Nov. 30, 1926. 1,608,637

E. H. VINCENT

MEANS FOR DISCHARGING FLUID FROM INTERNAL COMBUSTION MOTORS

Filed July 7, 1922 3 Sheets-Sheet 1

Fig. 1

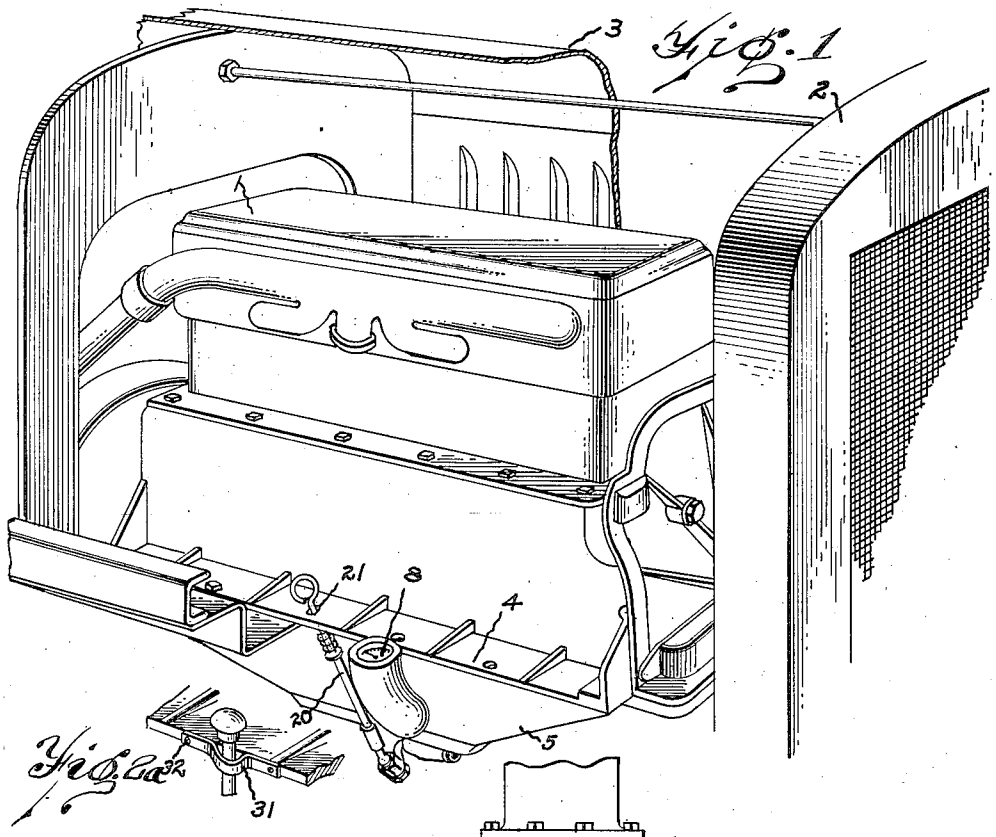


Fig. 3

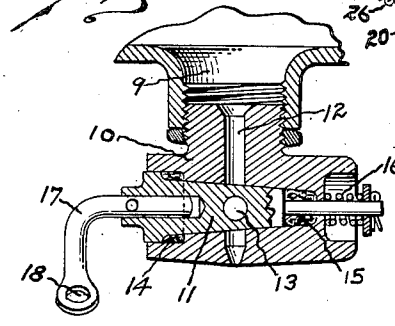


Fig. 2

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Fig. 4

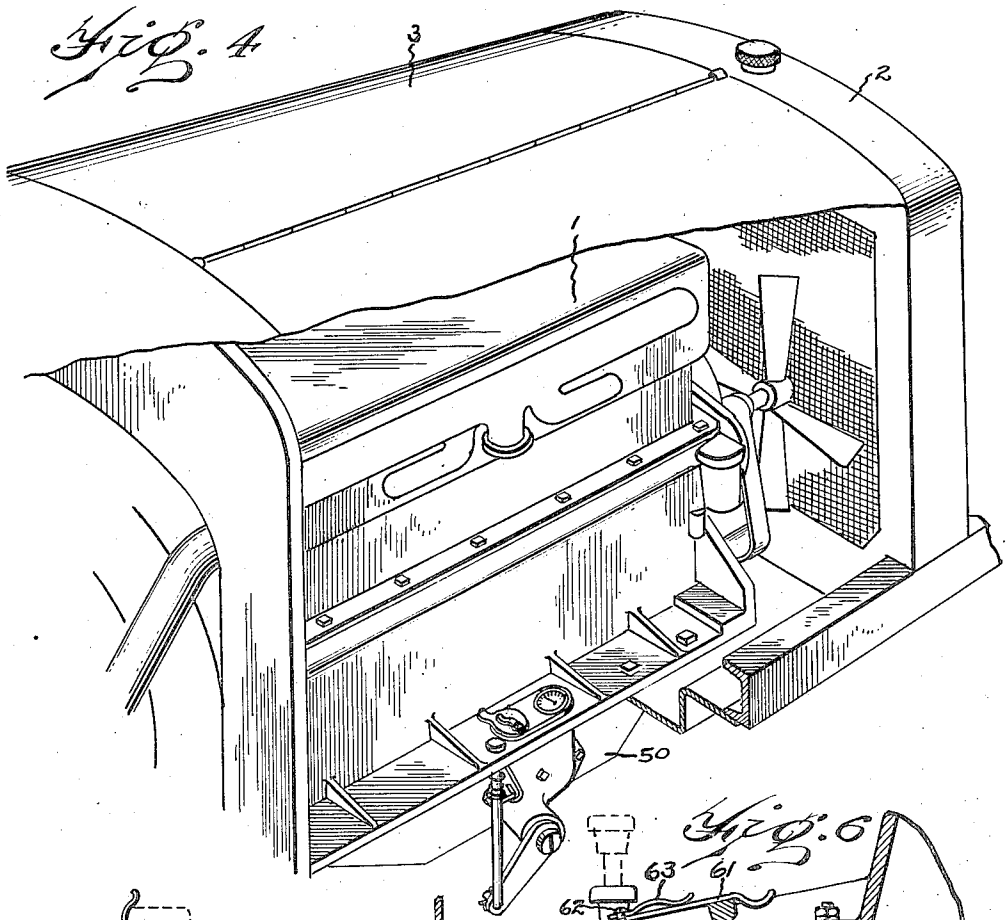
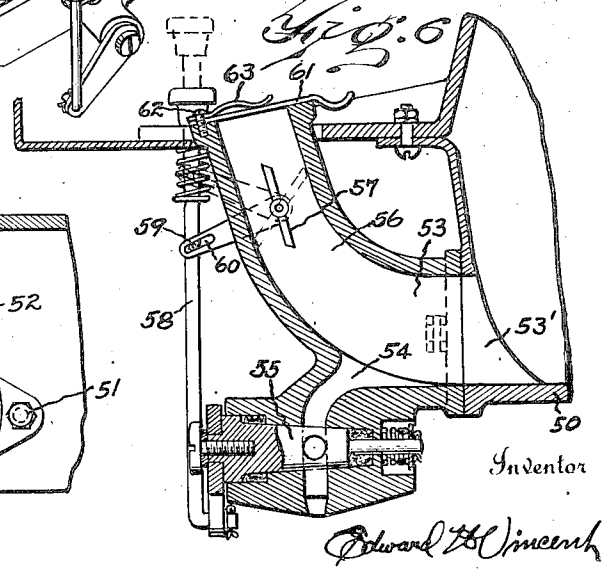


Fig. 6



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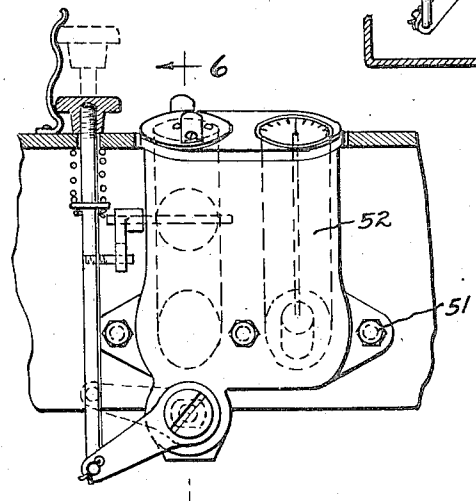


Fig. 5 — 6

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Fig. 7

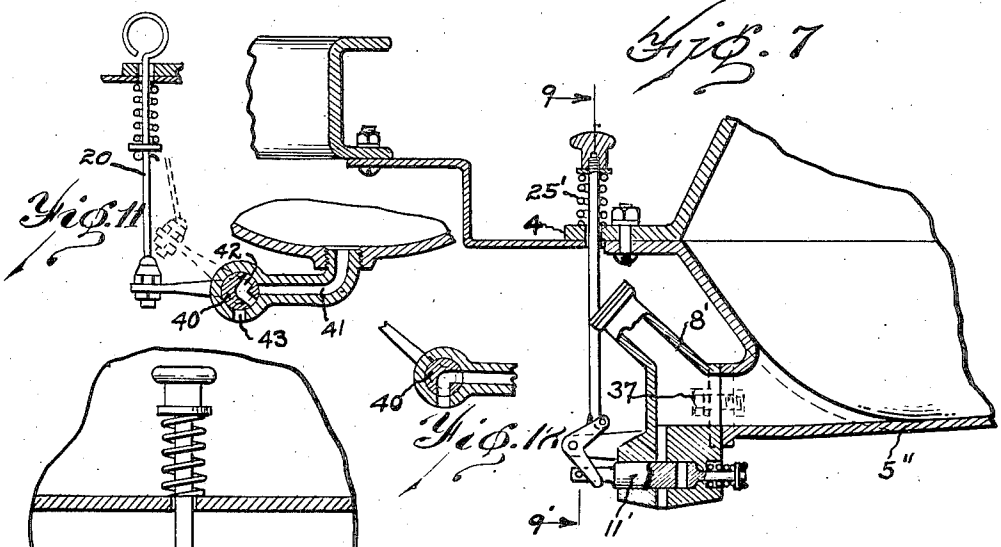


Fig. 11

Fig. 12

Fig. 8

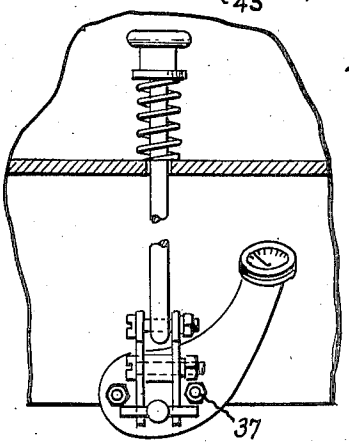
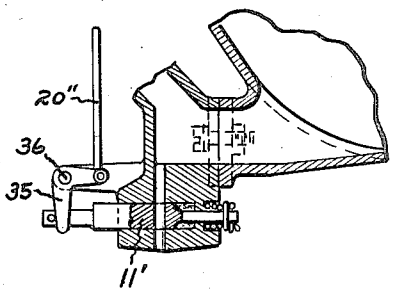


Fig. 9



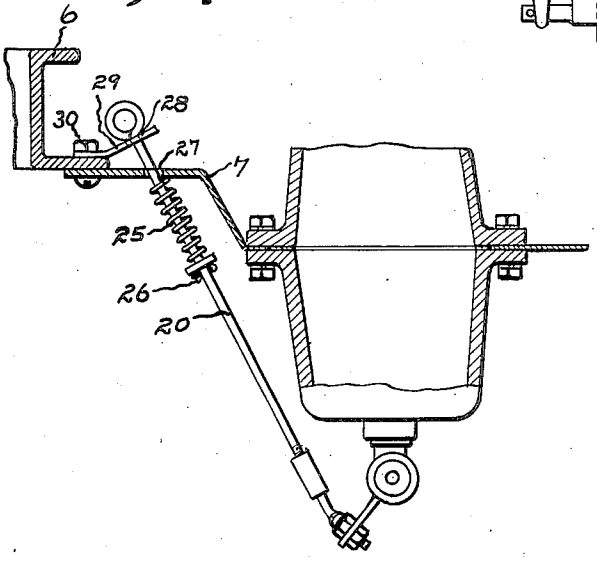


Fig. 10

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Patented Nov. 30, 1926. 1,608,637

UNITED STATES PATENT OFFICE.

EDWARD H. VINCENT, OF DETROIT, MICHIGAN.

MEANS FOR DISCHARGING FLUID FROM INTERNAL-COMBUSTION MOTORS.

Application filed July 7, 1922. Serial No. 573,459.

The present invention relates to motor vehicles of the type driven by an internal combustion engine. In such engines, although it is well known that the crank case must be cleaned out and the lubricating oil must be changed often in order to prolong the life of the motor, it is also well known that the average motorist, due to the necessity of getting under the car in order to open the discharge valve, will delay the changing operation beyond all reasonable limits. This the present invention avoids by providing readily accessible means whereby the user may release the oil after merely lifting the hood or corresponding cover, in the case of an automobile or motor boat, or, in any event, without the operator being required to get or reach down under the crank case. This general purpose may be accomplished in various ways, but I prefer to construct the valve operating means in such manner as to be supported or guided by the flange of the crank case, or by a guiding element secured thereto, as will be more fully understood later.

Another purpose of the invention is to provide, in connection with the oil releasing means, a gauge and a filler conduit whereby the user may refill the crank case and constantly observe the height of the oil as it rises therein, and whereby he may note when it is discharged. In some instances the gauge may, of course, be omitted.

Further objects will appear upon reference to the description and to the drawings in which Fig. 1 is a perspective view, parts being broken away, showing one embodiment of the invention. Fig. 2 is a front view, parts being broken away rearwardly of the front support, which is not shown. Fig. 2ª shows a slight modification in the rod guiding means. Fig. 3 is a vertical section on line 3—3 of Fig. 2. Fig. 4 is a perspective view, parts being broken away, showing a second embodiment of the invention, wherein the discharge valve is combined with a filling conduit. Fig. 5 is a fragmentary side elevation and Fig. 6 is a vertical section, showing more clearly the details of the construction which appears in Fig. 4. Figs. 7 and 8 are views, similar to Fig. 6, showing a further slight modification. Fig. 9 is a side elevation of Fig. 7, showing flange 4 in cross-section on line 9—9 of Fig. 7. Fig. 10 is a view similar to Fig. 2, showing still another embodiment of the invention. Figs. 11 and 12 are fragmentary sectional views showing slight modifications.

Referring to Fig. 1, 1 indicates the internal combustion engine, 2 the radiator and 3 the hood of an ordinary motor vehicle, the cylinder block including, as shown in Fig. 2, the flange 4, by which the weight is carried to suitable supports (not shown) at the rear. The usual detachable oil pan appears at 5 and the space between the side frames 6 and the crank case is closed by suitable metal sheets or plates 7. It will be observed (Fig. 1) that the oil pan includes a gauge 8, which may either be welded, or otherwise attached to the pan, and by which the level of the oil therein may be seen. The oil pan also includes in its bottom an opening 9, Fig. 3, which may be formed either in the pan itself or in a separate fitting 5′ (Fig. 2) bolted thereto, and which is threaded to receive a suitable valve element embodying a housing 10 and a rotatable valve 11, having complementary passages 12 and 13 as will be readily understood. The valve also preferably embodies sealing means such as the gaskets or packing 14—15 and may be held to its seat by a spring 16; and its operating handle, which appears at 17, is preferably perforated as at 18.

For the purpose of readily actuating said valve when the hood is elevated, I provide an operating rod 20, preferably guided in an opening 21 formed in the flange 4, and attached to the handle 17 in any suitable manner, such as by means of a ball 22 and socket 23, one of which is suitably secured to the arm as by nuts 24. A spring 25 interposed between a pin 26 on the rod and the flange 4 serves to normally hold the valve in closed position. By removing the pin 26, the rod 20 may be disconnected from the handle 17 or from the sleeve of the ball 22 by unscrewing said rod by which it may be drawn up and removed through the opening in the rib or flange 4, as shown in Figs. 1, 2 and 2ª. In the construction shown in Fig. 10, the upper end of the rod 20 is guided in openings 27 and 28 formed respectively in the plate 7 and in a clip 29 which is secured to the side bar by one of the same bolts 30 which serve for the attachment of the plate 7. In similar manner, the opening 21 may be superceded by a perforated clip 31 attached to the flange

4, by one or more of the bolts 32, as shown in Fig. 2ª.

In the modification shown in Figs. 7, 8 and 9, the rotatable valve is replaced by a slidable valve 11′, and for operating means a bell crank device 35, pivoted at 36, and rod 20″ are provided, the spring 25′ in this instance being positioned between the upper surface of the flange 4 and an operating knob on the rod. The valve housing is also shown integral with the gauge fitting 8′ and attached to the oil pan 5″ by bolts 37. This construction requires a minimum road clearance.

Substantially the same end is accomplished in Figs. 11 and 12 by the use of a rotatable valve 40 and discharge passages 41, 42, 43 so arranged that the valve need be turned through but a small angle from closed to open position. The operating rod therein shown is substantially the same as that shown in Fig. 1.

In order that the user may also readily pour in the fresh oil and constantly observe its level during the filling operation, I also provide in some instances a combined filling and discharging device and gauge, as shown in Figs. 4, 5 and 6, the same being secured to the main oil pan 50 by bolts 51 (although it might be integral therewith). This device includes a chamber for suitable gauge mechanism 52 and likewise has a combined filling and discharge passage 53, registering with a corresponding passage 53′ formed in the pan 50, from which the used oil is drawn off through a branch 54 when the valve 55, which may be of any suitable construction, such as those heretofore described, is opened. The passage 53 also has a branch 56 which is preferably provided with a butterfly or other suitable valve 57 the operating handle of which is interconnected to the discharge valve operating rod 58 in such manner that the valve 57 is open only when the discharge valve is closed, for example, by the pin and slot connection 59—60, the purpose being to prevent refilling until the discharge valve is closed. The upper end of the branch 56 is normally closed as by means of a thin metal plate 61 pivoted at 62, and a spring 63.

It will be noted that in each of the constructions shown the operating rod is readily accessible upon merely lifting the hood, and that the spring 25 tends to automatically return the valve to closed position and to thereafter hold it in such position so that this valve will not be left open by an absent minded operator who has cleaned out his crank case and is refilling; also that in such embodiments as appear in Fig. 3 the device is readily applicable as an accessory, and that the expense involved is small. In all forms except that shown in Fig. 10, the operating rod, being guided by a part of the engine or crank case structure, may be assembled and disassembled as a part of the engine unit or crank case structure, that is, without regard to the construction of the other features of the vehicle.

Various changes, other than those shown, may of course be made.

I claim:

1. In combination with an internal combustion motor having a crankcase including an oil reservoir, an outlet for the oil at the lowest level of said oil reservoir, a device comprising a valve and a casing for said outlet and adapted to be removably attached to said oil reservoir, said crankcase having a lateral flange above the lower level of the reservoir, and a valve actuating member connected to the valve and adapted to be guided by the crankcase flange.

2. In combination with an engine having a flange and an oil reservoir, said reservoir having at its lowest level an outlet through which oil may be discharged from said reservoir, an accessory embodying a housing for attachment to said oil reservoir and a rotatable valve structure adapted to occupy open and closed positions for said outlet for allowing or preventing the discharge of oil from the reservoir, and a movable rod for rotating said valve, said rod being connected to said valve and movable through an opening in said flange.

3. In combination with an engine having a crankcase, said crankcase having at its lowest level an outlet through which oil may be discharged therefrom, a hollow valve for said outlet, a housing for said valve and having a passage outlet for the oil and detachably connected to said crankcase, said crankcase having a flange, and a valve actuating member connected to the valve and supported by said flange, one end of said actuating member being detachably connected to said valve and the other end of said member being shaped to form a handle.

4. In combination with an engine having a crankcase, said crankcase having at its lowest level an outlet through which fluid may be discharged therefrom, a valve and valve casing having openings through which the fluid is discharged for said outlet, said casing attached to said crankcase and readily removable therefrom, said crankcase having a flange above said valve and a valve actuating member detachably connected to the valve and adapted to pass through an opening in said flange, the lower end of said actuating member being detachably connected to said valve and an operating handle secured to the upper end of said actuating member above said flange, said actuating member being removable through said opening and above said flange.

5. A motor vehicle including a frame, an engine supported thereby, means for closing

the space between the frame and engine above the bottom of the latter, said engine having an opening in its lowest portion for discharging used lubricating oil, a valve for said opening below said closure means, and means, accessible from above said closure means, for actuating said valve and extending through said closure means.

6. An engine having passages through which used lubricating oil may be discharged from the crank case and fresh oil may be supplied thereto, and interconnected valves constructed and arranged to hold either passage closed while the other is open.

7. In combination with a motor having a crankcase, said crankcase having at its lowest level an outlet through which fluid may be discharged therefrom, a valve for said outlet, said crankcase having a flange, an actuating member connected to said valve and adapted to be guided by said flange, a spring bearing against said flange and adapted to move the actuating member to one position, said actuating member being manually movable to the other position.

8. An internal combustion engine, including a crankcase construction, including passage forming means through which used lubricating oil may be discharged therefrom and fresh oil may be supplied thereto, and interconnected valves constructed and arranged to hold the filling passage closed when the discharge passage is open.

9. In combination with an internal combustion engine having an opening for discharging used lubricating oil therefrom by gravity, and a fitting including a branched combined filling and discharging passage registering with said opening, a valve for the discharge branch of said passage, and means for actuating said valve from a point adjacent the upper end of the filling branch of said passage.

10. In combination with a motor having a casing, openings through which lubricant may be discharged therefrom and supplied thereto, means to control the amount of lubricant supplied or discharged through said openings, by acting to alternately close one opening and open the other.

11. In combination with a motor having a casing, openings through which fluid may be discharged therefrom and supplied thereto, one of said openings in the casing at its lowest level and the other opening in the casing above its lowest level, movable closure means for each opening, and means for simultaneously moving both closure means.

12. In combination with a motor having a crankcase, said crankcase having in its lowest level an outlet through which used lubricating oil may be discharged thereform by gravity, a valve for said outlet to allow or prevent the discharge of oil, a casing for the valve and removably attached to said crankcase, a rod to actuate the valve, said crankcase having a flange above said valve, an opening in said flange, said rod being attached to said valve and extending through said opening and beyond said flange, and a manually operable handle on said rod beyond said flange.

13. In combination with a motor having a crankcase embodying upper and lower casings, said casings having lateral flanges adapted to be attached together, an opening in one of said flanges, said lower casing having an outlet through which used lubricating oil may be discharged therefrom, a valve for said outlet and a housing enclosing the valve and detachably carried by said lower casing below said flanges, a member to actuate said valve, said member being carried by said lower casing and extending into the opening in one of said flanges, and manually operable means on said actuating member above said flanges.

14. In combination with a motor, including at least one opening or passage-forming means, a device adapted to be attached to said motor and having at least one opening or passage-forming means registering with the opening or passage-forming means of the motor whereby lubricating oil or fluid may be discharged from or supplied through said passages to the motor.

15. In combination with a motor, including at least one opening or passage-forming means, a device adapted to be attached to said motor and having at least one opening or passage-forming means registering with the opening or passage forming means of the motor whereby lubricating oil or fluid may be discharged from or supplied through said passages to the motor, and means carried by said device for controlling the discharge of oil or fluid from the motor.

16. In combination with a motor, including at least one opening or passage forming means, a device adapted to be attached to said motor and having at least one opening or passage forming means registering with the opening or passage forming means of the motor, whereby lubricating oil or fluid may be discharged from or supplied through said passages to the motor, and means carried by said device for indicating the level of oil or fluid.

17. In combination with a motor including at least one opening or passage forming means, a device comprising a housing adapted to be attached to said motor and having at least one opening or passage forming means registering with the opening or passage forming means of the motor whereby lubricating oil or fluid may be discharged through said passages from the motor, means carried by said housing to control the discharge of lubricating oil or fluid from said motor, and a gauge carried by said de-

vice for indicating the level of oil or fluid in the motor and said passages.

18. In combination with a motor, including at least one opening or passage forming means, a device adapted to be attached to said motor and having at least one opening or passage forming means registering with the opening or passage forming means of the motor whereby lubricating oil or fluid may be supplied through said passages to the motor, means to control the supply of lubricating oil or fluid to said motor and an instrument carried by said device for indicating the level of oil or fluid in the motor or said passages.

19. In combination with a motor, passage forming means through which fluid may be discharged from said motor or supplied thereto, and means arranged to prevent the fluid being supplied to said motor during the discharge of fluid therefrom or to prevent the discharge of fluid while fluid is being supplied thereto.

20. In combination with a motor, passage forming means through which fluid may be discharged therefrom or supplied thereto, and means arranged to prevent the fluid being supplied to said motor during the discharge of fluid therefrom or to prevent the discharge of fluid while fluid is being supplied thereto, said means being manually movable to a position whereby fluid may be discharged from said motor and automatically moved from said position and held in a position whereby the discharge of fluid is prevented but whereby fluid may be supplied to said motor.

21. In combination with a motor, passage forming means through which fluid may be discharged therefrom or supplied thereto, means adapted to occupy two positions and arranged to prevent the fluid being supplied to said motor during the discharge of fluid therefrom or to prevent the discharge of fluid while fluid is being supplied thereto, and resilient means to move to and hold said first mentioned means in one of said positions.

22. In combination with a motor having an opening through which fluid may be discharged therefrom, a device adapted to be attached to said motor and having a discharge passage registering with said motor opening, said device also having a second passage through which fluid may be supplied to said motor, a valve for each of said passages to control the flow of fluid, and means to simultaneously operate said valves.

23. In combination with a motor having a crankcase, said crankcase having at its lower level an outlet through which lubricating oil or fluid may be emptied therefrom, a valve for said outlet to control the discharge of fluid, and means to operate said valve, said crankcase embodying a flange or rib adapted to aid in guiding or supporting said operating means.

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