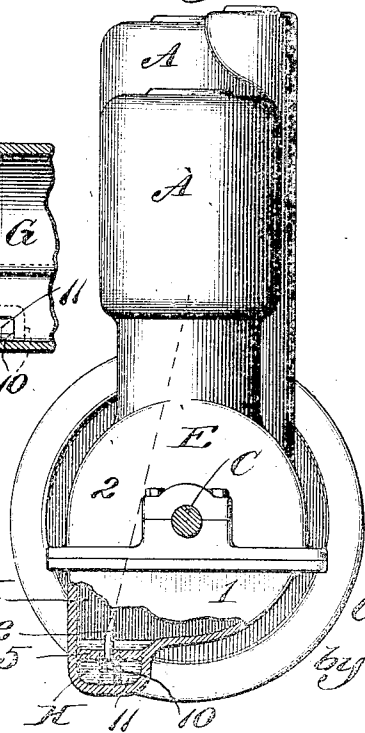
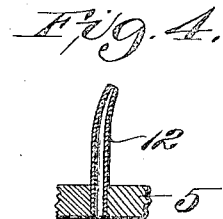
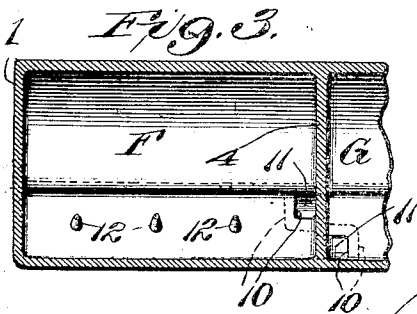
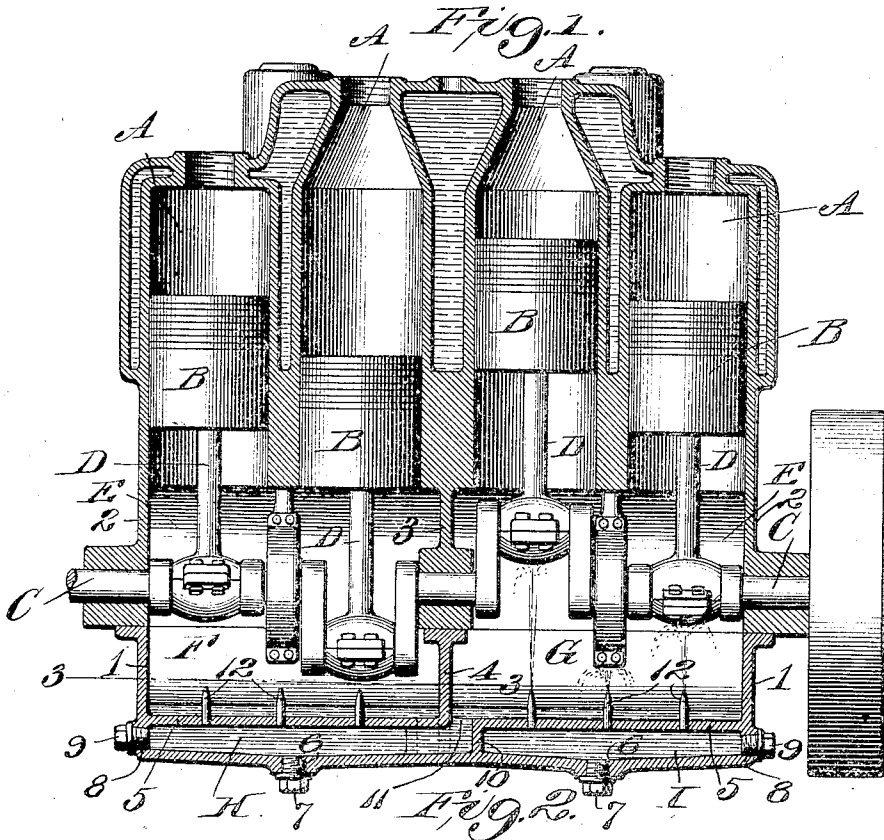


C. E. BROOKS.
ENGINE OILER.

APPLICATION FILED MAY 13, 1912.

1,053,939.

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UNITED STATES PATENT OFFICE.

CHARLES E. BROOKS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO BROOKS-LATTA AUTOMOBILE MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

ENGINE-OILER.

1,053,939.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed May 13, 1912. Serial No. 696,939.

To all whom it may concern:

Be it known that I, CHARLES E. BROOKS, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented a new and useful Engine-Oiler, of which the following is a specification.

This invention relates to oilers for engines and has for an object the production of a device which operates automatically to lubricate the working parts of an engine.

Another object of the invention is to produce a device of the character mentioned, free from moving parts, which is operated by the use of the pressure and vacuum created in the crank case of the engine by the normal operation of the pistons.

To these and other ends I have designed, combined and arranged the several parts in the manner hereinafter shown and described, reference being had to the accompanying drawing in which—

Figure 1 is a vertical section through the cylinders and crank case of an engine in which the device of the present invention is embodied. Fig. 2 is an end view of an engine showing a part of the crank case broken away, disclosing a portion of the device of the present invention. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1, and Fig. 4 is a detailed view of one of the nozzles constituting a portion of the device of the present invention.

In the embodiment of my invention illustrated in the drawing, the oiling device is shown in connection with a four cylinder engine, the several cylinders thereof being indicated by A in which are operatively mounted pistons B. The several pistons B are connected to a crank shaft C by connecting rods D, which with said crank shaft C are housed in a crank case E. The crank shaft C is mounted in bearings formed in the crank case E in the usual manner, and the several pistons B are connected thereto by the connecting rods D in such a manner that the two pistons to the one side will travel downwardly while the two pistons to the other side travel upwardly and vice versa, as the engine continues to operate. The crank case E is provided with a removable bottom or cap 1 which is arranged to be joined to the upper part of the crank case 2, which is formed integral with the main engine casting, in any suitable manner

to form a tight and perfect joint. The crank case E is divided into two chambers F and G by the vertical partition wall 3, formed integral with the main engine casting in the upper part of the case 2 and the continuation partition wall 4 formed in the lower part of the case E.

The oil chambers H and I are supported by the lower part of the removable bottom or cap 1, from which they are separated by a horizontal plate or wall 5. In the embodiment shown the chambers H and I are formed integral with the lower portion of the crank case E. The bottom of the chambers H and I incline toward the center openings 6, which are provided with removable plugs 7 for draining the said chambers. Each of the chambers H and I also has at its outer end an opening 8, which is closed by a screw plug 9, which plugs may be removed for the introduction of oil and for cleaning out the chambers. The chambers H and I are separated from each other by angular partition walls 10, which, with the openings 11 in the plate or wall 5 constitute intercommunicating passages, whereby the oil chamber H is communicated with the chamber G, and the chamber I is communicated with the chamber F.

In the upper face of the plate or wall 5, at suitable intervals, are a plurality of threaded orifices into which are screwed nozzles or oil distributing devices 12, the upper ends of which are inclined so as to direct the oil ejected therefrom toward the point of the mechanism that it is desired to lubricate. Thus in Fig. 2 the oil ejected from the nozzle is directed toward the wrist pin connecting the piston to the connecting rod, as indicated by the dotted line, and as the parts move they are brought into the path of the spray of oil, thus being freely and effectively lubricated at each reciprocation of the pistons.

In practice the device operates as follows: Either one or both of the chambers H and I are filled with lubricating oil of suitable quality. As the pistons on one side of the partition wall 3—4 move upwardly, those on the opposite side move downwardly, thereby creating pressure in the chamber in which the pistons are moving downwardly and a partial vacuum in the other chamber in which the pistons are moving upwardly. The pressure thus created is con-

ducted to the oil chamber on the opposite side of the partition wall 3—4 through the passage 10—11, thereby ejecting oil through the several nozzles supported above the oil chamber, with sufficient force to cause a spray or stream of oil to raise from each to the upper portion of the cylinders above the chamber, thereby thoroughly lubricating all the interior moving parts of the engine. The partial vacuum created in the upper chamber, by the upward movement of the pistons, reduces the pressure so that the oil may be ejected more freely by the pressure caused by the depressing of the pistons in the opposite chamber. This action will be repeated as the direction of movement of the pistons is changed as the engine continues to operate, ejecting oil into one side of the engine and then into the other at each stroke of the pistons reciprocating in the cylinders. The surplus oil discharged from the nozzles, and which is not taken up by the moving parts, recedes to the bottom of the crank case and flows back into the oil chamber on the opposite side of the partition wall 3—4.

It will be apparent that the arrangement of the device tends to keep the supply of oil in the oil chambers equalized, as the oil passes from one oil chamber to the other, through the upper chambers, until the level of the oil in both of the oil chambers is the same.

The device is automatic in action, ejecting a predetermined quantity of lubricant, depending upon the size of the opening in the nozzles, at each stroke of the pistons. The device is also economical, with respect to the amount of oil consumed, because all the surplus oil not utilized in lubricating the parts, is conducted back to the oil chambers.

I am aware that numerous changes in the details of construction may be made without departure from the spirit and scope of my invention. I do not limit myself, therefore, to exact details of construction shown and described, but

What I claim and desire to secure by Letters-Patent is:

1. The combination with an engine casing, of a crank case attached thereto, a partition dividing said crank case into separate chambers, a separate oil container below each of said chambers, a passage leading from each

of said chambers to the oil container below the other of said chambers, and a number of oil distributing devices located between the vertically adjacent chambers and oil containers through which oil is ejected from each of the oil containers into the chamber above the same when the engine is in operation, substantially as specified.

2. A device of the character described, comprising a number of oil containers, an independent chamber above each of said oil containers, a wall separating said chambers from said oil containers and a number of nozzles carried by said wall through which oil is forced when the engine is in operation, substantially as specified.

3. In an engine, an oil container, oil distributing devices leading from said container to the crank case of the engine and a passage for introducing air pressure in said oil container below said oil distributing devices, substantially as specified.

4. In an engine, the combination with a number of independent crank cases, of an oil container mounted below each of said crank cases, a number of oil distributing devices between each of said oil containers and the respective vertically adjacent crank case, and intercommunicating passages between the laterally adjacent crank case of one unit and the container of the adjacent unit, substantially as specified.

5. In an engine, the combination with a crank case, therefor, of partition walls positioned vertically in said crank case dividing said crank case into a number of independent units, a second partition wall extending horizontally and dividing each unit of said crank case into an upper and lower compartment, a number of oil distributing devices positioned on the upper face of said horizontal wall, and intercommunicating passages through said vertical and horizontal partition walls leading from the upper chamber of one unit to the lower chamber of the adjacent unit, substantially as specified.

In witness whereof, I have signed this specification in the presence of two subscribing witnesses.

CHARLES E. BROOKS.

Witnesses:

NELSON THOMAS,
L. C. KINGSLAND.