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EMERGENCY FUEL SYSTEM WARNING DEVICE

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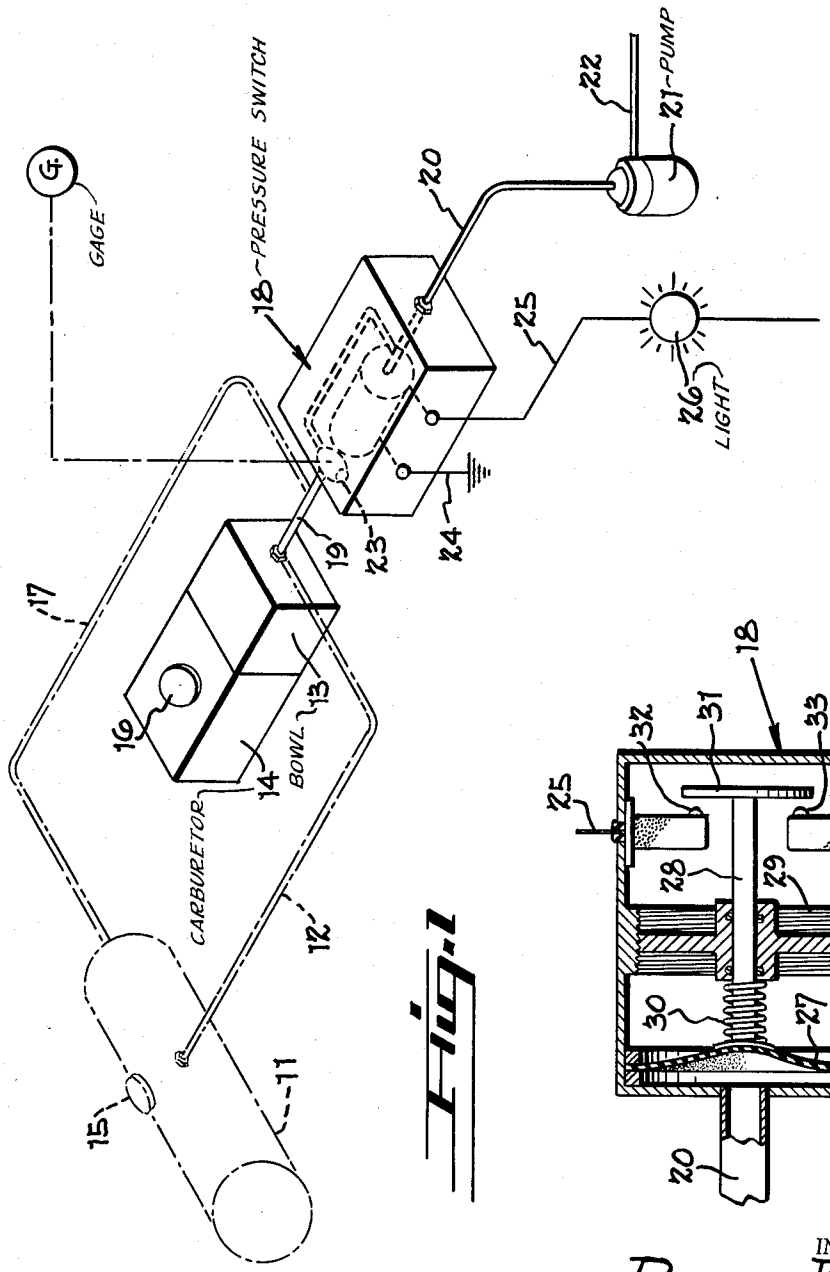


Fig. 1

Fig. 2

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EMERGENCY FUEL SYSTEM WARNING DEVICE

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This invention relates to an automatic warning device for motor vehicles such as is operative when the normal supply of motor fuel has stopped being delivered to the carburetor. This supply may be stopped because of an empty fuel tank, a clogged fuel line, or such other defect as for example a defective fuel pump.

In particular the automatic warning device is operative to warn the operator of the necessity of replenishing the fuel supply.

The main object of my invention is to provide a warning device which signals to the operator when a certain level of fuel has ceased to be supplied to the carburetor bowl.

Another object of my invention is to provide an enlarged carburetor bowl interconnected with the warning device which would provide sufficient fuel after the warning device is operable to permit further movement of the vehicle.

Still another object of my invention is to provide for the inclusion in the fuel system of a reservoir to feed the carburetor by gravity.

Another object of my invention is to provide filler caps on the carburetor or on the reservoir so that fuel is automatically added when the supply in the system at the carburetor has reached a predetermined level and a warning signal device has been actuated.

Still another object of my invention is the provision of warning device which is operable as a results of a decrease of fuel pressure near the carburetor inlet.

Another object of my invention is to provide a warning device which operates a normally open pressure switch due to a decrease of fuel pressure which in turn energizes a circuit to a warning light or buzzer in the motor vehicle.

A further object of my invention is to provide a gage to reflect fall in fuel pressure which gage operates in conjunction with an enlarged carburetor bowl.

Another object of my invention is to provide a fuel pressure switch operable in conjunction with the warning device which has a flexible diaphragm and a compressible spring. This diaphragm is attached to a shaft which operates a bar adapted to be held away from electrical contacts when the fuel pressure is normal but which closes the circuit to actuate the warning signal when the pressure reaches a predetermined low-level.

Another object of my invention is to provide a device for adjusting the stroke of the bar to select the level of the fuel pressure which will operate to close the circuit to actuate the warning device.

Another object of my invention is to provide a check valve operating in conjunction with a pressure switch to trap the fuel that has been delivered to the carburetor inlet.

Other objects of my invention and economies of operation are readily apparent from the detailed description to follow. This description is illustrated in the drawings to which reference is made.

In the drawings, I show

FIGURE 1 is a perspective view showing the warning device including the reservoir, the carburetor, the fuel pressure switch, the fuel pump and warning devices and the circuit.

FIGURE 2 is a detailed sectional view of the fuel pressure switch.

In the drawings the same reference numerals refer to the same parts throughout the several views.

In general my invention comprises, a warning system which utilizs an enlarged carburetor bowl in the average carburetor. In referring to an enlarged carburetor bowl, I make reference to a bowl as is used in the present day automobile carburetor as to its size and compare it to the one of my invention which is considerably larger. This enlarged bowl locates the fuel supply in the carburetor itself. My invention utilizes an optional auxiliary tank or reservoir in the fuel system operating in conjunction with a carburetor having an enlarged bowl and a fuel pressure switch connected in the line from the fuel pump. Changes in the introduction of fuel into the carburetor bowl actuate an electrical warning device. Variations in the pressure in the fuel line close a circuit to reflect on a gage. Preferably this variation in the fuel pressure is signified by its change near the carburetor inlet. My invention also contemplates the employment of a fuel pressure switch having a housing which carries a shaft upon which is mounted at one end a diaphragm. This diaphragm is responsive to variations in fuel pressure. The other end of the shaft has a contact bar adapted to contact members which close a circuit. The shaft is urged away from the diaphragm by means of a spring. This also serves to hold the contact bar out of contact with the ends of an electrical circuit to hold the circuit open. The stroke of the shaft is adjustable by using a movable support plate so that only that amount of fuel pressure decrease which would cause insufficient flow of fuel to the carburetor would actuate the switch.

In the drawings I show an auxiliary tank **11**, connected by a line **12** to the carburetor bowl **13** of a carburetor **14**. The tank is provided with a filler cap **15**. The carburetor is provided with a filler cap **16**. The auxiliary tank **11** has a line **17** which connects to a fuel pressure switch mechanism **18**.

The fuel pressure switch mechanism **18** is connected between lines **19** and **20** in the fuel system. Line **19** joins the carburetor bowl **13** with the switch mechanism **18** and line **20** joins the switch mechanism **18** with the fuel pump **21** which is in turn connected by line **22**, to the main fuel supply tank (not shown).

The switch mechanism **18** is provided at one end with a gage **23**, indicated schematically by G in the drawings. The switch mechanism **18** is connected to a circuit formed by leads **24** and **25** to actuate a buzzer or warning light **26**. The circuit is closed when the fuel has ceased to go into the bowl of the carburetor **14**.

Referring now to FIGURE 1 I show a fuel pressure switch mechanism **18** to which fuel is brought by line **20**. The fuel pressure switch consists of a diaphragm **27** mounted within the switch device and a shaft **28** is connected thereto. The shaft **28** is carried in a movable support plate **29**. The support plate is adjustable along the axis of the shaft **28** to regulate the tension on a spring **30** which surrounds that part of the shaft between the diaphragm **27** and the support plate **29**. The other end of the shaft **28** has a bar **31** which is movable against the pressure of the spring **30** to strike contacts **32** and **33** to close an electrical circuit to reflect a variation in fuel pressure.

It can thus be readily understood by reference to the drawings that a light, or warning buzzer will be operated when the fuel has stopped entering the carburetor bowl and a decrease in fuel pressure will be reflected on a gage by means of the operation of the fuel pressure switch mechanism.

From the detailed description set forth above a car driver may have at hand an alarm which operates in conjunction with a pressure gage to warn him of a drop in fuel support or of a defect in the fuel system. Further after such warning, sufficient fuel will be available in the

carburetor bowl to permit continued travel for a predetermined distance.

Having thus described my invention what I claim as new and useful and desire to secure by U.S. Letters Patent is:

1. A fuel level warning device, comprising, an oversized carburetor bowl for an internal combustion engine, said bowl mounted within a carburetor of said engine, a fuel reservoir connected to said bowl, a fuel pump connected between said carburetor bowl and said fuel reservoir, a fuel pressure switch connected between said fuel pump and said carburetor bowl, said switch having a diaphragm, a plunger connected to said diaphragm responsive to the movement of said diaphragm, said diaphragm responsive to pressure of said fuel, said plunger movable to close a circuit at predetermined levels of fuel pressure to operate a warning device.

2. A fuel level warning device comprising, an oversized carburetor bowl for an internal combustion engine, said bowl mounted within a carburetor of said engine, a fuel reservoir connected to said bowl, a fuel pump connected between said carburetor bowl and said fuel reservoir, a fuel pressure switch connected between said fuel pump and said carburetor bowl, said switch having a diaphragm, a plunger connected to said diaphragm responsive to the movement of said diaphragm, said diaphragm responsive to pressure of said fuel, said plunger movable to close a circuit at predetermined levels of fuel pressure to operate a warning device and adjustable means for controlling the stroke of said plunger.

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