(No Model.)

J. T. SMITH.

OIL CUP.

No. 481,312. Patented Aug. 23, 1892.

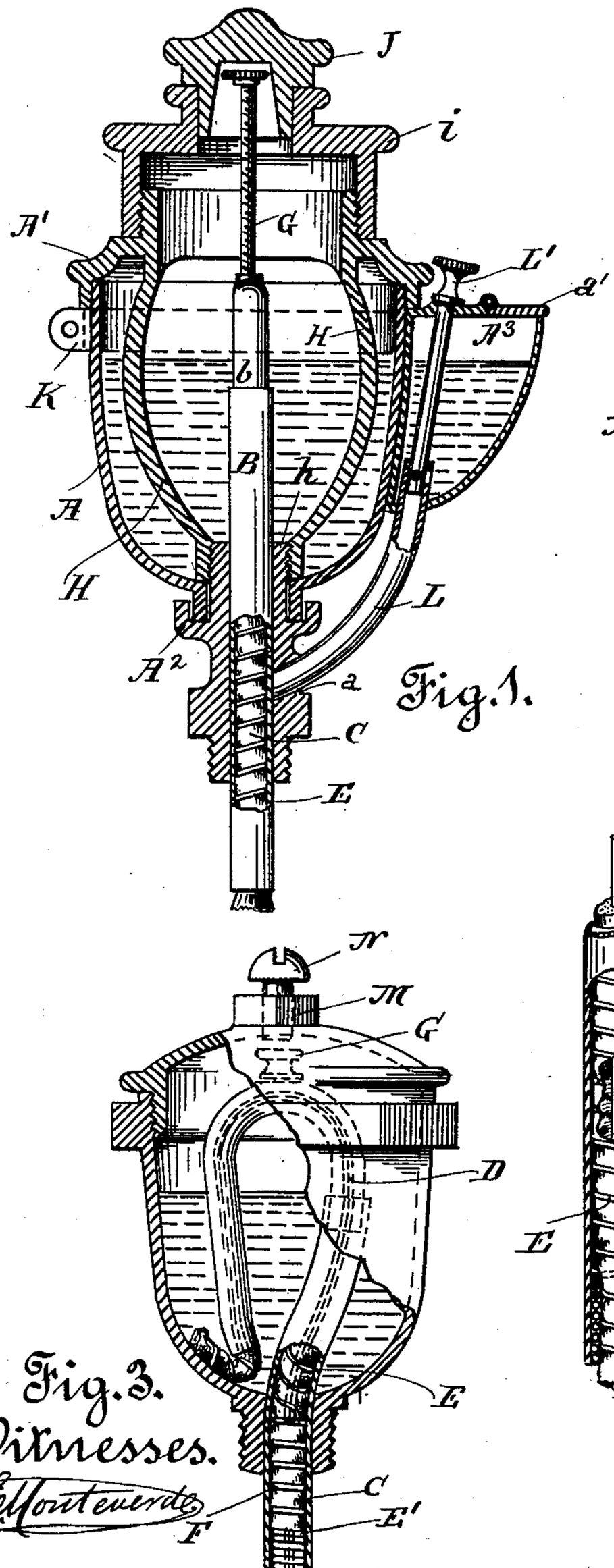

Fig. 1.

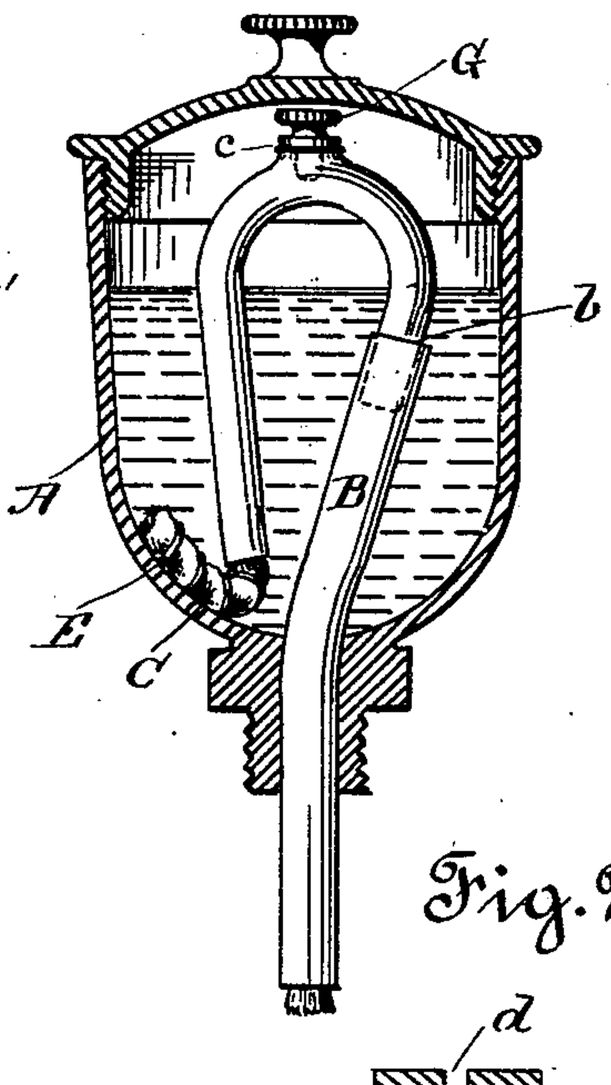

Fig. 2.

Fig. 3.

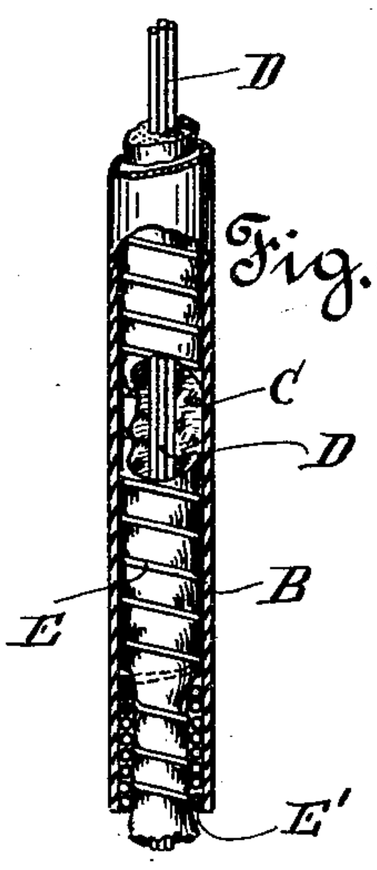

Fig. 5.

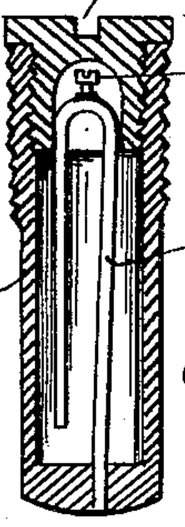

Fig. 4.

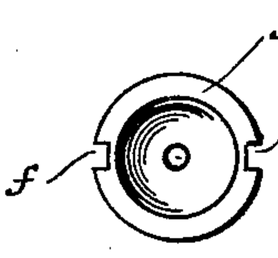

Fig. 6.

Witnesses.
F. E. Montenerde
A. M. Wentworth.

Inventor
John T. Smith
by A. H. Ste Marie
his atty

UNITED STATES PATENT OFFICE.

JOHN T. SMITH, OF SAN FRANCISCO, CALIFORNIA.

OIL-CUP.

SPECIFICATION forming part of Letters Patent No. 481,312, dated August 23, 1892.

Application filed September 30, 1891. Serial No. 407,306. (No model.) Patented in France September 15, 1891, No. 216,154.

To all whom it may concern:

Be it known that I, JOHN T. SMITH, a citizen of the United States, and a resident of the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Oilers, (for which I have obtained a patent in France, No. 216,154, bearing date September 15, 1891,) of which the following is a specification.

My invention pertains to an automatic oiler specially adapted to the lubrication of stationary or marine engines, lines of shafting, loose pulleys, and vehicles of all kinds.

The object of this invention is to provide a neat, cheap, and reliable lubricating device and one which may be readily applied to the parts to be lubricated.

Referring to the accompanying drawings, which form part of this specification, Figure 1 is a sectional elevation of my improved oiler for engines. Fig. 2 is a similar view of a shaft or machine oiler. Fig. 3 is partly-sectional elevation of a loose-pulley oil-cup. Fig. 4 is a sectional elevation of a hub-oiler. Fig. 5 is a broken sectional elevation, on an enlarged scale, of the interior tube and oil-conductor used in connection with my improved lubricator; and Fig. 6 is a top view of the hub-oiler with the cap removed.

The letter A represents the oil-containing cup or vessel. This vessel may be made of divers materials—such as brass, zinc, iron, or glass with brass mountings—and it may be given any suitable shape.

Within the oil-vessel is a tube B, which starts from a point near the inner bottom of the oiler and extends upward above the oil-line, and then circling in at the under side of the cover passes downward through the center of the oiler to the parts to be lubricated. For convenience this tube is made in two pieces, telescoping one into the other, as at *b*. The interior of B is filled with an oil-conductor composed of packing C, of permeable material, such as wool or cotton twisted around or intertwined with a metallic core D and tied with or wrapped in small wire E, wound in spiral form throughout its length. The core D is preferably made of two or more strands of soft wire and rests lightly upon the shaft or other part of machinery to be lubricated, as does also the packing, both being kept in contact therewith by the stretching or lengthening out of the wire E. A spring F, (see Fig. 3,) interposed between two separate lengths of the core D (shown in dotted lines only) and of the wire E, is used in the case of loose-pulley oilers to insure this contact of the packing with the bearing, notwithstanding the revolving of the oilers with the pulleys.

E′ represents a closely-coiled wire usually made in short lengths and set about the lower end of E. The purpose of this outer wire is to narrow the outlet of the tube B and give more body to that part of the packing coming in contact with the bearing by holding it under compression. It may, besides, fill the office and take the place of the tube B when the latter is too short to reach the bearing.

The tube B properly constitutes a siphon, while the conductor lodged therein is adapted to drain the oiler of its contents by capillary attraction. The siphonic action of the tube is tempered by the capillarity of the conductor, and both elements taken together insure a more constant, evener, and better-regulated feed than could be otherwise obtained. However, the flow of oil is stimulated only when the machinery to which the oiler is applied is in motion, owing to the contact of the conductor with the parts lubricated. If the machinery is at rest, the end of the conductor touching the lubricated part clogs up the outlet of the oiler so as to practically check the flow of oil, thereby preventing waste and effecting a great saving of lubricant as compared with other modes of oiling. The oil is also filtered by the conductor, and hence more perfect lubrication and cleaner bearings.

The feed may be regulated by twisting or untwisting the packing; but this is not quite sufficient in some cases. I therefore use a thumb-screw G, which is seated within easy reach upon the upper curved end of the tube B and is adapted to compress the conductor therein, as well as reduce the width of the oil-passage. By preference I use cork washers *c*—such as is shown at Fig. 2—between the thumb-screw and its seat.

The oiler represented at Fig. 1 is made of glass with brass mountings. The top and bottom castings A' A^2 are connected and drawn firmly against the ends of the glass globe (pressing upon suitable washers) by means of

a yoke or conecting-link H, the bottom end of which is secured to a boss *h*, projecting upwardly from the lower casting A^2, and the upper end passes up through the top casting A′ and is engaged by a large hollow nut I, provided with a flange *i*, which affords a hold for the fingers in screwing down and drawing the parts together. The glass globe is filled with oil through this nut. Within that nut also runs the screw G, which is made to project beyond its upper part and is covered with a hollow stopper J, overtopping the oil-vessel. This glass oiler is commonly used on wrist-pins of steam-engines, and as it may happen to be emptied of its contents before an opportunity is had to stop the engine it is provided with a supplementary reservoir A^3, designed to supply oil until such time as the larger vessel may be refilled.

A^3 is secured to A by a clamp K, encircling the main vessel, and communicates with the oil-duct *a* below the latter through a tube L. The oil-passage presented by this tube is normally stopped, however, by a stop-cock L′, projecting upwardly from the upper part thereof, and the oil stored in A^3, which should be oil of a rather heavy grade, is used only when the larger cup is running dry. A hinged cover *a*′ is provided for the reservoir A^3. This supplemental reservoir may not be always wanted—when used on slides, for instance—and I therefore make it wholly detachable, so that it may be discarded or called into service, as required. If detached, the hole in the oil-duct *a* is then plugged up by a thumb-screw or any other suitable stopper, which may be occasionally removed for squirting in a little oil until ample time is afforded to refill the main cup.

The loose-pulley and shaft or machine oilers, Figs. 2 and 3, do not differ materially in construction, excepting that the loose-pulley oiler is provided with a square or polygonal nut M, by means of which the cover of the cup may be screwed down firmly. This nut also forms a passage through which the oil may be poured into the cup. This passage is stopped by a screw N.

Fig. 4 illustrates an oiler adapted to lubricate the axles of vehicles. This oiler is screwed down through the hub of the vehicle, near the spokes of the wheel, where it is embedded in white lead or glue, the inside tube B touching lightly the axle, as in the case of the other bearings. The interior of this tube is also filled with an oil-conductor similar to the one previously described. The oil is confined within the exterior shell or vessel A, as in the other oilers, by a cap or cover, which is provided with a slot *d* for the insertion of a screw-driver when screwing it down. As to the shell A, it is driven down and adjusted in place by means of a wrench engaging holes *f* in its upper edge.

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

1. In an oiler, the combination of an oil-vessel, a siphon within said oil-vessel and passing through the lower end of the same, a metallic core within said siphon, a permeable packing twisted around or intertwined with said core, running the length of the siphon and contacting with the part to be lubricated, a wire wound about the surface of said packing, and an outer closely-coiled wire around the lower end of said first-named wire, substantially as set forth.

2. In an oiler, the combination of a glass oil-vessel A, upper and lower castings A′ A^2 at each end of said oil-vessel, a yoke or link H connecting the same, a nut I, adapted, in connection with said yoke, to bind the said vessel and castings together, a siphon within the oil-vessel and passing through the lower casting, and an oil-conductor in said siphon, running the length thereof and contacting with the part to be lubricated, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN T. SMITH. [L. S.]

Witnesses:
A. M. WENTWORTH,
A. H. STE. MARIE.