

No. 846,967.

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J. H. WESSON.
POSITIVE FEED LUBRICATOR.
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Fig. 1

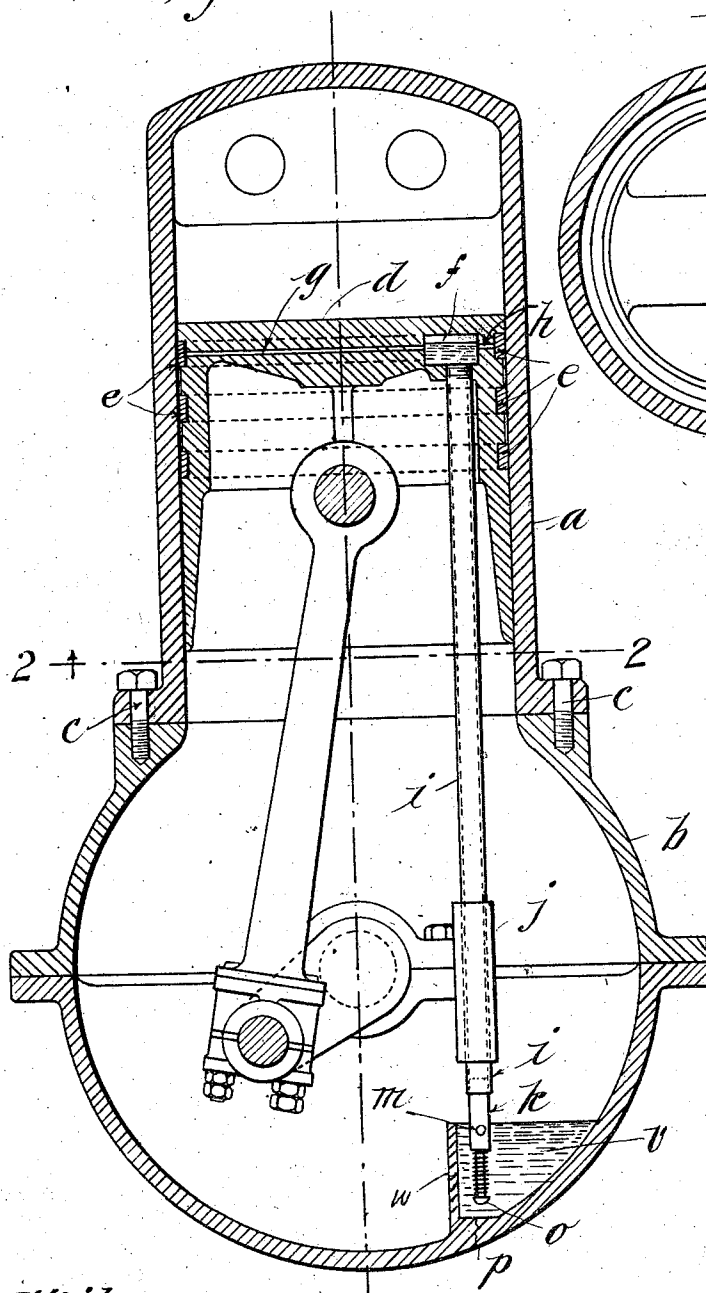


Fig. 2

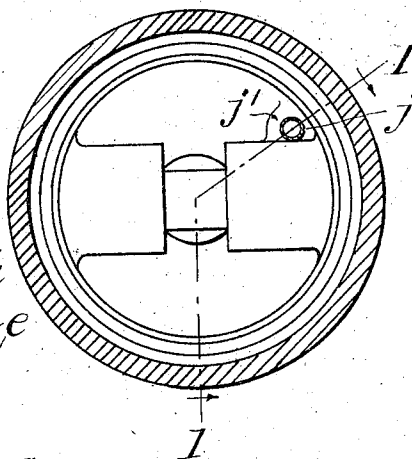
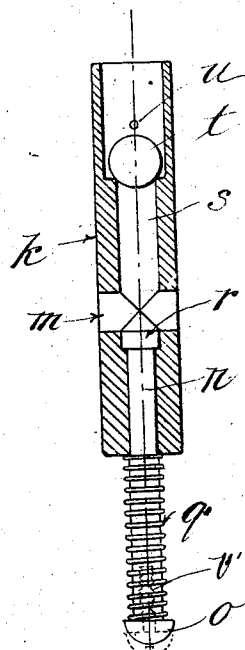


Fig. 3



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POSITIVE-FEED LUBRICATOR.

No. 846,967.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed June 7, 1906. Serial No. 320,549.

To all whom it may concern:

Be it known that I, JOSEPH H. WESSON, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Positive-Feed Lubricators, of which the following is a specification.

This invention relates to a lubricating mechanism for engines or other pieces of machinery, and is particularly adapted for conveying the lubricant to the piston of an internal-combustion engine.

Broadly, the invention consists in securing a tube in the piston-head in which is formed a chamber communicating with the ordinary peripheral channels in the same. The other end of the tube carries a pump provided with a spring-controlled plunger, the barrel of the pump being arranged to extend below the surface of the liquid lubricant placed in the bottom of the crank-casing.

The pump-barrel is provided with an oil-inlet communicating with the interior of the tube and past which the plunger reciprocates. When the piston descends, the plunger is brought into engagement with an abutment in the bottom of the crank-case and the small quantity of oil caught on the upper end of the plunger is forced through the tube into the recess of the piston-head. From this recess the oil escapes to the sides of the piston.

In the drawings forming part of this application, Figure 1 is a vertical section on line 1 1, Fig. 2. Fig. 2 is a horizontal sectional view on the line 2 2, Fig. 1. Fig. 3 is a detailed view of the pump, showing the spring-pressed plunger and barrel in which the plunger reciprocates and also showing a ball-valve located near the upper end of the barrel.

Referring to the drawings in detail, *a* designates the cylindrical casing of an engine, (preferably an internal-combustion engine,) to which is bolted the ordinary crank-casing *b* by means of the machine-bolts *c*.

d designates the piston-head of the engine provided with the usual circumferential oiling-channels *e* for containing the piston-rings or other suitable packing.

f designates an oil-retaining chamber in the upper part of the piston-head, and leading from this chamber are two small passages *g* and *h*, communicating with the uppermost one of the channels *e*.

i designates a tube threaded at its upper end and screwed into the piston *d*, so as to

afford communication with the chamber *f*. The opposite end of this tube *i* passes through a guide-sleeve or tube *j*, that is preferably a part of the crank-casing *b*, as shown in Fig. 2 at *j'*. The tube *i* extends below the sleeve *j*, as shown in Fig. 1.

k designates a barrel adjustably secured in the lower end of the tube *i* by screw-threads or other suitable means—as, for example, a driving fit. Passing transversely through the barrel *k* is an inlet *m* for the lubricant to enter when the pump is carried below the surface of the oil. The lower end of the barrel *k* is provided with a spring-retracted plunger *n* and has a head *o*, adapted to strike the shoulder *p* of the casing when the tube *i* and barrel *k* are carried downward by the movement of the piston *d*. A spring *q* normally draws the plunger *n* below the bottom line of the inlet-port *m*. This spring is located between the bottom of the barrel *k* and the head *o*.

The upper end of the normally retracted plunger *n* is provided with an enlargement or piston *r*, adapted for reciprocation in the bore *s* of the barrel.

t designates a ball-valve at the upper end of the bore *s*, which is prevented from rising more than a limited distance by the transversely-located pin *u*.

It will be observed that the ball-valve is located in a chamber having a larger diameter than the bore *s* of the barrel.

In the position of the parts as shown in Fig. 1 the inlet *m* is below the surface of the oil *v* in the bottom of the crank-casing, allowing the same to flow freely over the upper end of the piston *r*, and when the head *o* of the spring-retracted plunger *n* strikes the shoulder *p* a small portion of the oil which has accumulated in the barrel *k* between the inlet *m* and the ball-valve *t* will be forced or driven quickly through the bore *s*, raising the ball-valve *t* and allowing the oil to pass through the tube *i* and be forced into the chamber or compartment *f*, from whence it is forced or can pass freely through the passage-ways *g* and *h* to the piston-ring *e*.

The surplus oil on the inside of the casing *a* will readily drop back into the tank-chamber *b*, as clearly understood.

It is understood that the tube *i* should be completely filled with oil before any can be forced into the chamber *f*.

The barrel *k* is so adjusted in the tube *i* that in the extreme downward position of the

piston *d* the barrel *k* will be moved into the oil a depth substantially equal to the distance from the inlet *m* to the valve *t*, whereby when the head *o* strikes the shoulder *p* a small quantity of oil will be forced past the ball-valve *t* until the tube *i* is completely filled, and at each subsequent reciprocation a small quantity of oil will escape from the upper end of the tube *i* into the chamber *f* and from there through the passage-ways *g* and *h* to the periphery of the piston. This inlet may be made very small and the travel of the plunger *n* correspondingly reduced.

The ball-valve *t* effectively prevents the confined lubricant from escaping back into the reservoir at the bottom of the crank-casing, as readily understood. In order to accurately gage the depth that the pump *k* is carried below the surface of the lubricant and determining the amount of oil forced past the valve *t*, I have made the head *o* adjustable in the lower end of the plunger *g*, as shown, by means of the screw-threads *v*. *w* designates a partition in the casing *b* for confining the oil *v* to a small portion only of this compartment. By this arrangement I completely do away with the use of a splash oiling mechanism. By means of this mechanism I am enabled to thoroughly lubricate the portion of the piston immediately adjacent

the point where the explosion occurs and at which point it has heretofore been difficult to thoroughly lubricate.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a lubricator, a piston-head, a pump carried by the piston-head and having an inlet, a piston for sweeping across the inlet and actuated by the piston-head, a valve between the inlet and the piston-head whereby when the pump is carried into a reservoir of oil a definite amount of the same is forced by the piston to the piston-head, as described.

2. In a lubricator, a cylinder having a crank-casing adapted to contain a lubricant and having a shoulder on the same, means extending from the piston to within a short distance of the crank-casing, a sleeve for guiding said means, a barrel having an opening secured to said means, a plunger carried by the barrel and adapted to open and close the opening, whereby when the opening is brought below the level of the lubricant and the plunger engages said shoulder, the oil will be forced through said means.

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