

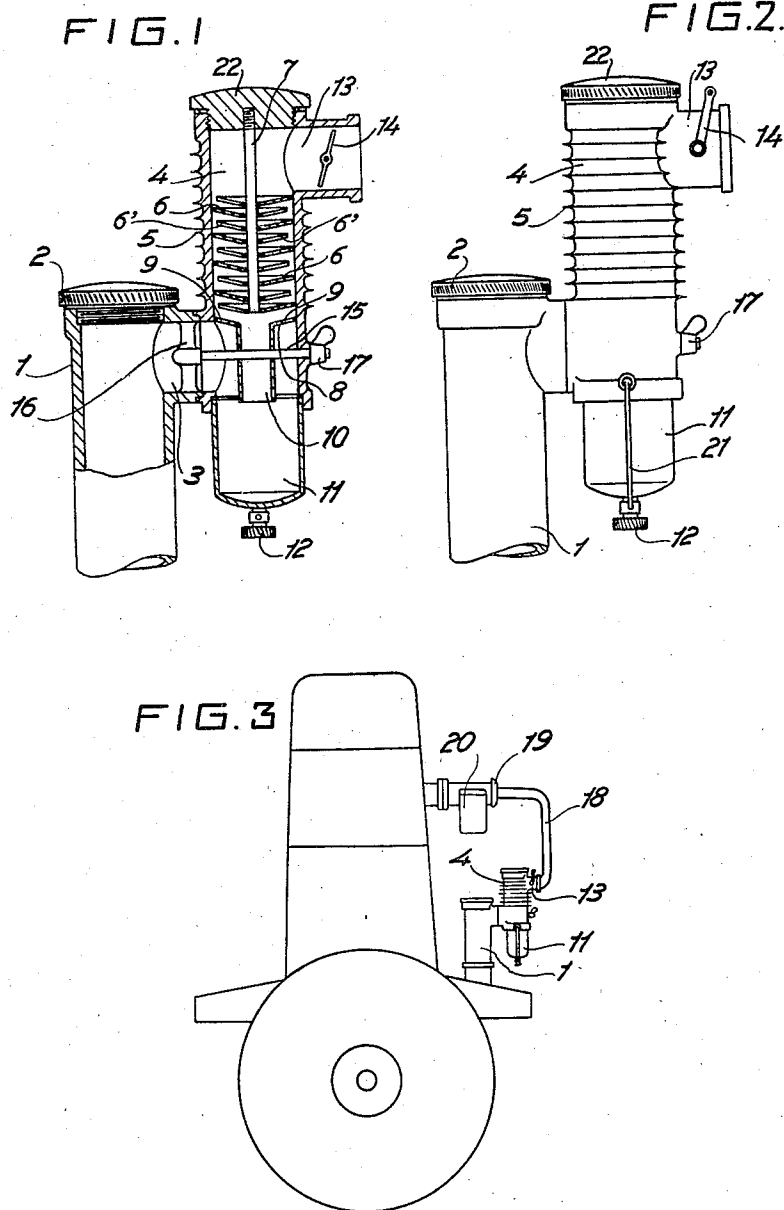
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PURIFICATION OF LUBRICATING OIL

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PURIFICATION OF LUBRICATING OIL

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The present invention relates to means applicable to internal combustion engines for purifying the lubricating oil contained in the casing of the engine where such is used for motor vehicles, tractors, aeroplanes, ships or for other industrial purposes or where operating with motor spirit or with heavy oils or with gaseous fuel.

According to the invention the water which is associated with the oil in the engine casing is extracted and passed into a suitable receptacle as well as the residues and impurities and the combustible liquid which frequently accumulates in the crank casing especially the spirit which passes the motor pistons. With the oil thus purified perfect lubrication is possible; at the same time the explosive or combustible mixtures being very pure, the preservation of the combustion chambers in good condition is favoured.

Furthermore, in the employment of the apparatus according to the invention an effective ventilation of the crank casing is secured, the viscosity of the lubricant being maintained uniform by which the accidental passage of the oil into the combustion chambers is prevented and the consequent deposition of carbon avoided and furthermore uniform lubrication of the cylinder walls and the valve guides is obtained.

The apparatus comprises essentially a receptacle or receiver which at its upper end is provided with a connection for the suction of air and has mounted within it plates, partitions or other obstacles through which the air from the crank casing is caused to circulate. The apparatus carries at the lower end a collecting receptacle for recovering the substances or impurities extracted and separated from the lubricant, by condensation in the said obstacles and drainage towards the said receptacle.

In the accompanying drawing there is represented by way of example apparatus provided according to the invention, in which

Figure 1 is a vertical section of the apparatus,

Figure 2 is a corresponding elevation, and

Figure 3 is an external view of the motor to which it is applied.

In carrying the invention into effect as illustrated in the accompanying drawing the apparatus may be applied to the connection communicating with the upper part of the crank casing for example the connection for ventilation or air inlet ordinarily provided.

In the drawing 1 indicates the ventilating pipe and 2 its screw-threaded cap. The apparatus according to the invention is adapted to the lateral inlet 3 of the ventilating pipe 1. The apparatus comprises a cylindrical casing 4 provided externally with cooling ribs 5 for facilitating internal condensation and the casing has mounted within it a series of conical plates 6 placed one beneath the other as illustrated in Figure 1 and secured to a rod support 7. Each of the plates is provided with an opening 6', these openings being provided in opposite positions on alternate plates, that is to say, the opening in one plate is in a position diametrically opposed to those of the adjacent plates. At the lower end of the series of plates is provided a conical base 8 provided with a central tube 10 extending into the receptacle 11 connected at the lower end of the casing 4 and serving as a collector of the separated impurities. The base part 8 is provided with perforations 9.

The rod 7 on which the plates 6 are secured is fixed at its upper end to the screw-threaded cap 22 of the casing for the support of the conical plates 6 within the casing 4.

At the upper end of the casing 4 is disposed a lateral opening 13 provided with a butterfly valve 14 for the regulation of the suction current.

The casing 4 is connected to the ventilation pipe 1 so that the lateral inlet 3 is disposed coincident with a corresponding lateral outlet in the lower part of the casing 4 above the receptacle 11. The connection is effected by means of a rod 15 mounted within a central boss or spider fitting that may be integrally or separately provided and mounted on a transverse member 16 within the lateral inlet 3 and the casing 4, is held in position on the seating at the mouth of the lateral inlet 3 by means of a wing-nut

17 applied upon the outer screw-threaded end of the rod 15.

Within the lateral inlet 13 (Figure 3) is connected the end 19 of the pipe 18 having a fitting which is set opposite to the opening of the air suction pipe of the carburettor 20 of the motor.

The suction created in the carburettor 20 in the operation of the motor also determines the suction of air in the pipe 18 as well as that within the casing 4 and within the ventilation pipe 1 through which the water and other impurities contained in the lubricant within the casing are drawn along with the air. This air is forced to pass through the perforations 9 and to traverse the casing 4 and the plates 6 through which it follows a sinuous course determined by the alternate openings 6'. The water carried along condenses and the impurities, such as dust, carbon or the like, are deposited upon the plates 6, and carried over them with the water passing through the openings 6' towards the central outlet pipe 10 into the collecting receptacle 11 in which they are deposited for eventual removal, the receptacle 11 being provided for this purpose with a U-shaped fitting 21 having a set screw 12 by means of which the receptacle 11 is maintained pressed against the underface of the lower part of the casing.

By such means the advantages above indicated are secured, it being evident that the apparatus may be modified in the details of its constructions without departing from the invention.

We claim:

1. An apparatus for the purification by condensation of lubricating oil in the crank casings of internal combustion engines, comprising a cylindrical condenser casing provided at one end with a lateral outlet for connection to a suction pipe and at the other end with a lateral inlet for connection to a vent in the crank casing, and an open lower end formed with an annular seating, an axial support within said casing, a plurality of baffle plates disposed in series on said axial support, and a receptacle for water and impurities condensed from the air passing through the casing, said receptacle being fitted to said seating.

2. An apparatus for the purification by condensation of lubricating oil in the crank casings of internal combustion engines, according to claim 1, wherein the condenser casing is provided at a position above the inlet with a perforated partition having a central discharge outlet leading to the said receptacle.

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