Sept. 3, 1946. E. OLSON 2,407,095

HEAT CONTROL

Filed April 16, 1945

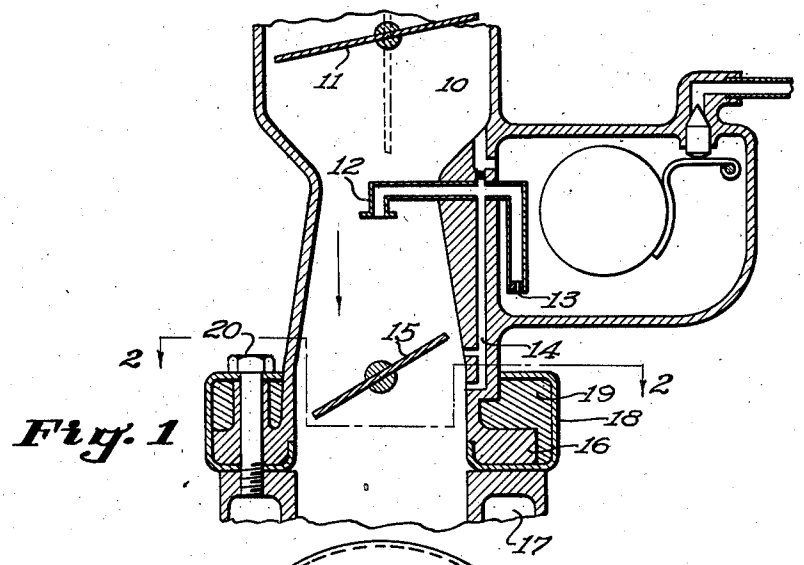


Fig. 1

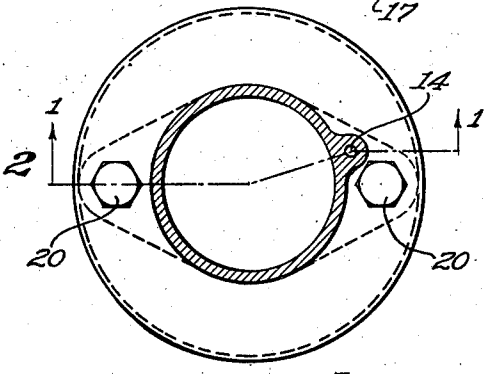


Fig. 2

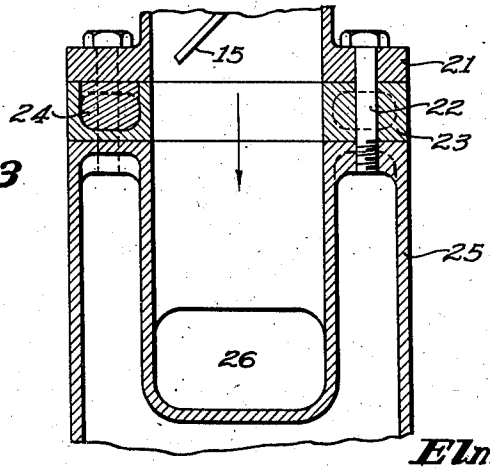


Fig. 3

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HEAT CONTROL

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Application April 16, 1945, Serial No. 588,629

1 Claim. (Cl. 123—122)

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The object of this invention is to prevent the following difficulty arising: After an engine has been driven for some time with the throttle wide open, the driver stops the engine and seeks refreshment. At the end of 20 minutes, he restarts the engine. During this intervening 20 minutes, the heat has risen through the flange into the throttle and beyond the throttle to the float chamber, and the gasoline in the float chamber has boiled and discharged to the inlet manifold, which is now full of gasoline vapor. This gasoline vapor makes a non-explosive fog, the mixture being too rich to fire. By waiting about ten minutes and then cranking the engine slowly with the throttle wide open, the engine is restarted without much difficulty. To avoid this trouble, asbestos gaskets are provided between the inlet manifold and the carburetor, and a large number of trick solutions have been tried and a few have been used. However, no satisfactory solution to the problem has yet been presented. One objection to asbestos gaskets is that a certain amount of heat around the throttle is desirable in cold weather. It is not practical to have asbestos gaskets in summer and metal gaskets in winter.

I have discovered that if I give the heat something to do besides boiling the gasoline, it will be diverted and absorbed, and very little of it will reach the float chamber.

Figure 1 shows a cross-sectional elevation on plane 1—1 of Figure 2.

Figure 2 is a cross-sectional plan view of Figure 1.

Figure 3 is a cross-sectional elevation similar to Figure 1.

In the figures, 10 is the air entrance, 11 is the choke valve therein, 12 is the nozzle discharging into a restricted portion of the air entrance, 13 is a fuel nozzle and 14 is a low-speed fuel passage, which discharged adjacent to and on the downstream side of the upstream lip of the butterfly throttle 15. 16 is the flange of the outlet from the carburetor, 17 is the heated inlet manifold

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flange to which the flange 16 is bolted by bolts 20, 18 is a shell embracing the flange 16, 19 is a hollow space within the shell 18, filled with a metal, for example, it may conform to the alloy known as 3879 consisting of bismuth 38.4, cadmium 15.4, lead 30.8 and tin 15.4, which has a melting point of 159.8° F. (See page 1328, K. R. Van Horn's Metals Handbook, American Society of Metals, Cleveland, Ohio, 1939; also, see page 432, circular C447, National Bureau of Standards, Mechanical Properties of Metals and Alloys.)

This metal has appreciable latent heat. Therefore, before the temperature of the flange 16 can exceed 159.8° F., the metal contained in 19 must be melted. For the same reason, once hav-having melted, it will stay warm for a longer period of time, and, therefore, not only is the heat prevented from interfering with restarting, but this heat actually is useful in facilitating restarting without moving the choke valve 11 into the position in which it is shown; in other words, without getting an abnormally rich mixture when restarting.

Figure 3 shows a slight modification of Figure 1. The element 23 is separate from the flange 21 of the carburetor and is placed above the inlet manifold 25, which has an inlet passage 26 separated from the exhaust gases contained in the manifold 25. A groove 24 in the element 23 is filled with this metal alloy #3879. Two bolts 22 are used to connect the carburetor flange 21 with the inlet manifold 25.

In place of alloy #3879, alloy #3880 may be used, consisting of bismuth 50, cadmium 6.2, lead 34.5 and tin 9.3, which has a melting point of 170.6° F.

What I claim is:

A hollow flange interposed between an exhaust-heated inlet manifold and a carburetor, filled with a fuseable metal having a melting point below 175° F.

ELMER OLSON.