(No Model.)

W. H. THOMAS.

OIL CUP LUBRICATOR FOR ENGINES.

No. 307,415. Patented Oct. 28, 1884.

Fig. 1.

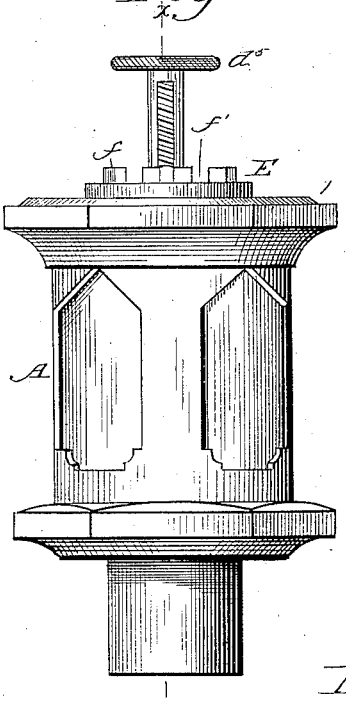


Fig. 2.

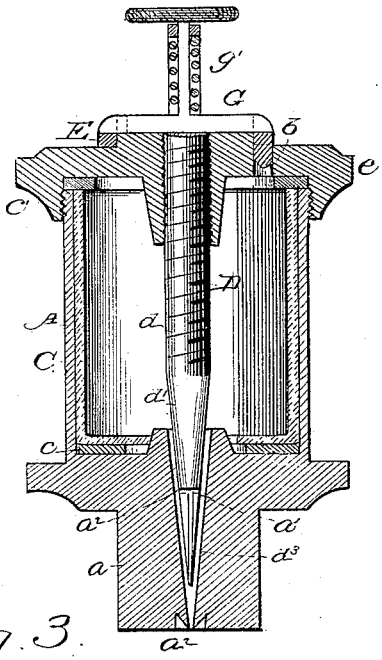


Fig. 3.

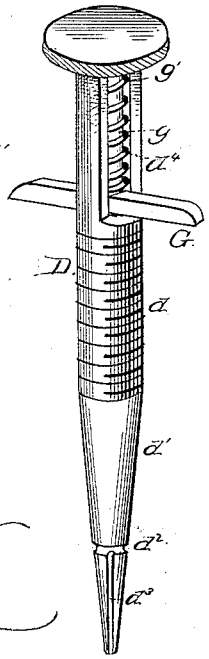


Fig. 4.

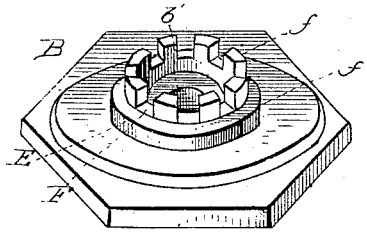
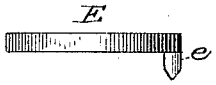


Fig. 5.



WITNESSES:

J. W. Reynolds

A. Leo. Duffy.

INVENTOR

Wm. H. Thomas

BY

O. E. Duffy

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM H. THOMAS, OF LOS ANGELES, CALIFORNIA.

OIL-CUP LUBRICATOR FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 307,415, dated October 28, 1884.

Application filed August 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. THOMAS, of Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Oil-Cup Lubricators for Engines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The invention relates to the class of oiling devices fixed to an engine or machine to lubricate parts of the same; and its object is the construction of a vessel or cup from which the flow of oil may be increased or diminished by very small quantities, and may be kept constant at any required quantity for any desired period of time.

The general construction of the device is as follows: The oil-cup, of proper shape, and with its lower end suitably formed for insertion into the part of the engine to which it is to be attached, has formed centrally through its bottom a long conical opening, which tapers downward and inward, and has an orifice of desired area on the lower surface of the bottom of the cup. Into this opening enters the conical lower end of a screw-plug, the upper part of which passes through and engages in a central internally-threaded opening in the top plate of the cup. The stem of the plug extends above the cup, and has on its upper end a circular milled head, by which it may be turned up or down, and the passage for the flow of oil thereby increased or diminished. A ring rising from the top plate of the cup, and surrounding concentrically the opening for the screw-plug, is provided on its upper edge with upright teeth or detents in the recesses, between which fits the device, hereinafter described, for keeping the screw-plug in any required position. The said device consists of a transverse bar, which passes through opposite longitudinal slots in the screw-plug above the top plate of the cup, and has its ends resting in opposite recesses of the toothed ring. The bar is held down by means of a coiled spring, which surrounds a short stem rising from the bar within the hollow upper part of the screw-plug, and the upper end of which bears against the lower surface of the milled head. An opening is formed at a proper point in the top plate of the cup for the insertion of oil, and is closed by a plug depending from a ring which closely surrounds the toothed ring, and is kept down by the extended arms of the above-described retaining-bar. The lower frame or body portion of the oil-cup or lubricator, including the cage, is cast in a single piece, the said cage having at its upper edge a plain portion suitable for having a screw-thread cut upon it to receive the cap, which is provided with a female screw-thread corresponding with the screw-thread cut on the cage. When the said cap is screwed on the cage it secures all the parts together.

In the drawings accompanying and forming part of this specification, Figure 1 represents a side view of the invention. Fig. 2 is a central vertical section of the same made on the line *xx* of Fig. 1. Fig. 3 is a perspective view of the screw-plug valve detached and the transverse retaining-bar connected therewith. Fig. 4 is a perspective view of the top plate of the oil-cup unscrewed from the latter and having the toothed ring and plug-ring attached, and Fig. 5 is a side view of the plug-ring.

In the accompanying drawings, A represents the oil-cup of cylindrical shape and having a large cylindrical extension, *a*, depending centrally from the lower surface of its bottom plate, which extension is properly formed to engage in an opening suitably situated in the machine or engine to which the device is to be attached.

a' is the conical opening extending centrally through the bottom plate and the extension *a*, and having around its lower orifice the clearance-groove a^2.

B is the cover-plate of the cup screwing upon the latter, and provided at a proper point with an opening, *b*, for the insertion of the oil.

b' is the central internally-threaded opening through the plate B, for the passage of the screw-plug. The inner surface of said plate is flanged downwardly around said opening and

around its circumference, to give a deeper-threaded surface for the engagement of the screw-plug valve and of the upper edge of the cup A, respectively. The lower plate of the cup is flanged upward centrally to give greater length to the opening *a'*.

C is a cylindrical lining fitting snugly within the cup, and *c c'* are proper packing-washers situated, respectively, between the bottom of said lining and the bottom plate of the cup, and between the upper edges of the lining and cup and the top plate.

D is the screw-plug valve, the central threaded portion, *d*, of which passes through and engages in the opening *b'*, while its lower conical portion, *d'*, enters the opening *a'*.

d^2 is a circumferential groove around the part *d'*, at about one-third its length from its lower end, and d^3 d^3 are opposite longitudinal grooves running from the same to the point of the plug-valve. When the plug closes the opening *a'*, the binding takes place above the described grooves, which act merely to allow the oil to escape without clogging when the passage for it is open.

d^4 d^4 are opposite longitudinal slots in the upper part of the plug above the top plate, B, and d^5 is the circular milled head on the upper end of the plug, by means of which it is rotated.

E is a ring lying on the upper surface of the top plate, B, and concentrically surrounding the central opening, *b'*; and *e* is a plug descending from the same and closing the opening *b* when the ring is in place.

F is the toothed ring lying on the plate B, immediately within the ring E, and provided on its upper edge with the teeth or detents *f*, having between them the depressions or recesses *f'*. The said teeth must consist of an equal number, so as to make them opposite in pairs, and to make the depressions between them similarly opposite. They may consist of any desired equal number, the fineness of adjustment of the device varying directly as the number of teeth, as will be hereinafter explained.

G is the transverse retaining-bar passing through the slots d^4, and having the upright rod *g* rising from its upper surface, around which rod is the coiled spring *g'*, of which the lower end bears on the retaining-bar and the upper end on the under surface of the milled head d^5. The said rod *g* is shorter than the slots d^4, in order to let the retaining-bar rise against the spring. The arms of the retaining-bar lie in any two opposite depressions, *f'*, requisite to keep the screw-plug fixed in the desired position. The ends of the arms of the retaining-bar extend beyond the depressions *f'*, and press upon and keep down the ring E, thus keeping the oil-opening closed.

The manner of using the device is as follows: The cup being screwed or otherwise fixed to the engine or machine, and the opening *a'* being closed by the screw-plug valve, the retaining-bar is raised against the coiled spring. The plug-ring E is also raised and the cup filled with oil through the opening *b*. While the retaining-bar is up the plug is turned far enough up by means of the milled head to allow the proper quantity of oil to escape through the opening *a'*. When this is accomplished, the retaining-bar is allowed to descend, its arms passing into the two depressions *f'*, immediately below, thus preventing the screw-plug valve from further rotation, and pressing down the ring E, and keeping the plug *e* in the opening *b*.

It is evident that the possible fineness of adjustment of the screw-plug valve depends upon the number of recesses *f'* or teeth *f* on the ring F. Thus with ten depressions or recesses the plug may be turned and held at one-tenth of a revolution, or any number of tenths up to a whole revolution. With eight recesses the smallest adjustment would be one-eighth of a revolution. The recesses must be even in number, else no two would lie opposite, and the retaining-bar could not act.

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

1. In an oiling device, the combination of the oil cup or receptacle provided at its lower part with a downwardly and inwardly tapering opening for the discharge of oil, with a screw-plug valve having its point shaped to fit within the conical opening and its shaft threaded to engage an internally-threaded opening in the covering-plate of the oil-cup, so situated that the point of the plug may be raised or lowered within the conical opening, and with a device to keep the screw-plug at any desired elevation, substantially as described.

2. In an oiling device, the combination, with a properly-shaped oil-cup provided with the opening *a'* and screw covering-plate B, of the screw-plug valve D, provided with the milled head d^5, the retaining-bar G, controlled by the spring *g'*, and the ring F, provided with any even number of teeth, *f*, and recesses *f'*, and properly secured to the plate B, substantially as described.

3. In an oiling device, the combination, with a properly-shaped oil-cup having in its covering-plate the openings *d* and *d'*, and a screw-plug valve engaging in the opening *d'*, of the ring E, provided with the tooth or plug *e*, and the retaining-bar G, passing through proper slots in the extended upper end of the screw-plug, and controlled by the spring *g'*, substantially as specified.

4. In an oiling device, the combination, with a properly-shaped oil-cup having in its covering-plate an opening, *d*, and a screw-plug valve engaging in an internally-threaded opening in said covering-plate, of the ring E, provided with the plug *e*, the ring F, provided with the teeth *f* and recesses *f'*, and the retaining-bar G, passing through proper slots

in the extended upper end of the screw-plug, and controlled by the spring g', substantially as specified.

5. The combination, with the oil-cup A, covering-plate B, and screw-plug valve D, provided with the grooves d^2 and d^3, and milled head d^5, of the rings E and F, retaining-bar G, and spring g', all constructed and arranged substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM H. THOMAS.

Witnesses:
EDWARD E. ELLIS,
O. E. DUFFY.