No. 849,495. PATENTED APR. 9, 1907.

J. POWELL.

LUBRICATOR FOR EXPLOSIVE ENGINES.

APPLICATION FILED DEC. 21, 1905.

Fig. 1.

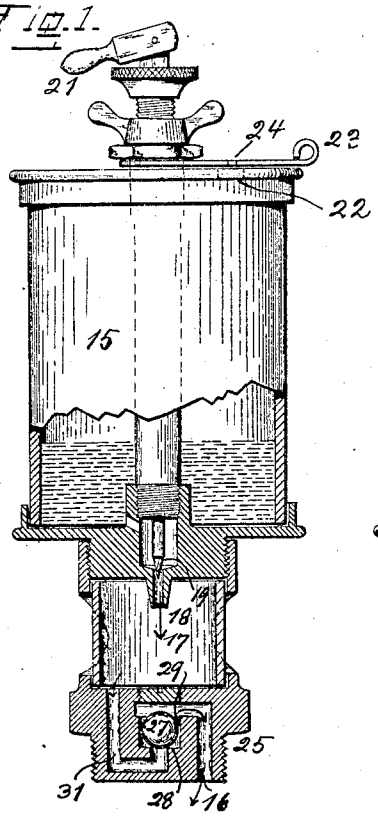


Fig. 2.

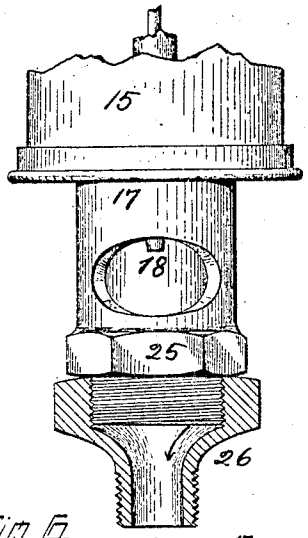


Fig. 3.

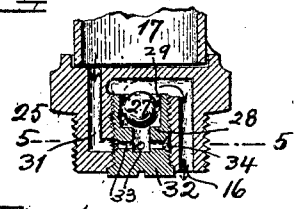


Fig. 6.

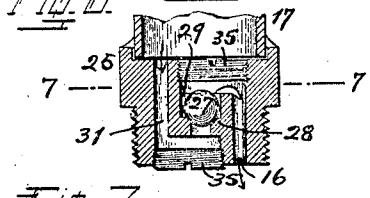


Fig. 4.

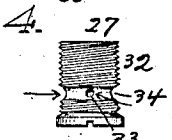


Fig. 7.

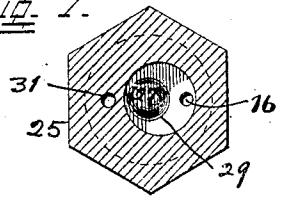


Fig. 5.

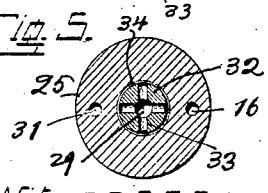
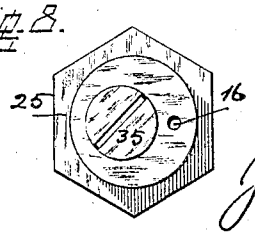


Fig. 8.



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UNITED STATES PATENT OFFICE.

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LUBRICATOR FOR EXPLOSIVE-ENGINES.

No. 849,495. Specification of Letters Patent. Patented April 9, 1907.

Application filed December 21, 1905. Serial No. 292,742.

To all whom it may concern:

Be it known that I, JAMES POWELL, a citizen of the United States, and residing at Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Lubricators for Explosive-Engines; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to improvements in lubricating devices; and the object is to construct them in a manner to render them suitable more particularly for use in connection with explosive-engines.

The invention consists of a construction and arrangement of parts as more particularly described and claimed hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 illustrates my invention in connection with a customary oiling device which is shown in side elevation with its lower part in section. Fig. 2 is a side elevation at right angles of the lower part of the oiling device above mentioned and with a certain attached member shown in section. Fig. 3 in a sectional view similar to the lower part of Fig. 1 shows a certain manner of constructing my invention. Fig. 4 shows one of the parts used in this construction. Fig. 5 is a horizontal section on line 5 5 of Fig. 3. Fig. 6 in a view similar to Fig. 3 shows a modified manner of carrying out the construction of the device. Fig. 7 is a horizontal section on line 7 7 of Fig. 6. Fig. 8 is an under side view of Fig. 6.

My invention is illustrated in connection with a customary oil-cup, of which 15 is the oil-reservoir and from which discharge takes place by gravity, the oil finally passing out through a port 16 to the parts to be lubricated. A sight-feed chamber 17 is usually interposed through which the oil passes before final discharge, entering the same through a drop-nipple 18, controlled by a valve 19, manipulated by a handle 21. The action of this valve as to the quantity of discharge is regulated by means provided below its handle. The oil is supplied through an opening 22, closed by a cover 23, which has a vent-opening 24.

An attaching-nipple 25 is provided either at the under side of the oil-cup or at the under side of the sight-feed chamber, when one is used. In such case this sight-feed chamber attaches to the nipple on the oil-cup. When desirable or necessary, an additional reducing-nipple 26 may be used, as shown in Fig. 2, all these parts being axially alined. The sight-feed chamber may, however, form also an integral extension of the oil-cup, neither one of which parts, however, constitutes a feature of my invention. When such lubricators are to be used in connection with explosive-engines for oiling the cylinder thereof, the fact of the reaction of the explosive piston-stroke of the engine in its effect on the oiling device must be reckoned with, and this requirement has led to various constructions for the purpose of counteracting these effects in a manner to prevent them from becoming objectionable. These objections are a splashing and scattering of the oil over the glass of the sight-feed chamber, thereby clouding the glass of the same and preventing observation, leakage caused by the oil being forced through any joints of the cup, especially if the packing is defective. Furthermore, the oil-cup must be perfectly air-tight to prevent escape of oil or gas, due to the back pressure from the engine, and it also must be generally pressure-proof, all of which requires a certain construction more or less complex. In my device I overcome all such difficulties by preventing positively the effect of the explosive-stroke of the engine from reaching the oil-cup at all, and I do this by interposing a valve 27 in advance of discharge-port 16, which is normally seated in a manner to prevent positively passage in a direction from this port 16 inwardly toward the oiling device, but is free to yield and open in opposite direction, so as to become susceptible to the action of the suction-stroke of the engine, at which time no pressure exists, and whereby the requisite oil is drawn into the cylinder by the suction due to the vacuum produced by the receding piston. This valve 27 rests normally upon a valve-seat 28, formed within a valve-chamber 29, all as most clearly shown in Fig. 1. At one side or above this valve-seat this valve-chamber connects with the outlet-port 16. At the other side—that is, below the valve-seat—it communicates with the oil-

supply through a port 31, the connection with the valve-chamber being established in each case by short turns or horizontal branches at the inner end of each port. It will now be clearly seen that effects of the explosion or back pressure cannot pass inwardly beyond valve 27 nor reach any part of the oiling device. On the other hand, valve 27 is free to open on the suction-stroke of the piston, when it will leave its seat and permit oil to be drawn out of the lubricator and into the engine-cylinder. The construction of these parts may be variously modified for the purpose of obtaining the various passages and permit insertion of valve 27. The simplest form would be to provide a screw-plug in the bottom of sight-feed chamber 17, as shown in Fig. 1, which permits insertion of valve 27. In Fig. 3 I show valve-chamber 29 and seat 28 as formed within a hollow plug 32, (shown in Fig. 4,) which is inserted into a tapped recess entering from the under side of nipple 25. Communication with its interior below the valve-seat is by small ports 33, which enter from the deepest part of an annular groove 34, the object of this groove being to put these ports in communication with the lower part of port 31. These small ports are also shown in Fig. 5. Ports 16 and 31 and their branches may be drilled or cored. In Figs. 6, 7, and 8 another form is shown, all parts—the valve-chamber, the valve-seat, and the ports—being drilled from opposite sides or ends of the attaching-nipple, openings produced in excess of requirements and merely for the purpose of permitting such drilling being afterward closed by plugs 35.

It will be noted that all parts of my invention are contained in attaching-nipple 25 and do not involve any parts of the oil-cup proper, so that in case such nipple constitutes an independent member or forms part of a sight-feed device the particular construction of the oil-cup does not enter into consideration. It follows from this that with my invention any of the customary types of oilers may be rendered applicable for use on explosive-engines without requiring any alterations. This means, further, that oilers so used may be replenished at any time without stopping the engine to take the pressure off, as is now the case.

Having described my invention, I claim as new—

1. An attaching-nipple for an oiling device, containing two ports and being recessed from one end, which recess is in open communication with the ports mentioned, a screw-plug fitted to close this recess and containing a valve-chamber and ports whereby this chamber communicates with one of the ports mentioned, which latter port is also open to the oil-supply, while the other port is open to the outside for discharge, and a valve fitted into this chamber in a manner to normally close communication between this chamber and the supply-port and to also positively prevent at all time passage through the valve-chamber from the discharge-port toward the supply-port.

2. In combination with an oil-cup, a housing adapted for attachment thereto and containing a sight-feed chamber and a valve-chamber, both chambers alined within the axial center of the housing, one below the other but separated by the bottom of the sight-feed chamber, there being also two ports which communicate at their inner ends with the valve-chamber mentioned, while with their outer ends one communicates with the sight-feed chamber and the other is open to the outside for discharge and a valve in the valve-chamber controlling communication in one direction between the inner ends of the ports mentioned.

3. In combination with an oil-cup, an attaching-nipple which contains a valve-chamber provided with a valve-seat, all centrally located within the axial center of the nipple, and two ports parallel to each other and to the axis of the nipple, one on each side of the valve-chamber, they entering from opposite sides of the nipple and terminating with their inner ends each short of the other side where they communicate with the valve-chamber, one below and the other above the seat therein, and a valve yieldingly fitted to this seat.

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

JAMES POWELL.

Witnesses:
C. SPENGEL,
C. MEYER.