

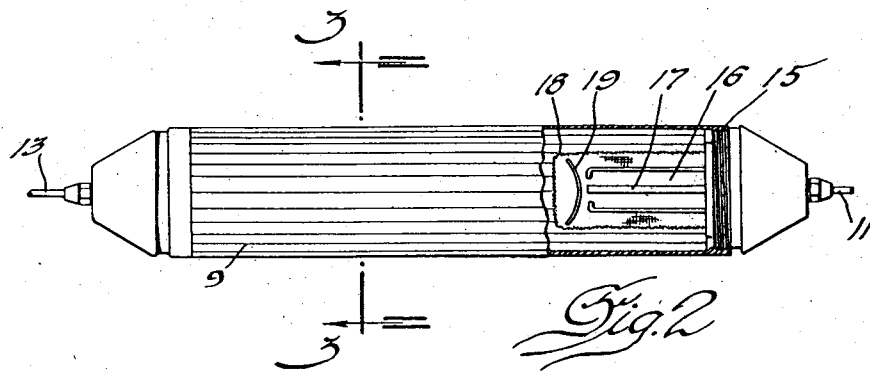
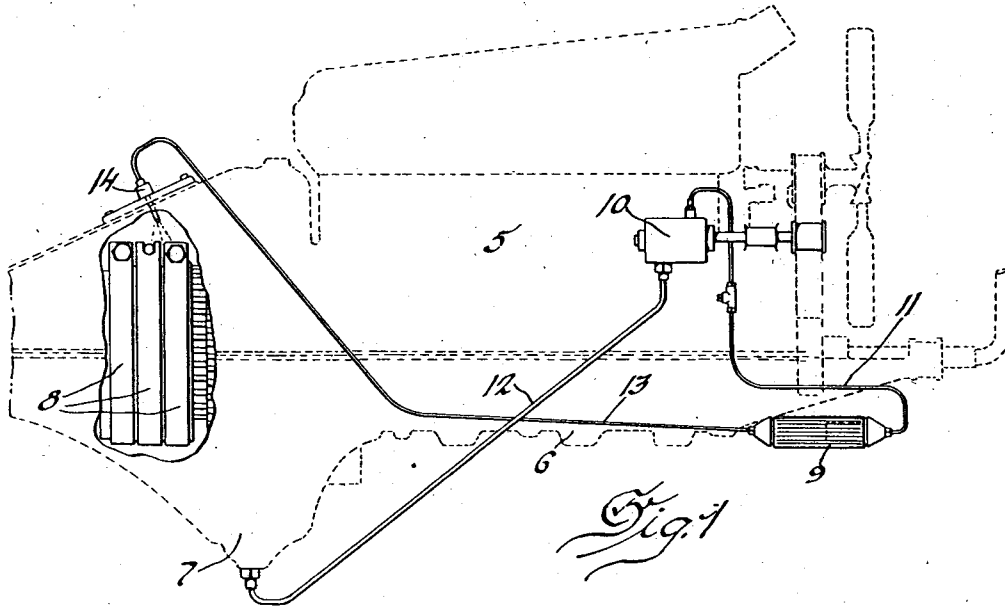
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OIL COOLER AND CLEANER FOR INTERNAL COMBUSTION ENGINES

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OIL COOLER AND CLEANER FOR INTERNAL-COMBUSTION ENGINES.

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One of the objects of my invention is to provide an efficient and well located auxiliary oil chamber for internal combustion engines adapted to cool the oil in the crankcase of the engine.

Another object of my invention is to apply such a device to an internal combustion engine of the Ford type in such a manner that after the oil is cooled it is passed into the top of the transmission over the transmission bands of the Ford planetary gear system. The purpose of passing the cool oil over the bands is to prevent the glazing of the transmission bands with consequent chatter in operation, such as is well known with conventional installations.

Another object of my invention is to provide an improved filter in the auxiliary oil reservoir which may be easily installed and taken off, and which will remove metallic substances from the oil as well as other deleterious substances.

With the above and other objects in view, my invention consists in the arrangement, combination and construction of the various parts of my improved device, as described in the specification, claimed in my claims and shown in the accompanying drawing, in which:

Fig. 1 is a side elevation of an internal combustion engine of the Ford type, shown more or less diagrammatically, with parts broken away to illustrate the transmission bands.

Fig. 2 is a side elevation of the auxiliary oil reservoir utilized in my invention, with parts broken away to illustrate the filtering insert.

Fig. 3 is a sectional view on line 3—3 of Fig. 2.

I have shown an internal combustion engine indicated generally as 5 having detachably secured thereto a crankcase 6. The engine which I have shown is of the conventional Ford type, although certain portions of my invention are equally applicable to other types of engines. In the Ford type of engine, a depression 7 is formed in the crankcase 6 above which are positioned the bands 8 of the Ford planetary transmission. Oil is collected in the depressed portion 7 to a level above the bottom of the bands 8. In the conventional installations, when the oil becomes heated it glazes upon the working surfaces of the transmission bands, and causes a chatter when the bands are ap-

plied. For the purpose of doing away with this condition I provide an auxiliary oil reservoir 9 and a pump 10 connected thereto by a pipe 11 so that when the pump is operated oil will be drawn through the pipe 12 from the crankcase 6 and passed into the reservoir 9. The oil passes from the reservoir 9 through a pipe 13 to a point 14 in the engine casing directly above the transmission bands 8, and passes from the pipe 13 over the top of the bands 8.

It will be apparent that the oil taken from the crankcase 6 to the container 9 will be cooled in the container because there are no working parts therein to heat it, and the incoming air caused by the forward movement of the vehicle will affect the same. It should also be noted that the reservoir 9 is located on the same level as the crankcase 6 so that a constant level will be maintained between the reservoir 9 and the crankcase 6 with the result that a supply of lubricant will always be maintained in the reservoir 9. This is of particular advantage over the type of auxiliary oil reservoir which is mounted above the crank case, which must result in the oil from the auxiliary reservoir draining into the crankcase when the engine and pump are idle. Thus, after a sufficient amount of lubricant is provided to compensate for that lubricant which is in the auxiliary oil reservoir when the pump is operated, an oversupply of lubricant will be maintained in the crankcase when the pump is not operating.

In order to hasten the cooling of the oil, the reservoir 9 is corrugated, or of star shape in cross section, so as to increase the radiation surface thereof.

For the purpose of filtering the oil which is brought from the crankcase to the auxiliary oil reservoir, I provide a screw-threaded fitting 14 on the end of the pipe 11, which is adapted to be inserted in the screw-threaded aperture 15 in the reservoir. Extending into the reservoir from the cap or fitting 14 is a permanent magnet 16 having a central aperture 17 which aligns with the passage of the pipe 11 so that oil from the pipe 11 will pass through the aperture 17. A screen 18 encloses the magnet 16 and is also mounted on the cap or fitting 14 within the reservoir so that oil passing through the magnet 16 will in turn pass through the screen 18. Mounted within the screen 18 directly above the upper end of the magnet

16 is a baffle 19 which is adapted to direct downwardly such oil as passes through the aperture 17, spreading the oil so as to cause it to flow in a film over the outer surface of the magnet 16. Any metallic particles which may be maintained in the oil will be held by the magnet 16 so that they will not again pass to the operating parts of the engine.

It will be obvious that various changes may be made in the arrangement, combination and construction of the various parts of my improved device without departing from the spirit of my invention, and it is my intention to cover by my claims such changes as may be reasonably included within the scope thereof.

What I claim is:

1. An internal combustion engine having a crankcase adapted to receive oil, a transmission housing and transmission bands in the housing, an auxiliary oil reservoir, means for delivering oil from the crankcase to the reservoir, and from the reservoir to and over the tops of said bands.

2. An internal combustion engine having

a crankcase adapted to receive oil, a transmission housing and transmission bands in the housing, means for cooling said oil and delivering it over the tops of said bands.

3. An internal combustion engine having a crankcase adapted to receive oil, an auxiliary oil reservoir having inlet and outlet openings connected with the crankcase, a filtering unit inserted in the inlet opening comprising a plug, a screen on the plug, a magnet within the screen and means for delivering oil over the magnet and through the screen.

4. An internal combustion engine having a crankcase adapted to receive oil, an auxiliary oil reservoir having inlet and outlet openings connected with the crankcase, a filtering unit inserted in the inlet opening comprising a plug, a screen on the plug, a magnet within the screen, an oil passage through the magnet adapted to permit the entry of oil from the crankcase connection and a baffle over the said oil passage to direct said oil over the sides of the magnet.

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