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CARBURETOR TEMPERATURE CONTROL

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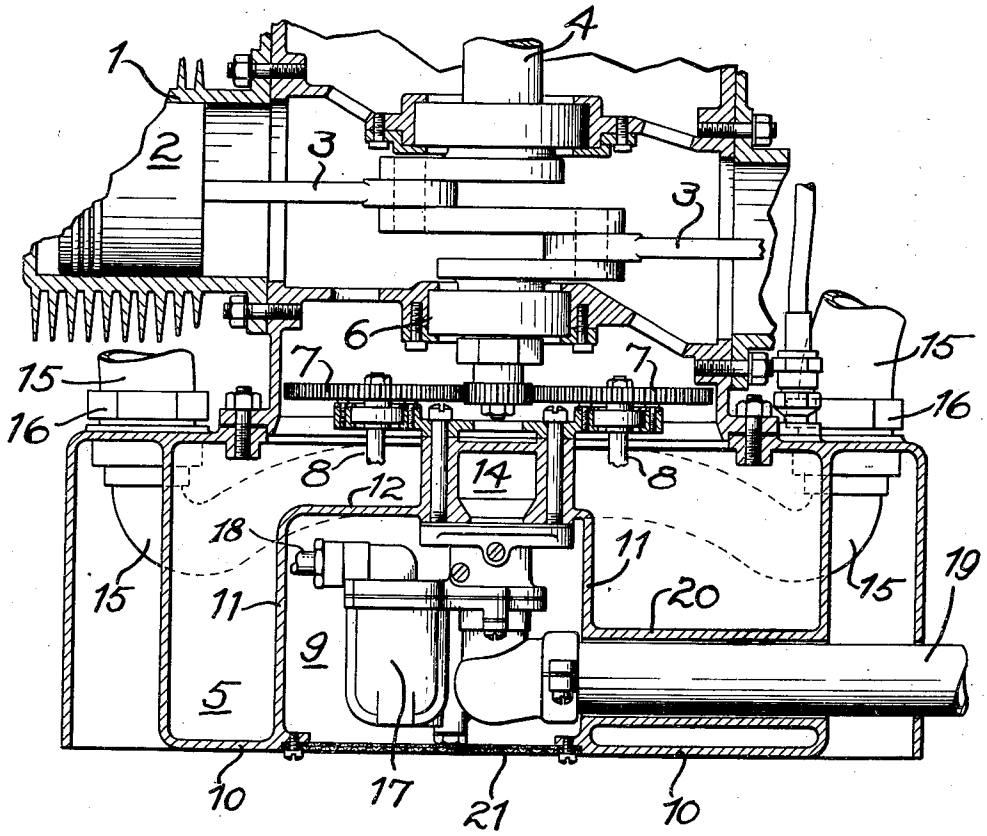

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CARBURETOR TEMPERATURE CONTROL

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5 Claims. (Cl. 123—195)

My invention relates to a carburetor temperature control, and more particularly to a means and method of mounting a carburetor on an internal combustion engine to obtain heat control.

Among the objects of my invention are: to provide means for heating a carburetor in an internal combustion engine; to provide means for cooling the oil in an internal combustion engine; to provide a means and method of utilizing the carburetor of an internal combustion engine to cool the oil in an engine sump; and to provide a simple method of mounting a carburetor in an internal combustion engine.

My invention possesses numerous other objects and features of advantage, some of which, together with the foregoing, will be set forth in the following description of specific apparatus embodying and utilizing my novel method. It is therefore to be understood that my method is applicable to other apparatus, and that I do not limit myself, in any way, to the apparatus of the present application, as I may adopt various other apparatus embodiments, utilizing the method, within the scope of the appended claims.

It is well known in the art that modern high speed internal combustion engines require some means for cooling the lubricating oil used in the engine, and in many instances special radiators are provided to accomplish this end.

It is also well known in the art that, due to the vaporization of the fuel in a carburetor, the carburetor gives up its heat to the vapor and thus becomes cold, the temperature dropping, in many instances, to a point where frost accumulates on the carburetor, and imperfect vaporization follows.

It has been customary in the art to water-jacket the carburetor, in many instances, with water heated by the engine itself. Such a procedure, however, is not possible in an air-cooled internal combustion engine, and I have therefore provided a structure whereby the carburetor may be warmed by the oil in an engine sump, thus attaining a double end; firstly, cooling the oil, and secondly, maintaining the carburetor at a sufficiently high temperature so that efficient vaporization always occurs.

Referring to the drawing:

The figure is a sectional view, partly in elevation, through an engine sump, the cylinders and crank shaft of the engine being shown diagrammatically.

I have chosen as a means whereby my invention may be illustrated, a horizontally mounted, air-cooled engine, having horizontal cylinders 1, each provided with a piston 2 and connecting rod 3, coupled to a crank shaft 4 in the usual manner. Inasmuch as the crank shaft of such an engine will be vertical, an oil sump 5 is provided beneath the main crank bearing 6 from which oil may be supplied to the various engine bearings and returned by gravity to the sump.

I prefer to circulate the oil by pumps driven by gears 7 through shafts 8, the pumps not being shown.

I prefer to mount the carburetor within the oil sump, and to that end have provided a carburetor chamber 9, formed by extending the lower wall 10 of the sump upwardly and across, to form carburetor chamber side walls 11, and an upper wall 12.

On the upper wall 12 of the carburetor chamber I prefer to form a manifold chamber 14 from which inlet pipes 15 pass through the sump and through the walls thereof at couplings 16, to the cylinders 1. The connections of inlet pipes 15 of the cylinders are not shown, but are connected to the inlet valve assembly in any well known manner.

A carburetor 17 is mounted completely within the carburetor chamber 9, and attached to manifold chamber 14 in the usual manner so that vapor from the carburetor will pass into the various inlet pipes 15.

Air is supplied to the carburetor through an intake pipe 19 which passes through an intake pipe conduit 20 extending through the sump in such a manner that it is entirely surrounded by oil when the oil sump is filled. The lower opening in carburetor chamber 9 is then closed with a fire-proof screen 21, preferably of several layers, so that should any fuel dripping catch fire, the flame cannot reach the carburetor and fuel supply pipe 18 to cause uncontrolled release of fuel to add to the flame.

It will be seen that in operation of the engine as outlined above, air intake pipe 19 is warmed by the hot oil in the sump 5. Likewise, the carburetor chamber 9 is surrounded by hot oil, thus preventing the carburetor from getting cold. The absorption of heat by the carburetor from the oil in the sump cools the oil; and hot oil, dripping from the crank case above, also bathes inlet pipes 15 on their way to the cylinders.

Thus, I obtain a heat balance between the carburetor and the oil whereby each is maintained at a proper operating temperature. It should also be noted that these two factors increase in opposite sense; that is, the harder the engine

works, the colder the carburetor becomes, and the hotter the oil becomes. Thus, the oil and the carburetor tend to equalize themselves in temperature, irrespective of the speed and power supplied by the engine.

It is of course to be fully understood that my invention is not only applicable to horizontal engines of the type shown, but is also easily accomplished with any type of engine, as will be apparent to those skilled in the art.

I claim:

1. In combination with the oil sump of an internal combustion engine, reentrant walls extending from the bottom of said sump upwardly to enclose and define a chamber therein bathed in oil and open below to the atmosphere, a carburetor in said chamber, and an intake line running from said carburetor to a cylinder of said engine through said sump.

2. In combination with the oil sump of an internal combustion engine, reentrant walls extending from the bottom of said sump upwardly to enclose and define a chamber therein bathed in oil and open below to the atmosphere, a carburetor in said chamber, and a fire extinguishing screen closing said chamber from the atmosphere and completing the enclosure of said carburetor.

3. In combination with the oil sump of an internal combustion engine, reentrant walls extending from the bottom of said sump upwardly to enclose and define a chamber therein bathed in oil and open below to the atmosphere, a carburetor in said chamber, and an air supply conduit leading to said carburetor through said sump in position to be heated by the oil therein.

4. In combination with the oil sump of an internal combustion engine, reentrant walls extending from the bottom of said sump upwardly to enclose and define a chamber therein bathed in oil and open below to the atmosphere, a carburetor in said chamber, an intake line running from said carburetor to a cylinder of said engine through said sump, and a fire extinguishing screen closing said chamber from the atmosphere and completing the enclosure of said carburetor.

5. In combination with the oil sump of an internal combustion engine, reentrant walls extending from the bottom of said sump upwardly to enclose and define a chamber therein bathed in oil and open below to the atmosphere, a carburetor in said chamber, an intake line running from said carburetor to a cylinder of said engine through said sump, and an air supply conduit leading to said carburetor through said sump in position to be heated by the oil therein.

RALPH M. HEINTZ.