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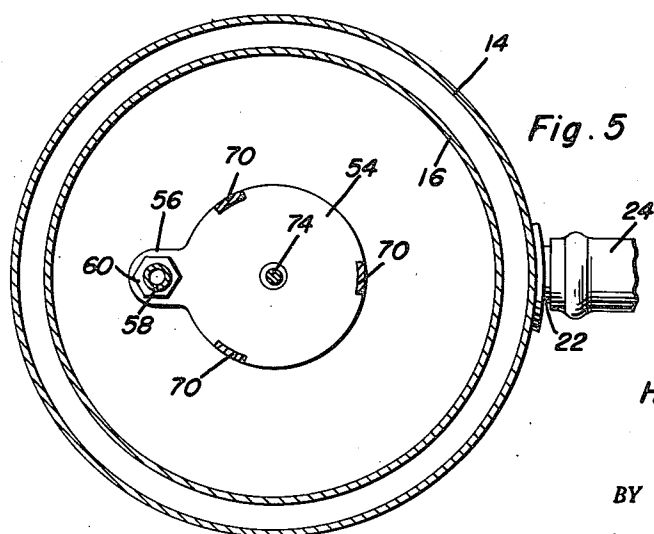
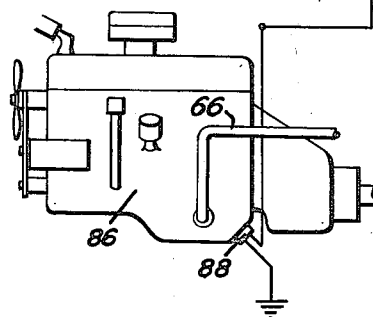
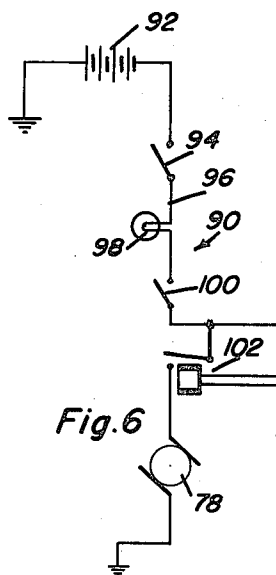
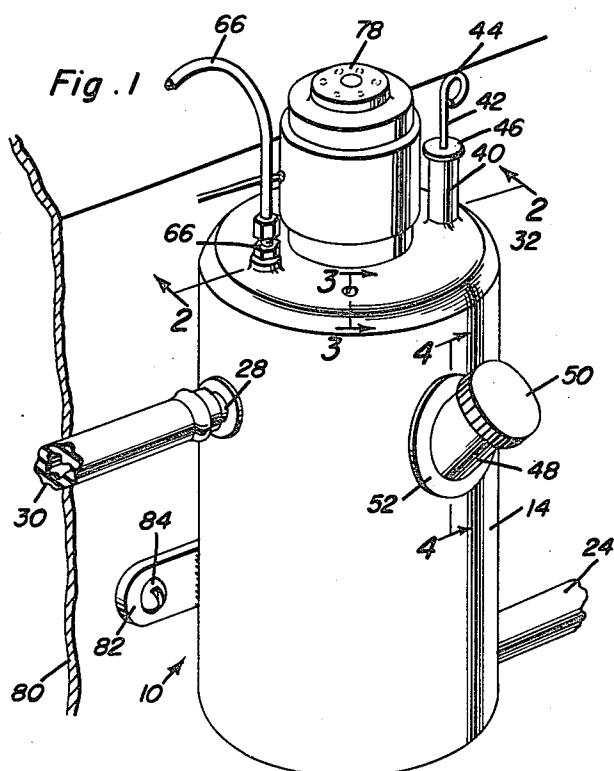
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2,836,259

AUTOMATIC CRANKCASE OIL LEVEL MAINTAINER PUMP

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2

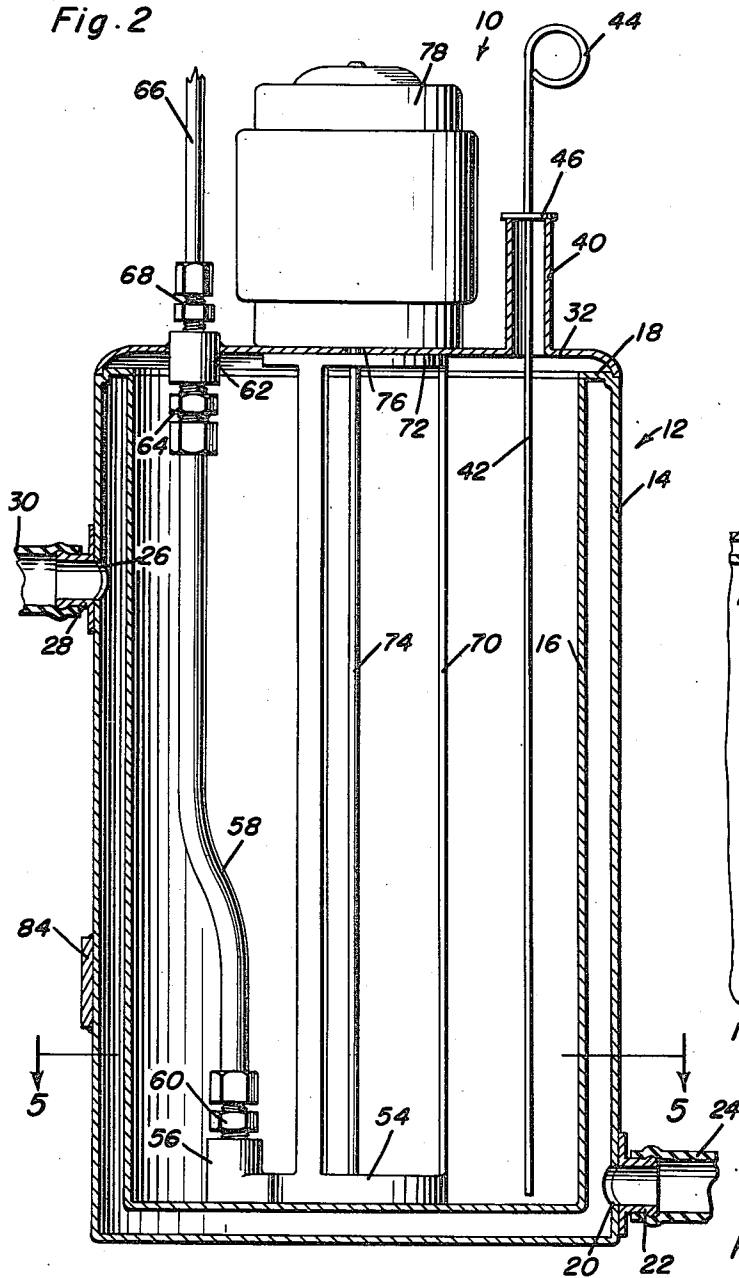


Fig. 3

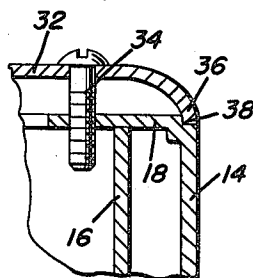
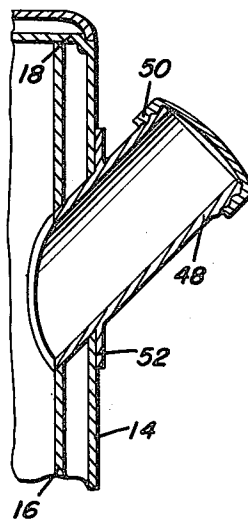


Fig. 4



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1

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AUTOMATIC CRANKCASE OIL LEVEL MAINTAINER PUMP

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1 Claim. (Cl. 184—103)

This invention relates to an automatic crankcase oil level maintainer pump and more specifically provides a device for holding a reserve supply of lubricating oil wherein the reserve supply will be utilized for replenishing the lubricating oil in the crankcase of a motor vehicle or the like.

An object of this invention is to provide an automatic crankcase oil level maintainer pump for use in conjunction with a motor vehicle wherein the crankcase oil level will be maintained between upper and lower limits by the provision of a reserve supply of oil and means actuated by the level of the oil in the crankcase to discharge a portion of the reserve oil into the crankcase until a predetermined upper level of oil in the crankcase has been reached.

Another object of this invention is to provide an automatic crankcase oil level maintainer pump adapted to be mounted on the fire wall or the like of a motor vehicle and responsive to the level of oil in the crankcase for adding oil thereto, together with means for heating the reserve supply of oil wherein the oil will easily flow even in low temperature conditions.

Still another object of this invention is to provide a device as set forth in the preceding objects wherein an indicator is provided on the interior of the motor vehicle for observation by the driver together with switch means for deactivating the device of the present invention.

Still another important object of this invention is to provide a device set forth in the preceding objects wherein the device is wired into the ignition system of a motor vehicle and will operate only when the ignition switch is on and further providing the device with a manual control switch.

Other important features of this invention reside in its simplicity of construction, adaptability for various types of vehicles, economical operation, safety in preventing reduction in the quantity of oil in a crankcase, and its inexpensiveness of manufacture.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view showing the automatic crankcase oil level maintainer pump of the present invention together with its associated piping arrangement;

Figure 2 is a longitudinal, vertical sectional view taken substantially along section line 2—2 of Figure 1 showing the details of construction of the double-walled container and the position of the pump within the inner container and the motor therefor;

Figure 3 is a detailed section taken substantially along section line 3—3 of Figure 1 showing the details of construction of the detachable cover for the container;

Figure 4 is a detailed sectional view taken substantially

2

along section line 4—4 of Figure 1 showing the details of construction of the filling spout for the container;

Figure 5 is a transverse, top plan sectional view taken substantially along section line 5—5 of Figure 2 showing the relationship of the pump to the container; and

Figure 6 is a diagrammatic view of the wiring diagram for energizing the pump through the use of the electric contact member that is responsive to the oil level in the crankcase.

Referring now specifically to the drawings, it will be seen that the numeral 10 generally designates the automatic crankcase oil level maintainer pump of the present invention.

Referring now specifically to Figure 2, it will be seen that the oil level maintainer pump 10 of the present invention includes a double-walled container 12 having an outer wall 14 and an inner wall 16 spaced inwardly therefrom, thereby providing a space completely about the periphery of the inner wall 16 except the top where an interconnecting wall 18 is provided, thereby providing a water-tight compartment between the inner wall 16 and the outer wall 14. The outer wall 14 is provided with an inlet opening 20 having a tubular projecting member 22 secured thereto for attaching a flexible hose 24 which may be connected to a hot water radiator (not shown) on a vehicle. The opening 20 is positioned adjacent the bottom of the outer tank 14 and a discharge opening 26 is provided adjacent the top of the outer tank 14 and includes an outwardly projecting tubular member 28 for connection of a flexible water hose 30 which may be connected to the hot water heater (not shown) of an automobile or returned to the radiator in any suitable manner. It will be seen that the space between the outer wall 14 and inner wall 16 together with the openings 20 and 26 provide circulation for hot water wherein oil retained within the inner wall 16 will be heated for easier pumping.

The container 12 is provided with a removable top 32 that is retained in position by screw threaded members 34. The peripheral edge of the top 32 is turned downwardly, as indicated by the numeral 36, for engagement in a peripheral groove 38 positioned in the juncture between the outer wall 14 and the spacing wall 18. The top 32 is provided with an upwardly extending tubular member 40 for receiving a dipstick 42 having a loop handle 44 at its upper end and a circular flange 46 adjacent its upper end for limiting the movement of the dipstick 42 into the container 12 and also closing the upper end of the tube 40 which projects upwardly from the top 32 and is in communication with the interior of the container 12. The dipstick 42 is utilized for determining the quantity of oil within the container 12, in an obvious manner.

Referring specifically to Figure 4, it will be seen that a filling spout 48 projects through the outer wall 14 and the inner wall 16 and includes a screw threaded closure cap 50 for closing the outer end of the spout 48 and a peripheral flange 52 for engaging the surface of the outer wall 14 for sealing the spout 48 in the wall 14. The spout 48 is secured in the walls 14 and 16 in oil-tight relation wherein the container 12 may be filled with lubricating oil.

Referring now specifically to Figure 2, it will be seen that a centrifugal pump with a housing 54 is positioned against the bottom of the inner container 16 and includes a discharge opening 56 that is connected to a vertically extending tubular member 58 by the use of suitable fittings 60. The tubular member 58 is secured to a tubular member 62 extending through the top 32 of the container 12 by suitable fittings 64 and the tubular member 62 is connected to a conduit 66 by fittings 68 with conduit 66 com-

3

municated with a crankcase, all of which are of conventional construction wherein the oil pumped by the centrifugal pump 54 will be discharged to the exterior of the container 12 through the top 32. A plurality of radially spaced, vertically extending spacers 70 extend from the pump housing 54 to a circular disk 72 positioned against the undersurface of the top 32. A drive shaft 74 extends from the pump housing 54 upwardly through an aperture 76 in the top 32 and an aperture in the disk 72 and is connected to a suitable electric motor 78 that is mounted in any conventional manner wherein the disk 72 and the spacers 70 form a support for the motor 78 wherein the motor 78, top 32, disk 72, drive shaft 74, spacers 70 and pump housing 54 will all be simultaneously removed from within the inner wall 16 of the container 12 by removal of the screw fasteners 34. The container 12 and the motor 78 may be positioned on the fire wall 80 of a motor vehicle or other suitable support by the utilization of brackets 82 and fastening members 84. Obviously, any suitable bracket may be utilized, and the device may be mounted on any readily accessible position on a motor vehicle.

Referring now specifically to Figure 6, it will be seen that the numeral 86 indicates an internal combustion engine normally found in any motor vehicle, and the crankcase is provided with an indicator 88 which closes a contact for completing an electrical circuit when the oil level reaches a predetermined low position and for breaking the contact when the oil level reaches a predetermined upper level. The electrical circuit, which is generally designated by the numeral 90 includes the usual storage battery 92 and an ignition switch 94 having terminals thereon for connecting an electrical lead 96 through an indicating light 98, an "on" and "off" switch 100, a relay 102, and the oil level responsive member 88 wherein the member 88 makes or breaks the contact for completing or breaking the electrical circuit for energizing or de-energizing the relay 102 which in turn energizes and de-energizes the motor 78. The device will not operate with the ignition switch 94 open or with the manual "on" and "off" switch 100 open. Upon completion of the electrical circuit, the light 98 will be illuminated thereby indicating that the device is operating. Any well known type of electrical float may be utilized or an electrical oil pressure device when properly calibrated could be used if desired and also, any diaphragm system that is used to weigh the oil thus indicating when the oil is low by illuminating a light on a dash inside a vehicle or control

4

board. Obviously, the device may be useful in all types of moving vehicles and all types of industrial and stationary engines, and especially those in commercial use, and the device may be constructed of readily obtainable materials, thereby enhancing the economic feasibility of the invention. From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

In a device of the class described, an internal combustion engine having a cooling water system, an oil crank case for lubrication, a source of electrical current, in combination with a switch disposed in the crank case and being closed when the oil level recedes below a predetermined elevation, a reserve oil supply container, an oil pump disposed within said container, a conduit communicating the discharge of the pump with the crankcase, said container having an oil refill spout in the wall thereof, an oil dipstick in said container for measuring the reserve oil supply, said pump being of the centrifugal type and being disposed adjacent the bottom of the container, a drive shaft extending upwardly from the pump through the top of the container, a motor mounted on the top of the container and connected with said drive shaft, a water jacket surrounding the wall and bottom of the container in spaced relation, a water inlet conduit and a water outlet conduit intercommunicating the cooling water system of the engine with the water jacket for heating oil in the container, an electrical circuit connected with said motor, said switch being connected with said circuit whereby the circuit will remain open until the switch is closed when the oil level recedes to the predetermined elevation.

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