the combination, with a recessed hollow base having screw-threads at its upper central part, a removable sight-feed glass placed in the base-recess, and a removable valve-seat or oilway supported on or from this glass, of a central tube provided with side apertures at its lower part and screwed into the base to hold the sight-feed glass and valve-seat or oilway therein, substantially as herein set forth.

3. In a lubricator, the combination, with a recessed hollow base having screw-threads at its upper central part, a removable sight-feed glass placed in the base-recess, and a removable valve-seat or oilway supported by the glass, of a central tube provided with side apertures at its lower part and screwed into the hollow base to hold the sight-feed glass and valve-seat or oilway therein, said tube having an upper screw-threaded end, a body wall on the base and forming with it an oil-reservoir, and a cap screwed onto the upper end of the tube and binding the parts of the oil-reservoir together, substantially as herein set forth.

4. In a lubricator, the combination, with an oil-reservoir having an upwardly-projecting central hollow tube provided with side apertures giving communication with the reservoir, of a valve-seat or oilway in the base of the lubricator below the tube, a hollow main valve fitted in said tube and having side apertures adapted to register with the tube-apertures, said valve having a stem extending through the tube, a head-piece on said valve-stem, and a needle-valve fitted for adjustment in said head-piece and extending downward to the lower valve-seat or oilway to control feed of oil when the main valve is open to the oil-reservoir, substantially as herein set forth.

5. In a lubricator, the combination, with an oil-reservoir having a base provided with upper central screw-threads and a valve-seat or oilway, of a tube screwed into the base and provided with lower side apertures and an upper screw-threaded end, the reservoir-cap being screwed onto the central tube to bind the body portions of the lubricator together, a hollow laterally-apertured valve fitted into the lower part of the tube and having a stem extending through the tube, a head-piece on said valve-stem, and a needle-valve fitted for adjustment in said head-piece and extending downward to the lower valve-seat or oilway to control feed of oil when the main valve is open to the oil-reservoir, substantially as herein set forth.

6. In a lubricator, the combination, with an oil-reservoir provided with a cap having a filling and vent hole and a central threaded aperture, of a tube extending from the base of the reservoir up through said central aper-

ture and threaded to engage the threads thereof, and a vent-valve having a threaded aperture receiving the upper projecting end of said threaded tube to cover the cap filling-hole, said imperforate valve having an area or surface which overlies the filling-hole when the valve is moved backward and raised slightly by the pitch of its screw-thread joint to admit air to give vent to the oil-reservoir while excluding dust therefrom, substantially as herein set forth.

7. In a lubricator, the combination, with its hollow recessed base B, having central screw-threads, and a body wall or glass A on the base, of a removable valve-seat or oilway E, supported in the base, a tube G, screwed into the base to retain the valve-seat and provided with side apertures *g* and extending upward through the oil-reservoir, a hollow valve K, having side apertures *g'* and fitted in the tube G and provided with a hollow stem *k*, extending upward through the tube, a screw-threaded head-piece L on the valve-stem *k*, a needle-valve F, fitted in the valve-stem and to the threads of the head-piece and extending to the valve-seat E, and a cap for the oil-reservoir surrounding the tube G, substantially as herein set forth.

8. In a lubricator, the combination, with its hollow recessed base B, having interior central screw-threads, and a body wall or glass A on the base, of a sight-feed glass D in the base, a valve-seat or oilway E at the upper end thereof, a tube G, screwed into the base and retaining the parts E D and provided with side apertures *g* and extending upward through the oil-reservoir, a hollow valve K, having side apertures *g'* and fitted in the tube G and provided with a hollow stem *k*, extending upward through the tube, a screw-threaded head-piece L on the valve-stem *k*, a needle-valve F, fitted in the valve-stem and to the threads of the head-piece and extending to the valve-seat E, and a cap for the oil-reservoir surrounding the tube G, substantially as herein set forth.

9. In a lubricator, the combination, with its hollow recessed base B, having interior central screw-threads, and a body wall or glass A on the base, of a sight-feed glass D in the base, a valve-seat or oilway E at the upper end thereof, a tube G, screwed into the base and onto the valve-seat E, and provided with side apertures *g* and extending upward through the oil-reservoir and screw-threaded at its upper part, a hollow valve K, having side apertures *g'* and fitted in the tube G and provided with a hollow stem *k*, extending upward through the tube, a screw-threaded head-piece L on the valve-stem *k*, a needle-valve F, fitted to the threads of said head-piece and extending to the valve-seat or oilway E, and a cap C, fitted to the upper exterior threads of the tube G and clamping the wall A to the base B, substantially as herein set forth.

10. In a lubricator, the combination, with

the base B, tube G, valve K *k*, and screw-threaded head-piece L, of a needle-valve F, fitted to said head-piece and extending through the valve-stem to the oil way or outlet, and a  
5 jam-nut M on the needle-valve, substantially as herein set forth.

11. In a lubricator, the combination, with the base B, a removable valve-seat or oilway E therein, a tube G, screwed into the base  
10 over said valve-seat and provided with side apertures *g*, a valve K, having a stem *k*, extending through the tube G, and having apertures *g'*, a side wall A on the base B, a clamping-cap C, having a hole *c* and fitted to  
15 the screw-threaded upper end of the tube G, which projects above the cap, a head-piece L, fixed to the valve-stem *k*, a needle-valve F, fitted adjustably in the head-piece and extending to the oilway E, and a vent-valve I,

fitted on the screw-threads of the tube G 20 above the cap C, substantially as herein set forth.

12. In a lubricator, the combination, with the oil-reservoir having a central tube apertured at *g*, and a valve-chamber, of an aper- 25 tured valve K, having a stem *k*, extending through the central tube, a valve-seat or oilway below the valve K, a spring *k'*, interposed between the valve K and oilway, a screw-threaded head-piece L on the valve-stem *k*, 30 and a needle-valve F, fitted into said head-piece and extending to the oilway, substantially as herein set forth.

JOHN A. HOLMES.

Witnesses:

WILLIAM J. CLARKE,  
GEO. H. MASON.