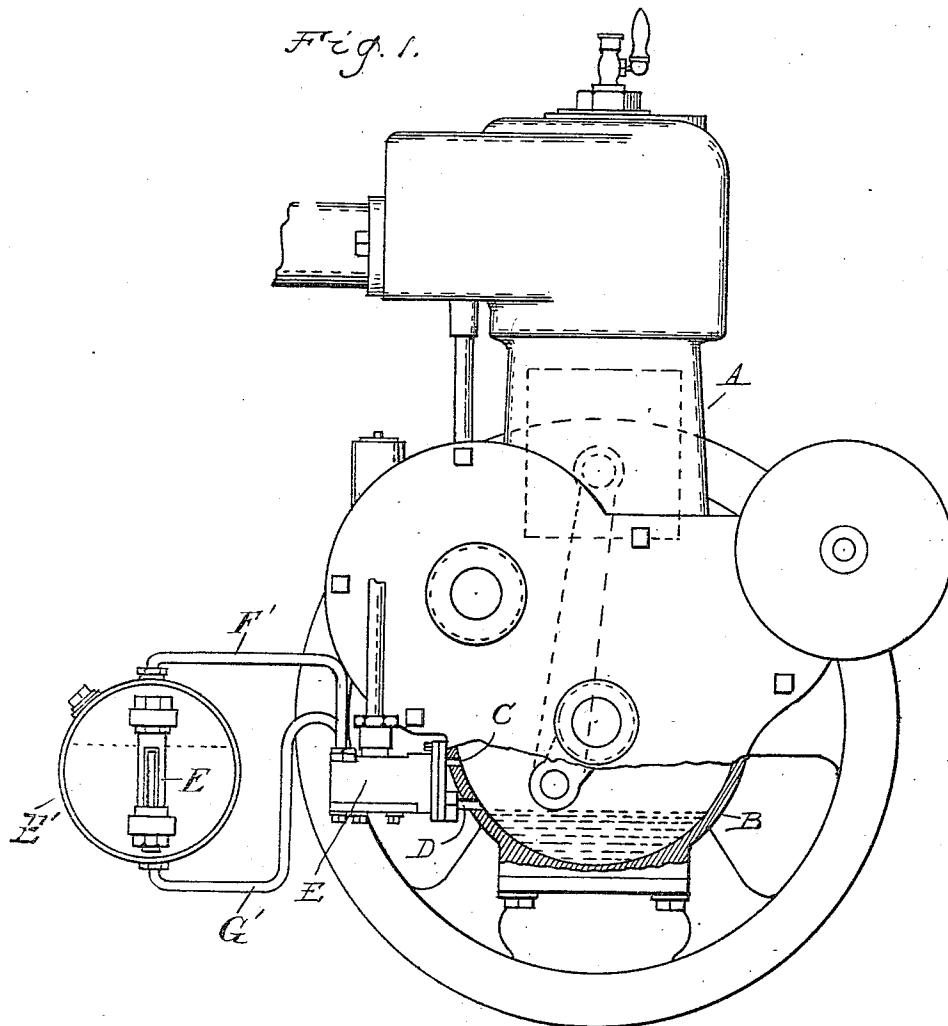


H. E. COFFIN.
LUBRICATOR.
APPLICATION FILED JUNE 26, 1909.

1,022,622.

Patented Apr. 9, 1912.
2 SHEETS—SHEET 1.

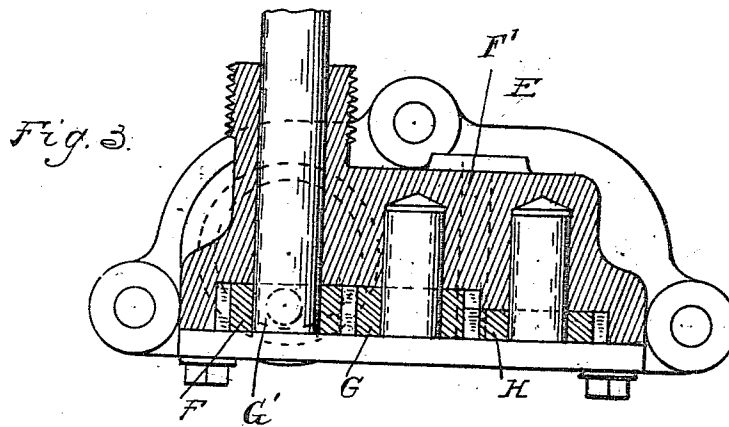
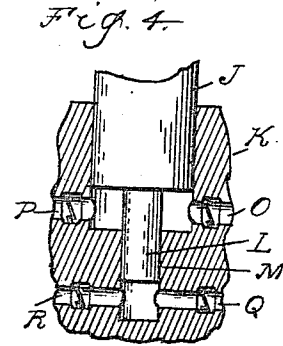
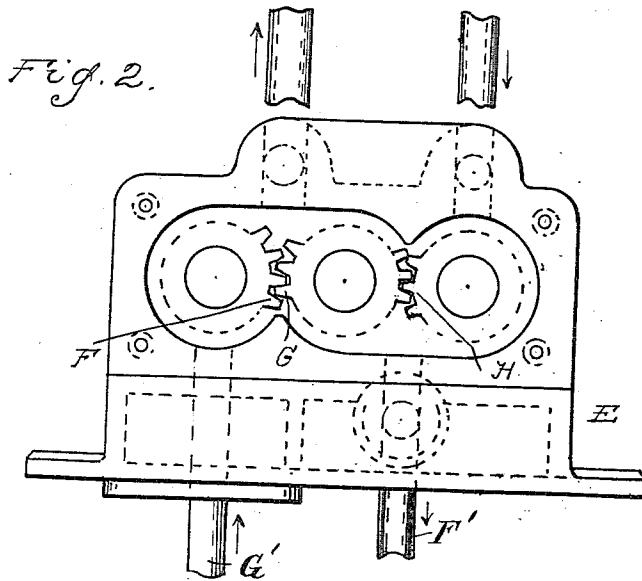


Witnesses
A. C. Hobby
W. R. Ford

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1,022,622.

Patented Apr. 9, 1912.
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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LUBRICATOR.

1,022,622.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed June 26, 1909. Serial No. 504,532.

To all whom it may concern:

Be it known that I, HOWARD E. COFFIN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Lubricators, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to lubricating systems, and more particularly to the means employed for maintaining a constant level of the lubricant in a chamber, such as the crank case, regardless of the pressure in this chamber.

To this end, the invention consists in the construction as hereinafter set forth.

In the drawings—Figure 1 is a sectional elevation of an engine to which my improvements are applied; Fig. 2 is an elevation of the differential pump for feeding in and out the oil; Fig. 3 is a longitudinal section thereof; and Fig. 4 is a section showing a modified construction.

In the present state of the art, it is common to lubricate the working parts of an engine by splashing the lubricant contained in the lower portion of the crank case, and it is also old to maintain a constant level of lubricant in the splash pocket. With engines in which the air within the crank case is at atmospheric pressure this constant level may be readily maintained by pumping in a constant supply of the lubricant and providing an overflow for the excess, but with constructions, such, for instance, as two cycle engines, where the crank case is also employed as a compression chamber, such an overflow passage would permit of the escape of the compressed charge. With my present invention, I have overcome this difficulty by positively pumping out, as well as pumping in, the lubricant, thereby dispensing with an overflow port. Furthermore, I maintain a constant level by locating the outlet connection at the level desired and by giving the discharging pump a slightly greater capacity than the pump for the inlet. Still further I preferably employ a differential pump, which will simultane-

ously accomplish the propulsion of the oil, both inward and outward.

As illustrated, A is an engine, of any suitable construction, and B is a closed crank case chamber therefor.

C is the oil inlet passage connecting with said crank case, and D is the outlet passage which is located so as to maintain a desired level of the oil.

E is a differential pump chamber which I preferably employ, and E' is a supply reservoir provided with a gage E². The inlet and outlet for the pump are connected to the supply reservoir by conduits F' and G' respectively. This differential pump as illustrated in Figs. 2 and 3, consists of intermeshing gears F, G and H, the gears F and G cooperating to propel the discharging oil, and the gears G and H cooperating to propel the inflowing oil. To secure the desired differential action, the gear H is of slightly lesser width than the gears F and G, and thus its propelling capacity is limited in comparison with that of the other gears.

In place of the pump construction just described, any other suitable construction of differential pump may be employed, such, for instance as illustrated in Fig. 4, in which J is a plunger fitting a casing K, and having an extension L of lesser diameter fitting a small bore M in the casing. Check controlled inlet and outlet conduits O, P, Q and R are connected respectively to the large and small bores of the casing, the large bore operating as a discharging pump and the smaller bore as the inlet pump. The lubricating oil system is gas-tight and, therefore, will positively hold the compressed gases in the crank case, and still maintain the desired level of oil therein.

What I claim as my invention is:

1. In a lubricating system, the combination with a compression chamber forming a receptacle for the lubricant, of means for maintaining a constant level of the lubricant within said chamber.

2. The combination with an engine crank case forming a compression chamber and a splash pocket for the lubricant, of means for maintaining a constant level of the lu-

bricant within said crank case while also maintaining the compression therein.

3. In a lubricating system, the combination with a chamber containing the lubricant, having inlet and outlet conduits connected therewith, of a differential pump for simultaneously propelling the lubricant in the inlet and outlet conduits, said pump comprising a plurality of intermeshing

gears, one of said gears being of lesser width than the other, for the purpose described.

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

HOWARD E. COFFIN.

Witnesses:

NELLIE KINSELLA,

HARRY GRAHAM.