

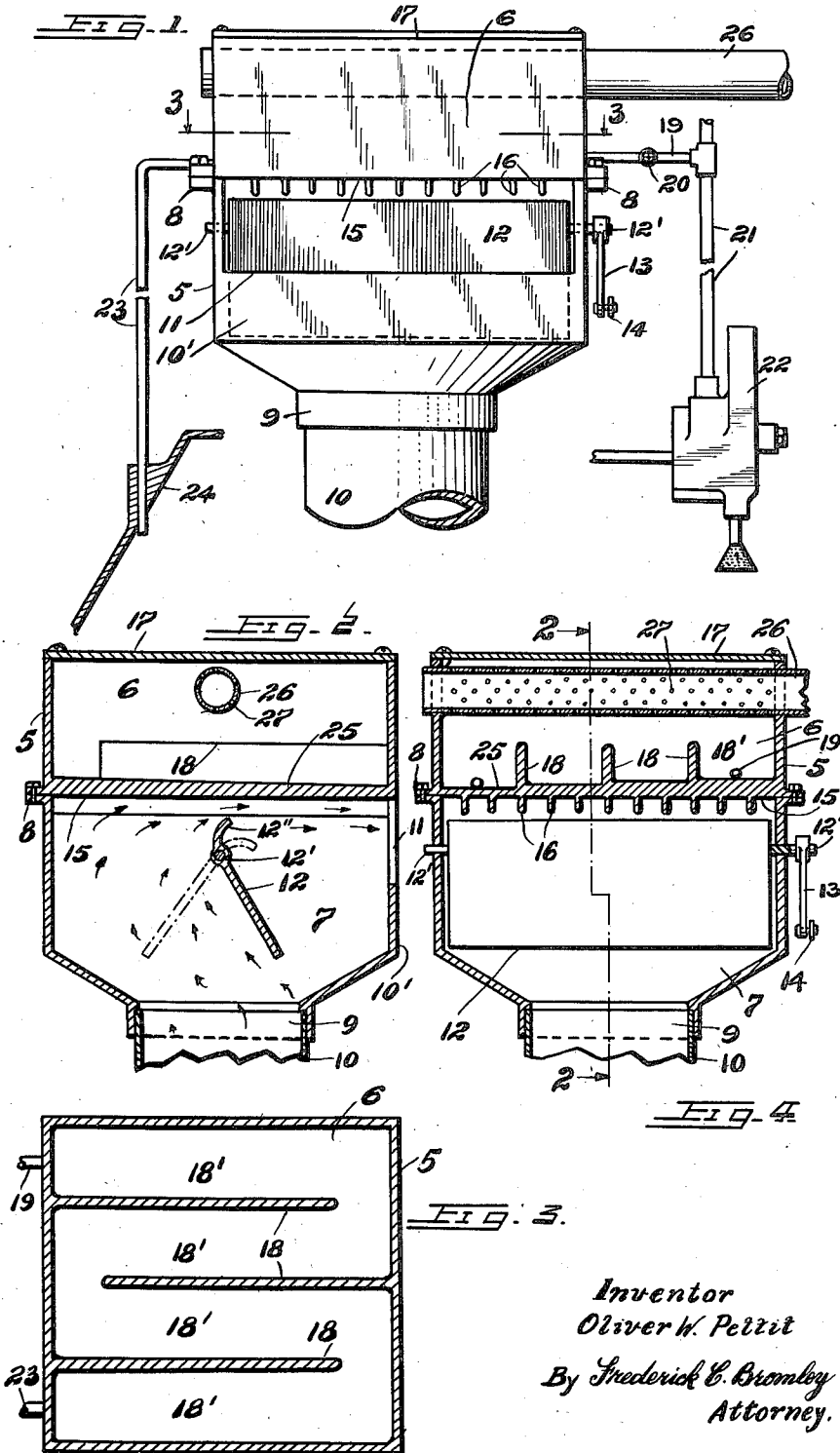
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OIL RECTIFIER AND RECLAIMER

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OIL RECTIFIER AND RECLAIMER

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2 Claims. (Cl. 196—16)

The invention relates to improvements in oil rectifiers and reclaimers for internal combustion engines as described in the present specification and shown in the accompanying drawing 5 that forms part of the same.

While considerable economy is effected in the burning of fuel oil in an internal combustion engine of a tractor in lieu of gasoline, there is however a distinct seepage of the fuel oil into 10 the crankcase. The resultant dilution of the lubricating oil therein impairs its efficiency as a lubricant for the engine.

The present invention has for its object the provision of an attachment for rectifying the 15 lubricating oil in order to remove the diluent. Additionally the attachment incorporates means for reclaiming the diluent returning it to the carburetor for consumption.

The distinctive feature of the invention resides in the novel construction and arrangement 20 of its parts whereby a highly efficient and inexpensive apparatus is provided that can be readily attached to a conventional internal combustion engine adapted to burn fuel oil.

Referring to the accompanying drawing, Figure 1 is an elevation of the attachment showing its connection with certain parts of the engine.

Figure 2 is a vertical section taken along line 2—2 of Figure 4.

Figure 3 is a sectional plan taken on line 3—3 of Fig. 1.

Figure 4 is a vertical section through Figure 1.

Like numerals of reference indicate corresponding parts in each of the figures throughout the 35 drawing of the invention.

In carrying out the invention a body 5 is provided preferably of a two-part casting, one part of which is an upper distilling receptacle 6 and the other part a heating chamber 7. The two 40 parts are united by fastening elements fitted in lugs 8.

The body is of a substantially square shape in plan and the bottom has a central opening 9 fitted to a length of piping 10 leading to the exhaust pipe of the engine. The hot gases of combustion are conducted by said piping to the inlet opening 9 so as to serve as the heating medium. The front wall 10' has a substantial opening 11 45 that forms the outlet for the exhaust gases.

With a view to regulating the heating of the upper chamber, a deflector 12 is disposed in the lower chamber, which deflector comprises a flap dependently suspended over the inlet 9 and swingable on a horizontal axis 12'. The upper 50 portion of the flap has a curved deflecting face

12'' extending in the general direction of the outlet 11. An arm 13 is secured to the flap and connected to a manual control mechanism 14 not recounted in detail since it may be of any well known construction. 5

By turning the deflector to the position shown in full in Figure 2, the exhaust gases are directed upwardly and rearwardly of it so as to have a long travel against the floor 15 of the upper chamber for heating it to a maximum degree. By 10 turning the deflector to the position indicated in dot-and-dash lines, the gases are directed substantially direct to the outlet and thus practically cuts off the heat to the upper chamber. By this arrangement the attendant can set the deflector 15 to the position in which the desired heat is produced according to working conditions of the engine.

To increase heat radiation a series of fins 16 are shown integral with the underface of the 20 floor 15, which fins are disposed in the path of the hot gases and materially assist in the heating of the upper chamber. These fins not only increase the heat but also enable the heating chamber to be raised to the required degree of 25 heat in a much shorter time interval.

The top 17 of the heating chamber is preferably in the nature of an inspection plate for which purpose it is removable; and within the chamber are spaced partitions 18 that extend inwardly 30 from opposite side walls past each other to compose a sinuous passage 18' for treating diluted crankcase oil. Diluted oil is introduced through a pipe 19 valve-controlled as at 20 and connected to the force feed system of the engine. This pipe 35 need only be of a small diameter and is connected to the conduit 21 between the oil circulating pump 22 and the oil gauge which is not shown. This connection it has been ascertained does not affect the reading of the oil gauge. 40

As the lubricating oil flows through the sinuous passage 18' it is admitted into a pipe 23 that returns it to the crankcase indicated at 24.

A distinctive feature of the heating chamber is that its floor 15 is inclined to cause a 45 gravity flow of the oil from the inlet to the outlet. The component passages are graded or sloped from the first to the next and so on throughout the complete course, which is accomplished by tapering the floor as at 25 so that 50 it gradually becomes thinner. This has a desirable effect on the oil in that due to the gradually diminishing thickness of the floor, the oil is subjected to increased heat as it progresses.

A conduit 26 extends through the oil recep- 55

tacle and has perforations 27 therein. This conduit is prolonged and connected to the air intake of the carburetor.

In the operation of this apparatus, the exhaust gases heat the oil receptacle by their passage through the heating chamber. Diluted crankcase oil is forced into the receptacle through the pipe 19 and as it flows through the sinuous passage it is heated sufficiently to drive off the volatile fuel oil. This vaporized fuel oil is sucked through the perforations in the conduit 26 and conducted to the carburetor for consumption, whereas the rectified lubricating oil is returned by gravity to the crankcase. This apparatus need only be operated at intervals in order to maintain the crankcase oil in good condition.

What I claim is:—

1. A purifying device of the class described composed of a distilling receptacle having a substantially horizontal floor, said receptacle being supplied with oil inlet and outlet passages and a vapor eduction outlet, a lower heating chamber integrally constructed with said receptacle, the floor of the receptacle forming the top of the chamber, a vertically extending and centrally disposed duct at the bottom of said chamber for admission of exhaust gases, a lateral outlet formed in one of the side walls of said chamber adjoining the receptacle floor, a flap disposed in the chamber directly over the duct, said flap swingably depending from a horizontal axis

transversely of said lateral outlet and being spaced from the floor whereby in one angular position exhaust gases are diverted remotely of the outlet so as to effect a longer heating contact with the floor than in an opposite angular position, and means for controlling the position of the flap.

2. A purifying device of the class described composed of a distilling receptacle having a substantially horizontal floor, said receptacle being supplied with oil inlet and outlet passages and a vapor eduction outlet, a lower heating chamber integrally constructed with said receptacle, the floor of the receptacle forming the top of the chamber, a vertically extending and centrally disposed duct at the bottom of said chamber for admission of exhaust gases, a lateral outlet formed in one side of the side walls of said chamber adjoining the receptacle floor, a series of heat-conducting fins depending from the underface of said floor, a flap disposed in the chamber directly over the duct, said flap swingably depending from a horizontal axis transversely of said lateral outlet and being spaced from the floor whereby in one angular position exhaust gases are diverted remotely of the outlet so as to effect a longer heating contact with the floor than in an opposite angular position, and means for controlling the position of the flap.

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