E. J. GULICK.

OILING DEVICE FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED FEB. 11, 1920.

1,369,239. Patented Feb. 22, 1921.

Fig 1

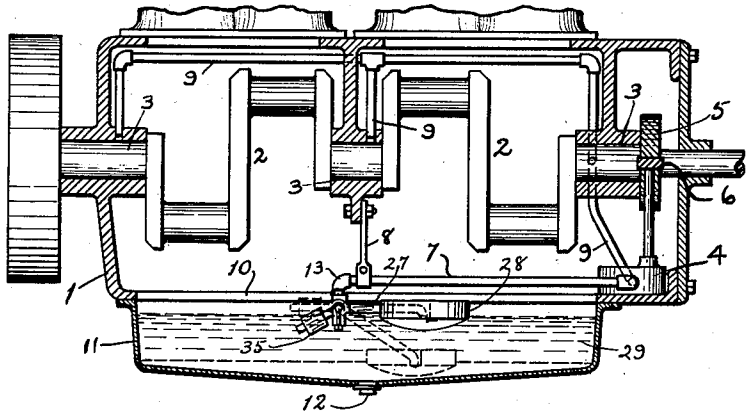


Fig 2

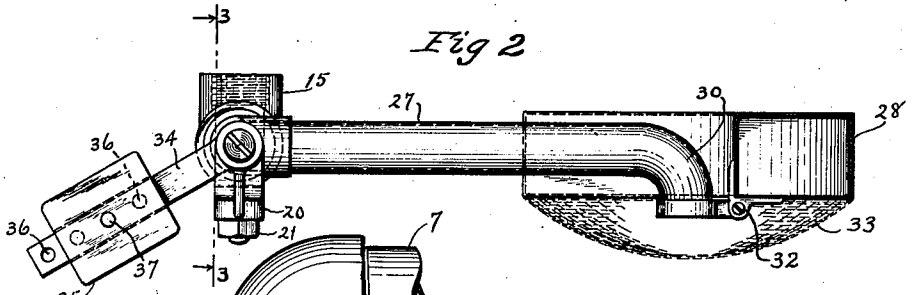


Fig 3

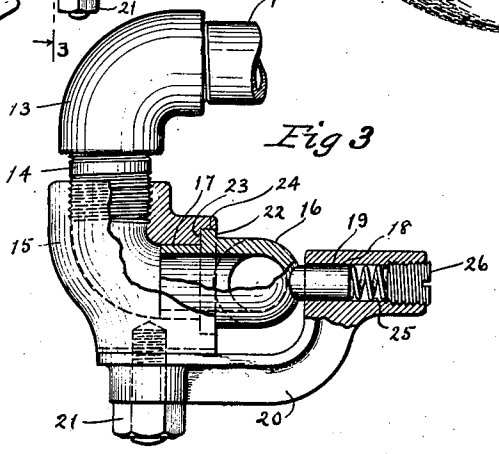
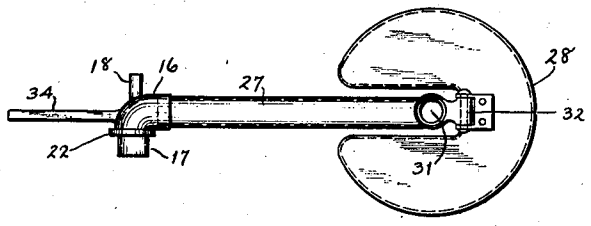


Fig 4



Witness:
C. A. Donaley.

Inventor
Edward J. Gulick
By Louis C. Vanderlip
Attorney.

UNITED STATES PATENT OFFICE.

EDWARD J. GULICK, OF ELKHART, INDIANA.

OILING DEVICE FOR INTERNAL-COMBUSTION ENGINES.

1,369,239. Specification of Letters Patent. Patented Feb. 22, 1921.

Application filed February 11, 1920. Serial No. 357,965.

To all whom it may concern:

Be it known that I, EDWARD J. GULICK, a citizen of the United States, and a resident of the city of Elkhart, county of Elkhart, Indiana, have invented certain new and useful Improvements in Oiling Devices for Internal-Combustion Engines, of which the following is a specification.

My invention relates to internal combustion engines and especially to the engine lubricating system.

The present prevailing practice in internal combustion engine lubrication, especially motor car engines, consists in pumping oil from a pool carried in the engine base, or other container, and driving it through the oil circulatory system to the various engine bearings to be lubricated. In such a system dirt, water, carbon, gasolene and other deleterious substances accumulate and collect in the engine base and in the lubricant pool and are continuously pumped through the oil circulatory system with the oil, thereby materially impairing the lubricating quality of the oil.

And also, in such a system considerable water accumulates in the engine base by condensation and from gasolene of poor quality, and when the motor is allowed to stand idle for a period of time, the water forms a pool in the bottom of the engine base, or oil pan, and freezes in cold or winter weather. In almost all, if not all, motor car engines the oil suction pipe has its inlet orifice adjacent the bottom of the oil pan and within the area or plane of water accumulation, and when such water accumulates and freezes, the suction pipe inlet orifice is closed by the ice, thereby rendering the oil pump and the oil circulatory system temporarily inoperative. Such a condition may not become known to the motor car operator until the lack of oil in engine bearings has caused serious injury to or practically ruined the motor.

An object of my invention is the production of a suction pipe or oil intake member which is buoyantly sustained in the oil pool in the engine base and which follows any rise or fall thereof, and which inspires oil from a point just beneath the surface of the oil pool where the oil lacks impurities.

Another object of my invention is the production of an oil suction device which is buoyantly sustained in the oil pool of the engine base or container, the inlet orifice whereof is always in communication with the lubricant body and above any water accumulation in the lubricant container or oil pan. Other objects of my invention are mentioned and described herein.

The preferred embodiment of my invention is illustrated in the accompanying drawing in which Figure 1 is a section in elevation taken through an engine base to which my invention is applied; Fig. 2 is a view in elevation showing the suction pipe, the pivotal mount therefor, and the suction pipe float, with other details; Fig. 3 is an enlarged fragment of the suction pipe mount viewed on the line 3—3 of Fig. 2; and Fig. 4 is a bottom plan view of the suction pipe and the float member. Similar numerals of reference indicate like members throughout the several views on the drawing.

On the drawing, the numeral 1 indicates the base or crank case of a multi cylinder internal combustion engine within which is mounted the usual crank shaft 2 having the bearings 3, 3. The numeral 4 indicates an oil circulation pump mounted within the engine base and which may be driven by the gears 5 and 6 off said crank shaft. The oil pump 4 may have a suction inlet pipe 7 the outer end whereof may be supported by a bracket 8 secured in the engine frame in any suitable manner. An oil discharge pipe 9 conducts the lubricant from the pump to the various crank shaft and other bearings for lubrication thereof.

The engine base 1 may be provided with the bottom opening 10 which may be covered by an oil reservoir or pan 11 secured to said base in any suitable manner. A drainage plug 12 may be mounted in the oil pan for exhausting the oil from the pan 11 when desired.

The oil suction pipe 7 may carry an elbow 13 at its outer end and a depending nipple may be connected therewith. A suction pipe elbow 15 may be carried by the nipple 14 and a suction elbow 16 is pivotally connected with the lower orifice of the elbow 15 by a hollow cylindrical bearing portion 17 which is revolubly arranged within said elbow orifice and axially of the trunnion bearing 18 which projects from the exterior of the elbow 16, said trunnion being journaled in

the bore 19 of the bracket 20 which may be fastened to the elbow 15 by a screw 21. The elbow 15 may be provided with an annular stop flange 22 formed exteriorly thereof, the face whereof is adapted to engage the annular wall 23 of the counter bore 24 of the elbow 15 in which bore said flange 22 is revolubly arranged. The engagement between the flange 22 and the wall 23, which is preferably a ground joint for effecting a seal against air or oil leakage, may be resiliently maintained by a coil spring 25 arranged in the bore 19 of the bracket 20, said spring bearing against the trunnion 18 and being seated against a plug 26 closing the end of said bracket bore.

The numeral 27 indicates a suction pipe member one end whereof may be rigidly connected with the pivotal suction elbow 16, the other end whereof may be connected with and carried by a hollow float member 28 adapted to float upon or in the oil pool 29 contained in the oil pan 11. The pipe 27 may be provided with the depending bend 30 the oil inlet orifice 31 whereof may be arranged in a plane below the top of the float in order that it may permanently communicate with the oil pool. The pipe 27 may be connected with the float 28 by a hinge member 32 to prevent tilting of the float by the upward or downward pivotal movement of the pipe.

The numeral 33 indicates a screen member made of wire cloth or other suitable material which is mounted upon the under side of the float 28 and covering the suction inlet orifice 31 to exclude dirt, carbon and solid deleterious substances from said pipe. The elbow 16 may carry an arm 34 rigid therewith and upon which a counter-balance weight 35 may be adjustably mounted, said arm being provided with a plurality of apertures 36, 36, any of which apertures may be engaged by a weight supporting pin 37 which is connected with said weight.

In operation, it is obvious that the pipe 27 is buoyantly sustained in the oil pool 29 and that the orifice 31 thereof will always be in communication with the oil pool at a point close to the surface thereof and remote from the oil pan bottom where the dirt, water, gasolene, carbon, and other deleterious substances settle and collect. It is also obvious that the pivotal mount of the suction pipe 27 enables the float 28 to readily adjust itself to the varying level of the oil pool 29 when the oil is agitated as it will be when an engine is mounted in a motor car which is moving.

In cold weather or in winter, the body of water which has collected in the oil pan bottom may freeze, but the operativeness of the suction pipe 27 is in no way impaired thereby, for the inlet orifice 31 thereof always lies in a plane above any such water body, and the motor car operator may be assured of efficiency of the oil circulatory system in the most extreme winter weather on that account.

I claim:

1. The combination with the lubricant container of an internal combustion engine and the pool of lubricant contained therein, of a lubricant suction inlet member buoyantly sustained in said lubricant pool; and means connected with said suction inlet member for pumping the lubricant from said pool to the engine bearings.

2. The combination with the lubricant container of an internal combustion engine and the pool of lubricant contained therein, of a counter-balanced suction inlet member buoyantly sustained in said lubricant pool; and means connected with said suction inlet member for pumping the lubricant from said pool to the engine bearings.

3. The combination with the lubricant container of an internal combustion engine and the pool of lubricant contained therein, of a lubricant suction inlet member buoyantly sustained in said lubricant pools; a strainer member interposed between said suction inlet member and the bottom of the lubricant container; and means connected with said suction inlet member for pumping the lubricant from said pool to the engine bearings.

4. The combination with the lubricant container of an internal combustion engine and the pool of lubricant contained therein, of a lubricant suction inlet member buoyantly sustained in said lubricant pool; a strainer carried by said suction inlet member and arranged over the inlet orifice of said suction inlet member; and means connected with said suction inlet member for pumping the lubricant from said pool to the engine bearings.

5. The combination with the lubricant container of an internal combustion engine and the pool of lubricant contained therein, of a pivotally mounted lubricant suction inlet member buoyantly sustained in said lubricant pool; and means connected with said suction inlet member for pumping lubricant from said pool to the engine bearings.

6. The combination with the oil pan of an internal combustion engine and the pool of oil contained therein, of a buoyant oil suction conduit disposed in the oil pool and having its oil inlet orifice in constant communication therewith; and means connected with said suction conduit for pumping the oil from said pool to the engine bearings.

7. The combination with the oil pan of an internal combustion engine and the pool of oil contained therein, of a buoyant oil suction conduit disposed in the oil pool and having its oil inlet orifice in constant communi-

cation therewith; a strainer arranged over the inlet orifice of said suction conduit; and means connected with said suction conduit for pumping the oil from said pool to the engine bearings.

8. The combination with the oil pan of an internal combustion engine and the pool of oil contained therein, of a movably mounted oil suction conduit; a float member buoyantly disposed in said oil pool with which said oil suction conduit is connected and which is adapted to sustain the inlet orifice of said suction conduit in constant communication with the pool of oil; and means connected with said suction conduit for pumping the oil from said pool to the engine bearings.

9. The combination with the oil pan of an internal combustion engine and the pool of oil contained therein, of a movably mounted oil suction conduit; a float member buoyantly disposed in said oil pool with which said suction conduit is connected and which is adapted to sustain the inlet orifice of said suction conduit in constant communication with the pool of oil adjacent its surface; and means connected with said suction conduit for pumping oil from said pool to the engine bearings.

10. The combination with the lubricant container of an internal combustion engine and the pool of lubricant contained therein, of a pivotally mounted lubricant suction inlet member buoyantly sustained in said lubricant pool, said pivotal mount including a spring pressed member to effect a seal; and means connected with said suction inlet member for pumping lubricant from said pool to the engine bearings.

11. The combination with an oil pan of an internal combustion engine and the pool of oil contained therein, of a float buoyantly disposed in said oil pool; a movably mounted suction conduit member connected with said float and having an inlet orifice in communication with the oil pool; a screen carried by the float and arranged over the inlet orifice of said suction conduit; and means connected with said suction conduit for pumping oil from said pool to the engine bearings.

In witness whereof I have hereunto affixed my signature this 6th day of February, 1920.

EDWARD J. GULICK.