L. COATALEN.

LUBRICATION SYSTEM FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED JUNE 12, 1916. RENEWED JULY 6, 1917.

1,253,940. **Patented Jan. 15, 1918.**

2 SHEETS—SHEET 1.

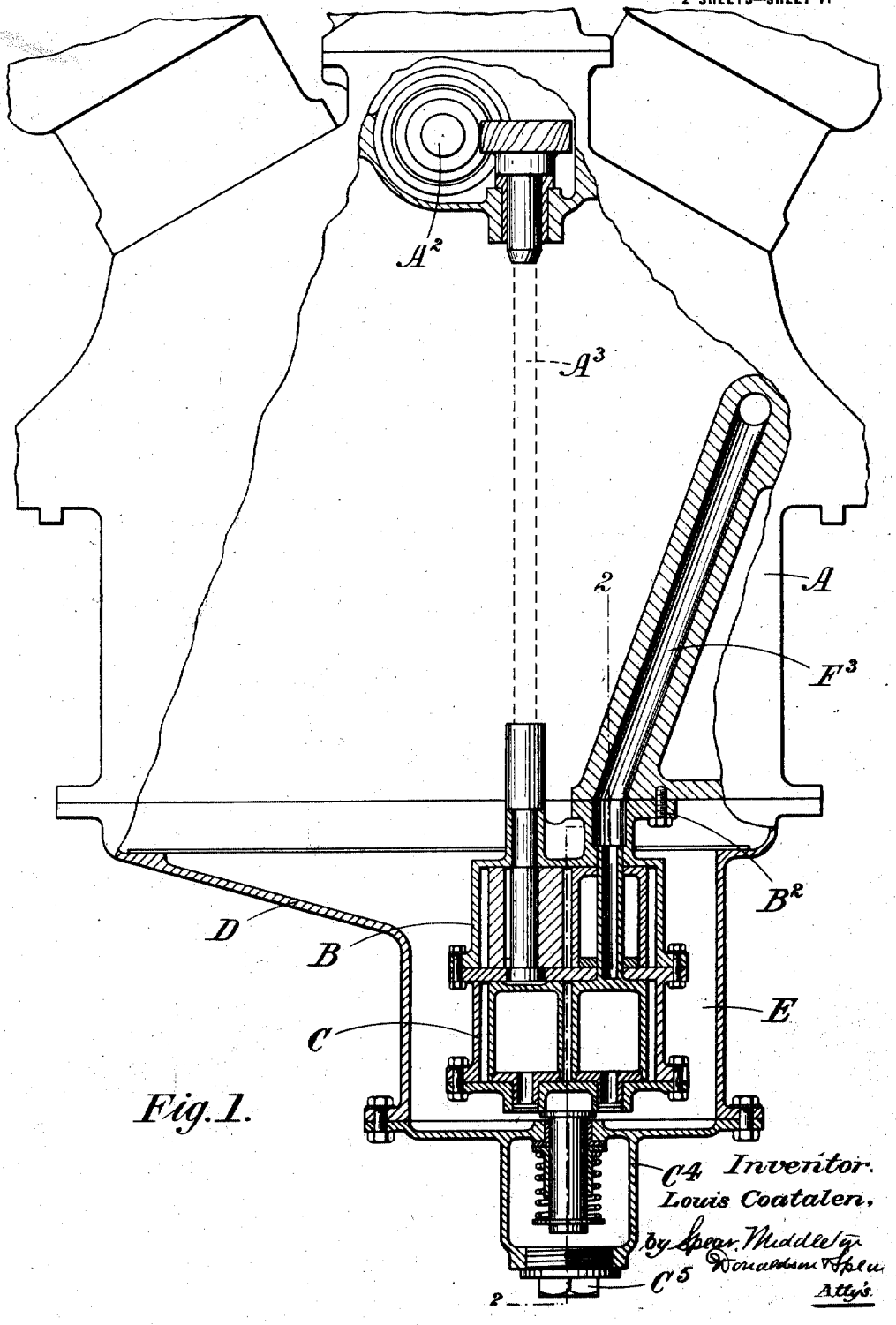


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

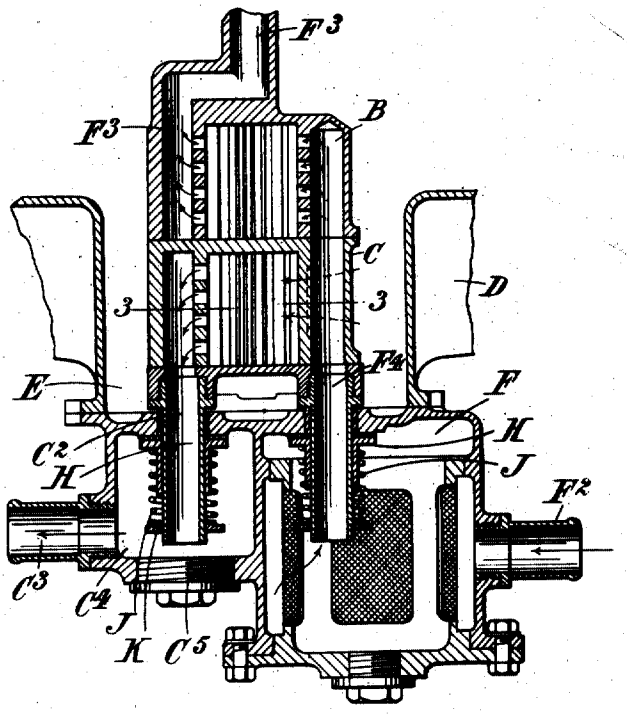
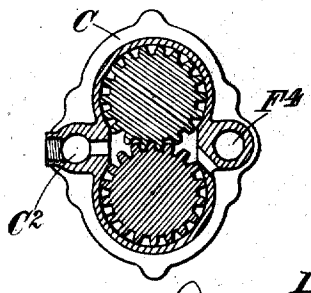


Fig. 3.



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UNITED STATES PATENT OFFICE.

LOUIS COATALEN, OF WOLVERHAMPTON, ENGLAND, ASSIGNOR OF ONE-HALF TO SUNBEAM MOTOR CAR COMPANY LIMITED, OF WOLVERHAMPTON, ENGLAND.

LUBRICATION SYSTEM FOR INTERNAL-COMBUSTION ENGINES.

1,253,940. Specification of Letters Patent. Patented Jan. 15, 1918.

Application filed June 12, 1916, Serial No. 103,321. Renewed July 6, 1917. Serial No. 179,098.

To all whom it may concern:

Be it known that I, LOUIS COATALEN, a subject of the King of Great Britain, residing at Wolverhampton, in the county of Stafford, England, have invented certain new and useful Improvements in Lubrication Systems for Internal-Combustion Engines, of which the following is a specification.

This invention relates to lubrication systems for internal combustion engines of the kind in which a pump or pumps is or are employed for circulating the oil.

In the accompanying drawings,

Figure 1 is an end view partially in section, showing one method of carrying out this invention.

Fig. 2 is a cross section on the line 2—2 of Fig. 1, but showing also the oil filter which does not appear in Fig. 1.

Fig. 3 is a horizontal section on the line 3—3 of Fig. 2.

Like letters indicate like parts throughout the drawings.

In most engines the crank chamber is divided horizontally and the lower part is easily removable for access to the bearings, etc. It is desirable that the oil pump should be carried by the more rigid upper part, but the oil collects in the lower part and there must be a connection between the oil chamber in the lower and the oil pump on the upper part.

It is the object of the present invention to provide an improved connection, which is particularly applicable where a double oil pump is used, one half drawing the oil from the supply and forcing it to the bearings, and the other delivering the used oil back to the supply tank.

The upper part A of the crank chamber carries the cylinders and main engine shafts, from one of which, A^2, is driven a vertical spindle A^3 which drives a pair of gear wheel pumps contained in the superposed casings B and C. These casings are bolted together, and the upper one is attached by bolts, one of which is shown at B^2, to the upper part A of the crank chamber. The oil in the crank chamber collects in the lower crank chamber part D which is formed with a well E. The used oil collecting in this well enters the lower pump casing C, (see Figs. 2 and 3) and is driven by this pump down along the outlet pipe C^2, and out through the pipe C^3 to the oil tank or cooler which is arranged outside the engine.

The pump contained in the upper casing B sucks oil from the tank along the passage F^1 from an inlet chamber F supplied by the branch F^2, and delivers this by the passage F^3 to the various parts of the engine which require lubrication.

It will be seen that oil traveling down the passage C^2 enters an oil chamber C^4 provided with a drain plug C^5. The oil chamber F may be constructed as a filter chamber, as shown, and if desired the chambers F and C^4 may be formed integral with one another, and they are attached to the lower part D of the crank chamber. When this lower part is detached it is clear that the connection between the passage C^2 and the chamber C^4, and the passage F^4 with the chamber F, must be broken.

To facilitate this the following construction is adopted:—Each of the pipes C^2 and F^4 carries a washer H which is pressed upward by a spring J which abuts against a collar K fixed to the pipe C^2 or F^4. Between the washer H and the upper wall of the oil chamber is arranged a ring of packing material. This spring-pressed washer, in conjunction with the packing material provides an oil-tight connection, but there is a clearance between the side of each pipe and the side of the hole in the oil chamber through which it passes so that the pipes have a certain amount of lateral freedom and consequently relative vibration between the two crank chamber parts does not throw any strain on this connection. This clearance is too small to be apparent in the drawings.

It will be clear that removal of the crank chamber part D is possible without disturbing the oil pumps. Further, that there is no difficulty in insuring an oil tight connection which it not affected by vibration.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In an internal combustion engine, the combination of an upper crank chamber part, a lower part detachable therefrom, an oil pump carried by said upper part, an oil chamber carried by said lower part, and a floating oil-tight connection between said pump and said oil chamber, substantially as set forth.

2. In an internal combustion engine, the

combination of an upper crank chamber part, a lower part detachable therefrom, an oil pump carried by said upper part, an oil chamber carried by said lower part, an oil pipe carried by said pump, a clearance hole in said oil chamber through which said oil pipe passes, a spring pressed washer on said oil pipe, substantially as set forth.

3. In an internal combustion engine, the combination of an upper crank chamber part, a lower part detachable therefrom, a pair of superposed oil pumps carried by said upper part, a pair of oil chambers carried by said lower part, floating oil-tight connections between each of said pumps and one of said oil chambers, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS COATALEN.

Witnesses:

IRIS VAN NAALTE,

FREDERICK T. LANGLEY.