Sept. 21, 1926. 1,600,405

A. T. DUDLEY

AUXILIARY LUBRICATOR

Filed Sept. 1, 1925 2 Sheets-Sheet 1

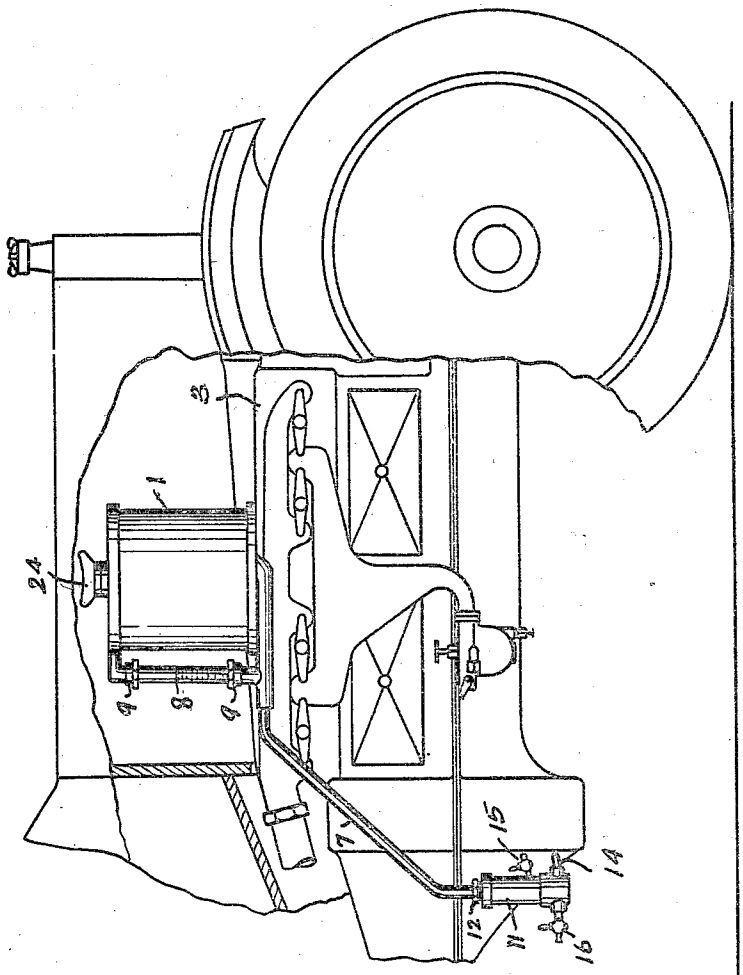


Fig. 1.

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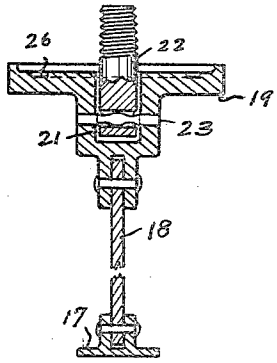


Fig. 4.

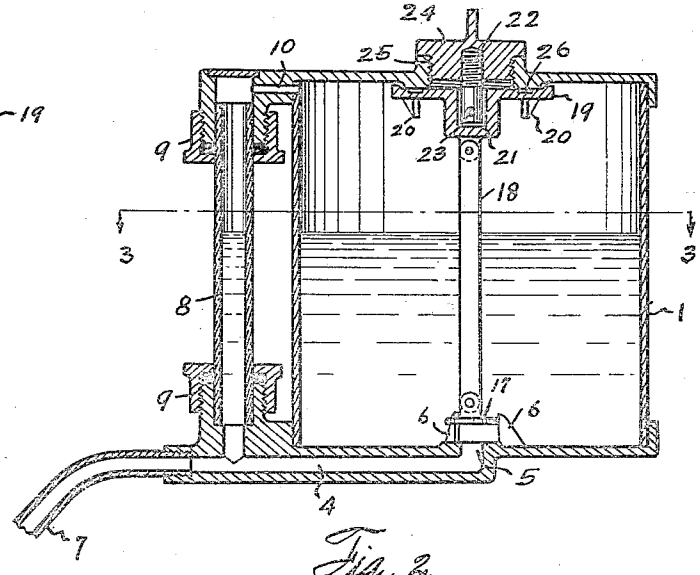


Fig. 2.

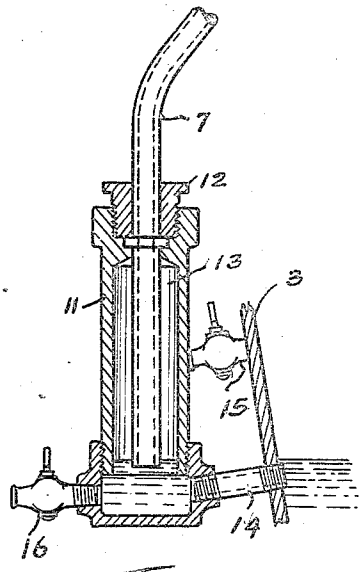


Fig. 5.

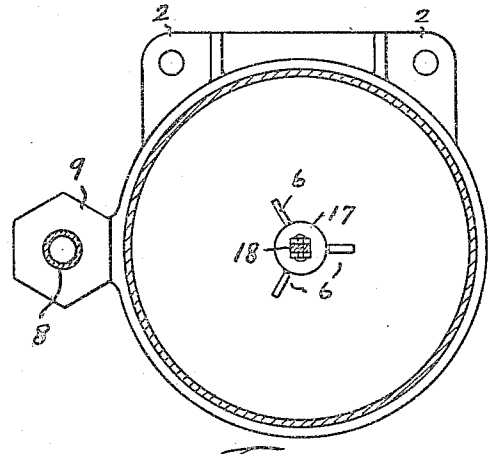


Fig. 3.

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Patented Sept. 21, 1926. 1,600,405

UNITED STATES PATENT OFFICE.

ANDREW T. DUDLEY, OF PORT ARTHUR, TEXAS.

AUXILIARY LUBRICATOR.

Application filed September 1, 1925. Serial No. 53,955.

This invention relates to new and useful improvements in an auxiliary lubricator.

One object of the invention is to produce a lubricator of the character described specially designed for application to an internal combustion motor and provided to carry a surplus supply of lubricant and to feed the same into the motor crank case, from time to time, as the normal supply in the crank case is consumed.

Another object of the invention is to produce a lubricator, of the character described, which is of such construction that the lubricant contained therein will be fed from time to time, and automatically to the motor crank case, and in such quantities as will keep the lubricant in said crank case, at the desired level.

A further feature of the invention resides in the provision of a novel combination including a gauge whereby the proper operation of the lubricator is made visibly evident.

A still further feature of the invention resides in a novel type of containing tank which is so constructed as to be air tight.

It is also an object of the invention to provide a lubricator, of the character described, which is comparatively simple in construction, which may be cheaply produced, easily installed, and which is very effective in operation.

With the above and other objects in view this invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings, wherein:—

Figure 1 shows a side elevation of the motor of a motor vehicle, with the auxiliary lubricator applied thereto.

Figure 2 shows a vertical sectional view of the lubricator tank, and connections.

Figure 3 is a cross sectional view thereof, taken on the line 3—3 of Figure 2.

Figure 4 shows a vertical sectional view of the valve mechanism employed, and

Figure 5 shows a vertical sectional view of the feed chamber and connecting parts.

Referring now more particularly to the drawings, wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 designates the lubricator tank, preferably formed of cast brass heads which are soldered to the ends of a sheet brass barrel. The lower head has suitable ears, as 2, providing means whereby the tank may be bolted to the cylinder head of the motor 3. The lower tank head has a transverse bore, or channel 4 which terminates in a central outlet opening 5, in the bottom of the tank which is surrounded by the valve guides 6. A feed tube 7, preferably of copper is connected into the outer end of the channel 4. There is a transparent gauge tube 8, whose ends are anchored in the air tight glands 9, 9, carried by the respective tank ends and the respective ends of this gauge tube are connected into the channel 4, at one end and into the top of the tank, through the port 10, at the other end.

There is a feed tank 11, preferably formed of aluminum. The lower end of the feed tube 7 is fitted through the upper end of this feed tank and is secured therein by a suitable gland, as 12. The lower end of the feed tube extends down into the feed chamber 13 in the feed tank, and is free. The lower end of the feed chamber 13, beneath the free end of the feed tube 7, is connected into the motor crank case by means of a tubular nipple 14. This connection into the crank case is approximately on a level with the free end of the feed tube 7, which is also the point of the low, or safe level of lubricant in the crankcase. The crank case, of some motors, has a pet cock, as 15 at the point of high level. The level of the lubricant in the crank case should range between these designated points of low, and high level.

The bottom of the chamber 13 also has a drain cock as 16.

There is a disc-like valve 17 which works between the guides 6 and is adapted to open and close the outlet port 5. A link 18 is pivoted, at its lower end, to this valve, and at its upper end to a disc-like inlet valve or sealing member 19 which works between the guides 20, depending from the upper end of the tank 1. The inlet valve 19 has a central socket 21 into which the lower end of the rod 22 is fitted, and secured by the

cross pin 23. A filler plug 24 is adapted to be screwed over the upper end of the rod 22, and when screwed home, fits closely within the inlet opening 25 in the top of the tank 1 and holds the inlet valve 19 seated closely against the top of said tank. As shown the rod 22 has a loose connection with the pin 23 so as to give the valve 19 freedom to seat against the tank top with uniform pressure all the way around.

When the plug 24 is screwed home the inlet control valve 19 and the outlet control valve 17 will be lifted for closing the oil inlet and opening oil outlet, and when said plug is removed, for filling purposes the valves 17 and 19 will drop, the former closing to prevent the out flow of oil, while the tank is being filled, and the latter opening to permit the filling of the tank.

The upper face of the valve 19 has an annular groove 26 therein which is filled with oil during the filling process, and when said valve 19 is closed this oil is trapped between said valve and the opposing part of the top of the tank 1, thus providing an effective seal and rendering the joint air-tight.

The link 18 is of such length that valves 17 and 19 must open and close alternately.

In operation the oil will be retained in the tank 1 while the inner end of the nipple 14 and the lower end of the tube 7 are submerged. When the level of the oil in the crank case falls low enough to uncover said submerged ends, the air will immediately enter through the feed tube 7 to relieve the vacuum in the tank 1 which will permit the feeding of the lubricant from the tank 1 into the crank case. When sufficient lubricant enters the crank case to raise the lubricant level therein above the inner end of the nipple 14 the air will be cut off and the feed of lubricant will be temporarily stopped.

Part of the entering air will pass up through the transparent gauge tube 8 in the form of bubbles and thus visibly indicate that the lubricator is properly working.

The lubricator herein described is specially designed for use on internal combustion motors utilizing the "splash" system of lubrication and in which the reserve supply of oil is carried in the crank case of the motor, wherein a constant level of oil is to be maintained; and in which the circulation of the lubricant is unaided by the use of a pump; and while I have shown only one form of the device it is to be understood that various mechanical modifications, or adaptations may be made without departing from the principle of the invention as embodied in the appended claims.

What I claim is:

1. Oil supply means for an internal combustion engine including a supply tank having a supply connection to the engine and having an inlet opening and an outlet opening, an inlet sealing member and an outlet valve for respectively controlling said openings, means connecting said sealing member and valve, and a closure member for said inlet opening cooperating with said sealing member whereby the operation of the latter and said valve is controlled by said closure member.

2. Oil supply means for an internal combustion engine comprising a tank having an oil discharge opening, an oil filling opening, a sealing member for said filling opening and a valve interconnected and operable within said tank whereby when one opening is closed the other is opened to control supply and discharge of oil with respect to said tank and normally preventing leakage of air into said tank through said inlet opening and means for holding said sealing member in sealing position.

3. Oil supply means for an internal combustion engine comprising an oil tank having an opening through which oil may be discharged and an opening through which the tank may be supplied, and interconnected valves for controlling said openings, one of said valves being in the form of a sealing member to prevent air leakage.

4. Oil supply means for an internal combustion engine comprising an oil tank having an oil discharge opening and an oil inlet opening, and means for forming a liquid seal for said inlet opening to prevent leakage of air into said tank.

5. Oil supply means for an internal combustion engine comprising an oil supply tank having a discharge opening and an inlet opening, a member forming a closure for said inlet opening and having a groove for the reception of a liquid and engageable with that portion of the tank forming said opening for making a liquid seal to prevent the passage of air into said tank.

6. Oil supply means for an internal combustion engine comprising a tank having an oil discharge opening and an oil inlet opening, interconnected valves for controlling said openings, one of said valves acting as a sealing means, and a member secured to one of said valves for normally holding the latter in closed position and the other valve normally in open position for permitting a supply of oil to the engine.

7. Oil supply means for an internal combustion engine comprising a tank having an oil discharge opening and an oil inlet opening, interconnected valves for controlling said openings, one of said valves acting as a sealing means, a member secured to one valve for normally holding the latter in closed position and the other valve normally in open position for permitting a supply of oil to the engine, said valves reversing their

positions when said member is disconnected from the associated valve whereby oil is prevented from being supplied to the engine during the period when oil is being supplied to the tank.

8. Oil supply means for an internal combustion engine comprising a tank having an oil discharge opening and an oil inlet opening, interconnected valves for controlling said openings, the oil inlet control valve having a grooved surface for the reception of a liquid to form an air-tight seal, and a member operable with respect to said last mentioned valve for drawing said valve into an air-tight position.

9. Oil supply means for an internal combustion engine comprising an oil tank having an oil discharge opening and an oil inlet opening, control valves for said openings, one of said valves acting as a seal normally to prevent leakage of air into said tank through said oil inlet opening, a sight glass connected with the upper and lower ends of said tank whereby the level of the oil may be ascertained, and whereby as oil rises in said sight glass air may be discharged therefrom into said tank.

10. Oil supply means for an internal combustion engine comprising an oil tank having an oil discharge opening and an oil inlet opening, control valves for said openings, one of said valves acting as a seal against air leakage into said tank, a sight glass connected with the upper and lower ends of said tank whereby the level of the oil may be ascertained and whereby as oil rises in said sight glass air may be discharged therefrom into said tank, and means whereby when the discharge valve is held open the inlet valve is held closed to form an air-tight seal.

11. A lubricator including an air tight supply tank having an inlet opening at its top and an outlet opening at its bottom, an inlet valve and an outlet valve within the tank adapted to control the respective openings, means connecting said valves, a closure adapted to close the inlet, means operatively connecting the closure and said inlet valve, whereby said valves may be actuated into open and closed positions, alternatively, a feed tank, having an enclosed chamber, a feed line leading from said outlet opening and having a free end which terminates in said chamber, a conduit connected into said chamber, beneath said free end of the feed line, and adapted to be connected into an internal combustion motor crank case.

12. A lubricator including an air tight supply tank having an air inlet opening at its top and an outlet opening at its bottom, an inlet valve and an outlet valve within the tank adapted to control the respective openings, means connecting said valves, a closure adapted to close the inlet, means operatively connecting the closure and said inlet valve whereby said valves may be actuated into open and closed positions alternatively, a feed tank having an enclosed feed chamber, a feed line leading from said outlet and having a free end which terminates in said chamber, a conduit connected into said chamber, beneath said free end of the feed line, and adapted to be connected into an internal combustion motor crank case, and a gauge tube whose respective ends are connected, one into said feed line, and the other into said supply tank.

13. In a lubricator an air tight supply tank having an inlet opening and an outlet opening valve seats around said respective openings, a disc-like inlet valve in the tank adapted to control the inlet valve opening, said valve having an annular groove in its face opposing its seat for containing a liquid to form an air tight seal, an outlet valve adapted to control said outlet opening, a connection between said valves, means for effecting the movements of said valves and through which they may be simultaneously actuated, one into open and the other into closed positions.

14. In a lubricator, a tank having an inlet opening at its top, a valve seat around said opening, a disc-like valve within the tank adapted to co-operate with said seat to open and close said opening, said valve having a groove opposite said seat for containing a liquid to form an air-tight seal, a closure for said opening, means operatively connecting said valve and closure through which the actuation of the closure is made effective to open and close the valve, said tank also having an outlet opening, an outlet valve depending from the inlet valve and disposed to control the outlet opening.

15. In a lubricator, a tank having an inlet opening at its top, a valve seat around said opening, a disc-like valve within the tank adapted to co-operate with said seat to open and close said opening, said valve having a groove opposite said seat for containing a liquid to form an air-tight seal, a closure for said opening, means operatively connecting said valve and closure through which the actuation of the closure is made effective to open and close the valve, said tank also having an outlet opening, an outlet valve depending from the inlet valve and disposed to control the outlet opening, a transparent gauge tube outside of the tank, and whose upper and lower ends are connected into the tank.

16. In a lubricator, a tank having an inlet opening at its top, a valve seat around said opening, a disc-like valve within the tank adapted to co-operate with said seat to open and close said opening, said valve having a groove opposite said seat for containing a liquid to form an air-tight seal, a clo-

sure for said opening, means operatively connecting said valve and closure through which the actuation of the closure is made effective to open and close the valve, said tank also having an outlet opening, an outlet valve depending from the inlet valve and disposed to control the outlet opening, a feed line leading from said outlet opening and a trap associated with the discharge end of said line and adapted to be connected into the crank case of an internal combustion motor.

In testimony whereof I have signed my name to this specification.

ANDREW T. DUDLEY.