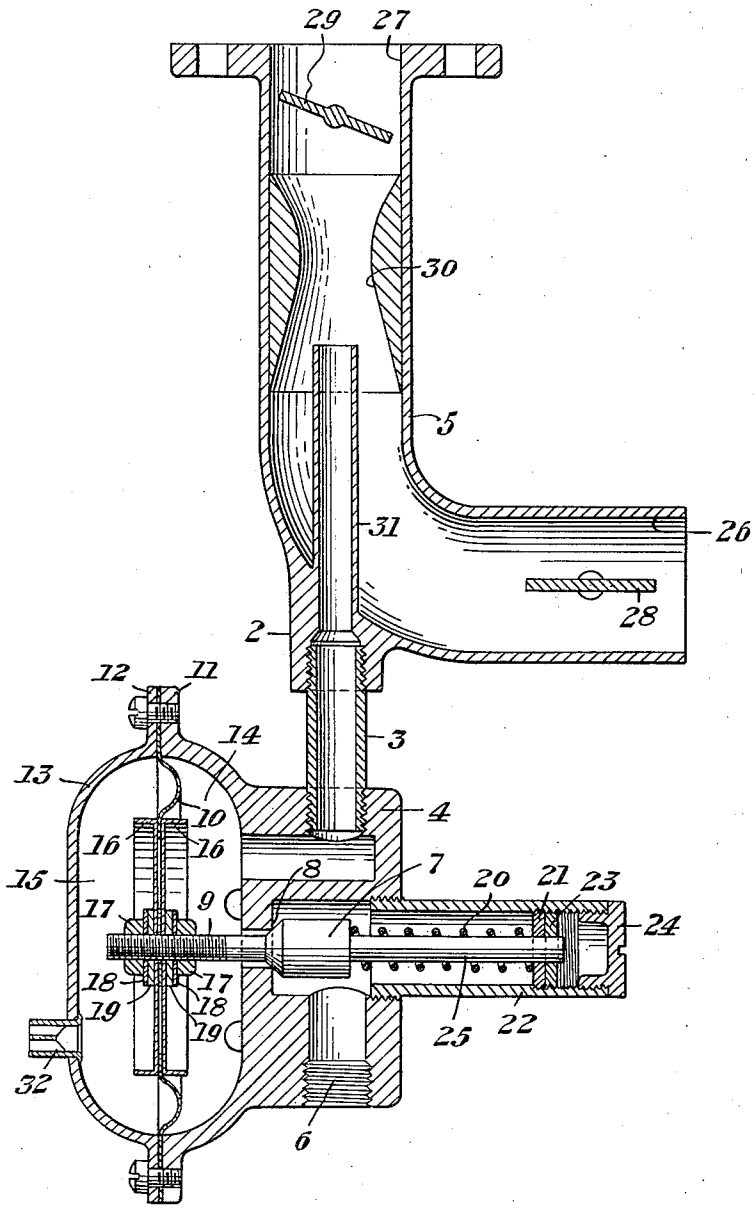
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GAS CARBURETOR

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GAS CARBURETOR

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3 Claims. (Cl. 48—184)

The present invention relates to carburetors and more particularly to carburetting devices for feeding a mixture of natural or artificial gas and air for purposes of combustion. By this invention I provide a carburetting device in which the flow of gas therethrough and, consequently, the character of the mixture, is controlled by the throttle valve which also controls the flow of the mixture into the device to be operated. The control by the throttle valve of the feeding of the gas into the device is effected by the use of a venturi in combination with the various other elements to be described for creating a vacuum for operating a pressure actuated valve which, in turn, controls the flow of the gas.

In the accompanying drawing I have shown for purposes of illustration only a preferred embodiment of my invention. In the structure shown in the drawing the casing indicated generally by the reference character 2 is separated into two parts which are connected together by a tube 3 which is threaded into the gas valve portion 4 of the casing and into the portion 5 of the casing which carries the throttle valve and venturi to be described hereinafter. The tube 3 provides a passageway for delivering gas from one portion of the casing to the other. It will be apparent that the casing may, if desired, be formed in a single piece.

The gas enters the portion 4 of the casing through an opening 6 and is discharged therefrom into the portion 5 of the casing through the tube 3. A pressure actuated valve 7 is provided in the casing and cooperates with the valve seat 8. A threaded stud 9 is secured to one end of the valve member. This threaded stud cooperates with a diaphragm 10 which is arranged to actuate the valve. The edges of the diaphragm 10 are secured between the flange 11 on the casing and the flange 12 on the cap 13 and the diaphragm extends across the chamber formed by the cap and the casing so as to provide a gas chamber 14 on one side thereof and an air chamber 15 on the other side thereof. Cups 16 are provided on opposite sides of the diaphragm 10 and these cups and the diaphragm are secured to the threaded stud 9 by means of nuts 17, metal washers 18 and leather washers 19.

The pressure actuated valve 7 is normally urged toward closed position by a spring 20 cooperating with the end of the valve member opposite that to which the stud 9 is secured. One end of the spring bears against the valve member and the other end thereof bears against an adjusting nut 21 which is threaded in the tube 22 into which the spring projects. In order to adjust the pressure exerted by the spring on the valve it is merely necessary to adjust the nut 21 within the tube. A lock nut 23 is provided for maintaining the adjusting nut in any adjusted position. The tube 22 is provided with a cap 24 which will normally be maintained in the position shown to prevent any gas from escaping from the casing along the stem 25 which projects through the adjusting nut 21 and the lock nut 23. It is merely necessary to remove this cap 24 in order to obtain access to the adjusting mechanism for effecting an appropriate adjustment of the tension exerted by the spring on the valve.

The portion 5 of the casing 2 is provided with an inlet opening 26 through which air is permitted to enter. It is also provided with an outlet opening 27 for discharging the mixture of gas and air from the device. A choke valve 28 is provided in the air inlet opening 26 to regulate the flow of air. A throttle valve 29 is positioned in the outlet opening 27 to regulate the flow of air and gas through the device. A venturi 30 is provided between the air inlet opening 26 and the discharge opening 27 and air in passing through the device must pass through the venturi. The gas which is fed past the valve 7 through the gas chamber 14 and through the tube 3 is fed to the venturi by a discharge tube 31 which extends to a point within the venturi.

In operation, the throttle valve 29 is first opened. This creates a vacuum which pulls air into the device through the air inlet opening 26 and as the air passes through the venturi 30 a partial vacuum is created in the discharge tube 31. This, in turn, causes the pressure in the chamber 14 to be reduced and due to the difference in pressure on opposite sides of the diaphragm, the pressure in chamber 15 being greater than that in the gas chamber 14, the valve 7 will be forced from its seat and gas permitted to flow into the device through the inlet opening 6. The gas, after it has passed the valve, passes through the chamber 14, through the tube 3, through the discharge tube 31 and through the venturi 30 where it is mixed with the air passing therethrough. The mixture is then permitted to pass into the manifold of the device to which the gas is being fed. It will be apparent that the amount of travel imparted to the valve 7 by the diaphragm will be controlled by the spring 20 which can be adjusted so as to admit gas into the device in the quantity desired to provide a proper mixture. By adjustment of the spring any desired gas-air ratio can be achieved throughout

the entire range of throttle opening from no load to full load.

It will be apparent from what has been stated above that the flow of gas and air through the device is controlled by the operation of the throttle valve **29** due to the creation of a vacuum which actuates the control valve through the diaphragm, one side of which is subjected to the pressure within the device and the other side of which is subjected to atmospheric pressure by virtue of the air vent **32**. It will also be apparent that any suitable regulation of the quantity of gas flow can be satisfactorily effected by the apparatus above described.

While I have shown and described a preferred embodiment of my invention it will be understood that it may be otherwise embodied within the scope of the appended claims.

I claim:

1. A carburetting device comprising a casing having a gas inlet, an air inlet and a discharge outlet for the mixture of gas and air, a pressure actuated valve within the casing for controlling the flow of gas therethrough, a venturi between the gas inlet and the outlet and between the air inlet and the outlet, a throttle valve between the venturi and the outlet, a tube connected to the gas inlet and extending into the venturi for discharging gas passing through the device into the air stream passing therethrough, and a diaphragm within the casing and responsive to pressures therein for operating the pressure actuated valve.

2. A carburetting device comprising a casing having a gas inlet, an air inlet and a discharge outlet for the mixture of gas and air, a pressure actuated valve within the casing for controlling the flow of gas therethrough, a venturi between the gas inlet and the outlet and between the air inlet and the outlet, a throttle valve between the venturi and the outlet, a tube connected to the gas inlet and opening into the venturi for discharging gas passing through the device into the air stream passing therethrough, and a diaphragm within the casing and responsive to pressures therein for operating the pressure actuated valve.

3. A carburetting device comprising a casing having a gas inlet, an air inlet and a discharge outlet for the mixture of gas and air, a pressure actuated valve within the casing for controlling the flow of gas therethrough, a venturi between the gas inlet and the outlet and between the air inlet and the outlet, a throttle valve between the venturi and the outlet, a passageway connected to the gas inlet and opening into the venturi for discharging gas passing through the device into the air stream passing therethrough, and a diaphragm within the casing and responsive to pressures therein for operating the pressure actuated valve.

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