Oct. 21, 1952 H. L. WHITE 2,614,550

TOP CYLINDER LUBRICATOR

Filed Oct. 19, 1949 2 SHEETS—SHEET 1

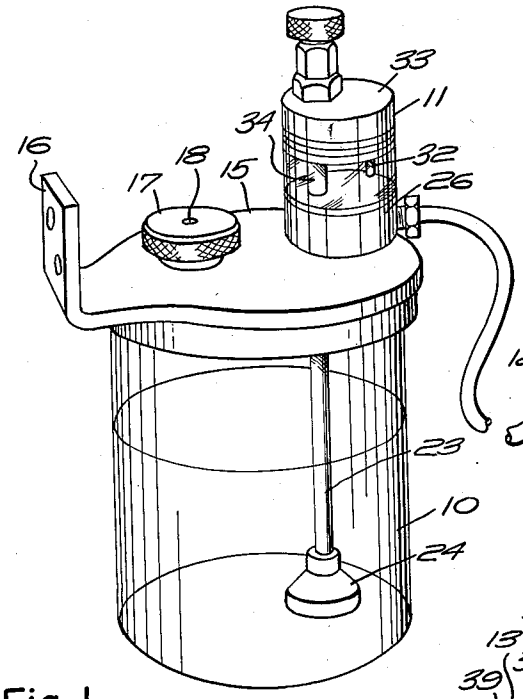


Fig. 1

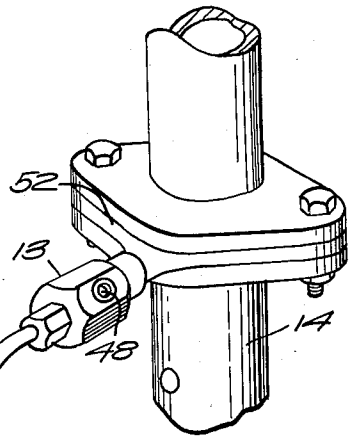


Fig. 2

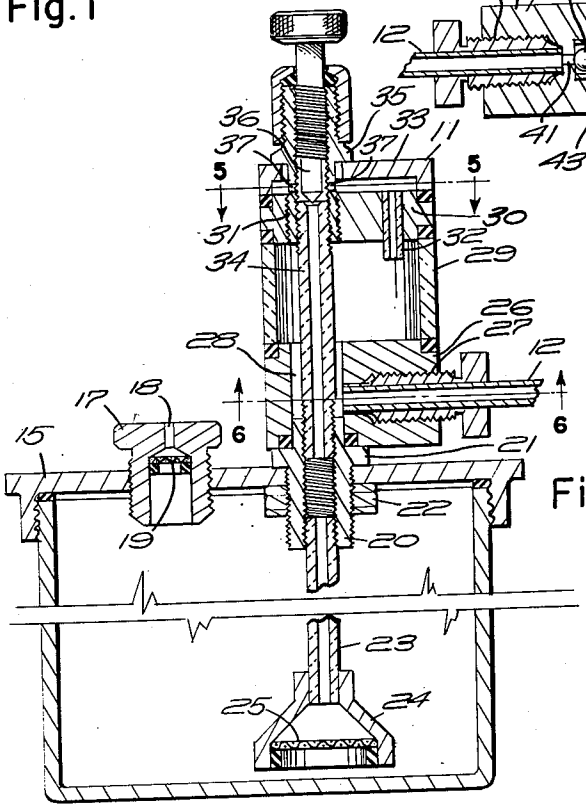


Fig. 3

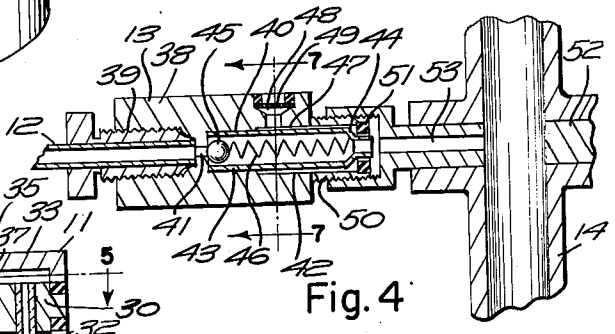


Fig. 4

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Oct. 21, 1952 H. L. WHITE 2,614,550

TOP CYLINDER LUBRICATOR

Filed Oct. 19, 1949 2 SHEETS—SHEET 2

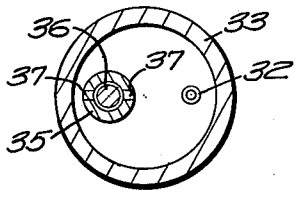


Fig. 5

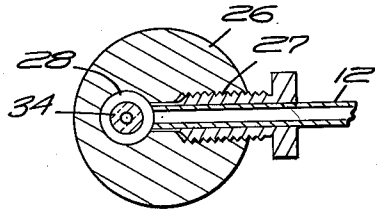


Fig. 6

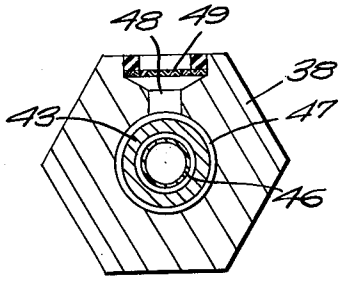


Fig. 7

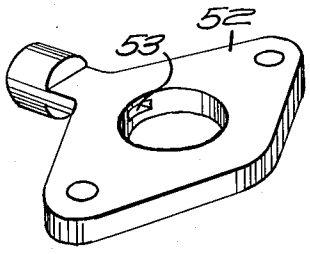


Fig. 8

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2,614,550

TOP CYLINDER LUBRICATOR

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Application October 19, 1949, Serial No. 122,346

1 Claim. (Cl. 123—196)

1

My present invention relates to lubricating means for internal combustion engines and more particularly to a novel top cylinder lubricator.

The principal object of the present invention is to provide a device for continuous lubrication of the top cylinder area of an internal combustion engine.

Another object of the present invention is to provide a top cylinder lubricator which injects the lubricant directly into the intake manifold of the engine.

A further object of the present invention is to provide a top cylinder lubricator which injects the lubricant into the top cylinder of the engine in the form of an atomized spray.

Another object of the present invention is to provide a top cylinder lubricator which is simple in construction and easy and economical to manufacture and assemble.

With the above and other objects and advantageous features in view, my invention consists of a novel arrangement of parts, more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more particularly defined in the appended claim.

In the drawings,

Fig. 1 is a perspective view of the feed reservoir of a top cylinder lubricator embodying my invention;

Fig. 2 is a perspective view of the nozzle and the manifold connection;

Fig. 3 is a vertical section of the feed reservoir;

Fig. 4 is a vertical section of the nozzle;

Fig. 5 is a section taken on line 5—5 on Fig. 3;

Fig. 6 is a section taken on line 6—6 of Fig. 3;

Fig. 7 is a section taken on line 7—7 on Fig. 4; and

Fig. 8 is a perspective view of the manifold connection.

It has been found that the introduction of a proper lubricant into the gas intake system of an engine serves to provide necessary lubrication for the top cylinder area. These lubricants are usually also provided with a carbon remover. The mixture thus keeps the top of the engine (valves, pistons and cylinders) free of carbon, properly lubricated and cooled. The easiest method used to introduce the lubricant is to pour it into the gasoline tank. However, the oil becomes diluted and this method provides only temporary lubrication. Other methods are pouring the oil directly into the top cylinder or pouring it through the carbureter.

2

All these methods, while helpful, are haphazard and intermittent. To insure an even and steady flow of the lubricant a reservoir is clamped under the hood and a measured flow of oil fed to the intake manifold. The present invention comprises a refinement of this system by providing for an accurate visible control of the flow of oil and by providing an atomizing nozzle which atomizes the oil as it injects it into the manifold.

Referring more in detail to the drawings illustrating my invention, Figs. 1 and 2 show the general arrangement of the device. The reservoir 10 is provided with the flow control mechanism 11 and connected through the tube 12 and atomizing nozzle 13 to the intake manifold 14. Referring to Figs. 1 and 3, the reservoir 10 is preferably of glass or other transparent material. It is provided with a cover 15 having an integral bracket 16 for fastening under the hood. The lubricant is poured into the reservoir 10 through an opening in the cover 15 having a threaded plug 17. The plug 17 is provided with a central bore 18 and a screen filter 19 so that the air drawn into the reservoir (as the oil is used up) is filtered.

The flow control assembly 11 is mounted on the cover 15, a fitting 20 extending through the cover 15 with an annular integral shoulder 21 resting on top of the cover 15 and held in place by the threaded nut 22 beneath the cover. The oil intake comprises a tube 23 depending from the fitting 20 and having a cone shaped member 24 at its lower end. A filter 25 is positioned in the member 24 to filter the oil passing up the tube.

The assembly mounted on top of the reservoir shown in Fig. 3 provides a visible adjustment of the oil flow. A block 26 is mounted on the shoulder 21 of the fitting 20 and is provided with the lateral threaded opening 27 to which the connected tube 12 is attached. The opening 27 communicates with a vertical opening 28 in the block. A suitable transparent housing 29 is mounted on the block 26 and is surmounted by a block 30. The block 30 is provided with a threaded opening 31 in alignment with the opening 28 in the block 27, and a depending spout 32 extending vertically through the block. A cover 33, slightly spaced from the block 30 surmounts the assembly. This assembly is held together by a tube 34 screwed into the fitting 20 and extending vertically through the opening 28 in the block 26. The upper end of the tube 34 is screwed into a fitting 35 which extends downwardly through

the cover 33 and is screwed into the opening 31 in the block 30. A manually operable needle valve 36 is mounted in the fitting 35 to control the flow from the top of the tube 34 through openings 37 in the fitting 35 and into the space between the cover 33 and block 30.

The oil will then flow down the spout 32, into the chamber 29, around the tube 34 into the openings 28 and 27 and then through the connecting tube 12. By adjusting the valve 36, the number of drops per minute emerging from the spout 32 can be visibly adjusted to suit the operating conditions of each engine.

The atomizing nozzle 13, Fig. 4, comprises a block 38 having comparatively large bores 39 and 40 extending in alignment from each end and connected by a small opening 41. The connecting tube 12 is threaded into the opening 39. The bore 40 is provided with an offset forming an outer bore portion 42 of slightly larger diameter than the bore 40. A tube 43 of the same diameter as the smaller portion of the bore 40 extends through the bore 42 and is positioned tightly in the bore 40. The outer end of the tube 43 is provided with a narrowing conical shoulder 44. A ball check valve 45 is pressed against the opening 41 by a light spring 46 which rests against the conical portion 44 in the tube 43. This arrangement of the tube 43 leaves a narrow passage 47 surrounding the tube 43 at the wider passageway 42. This passage 47 communicates with an air intake passageway 48 having a screen filter 49.

The outer end of the tube 43 extends into a threaded extended portion 50 of the block 38 and a ring 51 is positioned in the end of the portion 50 to further restrict the terminus of the air passageway 47. The portion 51 is screwed into the manifold connecting member 52, Fig. 8, which is provided with a passageway 53 communicating with the intake manifold. The member 52 is generally flat and shaped to conform to the usual intake manifold connection so that it can be positioned there between the ends of the connection as shown in Fig. 2.

In operation, the suction vacuum created by the engine will open the check valve 45 and draw the measured quantity of lubricant from the connecting tube 12, opening 41, through the tube 43. Simultaneously, air will be pulled into the opening 48 and through the passageway 47, past the shoulder 44 and ring 51. The shape and restricted nature of this passageway causes the air to whirl violently and atomize the lubricant emerging from the end of the tube 43. The vaporized mixture then passes immediately through the passageway 53 into the intake manifold.

The advantages of the above construction are numerous. The flow of the lubricant can be visibly controlled at the reservoir and set for the best operating efficiency for the particular engine. The atomized mixture passes immediately into the manifold intake so that it retains its misty characteristic at the place where needed. Passage through long tubes causes condensation and loss of atomization. Further, it has been found that the device can be used as a water injector or for an alcohol and water injector to obtain increased power. Also, while the lubricant contains some carbon remover, in bad cases a pure carbon remover can be run through the device with excellent results. The atomization is so fine that it has been found possible to put gasoline into the reservoir and to operate the device as an emergency carbureter when the gas line is clogged.

While I have described a specific embodiment of the invention, it is obvious that changes may readily be made in the size, shape, or relative arrangement of parts, without departing from the spirit and scope of the invention as defined in the appended claim.

I claim:

In a top cylinder lubricating system having a main lubricant reservoir, a cover on said reservoir having an inlet, a plug for closing said inlet, an air intake opening in said plug, a transparent feed chamber communicating with said reservoir and a manually adjustable needle valve for controlling the flow of lubricant from said reservoir to said feed chamber, said system being mounted at a point remote from the intake manifold of an engine, the combination of means adjacent the intake manifold of the engine for atomizing said lubricant and injecting it directly into the intake manifold, said atomizing means comprising a nozzle having an outlet adjacent the manifold, an air chamber surrounding said nozzle, said air chamber having an inlet continuously open to the atmosphere and an outlet surrounding said nozzle outlet, and a check valve in said nozzle for controlling the flow of lubricant, and a conduit connecting said atomizing means with said feed chamber.

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