May 11, 1937. H. A. CARSON 2,079,676

CYLINDER OILER FOR INTERNAL COMBUSTION ENGINES

Filed April 7, 1936

FIG. 1.

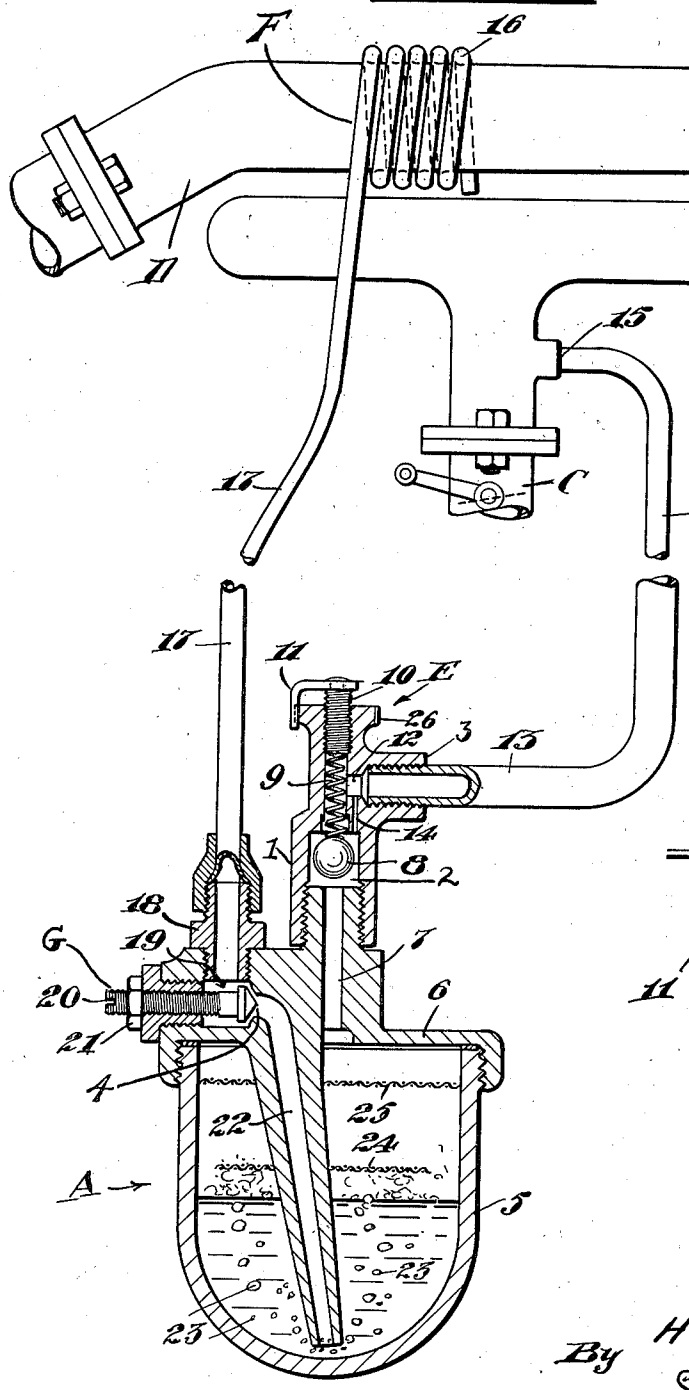
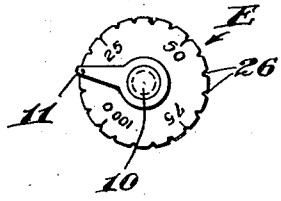


FIG. 2.



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CYLINDER OILER FOR INTERNAL COMBUSTION ENGINES

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Application April 7, 1936, Serial No. 73,132

1 Claim. (Cl. 123—196)

The principal object of my invention is the provision of a device for efficiently and automatically meeting the lubricating requirements of internal combustion engines, to assure easier engine starting, quicker pick-up, the practical elimination of friction, carbon deposits and engine wear.

An object is to provide a device for automatically distributing to the moving parts of internal combustion engines, a constant spray or film of hot air treated lubricant.

Another object is the provision of a device to efficiently convey to and coat the upper portion of the engine combustion chamber together with the respective moving parts operating therein, such as the cylinder walls, pistons, piston rings, ring grooves, valves, valve stems and valve guides.

Another object is the provision of a device permitting a steady regulated flow of hot air treated lubricant to the engine cylinders.

A further object is the provision of a device for the practical elimination of carbon and carbon deposits.

A further object is the provision of a device for the practical elimination of engine breakdowns and wear resulting from a lack of lubrication.

A further object is the provision of a device to diffuse into the engine cylinders, combustion chamber and over the operating moving parts, a heated lubricant having a tendency to adhere to the surface it contacts.

And a still further object is the provision of a device, the use of which will mark for increased mileage per gallon of gas consumption in the operation of a motor vehicle, for example; the use of less gas in the running of stationary engines, and a materially reduced oil consumption in engine operation in either case.

Other objects and advantages of the invention will more fully appear as this specification proceeds and as is set forth in the appended claim.

I attain these objects by the device disclosed in the accompanying drawing, in which:

Figure 1 is a view of the invention in elevation and cross-section, and depicting the device as it is in use.

Figure 2 is a plan view in elevation of a combination adjusting and indicator means for the regulation of the flow of lubricant from the device.

Referring now specifically to said drawing wherein one embodiment of the invention is shown in detail, such embodiment generally comprises a reservoir A for confining a suitable liquid lubricant preparatory to its introduction into the engine through the intake manifold B between the engine (not shown) and the throttle valve C.

This introduction is effected by means of atmospheric air being drawn from an air heater F on the exhaust manifold D, through the lubricant confined in said reservoir A, and valve means G by the suction action of the engine, said valve means G providing a means for regulating the flow of atmospheric air into said reservoir A, and a further valve means E providing a means for regulating the flow or passage of lubricant to the engine.

The reservoir A is preferably comprised of a small glass bowl 5 having a screw top 6 carrying an outlet nipple 7. Initially, this bowl is charged about half full with the liquid lubricant and subsequently the lubricant may be replenished as desired, it being noted that refilling may be accomplished through the air heater without dismantling or disassembling the device.

The valve means E comprises a fitting 1 screwed onto the nipple 7 and is provided with a valve chamber 2 of which the upper end of said nipple comprises the lower side and in which a ball valve 8 is placed. The seating of this valve to shut off the flow of lubricant to the engine is controlled by a spring 9, the tension of which is regulated by a stud screw 10 having a pointer or indicator handle member 11 on its upper end.

The outlet passage 12 in the fitting extends through a nipple 3, and to which is connected a pipe line 13 in turn connected with the intake manifold B as at 15.

A by-pass 14 in the fitting provides for a limited flow of lubricant to the engine when the ball valve is seated to otherwise cut off the lubricant flow.

The top of the fitting is formed as a notched dial 26 for holding the indicator 11 in predetermined position, there being indices and numerals on the dial to facilitate adjustment of the device for proper operation at the different speeds at which the engine is normally to be operated.

The air heater F includes a coil 16 of copper tubing wound around the exhaust manifold D and from which the tubing extends as a pipe line 17 to the coupling 18 which joins it to the lubricant reservoir A, its other or free end providing a suitable means for the introduction of the lubricant into the reservoir as aforesaid.

The coupling 18 opens into a valve chamber 19 from which an air nozzle 22 extends into the lower end of the bowl 5. In this chamber 19 is a screw

valve 20 having a seat 4, same being adapted for controlling the flow of heated air into the bowl 5, a lock nut 21 on said valve providing a means for maintaining proper adjustment thereof.

The numeral 23 is indicative of a plurality of hot air bubbles formed in the lubricant. They are broken up by means of the baffle screen 24, a finer screen 25 above said baffle screen 24 functions to break up and attenuate the lubricant to a finer consistency for passage through the valve, and acts to prevent the passage of foreign matter, if any, into the engine.

It will now be apparent that the valve 8 will move responsive to the varying pressure in the manifold B and the pipe line 13, said pressure being varied by the speed of the engine and the opening and closing of the throttle valve C. Thus the valve will automatically control the flow of lubricant to the engine to meet resultant lubrication requirements effectively at all speeds and operating conditions, subject, only to the proper adjustment of the spring 9 to vary the tension thereof, as aforesaid.

In use, the device operates somewhat at variance from standard lubricating practice. Moreover, it is peculiarly designed for conveying to the engine a constant regulated flow of hot air treated graphite compound in liquid form. Standard lubricating oils, however, may as readily be employed. The adhering properties of graphite, on the other hand, experience has amply proven, provide a highly satisfactory lubricating medium.

In standard practice, the engine is lubricated by force feed, a supply of oil as is apparent, being stored in the engine crank case, and from which it is pumped to the crank shaft, crank shaft bearing and component working parts. To effectively accomplish this, a far greater spray of oil than is normally required is necessary. This results in excessive oil consumption due to the excessive waste and loss resulting from a continuous splashing of the parts to a greater extent than necessary, the cylinders, for example being thoroughly drenched during operation of the engine; the natural action of the operating pistons conveying said splashed oil into the ring grooves by means of which it eventually reaches the engine combustion chamber.

Irrespective of the quantity of oil thus conveyed, its presence in the combustion chamber, experience has proven, is highly detrimental to the efficient operation of the engine.

To partially overcome this problem, many pistons are machined for the adoption of special type rings of which there are many on the market. Even this precaution has proven unsatisfactory. Some oil passing the rings nevertheless and resulting in a so-called blowby or bleeding effect. The heat within the combustion chamber causes this oil to burn and form a carbon deposit adhering to the chamber walls. As a result of further engine operation, this carbon formation is constantly building up as it were, and necessitating in time, enforced removal for the better operation of the engine and a reduction in operating expense. Moreover, since a percentage of the carbon deposit is gradually breaking and wearing away, and the dislodged particles work down between the piston and the cylinder wall, and lodge behind the rings forming cakes as a result of the excessive heat caused by combustion within the cylinder, proper operation of the rings by expansion is materially retarded, resulting in both wear and excessive oil consumption. Thus the operation of the engine at highest efficiency is not only impossible, but results in time to a complete breakdown and high repair expense.

With the use of my device, this excess of splashed oil is partially restrained from reaching the combustion chamber. Any entering same and forming a carbon deposit, cannot adhere to the chamber wall. With a new engine, or clean dry walls in an old one, the amount of oil reaching the combustion chamber is considerably restricted since the graphite coating greatly eliminates available space in which the oil may pass. Moreover, as the rings will no longer be retarded by carbon deposits behind them, they will be free to function and fully expand to meet engine requirements, assuring far greater efficiency in engine operation, due to higher compression, increased carburetor suction and decreased oil and gas consumption.

Thus, the principal object of my device is to provide an oiler that will constantly feed a predetermined controlled stream of hot air treated graphite liquid lubricating compound to the engine parts, other than the crankshaft and its component parts; to effectively coat the former; reduce friction and wear; eliminate carbon deposits; lower oil consumption for crankshaft use, and materially increase engine efficiency to obtain greater service per gallon of gas, quicker pick-up, ease of operation, reduced wear and breakage.

With my device installed, the cost of crankcase oil is considerably reduced owing to the practical elimination of waste during engine operation.

The device may readily be installed by simply connecting in convenient manner to the intake manifold between the carburetor and the main portion of the manifold from which the cylinder connections lead, an opening being generally provided therein and which may be employed for connecting the same.

When the engine is operating, a constant varying suction in the manifold is apparent. This variation depends wholly upon the opening and closing of the carburetor throttle in its operation for admitting fuel and air, said opening and closing increasing or decreasing the suction accordingly. Thus, a greater suction is created when the carburetor throttle is closed than when open; the engine likewise operating at a greater speed with the throttle open than when closed.

The structural characteristics of the chamber wherein the ball valve 8 operates, together with its size is of paramount importance in the manufacture of the device. Moreover, the size of the ball, its shape, size and openings through the chamber and spring tension means are dominating factors in the mechanical achievement of perfecting the device.

Due to the greater suction when the engine is idling, the ball valve 8 is automatically raised against the upper shoulder of the chamber, formed by a reduction in size of the opening passing therethrough, the ball valve 8 abutting thereagainst and closing the opening against the flow of lubricant, a by-pass provided through the shoulder, nevertheless providing a means for permitting a small quantity of the lubricant to pass. In the event of the engine backfiring and the resultant loss of vacuum occasioned thereby, the ball valve 8 automatically seats itself against the lower chamber shoulder, thereby closing the supply opening from the reservoir, and preventing reverse pressure within same.

The quantity of fluid passing through the device is regulated by the spring 9 secured to the adjusting stud screw 10, the indicator 11 serving, first, to permit setting of the proper spring tension to pre-determined requirements for certain speeds, and secondly, to indicate in unison with the dial 26, the quantity of lubricant passing to the engine.

The valve 8 is designed of the ball type as experience has proven that a rounded object makes possible a steady lift unhampered by guides, raising and lowering elements, and the resultant friction and wear.

Readily produced from materials obtainable in the open market and at no great expense, light in weight, compactly built and well constructed, the device commends itself for simplicity and satisfaction in operation and results achieved.

I am aware that slight modifications may from time to time be made in the details of structure without departing, however, from the scope of the present invention, and as defined in the claim which is appended hereto. Hence, I do not limit my present invention to the exact description of construction herein disclosed, but what I do claim is:—

In an oiler for internal combustion engines, a liquid lubricant reservoir, a pipe line connected with the intake manifold of such an engine, a fitting connecting said pipe line with the upper side of said reservoir and having a valve chamber therein, a ball valve normally closing the opening in the lower side of said chamber and which is moved by suction in said pipe line towards the upper side of said chamber, a spring against the action of which the ball valve moves to close off communication of the chamber with said pipe line, means for varying the tension of said spring, a by-pass permitting a flow of lubricant past said valve when the latter is closed, a coil of tubing around the exhaust manifold of said engine and having one end open to the atmosphere, means for conducting heated air from the tubing to a point below the level of the lubricant within the reservoir, and valve means for controlling the flow of heated air into said chamber; a baffle screen means within said reservoir above the level of the lubricant therein.

HENRY A. CARSON.