Dec. 23, 1930. A. R. SOLOMON 1,786,269

OVERHEAD GASOLINE ENGINE OILER

Filed March 20, 1929

Fig. 1.

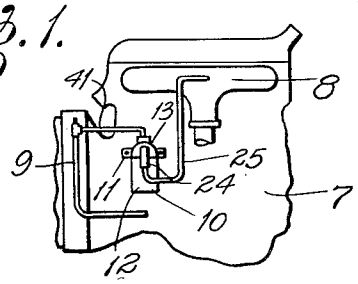


Fig. 2.

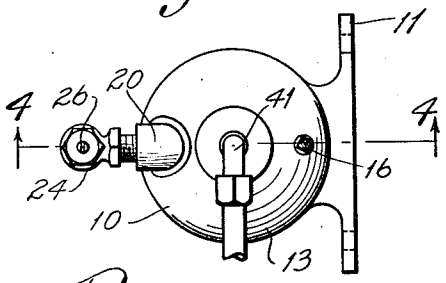
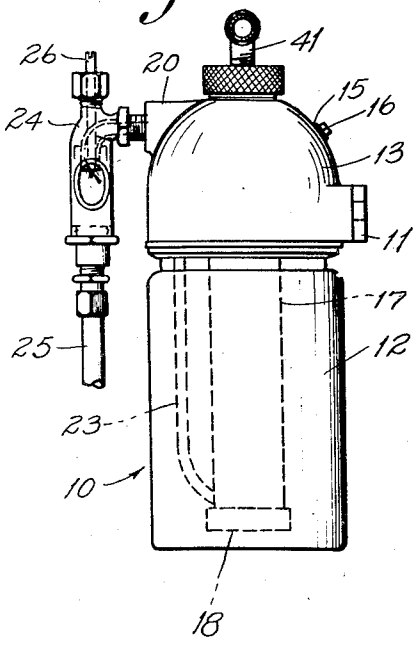


Fig. 3.



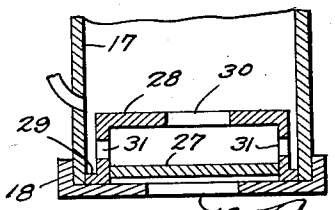


Fig. 6a

Fig. 5.

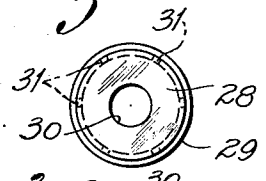


Fig. 6.

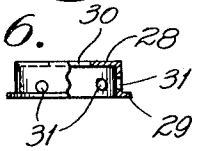
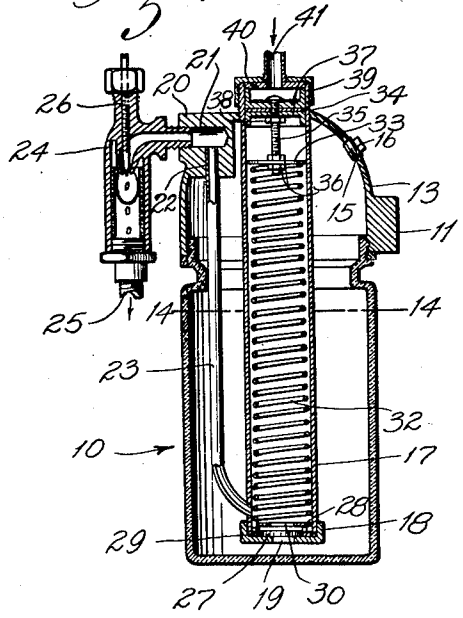


Fig. 4.



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UNITED STATES PATENT OFFICE

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OVERHEAD GASOLINE-ENGINE OILER

Application filed March 20, 1929. Serial No. 348,372.

The object of my device is to produce an overhead gasoline engine oiler particularly of the type used in automobiles, although it may be equally well used with any gasoline engine.

A further object is to lubricate the cylinders, pistons, piston rings and valves from the top.

A still further object is to lubricate these parts from the position indicated with a special high grade lubricating oil, and to have the operation automatic and to produce the oil movement by means of the present pressure and vacuum lines on the motor.

A still further object is to devise a special container for special oil for the reception and storage of said oil with fluid communication between said oil storage reservoir and the intake manifold of the gasoline engine and further fluid communication between said oil reservoir and the oil pressure line of the motor. By means of my device the special oil from said oil storage reservoir, by means of the vacuum in the intake manifold of the motor, is drawn in small predetermined quantities from the oil reservoir and mixed with the gasoline vapor from the carburetor and drawn to the parts to be lubricated. In addition the oil is forced from the oil storage reservoir by a positive pressure from the oil pressure line through the vacuum line previously described making the action positive.

My device may be easily attached to the frame of the present conventional gasoline engine at any conventional point and connected by conventional fittings to pipes that lead to the intake manifold and to the oil pressure line.

My device is made of few and simple parts that lend themselves readily to multiple production, and that may be easily made, repaired and attached to the gasoline engine.

With these and other objects in view my invention has relation to certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated in the drawings in which

Fig. 1 is a fragmental elevation of a gasoline engine showing the intake manifold, the oil pressure line and my device attached to the frame of the gasoline engine and operatively connected with the intake manifold and oil pressure line.

Fig. 2 is a plan view of the oil storage reservoir together with the oil pump, valves, etc., and pipe connections for connection with the intake manifold and oil pressure line.

Fig. 3 is a front elevation of Fig. 2.

Fig. 4 is a longitudinal, sectional elevation on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged plan view of a valve used in my device and shown in its operative position in Fig. 4.

Fig. 6 is a front elevation of Fig. 5 partly in section.

Fig. 6*a* is an enlarged fragmental sectional elevation of the elements at the bottom of the cylinder 17 in Fig. 4.

Numeral 7 designates the gasoline engine having the intake manifold 8 and the oil pressure line 9. Numeral 10 designates the oil reservoir, which is attached to the gasoline engine 7 by means of screws passing through holes in the flange 11 and into the frame of the gasoline engine 7. The oil reservoir 10 embodies the jar 12 and the cap 13. The cap 13 is in threaded engagement with the open end of the jar 12. The jar 12 acts as the container for the special lubricating oil and in operation is filled to the line 14—14 of Fig. 4. For conveniently filling the jar 12 with oil the tapped hole 15 is formed in the cap 13. Numeral 16 designates a threaded plug in threaded engagement in the tapped hole 15. Numeral 17 designates a cylinder externally threaded at one end and secured in the cap 13 centrally by passing through a hole in said cap, so that the threaded portion of the cylinder 17 extends beyond the top of the cap 13. The end of the cylinder 17 opposite the threaded end is covered by the annular cap 18. Centrally positioned in the annular cap 18 is the hole 19. Numeral 20 designates a projection formed on the cap 13 and having the hole 21 formed therein. Numeral 22 designates a hole formed in the projection 20 at right angles to the hole 21 and in fluid communication therewith. Numeral 23 designates a pipe having one end projecting in the hole

22 and the other end secured to the cylinder 17 at its lower end establishing fluid communication between the cylinder 17 from the bottom to the hole 21. Numeral 24 designates a conventional oil feed, which is in threaded engagement in the hole 21 formed in the projection 20. From the free end of the oil feed 24 extends the pipe 25, which connects to the intake manifold 8. The oil feed 24 has the conventional regulating stem 26. It will be seen that by the structure thus far described, that fluid communication is established between the bottom of the cylinder 17 through the oil feed 24 to the intake manifold 8 and that the amount of fluid passing through its system may be regulated in the conventional manner, by means of the regulating stem 26. Numeral 27 designates a cylindrical disk of lesser diameter than that of the cylinder 17 and positioned in the cylinder 17 in the annular cap 18 and lying normally over the hole 19. Numeral 28 designates a cylindrical cap having the flange 29 and the hole 30 formed centrally in its top and the holes 31 formed in its lateral face. The outside diameter of the cylindrical cap 28, that is the outside diameter of the flange 29 is such to permit the cylindrical cap 28 being positioned in the cylinder 17 in sliding engagement. The inside diameter of the cylindrical cap 28 is slightly greater than that of the cylindrical disk 27, so that the cylindrical disk 27 when positioned together with the cylindrical cap 28, as shown in Fig. 4 on the bottom of the cylinder 17, will be in sliding engagement on the inside of the cylindrical cap 28. As shown in Fig. 4 the movement of the cylindrical disk 27 is limited by the height of the cylindrical cap 28. Numeral 32 designates a coiled spring of a diameter slightly less than that of the cylinder 17 and positioned in the cylinder 17, as shown in Fig. 4. Numeral 33 designates a cylindrical disk of a diameter slightly less than the inside diameter of the cylinder 17 and positioned above the coiled spring 32 in Fig. 4, so that the cylindrical disk 33 is in sliding engagement in the cylinder 17. Numeral 34 designates a cylindrical disk similar to cylindrical disk 33. Numeral 35 designates a bolt having the cylindrical disk 33 secured thereto and held in position thereon by means of the nuts 36. Numerals 37 designate resilient washers, one positioned above and the other below the cylindrical disk 34. The washers and disk are positioned on the bolt 35, as shown in Fig. 4. Numeral 38 designates a nut in threaded engagement on the bolt 35 below the lower resilient washer 37. By means of this nut 38 and the head of the bolt 35, the resilient washers 37 and the cylindrical disk are held in positive fixed relationship relative each other and the bolt 35. Numeral 39 designates a cap in threaded engagement on the upper end of the cylinder 17. The washer 40 is positioned on the inside of the cap 39. Numeral 41 designates a pipe threaded in a central hole in the cap 39. The pipe 41 is secured at its open end to the oil pressure line 9.

It must be understood that the oil from the oil pressure line never reaches the oil in the jar 12. The oil pressure line is only used to secure the pressure to actuate the movement of the resilient washers 37 in the cylinder 17.

The operation of my device is as follows:

The only time there is a pressure in the oil pressure line is when the gasoline engine is operating. As is shown in Fig. 4 the oil is fed in drops from the oil feed 24 to the pipe 25. The intention is to feed the oil only in such amounts that it will become intermingled with the gasoline vapor from the carburetor, and so that the oil is not deposited on the cylinders, pistons, piston rings and valves in too great quantities. It is likewise seen that the oil from the jar 12 can only enter the cylinder 17 through the hole 19 and that such oil can only pass through the oil feed 24, through the pipe 23. The coiled spring 32 is used to return the cylindrical disk 33, cylindrical disk 34 and resilient washers 37 together with the bolt 35 to the position shown in Fig. 4. The position of these elements in Fig. 4 is that assumed by them when the cylinder 17 is filled with oil through the hole 19, as to be subsequently described.

The vacuum in the intake manifold 8 creates a vacuum in the cylinder 17, which lifts the cylindrical disk 27 to the top of the annular cap 28 and draws the oil from the jar 12 through the hole 19, through the holes 31 into the pipe 23 and the oil feed 24, and from there through the pipe 25 to the intake manifold 8. The remainder of the operation is necessary to make the flow of oil through the pipe 23 positive by not only having it drawn through the pipe 23 by the vacuum from the intake manifold, but to have it forced by a positive pressure through the pipe 23. This pressure is produced by the oil pressure line 9, which forces the oil from the oil pressure line into the cylinder 17 above the resilient washers 37 thereby pushing the resilient washers 37 and their accompanying elements downwardly compressing the coiled spring 32 and pressing the oil in the cylinder 17 below the cylindrical disk 33 against the cylindrical cap 28. This pressure of the oil in the cylinder 17 presses the cylindrical disk 27 against the bottom of the annular cap 18, closing the hole 19, preventing the oil that is in the cylinder 17 from passing into the jar 12 on this downward stroke through the hole 19. This pressure on the oil in the cylinder 17 then forces the oil from the cylinder 17 through the pipe 23 and through the same system of circulation that is produced by the vacuum in the intake manifold. The oil pres-

sure in the cylinder 17 is greater than the pull of the vacuum in the pipe 23 and in the bottom of the cylinder 17, otherwise the vacuum would hold the cylindrical disk 27 above and away from the hole 19 and permit fluid communication between the cylinder 17 and the jar 12 and the downward pressure in the stroke previously indicated would simply force the oil from the cylinder 17 into the jar 12 through the hole 19, rather than upwardly through the pipe 23. The cylinder 17 is made of such size that it will hold a quantity of oil that is sufficient for any normal continuous operation of the gasoline engine. When the gasoline engine stops running and the pressure in the oil pressure line 9 ceases the coiled spring 32 will return the resilient washers 37 to the position shown in Fig. 4, and also draw in a sufficient amount of oil into the cylinder 17 to fill it through the holes 31 and the hole 19.

What I claim and mean to secure by Letters Patent is:

1. In a device of the character described an oil reservoir, having means of fluid communication therefrom to the intake manifold of a gasoline engine, a cylinder secured in said oil reservoir, a piston positioned in said cylinder, one end of said cylinder behind said piston being in fluid communication with the oil pressure line of a gasoline engine, a valve positioned at the bottom of said cylinder, which closes the bottom of said cylinder from fluid communication with said oil reservoir in the downward stroke of said piston and forces the oil from said cylinder to a pipe, which is in fluid communication with the intake manifold of a gasoline engine.

2. In a device of the character described, an oil reservoir, means of fluid communication between said oil reservoir and the intake manifold of a gasoline engine, a cylinder positioned in said oil reservoir, a valve positioned in said cylnder, so that the valve will be open from the action of the vacuum in the intake manifold and draw the oil from the oil reservoir, through said valve into said intake manifold, said oil reservoir having a means for filling said cylinder.

In testimony whereof I affix my signature.

AARON R. SOLOMON.