Oct. 12, 1943. W. E. LAMB 2,331,482

OIL FILTER

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Fig. 1.

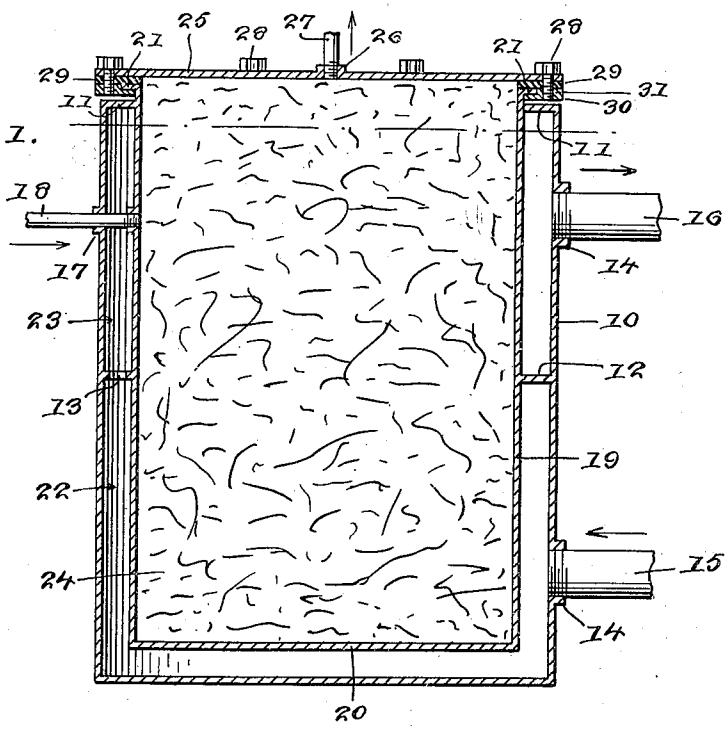
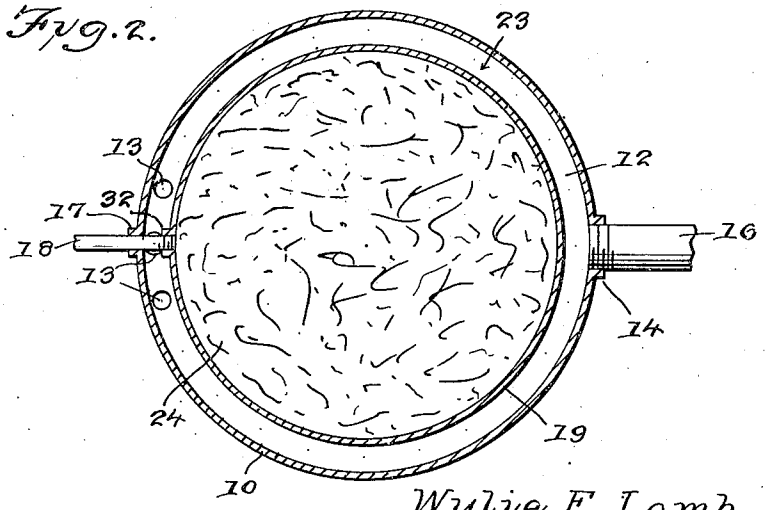


Fig. 2.



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OIL FILTER

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1 Claim. (Cl. 210—122.5)

This invention relates to an oil filter and has for an object to provide an oil filter case enclosed inside of a jacket through which hot water is circulated continuously from the cooling system of an internal combustion engine to maintain the oil at a sufficient degree of fluency to easily circulate through the filter element.

A further object is to provide a device of this character in which the circulation of water in the water jacket is caused to flow in a circuitous path by a baffle having a group of openings therethrough, the hot water entering the jacket below the baffle, then passing around and underneath the lower portion of the filter case, then escaping through the openings and passing around the upper part of the filter case to the end that the lubricating oil may travel through a shorter path while in the filter than is customary and yet be thoroughly filtered before being returned to the bearings to be lubricated.

A further object is to provide apparatus of this character which will be formed of a few strong, simple and durable parts, which will be inexpensive to manufacture, and which will not easily get out of order.

With the above and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming a part of this specification:

Figure 1 is a longitudinal sectional view of an oil filter constructed in accordance with the invention.

Figure 2 is a cross sectional view taken on the line 2—2 of Figure 1.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, 10 designates a jacket having an inwardly extending flange 11 at the top. An annular baffle 12 is secured to the jacket substantially midway between the bottom of the jacket and the flange 11 and is provided with a group of openings 13. The jacket is provided with threaded nipples 14 on the opposite side of the jacket from the openings 13 for the reception of a hot water inlet pipe 15 and a hot water outlet pipe 16, which pipes may be connected to the cooling system of the internal combustion engine of a vehicle. The jacket is also provided above the openings 13 of the baffle with a threaded nipple 17 to receive an oil inlet pipe 18.

A filter case 19 is disposed in the jacket, and is coaxial with the jacket. The bottom 20 of the case is spaced from the bottom of the jacket and the top of the case is open and is provided with an outwardly projecting flange 21. The flange 11 of the jacket is welded or otherwise secured to the case a short distance below the flange 21 of the case. The baffle 12 of the jacket engages the outer surface of the case at a point substantially midway between the bottom and the top of the case thus dividing the water jacket into a lower chamber 22 and an upper chamber 23 separated by the baffle 12. The water inlet pipe 15 enters the lower chamber and the water outlet pipe 16 enters the upper chamber.

The filter element 24 may be of any desired character and is packed in the case in such manner as to completely fill the case.

A lid 25, in the form of a plate, closes the top of the case 19. The lid is provided with a nipple 26 to receive an oil outlet pipe 27. The lid is bolted in place and for this purpose screw bolts 28 are threadedly engaged through the lid, through a packing washer 29, and are threadedly engaged in a sectional collar 30 which is disposed on the case underneath the flange 21 and is provided with a boss 31 of the same thickness as the flange 21 to surround the flange 21 and provide a flat abutment flush with the top surface of the flange 21 to receive the packing washer 29 and form an oil tight joint when the screw bolts 28 are tightened.

The case 19 is provided with a threaded nipple 32 to receive the oil inlet pipe 18.

The hot water enters the lower chamber 22 of the water jacket through the pipe 15 and passes around and underneath the lower portion of the case 19. The water then escapes from the lower chamber to the upper chamber of the jacket through the group of openings 13 and flows around the upper portion of the case, encountering the oil inlet pipe 18 to heat the oil as it enters the case, the fluency of the oil being thereafter maintained and increased by contact with the heated wall of the case and the heated filter element before the oil escapes through the outlet pipe 17 after having traveled a short path through the filter element. The oil is thoroughly filtered during its journey through the filter element and due to the shorter path from the side of the case near the lid, to the outlet in the lid obstruction to the circulation of the oil will be reduced to a minimum.

From the above description it is thought that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

An oil filter comprising a filter case open at one end and having an outturned flange at the open end, a water jacket outside of the filter case coaxial with the filter case having an inturned flange engaging the filter case underneath the filter case flange, a lid closing the open end of the filter case, screw bolts passed through the lid, a sectional flange loose on the filter case between the filter case flange and the water jacket flange receiving the threaded ends of the bolts, a packing washer on the sectional flange and on the filter case flange forming a liquid tight joint, an oil pipe entering one side of the filter case, an oil pipe entering the lid of the filter case, a filter element in the filter case, a baffle in the water jacket dividing the filter case into two chambers, the first named oil pipe passing through one of said chambers, there being an opening in the baffle establishing communication between both chambers, a water pipe entering one chamber, and a water pipe entering the other chamber.

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