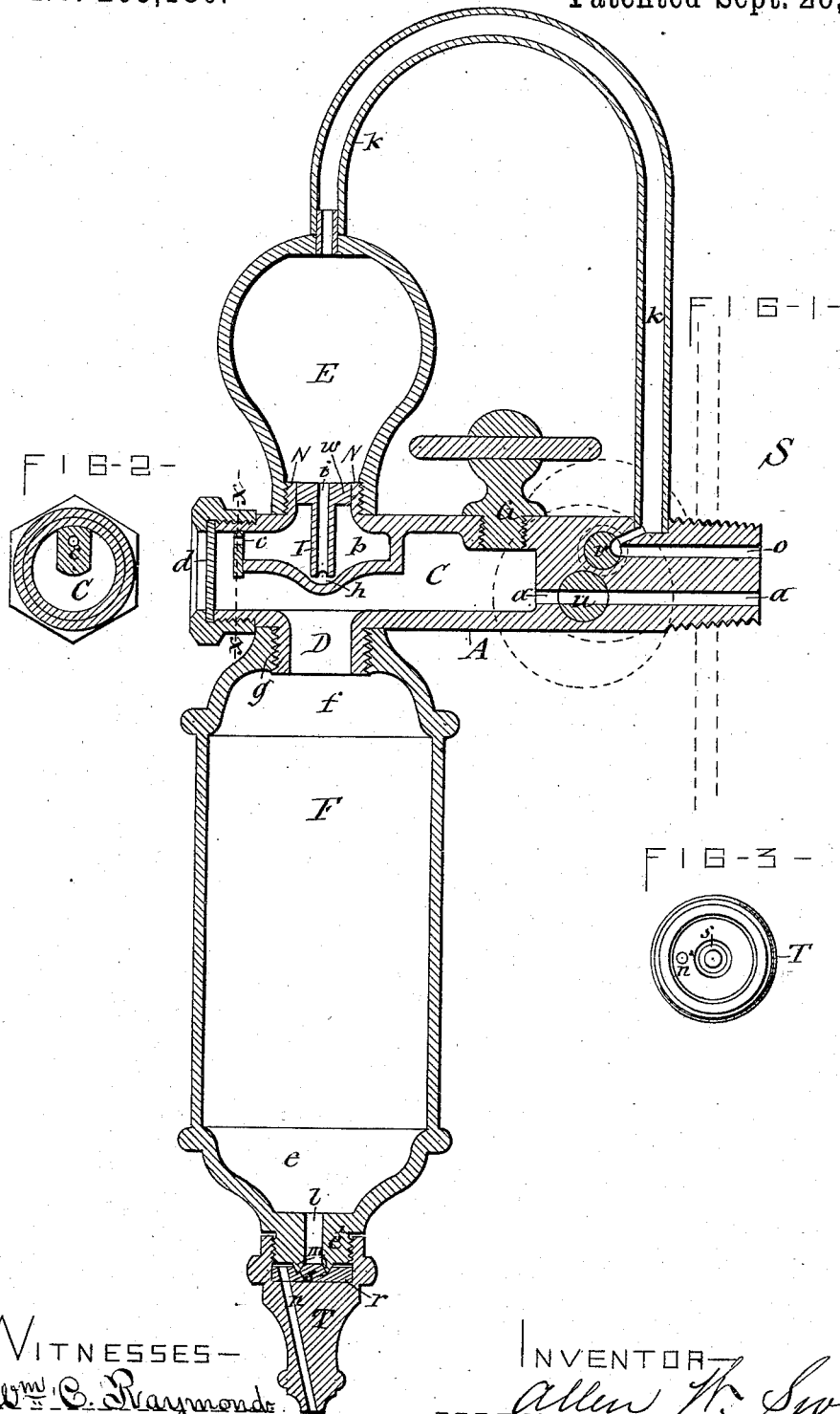


(No Model.)

A. W. SWIFT.  
LUBRICATOR.

No. 265,180.

Patented Sept. 26, 1882.



WITNESSES—  
Wm. C. Raymond  
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# UNITED STATES PATENT OFFICE.

ALLEN W. SWIFT, OF ELMIRA, NEW YORK.

## LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 265,180, dated September 26, 1882.

Application filed August 21, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ALLEN W. SWIFT, of Elmira, in the county of Chemung, in the State of New York, have invented new and useful  
5 Improvements in Lubricators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to that class of lubricators in which the lubricant is automatically forced from the cup and to the parts to be lubricated by the pressure of water obtained from condensation of steam and admitted to the lubricant-cup, and therein displacing a corresponding quantity of lubricant.

The invention consists in the novel construction and combination of the constituent parts of the lubricator, whereby the cost of the manufacture thereof is reduced and the operation of same is rendered more efficient and more reliable, all as hereinafter more fully explained, and set forth in the claims.

Referring to the annexed drawings, Figure 1 is a vertical transverse section of my improved lubricator. Fig. 2 is a transverse section on line *x x*, and Fig. 3 is a detached top view of the removable thimble which closes the water-outlet of the lubricant-cup.

Similar letters of reference indicate corresponding parts.

F denotes the lubricant-cup, preferably of cylindrical form, and cast of metal in one piece with its base *e* and cap *f*, and thus forming a very strong and perfectly tight cup. Its base  
35 *e* is provided with a screw-threaded boss or extension, *e'*, through which is extended a channel or orifice, *l*, for the discharge of the surplus water which may accumulate in the cup F, said orifice *l* being closed by a screw-threaded  
40 thimble, T, fitted to the extension *e'*, and having through it a channel, *n*, the upper end of which is out of range with the orifice *l* aforesaid. Inside of the thimble is placed a disk, *s*, of copper, lead, or other soft metal, to form  
45 a packing over the orifice *l*. The adjacent face of the boss *e'* is provided around the orifice *l* with an annular ridge, *m*, which, in screwing up the thimble, embeds itself in the disk *r*, and forms therein an annular groove, *s*, thus effectually preventing leakage.

When it is desired to draw some of the water

out of the cup F it is only necessary to partly unscrew or loosen the thimble. This will allow the water to escape from the orifice *l* laterally to the channel *n*, which is extended  
55 through the disk *r*. The cap *f* of the cup is provided with a screw-threaded orifice, *g*, by which the cup F is screwed in a suspended position onto a nipple, D, on the horizontal supporting-arm A, by means of which arm the  
60 lubricator is attached to the steam-pipe of the engine. This supporting-arm is provided with a cavity, C, which is extended to the free end of said arm and closed thereat by a glass or other transparent plate, *d*. A channel, *a*, extending from the cavity C to the opposite end  
65 of the arm A, allows the lubricant to flow from the cavity C to the steam-pipe S, to which the lubricator is attached. The cavity C is arranged in the supporting-arm A, and communicating  
70 directly with the interior of the cup F, suspended from the arm A in the manner shown, forms an extension of the lubricant-reservoir, and thus adds to the capacity of the lubricator, the lubricant being introduced into the reservoir by an inlet on top of the supplemental  
75 reservoir closed by a suitable stopper, G.

Upon top of the supplemental reservoir C is mounted a steam-condensing chamber, E, which receives steam for the steam-pipes S, by  
80 a channel, *o*, extending part way into the attached end of the supporting-arm A, and a pipe, K, extended from the channel *o* to the top of the condenser E', and terminating thereat, as shown. The attachment of the condenser E with the arm A, I effect by a hollow  
85 externally-screw-threaded upward-projecting nipple, N, on top of said arm, and providing the base of the condenser with a screw-threaded orifice fitted to the nipple N. The condenser  
90 E, being thus separable from the arm A, facilitates the construction and repairs of said parts. Directly underneath the condenser E the cavity is provided with a trap, *b*, formed on the upper portion of the interior thereof, thus placing  
95 the trap inside of the lubricant-reservoir at the extreme upper part thereof, and consequently subjecting the lubricant to the heating influence of said trap, invariably to the same extent, until the lubricant is exhausted from  
100 the reservoir.

The trap *b* consists of a small chamber cast

on the interior of the arm A and extended toward the glass or observation-port *d* on the free end of the arm A. Facing this port the trap is provided with a discharge-opening, *e*, which I prefer to form of a polished plate applied to the trap, so as to more effectually expose, by reflection of the light through the glass *d*, the egress of water from the opening *e*, as described in my prior patent of March 21, 1882. The trap *b* is open to the hollow nipple N, and is provided directly under said nipple with a depression, *h*, into which is extended a tube or drip-pipe, *i*, pendent from a disk, *w*, which is closely fitted and retained in the upper end of the nipple N. The ingress of steam and egress of lubricant are regulated by the usual valves, *v* and *u*, applied respectively to the channels *o* and *a* in the supporting-arm.

Aside from the advantages already cited, it will be observed that by the arrangement of the sight-feed of water at the extreme top of the lubricant-reservoir the operation of the lubricator can be observed clearly and distinctly throughout until the last of the lubricant is exhausted from the lubricator. The aforesaid arrangement also admits of filling the cup to the highest point, and the operation of the filling can be observed through the port *d*, so as to guard against overflowing, and the usual glass tubes and drip-tubes inside of the cup are dispensed with.

The attachment of the cup F to the arm A by the screw-threaded orifice *g* in the cap *f* screwing onto the nipple D of the arm dispenses with the extra coupling-bolts or tube heretofore extended longitudinally through the center of the cup. Furthermore, the super-constructed condenser E, with the steam-duct K, terminating at the upper end of the condenser, effectually prevents the lubricant from entering said parts.

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

1. In a displacement-lubricator, the combination and arrangement, with the lubricant-reservoir, of a water-trap situated inside of said reservoir, at the top of same, substantially as set forth.

2. The combination, with the lubricant-cup, of a supporting-arm connected to the top of the cup and provided with a supplemental lubricant-reservoir connected with the cup and tapped by the lubricant-eduction channel, substantially as shown and set forth.

3. The combination, with a lubricant-cup, of a supplemental lubricant-reservoir applied to and communicating with the top of the cup, and with an eduction pipe or channel, a water-inlet to the supplemental reservoir, and an observation-port on said reservoir in proximity

to the water-inlet, as and for the purposes set forth.

4. In a displacement-lubricator, the combination, with the lubricant-reservoir, of a steam-condenser arranged above the said reservoir, a water-trap situated inside of the reservoir and communicating with the condenser, the discharge-opening of the trap, arranged at the extreme upper portion of the lubricant-reservoir, and an observing-port in front of the water-discharge, as set forth and shown.

5. In a displacement-lubricator, the combination, with the supporting-arm A, of the suspended lubricant-cup and its base and cap, formed in one piece, substantially as shown and described.

6. The supporting-arm A, provided with the cavity C, nipple D, and lubricant-duct *a*, the trap *b*, formed on the upper portion of the cavity C, and provided with the vent *e*, and the transparent plate *d*, secured in the arm A in front of the vent *e*, in connection with the superimposed condensing-chamber E and the pendent lubricant-cup F, substantially as described and shown.

7. In combination with the supporting-arm A, provided with the screw-threaded nipple D, the cup F, formed in one piece with its base *e* and cap *f*, and provided with the screw-threaded orifice *g* for the attachment of the cup to the supporting-arm, substantially as described and shown.

8. In combination with the cup F the supporting-arm A, provided with the cavity C and with the transparent front *d* and eduction-channel *a*, the condensing-chamber E, mounted on the arm A over the cavity C, the steam-pipe K, connected to and terminating at the top of the chamber C, the trap *b*, located in the cavity C, directly under the condenser, and having the depression *h* and end discharge *e*, and the drip-pipe *i*, extended from the base of the condensing-chamber to the depression *h* of the trap, all constructed and combined substantially in the manner described and shown.

9. The combination of the cup F, having the screw-threaded extension *e'*, provided with the orifice *l* and annular ridge *m*, the screw-threaded thimble T, provided with the channel *n*, and the packing-disk *r*, having an extension of said channel, substantially as and for the purpose shown and set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 26th day of June, 1882.

ALLEN W. SWIFT. [L. S.]

Witnesses:

C. H. DUELL,

WM. C. RAYMOND.