

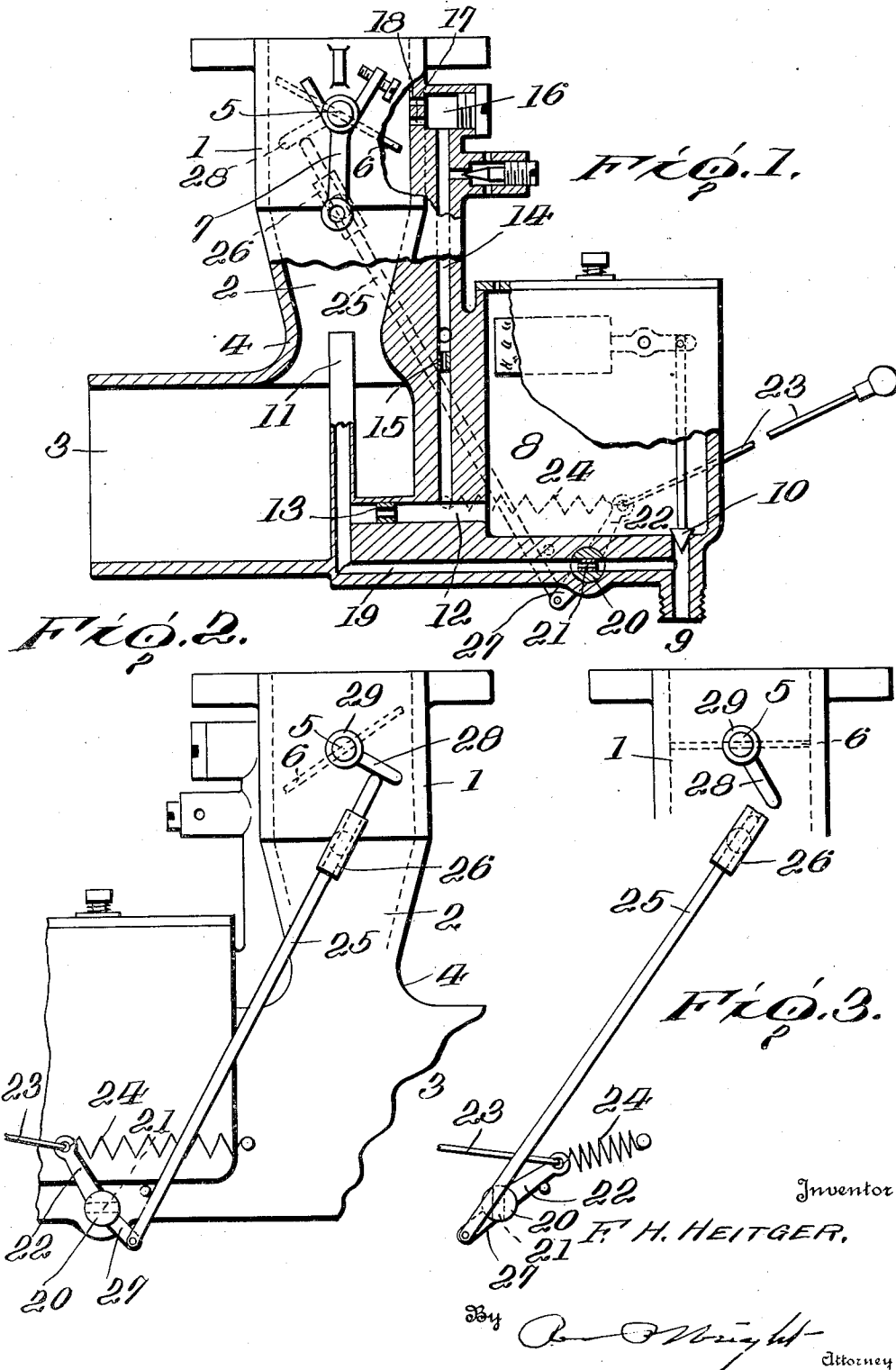
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CARBURETOR

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UNITED STATES PATENT OFFICE

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ADMINISTRATRIX OF SAID FRANK H. HEITGER, DECEASED

CARBURETOR

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This invention relates to carburetors and more particularly to means for supplying an abnormal supply of fuel mixture for starting an internal combustion engine to which the carburetor is attached, the object being to provide means for accomplishing this result without controlling the air supply by a choke valve as now in general use for this purpose.

Another object of my invention is to provide means for supplying an excess amount of liquid fuel under the control of the operator without unduly restricting the air feed and having associated therewith means for partly opening the throttle valve to increase the draft therethrough, whereby an increased volume of fuel mixture is supplied to the engine during the period of starting the same.

Another object of my invention is to provide a carburetor with manually controlled means for increasing the liquid fuel supply which at the same time opens the throttle valve so that a rich mixture is supplied to the engine to facilitate the starting by simply manipulating a single member thereby overcoming the difficulties now existing of the operator having to operate both the choke valve and the throttle valve to start the engine.

Another and further object of the invention is to provide a carburetor in which the abnormal fuel supply is obtained direct from the fuel supply system, such as a vacuum tank, gravity tank, pump or any other kind of fuel feeding means in which the fuel bowl is supplied with liquid fuel under pressure.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawing,

Figure 1 is a vertical section, partly in elevation, of a carburetor constructed in accordance with my invention;

Figure 2 is a detail side elevation showing the throttle valve moved partly open by the fuel controlling means; and

Figure 3 is a detail side elevation show-

ing the normal position of the operating means for opening the throttle.

In the embodiment of my invention as herein shown I employ a body 1 formed of any suitable material having a carbureting passage 2 supplied with air from an air inlet 3 through a venturi 4 which limits the factor in the air flow, the general construction being what is known in the art as a plain tube carburetor. Extending transversely through the carbureting passage is a shaft 5 on which is mounted a throttle valve 6 operated in the usual manner by means of an arm 7 and rod extending to the accelerator and throttle control of the engine to which the carburetor is attached.

The body is formed with a fuel bowl 8 having an inlet 9 controlled by a float controlled valve 10, the inlet 9 being connected to any suitable fuel feeding system, such as a vacuum tank, gravity tank, a pump or the like in which the fuel is supplied to the bowl under pressure so that a constant level is maintained in the fuel bowl at all times. Disposed within the body of the carburetor is a nozzle 11 which receives its fuel supply from a fuel passage 12 extending from the bowl 8 and in which is arranged a calibrated plug 13.

A vertical idling passage 14 is formed in the wall of the carburetor extending from the fuel passage 12 and is provided with a calibrated plug 15, said idling passage extending to a chamber 16 which is provided with ports 17 and 18 communicating with the carbureting passage to each side of the throttle when in closed position.

The nipple constituting the fuel inlet for the fuel bowl is provided with a passage 19 extending to the nozzle 11 so that the nozzle can be supplied with fuel direct from the fuel feeding system without passing through the bowl 8 whereby means is provided for by-passing liquid fuel direct from the fuel feeding system to the nozzle of the carburetor without passing through the bowl so that an excess amount of fuel can be supplied to the fuel nozzle in order to increase the richness of the fuel mixture for starting.

The passage of fuel through the passage

9 is controlled by a plug valve 20 in which is arranged a calibrated plug 21 so that the amount of fuel allowed to pass direct to the fuel nozzle can be predetermined, said valve
 5 having an arm 22 carried thereby to which is connected a control member 23 adapted to extend to the dash of a motor vehicle so that the operator from the driver's seat can operate the valve, the valve being normally held
 10 in closed position by a coil spring 24, whereby it is only necessary to operate the dash control member in order to by-pass fuel directly around the constant level fuel bowl of the carburetor into the nozzle of the carburetor in order to increase the fuel supply.

In order to increase the draft as the supply of fuel is increased, I provide means for operating the throttle valve as the fuel controlled valve 20 is moved into open position
 20 comprising an operating rod 25 which has its upper end slidably mounted in a guide 26 and its lower end pivotally connected to an arm 27 carried by the valve 20, said operating rod being adapted to engage an arm 28
 25 carried by a collar 29 fixed on the throttle shaft 5 as clearly shown in Figures 2 and 3, the rod being preferably so positioned in respect to the arm 28 that there is a lost motion so that the throttle valve is not opened until the fuel control valve 20 is moved into
 30 full open position.

I have found by experimenting that due to the fact that the present day fuel has only
 35 a small per cent of real volatile matter, it is essential that a surplus of the normal fuel supply is necessary for starting a cold motor. I have found that by providing means for supplying the main fuel nozzle of a carburetor with an abnormal supply of liquid
 40 under pressure so that more weight or volume of mixture is fed to the carbureting passage during the period of starting, the starting of the motor is greatly facilitated.

In the operation of a carburetor constructed in accordance with my invention when
 45 attached to an internal combustion engine such as now generally in use in connection with motor vehicles, fuel is supplied to the fuel bowl through the nipple 9 from any
 50 suitable source of fuel supply where the fuel is supplied under pressure and the same is maintained within the fuel bowl at a constant level. The valve 20 being so constructed and acted upon by the spring, it is
 55 maintained in closed position and when it is desired to start the motor, the operator grasps the dash control and pulls the same out, which oscillates the valve 20 so as to
 60 allow fuel to go directly into the nozzle without passing through the constant level fuel chamber whereby the fuel will be supplied under pressure to the nozzle and at the same time by the oscillation of said fuel control
 65 valve 20, the operating rod 25 is moved up-

wardly and as the arm 28 is arranged in the path of travel of said operating rod 25, the final movement of said rod brings it into engagement with the arm 28 so as to oscillate the throttle valve and partly open the
 70 same to increase the draft of air through the carburetor so that an abnormal supply of fuel and air will be supplied to the internal combustion engine in order to facilitate the starting of the same. After the engine has
 75 been started, it is only necessary to push in on the dash control member and the valve will move into closed position and be held in closed position by the spring.

While I have shown certain details of construction in the embodiment of my invention as herein shown and described, I am aware that various changes may be made without departing from the spirit of my invention, which consists broadly in supplying an abnormal supply of fuel mixture to an internal combustion engine by supplying an additional amount of fuel under pressure directly from the source of fuel supply.

While in the drawing I have shown means for supplying an additional amount of fuel to the main nozzle, I am aware that a separate nozzle or orifice could be used in addition with the main nozzle for discharging the auxiliary fuel supply without departing from the spirit of my invention and therefore I do not wish to limit my invention to any particular means for delivering fuel to the carbureting passage so long as the delivering means is connected with a source of supply independent of the constant fuel bowl of the carburetor so that the additional supply is delivered to the carburetor passage without restricting the air supply.

What I claim is:

1. A carburetor having a mixing chamber provided with a fuel nozzle in communication with a source of fuel supply, a throttle valve mounted therein, manually controlled means for supplying an additional amount of fuel to said nozzle under pressure above atmospheric and means for operating said throttle valve by the movement of said manually controlled means.

2. A carburetor having a mixing chamber provided with a fuel nozzle in communication with a source of fuel supply, a throttle valve mounted therein, manually controlled means for supplying an additional amount of fuel to said nozzle under pressure above atmospheric and means for opening said throttle valve on the final movement of said manually controlled means.

3. A carburetor having a mixing chamber provided with a throttle valve, a fuel nozzle for supplying fuel thereto, a constant level fuel chamber for supplying fuel to said nozzle, a source of fuel supply for supplying fuel to said constant level chamber under

pressure, manually controlled means for supplying an additional amount of fuel from said source of supply to said fuel nozzle independent of the constant level fuel chamber and means operated by said manually controlled means for partly opening the throttle.

dent of suction without abnormally restricting the air feed thereto and means associated with the last mentioned means for partially opening the throttle valve independent of the normal throttle operating means.

In testimony whereof I hereunto affix my signature.

FRANK H. HEITGER.

4. A carburetor comprising a casing having a mixing chamber provided with a throttle valve, a fuel nozzle disposed therein, a constant level fuel chamber in communication with said nozzle, a fuel supply nipple for said constant level chamber, a by-pass extending from said nipple to said nozzle, a valve in said by-pass, manually operated means for operating said valve and a member operated by said valve for partly opening the throttle valve.

5. A carburetor comprising a shell having a mixing chamber provided with a throttle valve, a fuel nozzle extending into said mixing chamber, said throttle valve having an arm, a constant level chamber for supplying fuel to said nozzle, a source of supply for supplying fuel to said constant level chamber under pressure, a passage extending from said source of fuel supply to said nozzle, an oscillating valve mounted in said passage, means for oscillating said valve and a reciprocating member operated by said valve and adapted to engage the arm of said throttle valve on the final opening movement of said valve to open said throttle valve as the fuel supply is increased.

6. A carburetor having means for supplying a normal mixture of fuel and air thereto, means for supplying an additional amount of fuel thereto under pressure above atmospheric, manually operated means for controlling said additional fuel supply, a throttle valve for controlling the outlet of said carburetor and means operated by said manually controlled means for partly opening the throttle as the fuel supply increases.

7. A carburetor having a mixing chamber provided with a fuel nozzle, means for constantly supplying a predetermined amount of fuel thereto, means for supplying an additional amount of fuel under pressure to said nozzle independent of the constant supply, a throttle valve for controlling the outlet of said carburetor and manually operated means for controlling the additional amount of supply and for controlling the position of said throttle valve as the fuel supply is increased.

8. Charge forming means for an internal combustion engine comprising a carbureting passage having means to normally feed fuel and air thereto for normally running the engine, a throttle valve for controlling the passage of fuel mixture therethrough having means to normally operate the same, means for injecting an abnormal supply of fuel into said carbureting passage indepen-

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