Dec. 17, 1940. A. A. MELCHER 2,225,194

CARBURETOR

Filed June 23, 1937

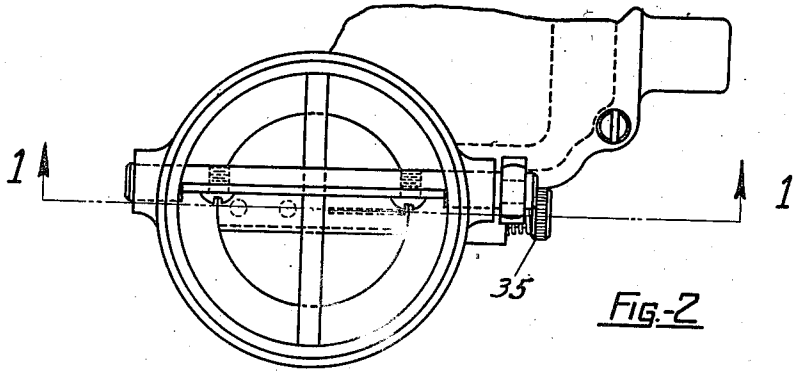


FIG. 2

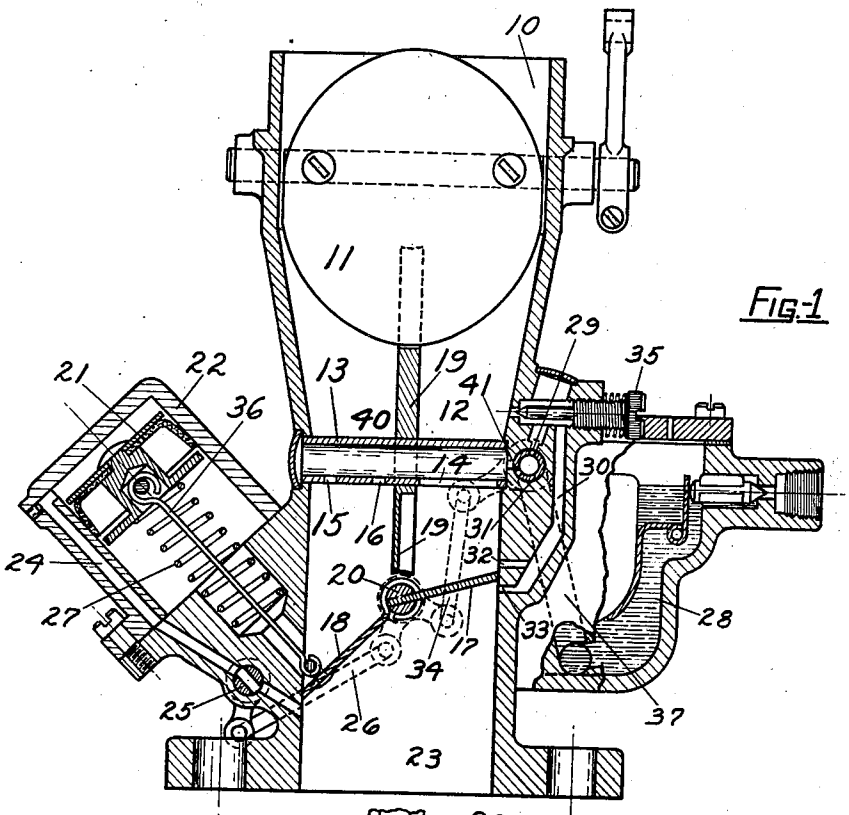


FIG. 1

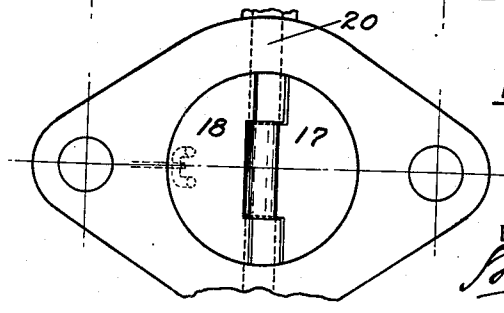


FIG. 3

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Patented Dec. 17, 1940 2,225,194

UNITED STATES PATENT OFFICE

2,225,194

CARBURETOR

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Application June 23, 1937, Serial No. 149,798

5 Claims. (Cl. 261—41)

The object of this invention is to provide automatically a second carburetor whereby for normal running a relatively small carburetor is provided and when the speed of the car approaches its maximum, the size of the throat is automatically doubled. This is accomplished by the suction of the engine acting against a piston. During normal operation the suction of the inlet manifold positively holds the automatic throttle shut by means of this piston. This vacuum connection is broken when the manually operated throttle approaches the wide open position. Thereafter the carburetor functions as do existing carburetors.

A second object is to provide air venting for the main nozzle when operating in the first stage, and in the second stage to provide means whereby this air vent reverses and acts as a fuel outlet.

In the drawing:

Figure 1 is a cross sectional elevation taken on plane 1—1 of Figure 2.

Figure 2 is a plan view looking down.

Figure 3 is a plan view looking up.

In the figures, 10 is the air entrance; 11 is the choke valve therein which is no part of this invention; 12 is the first stage mixing chamber; 13 is the cross bar nozzle therein having a slot orifice 14 discharging into this mixing chamber 12. Two small orifices 15 and 16 discharge into the second stage mixing chamber 40. A manually operated throttle 17 controls the flow of air past the slot 14. A partition 19 separates the air flow around slot 14 from the air flow around orifices 15 and 16. An automatically operated throttle 18 is mounted on the same shaft 20 as is mounted the manually operated throttle 17 (see Fig. 3), and is held in closed position by means of the piston 21 which is connected to the throttle 18 by the connecting rod 36. Until the throttle 18 opens, the function of the orifice 15, 16 when the throttle valve 18 is closed is to bleed air through 15 and 16 into the passage 14 and so mingle with the fuel and enter the mixture chamber controlled by the manually operated throttle 17. The piston 21 reciprocates in the cylinder 22 and the throttle 18 is held closed by means of vacuum in the mixture outlet 23 admitted to the upper side of the piston 21 through the passage 24. A valve 25 connected to the manually operated throttle 17 by means of the linkage 26 controls the connection between the mixture outlet 23 and the upper side of the piston 21. When the throttle 17 approaches the wide open throttle position, the valve 25 is closed. Thereupon, the valve 18 responds to the suction in the mixture outlet 23. A spring 27 may be used to hold the valve 18 closed at wide open throttle low engine speed, but it is not necessary. The float chamber is represented by the numeral 28. The low speed fuel is provided by an orifice 29 in the valve 31. The fuel flows through the center of valve 31 up through the passage 29, through the passage 30, to the two low speed outlets 32, 33, the outlet 33 being below the throttle and the outlet 32 being above the throttle in a well known manner.

The valve 31 is connected to the throttle 17 through linkage 34, so that when the throttle 17 is open, the low speed passage 20 is disconnected from the passage 30. An air bleed valve 35 is provided to allow air to enter with the fuel derived through the passage 29. The valve 35 serves to adjust the richness of the idle mixture.

The cross bar nozzle 13 derives its fuel through the opening 41 which comes into play just as the orifice 29 passes out of the picture. As one is closed, the other is opened, and vice versa. Fuel for the center of the valve 31 is drawn from the bottom of the float chamber 28 through the passage 37.

What I claim is:

1. In a carburetor having a constant level fuel supply chamber, an air entrance, a mixing chamber connected thereto, a partition dividing the mixing chamber into halves, a manually operated throttle controlling the flow through one half, an unbalanced throttle located in the other half of said mixing chamber for controlling flow therethrough, means responsive to the vacuum on the engine side of the throttles for holding said second mentioned throttle in closed position, which vacuum responsive means is such as to overcome the suction normally affecting said throttle, means responsive to the movement of the manually operated throttle for disconnecting the said vacuum means when the manually operated throttle approaches the wide open position, whereby said second mentioned throttle responds thereafter to engine suction, and fuel supply means for each of the mixing chambers.

2. In a device as set forth in claim 1 in which the fuel supply means comprises a cross bar nozzle having a single fuel passage extending transversely of said partition and adapted to discharge into both halves of the mixing chamber, whereby the fuel outlet from one side serves initially as an air vent to the other.

3. In a carburetor, fuel supply means therefor, an air entrance therefor, a mixing chamber connected thereto, a partition dividing the mixing

chamber into halves, a manually operated throttle controlling the flow through one half, an unbalanced throttle located in the other half of said mixing chamber for controlling the flow therethrough, means responsive to the vacuum on the engine side of the throttles for holding the automatic throttle in closed position, which vacuum responsive means is such as to overcome the suction normally affecting said throttle, means responsive to the movement of the manually operated throttle for disconnecting the vacuum means when the manually operated throttle approaches the wide open position, whereby the automatically operated throttle responds thereafter to engine suction, and fuel supply means for each of the mixing chambers.

4. In a device as set forth in claim 3, in which the fuel supply means comprises a cross bar nozzle having a single fuel passage extending transversely of said partition and adapted to discharge into both halves of the mixing chamber, whereby the fuel outlet from one side serves initially as an air vent to the other.

5. A carburetor, fuel supply means therefor, an air entrance, a mixing chamber connected thereto, a partition dividing the mixing chamber into halves, a manually operated throttle valve controlling the flow through one half, an unbalanced throttle valve located in the other half of said mixing chamber for controlling the flow therethrough, means responsive to the vacuum on the engine side of the throttles for holding the last mentioned throttle valve in the closed position, which vacuum responsive means is such as to overcome the suction normally affecting said throttle, means responsive to the movement of the manually operated throttle for disconnecting the vacuum means when the manually operated throttle approaches its wide open position, a fuel supply means for said mixing chamber consisting of a cross bar nozzle having a single fuel passage therein extending transversely of said partition, openings in said fuel passage adapted to discharge into both halves of the mixing chamber, a passage connecting said nozzle with the fuel supply means, a valve in said passage controlled by the manually operated throttle, a low speed fuel outlet in said mixing chamber located adjacent to and on the engine side of said manually operated throttle valve, a passage connecting said fuel outlet with said main fuel nozzle control valve, a port in said valve connecting said fuel outlet with said fuel supply means, said port being adapted to be closed when the main fuel supply valve is opened and to be opened when the main fuel supply means is closed.

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