



Fig.2 is an enlarged view, partly in section, showing the carburettor forming part of the system shown in Fig.1.

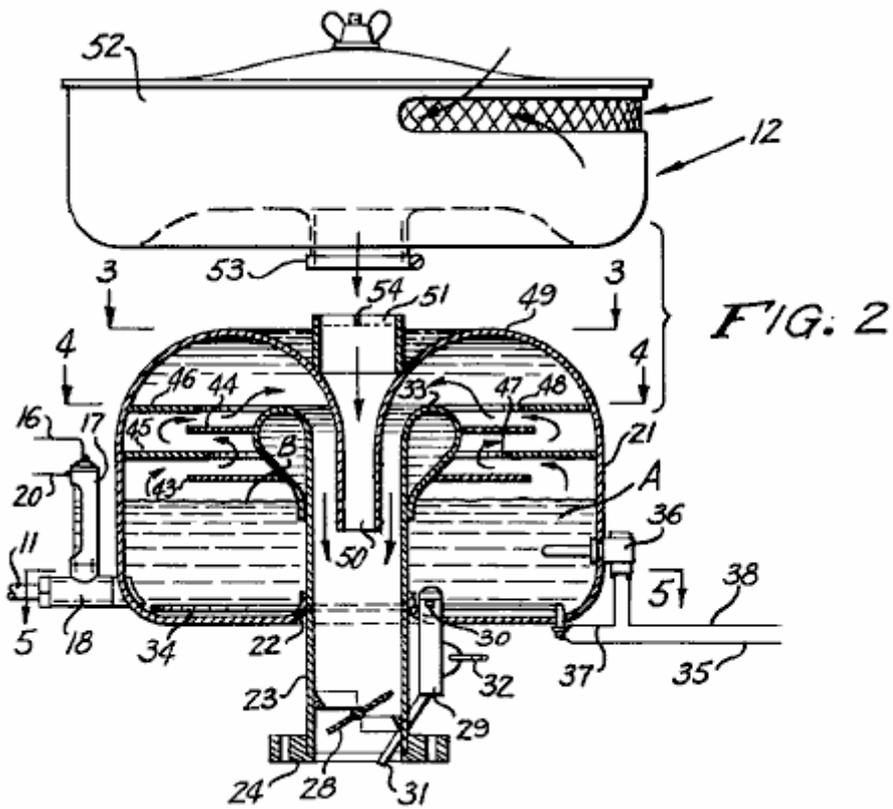


Fig.3 is a transverse sectional view on line 3--3 of Fig.2

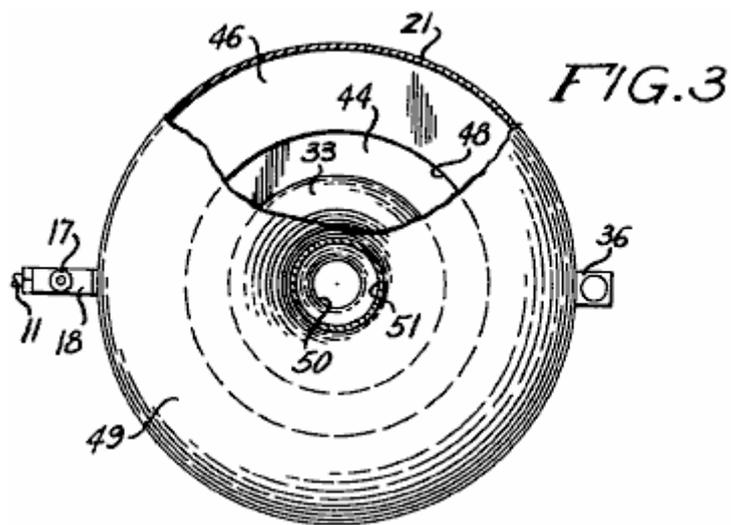


Fig.4 is a transverse sectional view on line 4--4 of Fig.2

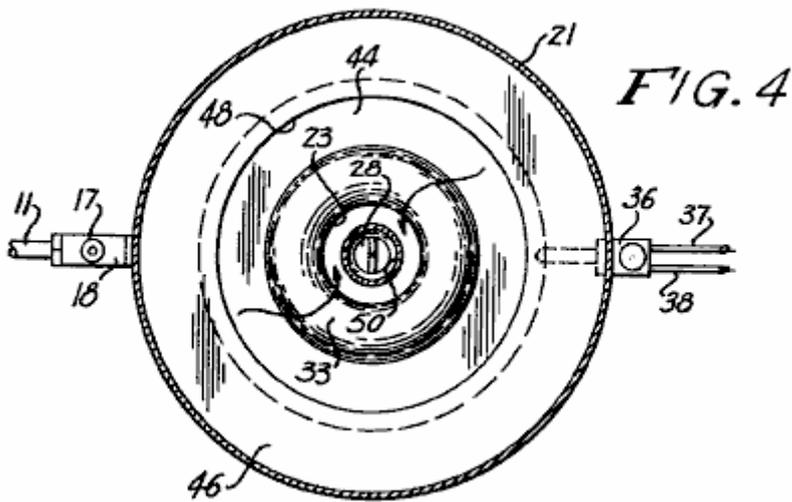
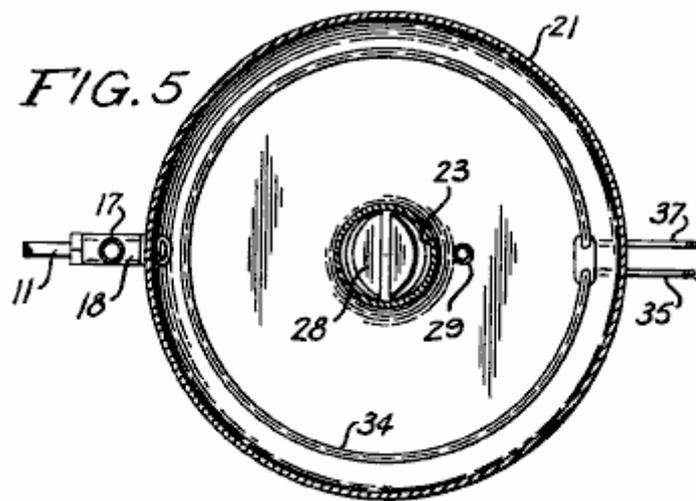


Fig.5 is a transverse sectional view on line 5--5 of Fig.2



The reference numbers used in the drawings always refer to the same item in each of the drawings. The vapour fuel system 10 includes a conduit 11 which is connected to the fuel tank at one end and to a carburettor 12 at the opposite end. In conduit 11 there is a fuel filter 13 and an electric fuel pump 14. Wire 15 grounds the pump and wire 16 connects the pump to a fuel gauge 18 on which is mounted a switch 17 which is connected to a battery 19 of the engine by wire 20.

The fuel gauge/switch is of conventional construction and is of the type disclosed in US Patents No. 2,894,093, No. 2,825,895 and No. 2,749,401. The switch is so constructed that a float in the liquid in the gauge, opens a pair of contacts when the liquid rises and this cuts off the electric pump 14. As the float lowers due to the consumption of the liquid fuel in the body, the float falls, closing the contacts and starting pump 14 which replenishes the liquid fuel in the body.

Carburettor 12 includes a dome-shaped circular bowl or reservoir 21 which is provided with a centrally located flanged opening 22 whereby the reservoir 21 is mounted on a tubular throat 23. An apratured collar 24 on the lower end of throat 23 is positioned on the intake manifold 25 of an internal combustion engine 26 and fastenings 27 secure the collar to the manifold in a fixed position.

A vapour control butterfly valve 28 is pivotally mounted in the lower end of throat 23 and valve 28 controls the entrance of the vapour into the engine and so controls its speed.

A fuel pump 29, having an inlet 30, is mounted in the bottom of the reservoir 21 so that the inlet 30 communicates with the interior of the reservoir. A spurt or feed pipe 31 connected to pump 29 extends into throat 23 so that by means of a linkage 32 which is connected to pump 29 and to a linkage for control valve 28 and the foot throttle of the engine, raw fuel may be forced into throat 23 to start the engine when it is cold.

The upper end of throat 23 is turned over upon itself to provide a bulbous hollow portion 33 within reservoir 21. An immersion heater 34 is positioned in the bottom of the reservoir and wire 35 grounds the heater. A thermostat 36 is mounted in the wall of the reservoir and extends into it. Wire 37 connects the thermostat to heater 34 and wire 38 connects the thermostat to the thermostat control 39. Wire 40 connects the control to the ignition switch 41 which in turn is connected to battery 19 via wires 20 and 42.

A pair of relatively spaced parallel perforated baffle plates **43** and **44**, are connected to the bulbous portion **33** on the upper end of throat **23**, and a second pair of perforated baffle plates **45** and **46** extend inwards from the wall of reservoir **21** parallel to each other and parallel to baffle plates **43** and **44**.

The baffle plates are arranged in staggered relation to each other so that baffle plate **45** is between baffle plates **43** and **44** and baffle plate **46** extends over baffle plate **44**.

Baffle plate **45** has a central opening **47** and baffle plate **46** has a central opening **48** which has a greater diameter than opening **47**. The domed top **49** of reservoir **21**, extends into a tubular air intake **50** which extends downwards into throat **23** and a mounting ring **51** is positioned on the exterior of the domed top, vertically aligned with intake **50**. An air filter **52** is mounted on the mounting ring **51** by a coupling **53** as is the usual procedure, and a spider **54** is mounted in the upper end of mounting ring **51** to break up the air as it enters ring **51** from air filter **52**.

In operation, with carburettor **12** mounted on the internal combustion engine instead of a conventional carburettor, ignition switch **41** is turned on. Current from battery **19** will cause pump **14** to move liquid fuel into reservoir **21** until float switch **18** cuts the pump off when the liquid fuel **A** has reached level **B** in the reservoir. The control **39** is adjusted so that thermostat **36** will operate heater **34** until the liquid fuel has reached a temperature of 105° F at which time heater **34** will be cut off. When the liquid fuel has reached the proper temperature, vapour will be available to follow the course indicated by the arrows in **Fig.2**.

The engine is then started and if the foot control is actuated, pump **29** will cause raw liquid fuel to enter the intake manifold **25** until the vapour from the carburettor is drawn into the manifold to cause the engine to operate. As the fuel is consumed, pump **14** will again be operated and heater **34** will be operated by thermostat **36**. Thus, the operation as described will continue as long as the engine is operating and the ignition switch **41** is turned on. Reservoir **21** will hold from 4 to 6 pints (2 to 4 litres) of liquid fuel and since only the vapour from the heated fuel will cause the carburettor **12** to run the engine, the engine will operate for a long time before more fuel is drawn into reservoir **21**.

Baffles **43**, **44**, **45** and **46** are arranged in staggered relation to prevent splashing of the liquid fuel within the carburettor. The level **B** of the fuel in reservoir **21** is maintained constant by switch **18** and with all elements properly sealed, the vapour fuel system **10** will operate the engine efficiently.

Valve **28** controlling the entrance of vapour into intake manifold **25**, controls the speed of the engine in the same manner as the control valve in a conventional carburettor.

There has thus been described a vapour fuel system embodying the invention and it is believed that the structure and operation of it will be apparent to those skilled in the art. It is also to be understood that changes in the minor details of construction, arrangement and combination of parts may be resorted to provided that they fall within the spirit of the invention.