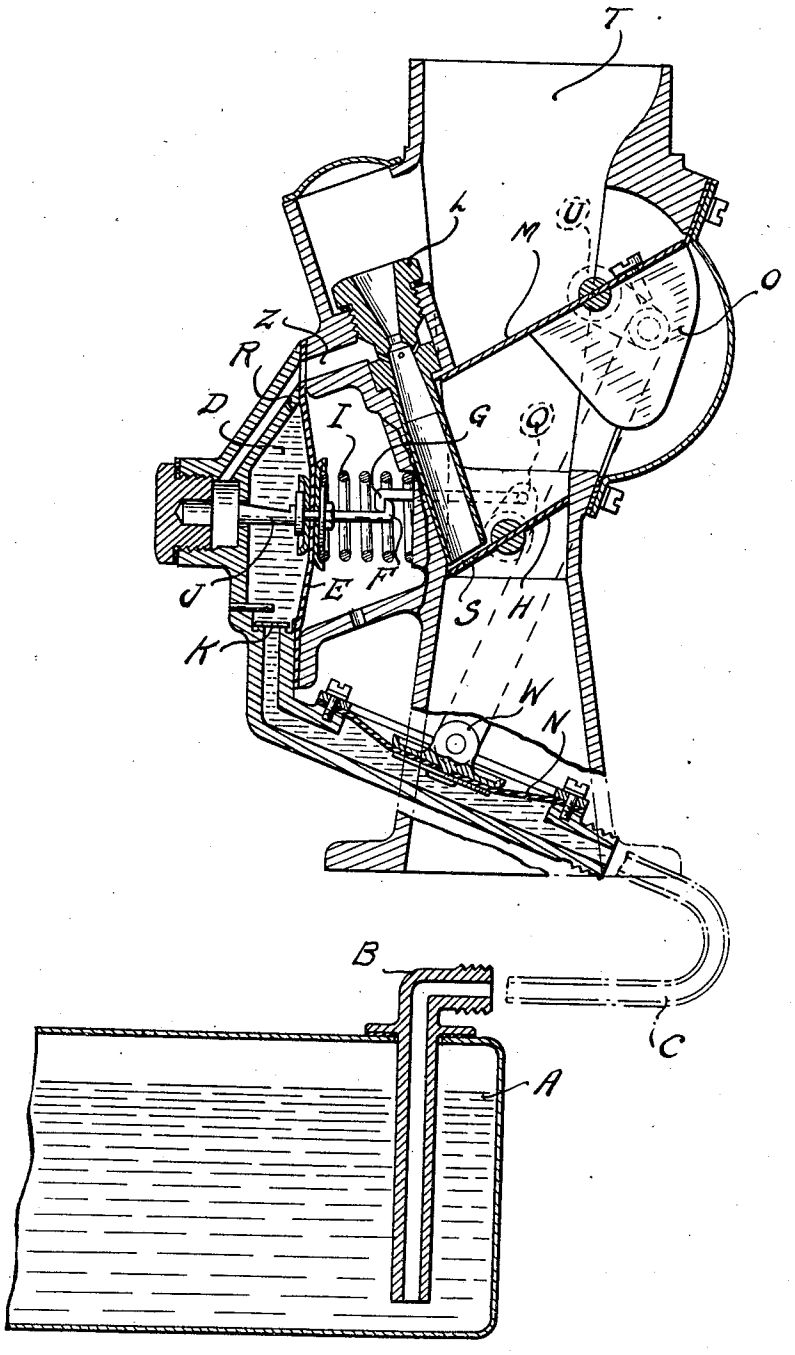
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SELF FEED CARBURETOR

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INVENTOR.

Stanley M Udale

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SELF-FEED CARBURETOR

Stanley M. Udale, Detroit, Mich., assignor to George M. Holley and Earl Holley

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2 Claims. (Cl. 261—51)

The object of this invention is to provide an automatic self-lift carburetor in which the suction in the carburetor will increase as the resistance to fuel increases, that is to say, as the grade increases.

In the drawing, A is the fuel tank having an outlet B connected through a pipe C with the diaphragm chamber D. In the entrance to this diaphragm chamber is locted a check valve K. Fuel flows out past a metering pin J and through a passage Z into the throat of a small venturi L which discharges on the atmospheric side, but against the downstream lip of a throttle valve H. The throttle lever Q is connected through a link G with a link F connected to the diaphragm D and metering pin J. F and G thus form a one-way connection between the throttle H and diaphragm E.

A spring I provides the operating force for the diaphragm E of the diaphragm chamber D. Hence, when the throttle is closed, the spring I is compressed and when the throttle is opened quickly, the spring I moves the diaphragm E at a slower rate than the rate at which the throttle is opened.

An air valve M is located in the air entrance leading to the throttle H. This air valve is connected by a lever V and by a link W to a diaphragm N located in the fuel entrance C. This diaphragm N thus acts as a dash pot for controlling the movement of the valve M and it also increases the closing moment on the valve M when the car is climbing a hill.

Additional closing means comprising the weight O may be used to supplement the closing moment of the diaphragm N on the air valve M. The throttle valve H may be provided with an opening S in the center opposite the outlet from the small venturi L to facilitate low speed operation. As vapor will form in the diaphgram chamber D. means must be provided and a passage R causes vapor to be consumed gradually without disturbing the flow of fuel through the passage Z through which the main volume of fuel flows. The effect of vapor in chamber D is to cut down the flow of fuel in hot weather and may reduce fuel consumption as much as five per cent, but this is an incidental result and not the main object of the opening R.

Operation

The swinging air valve M maintains a suction at all times in the throat of the small venturi L sufficiently great to raise the fuel from the tank A to the diaphragm chamber D. Fuel flows past the diaphragm N, check valve K, past the metering pin J, and along the passage Z to the throat of the small venturi L. As the throttle H is opened, the metering pin moves to the left, admitting more fuel to the passage Z. The diaphragm E acts as an accelerating pump and is operated by the compressed spring I. When idling, the small opening S supplies the necessary amount of fuel and air. When the lift increases when climbing a hill, the atmospheric pressure acting on the diaphragm N, together with the weight of the gasoline, causes the air valve to close more tightly and thus give a larger lift in the venturi L. The increased inclination also increases the effectiveness of the weight O.

Additional suction is created in the small venturi L responsive to the suction in the pipe C. This additional suction is sufficient to create at all times the necessary suction in the throat of the small venturi L. The intention is that the suction created by the weight of the air valve M will overcome the average friction in the pipe C and the necessary additional lift will be regulated by the suction of the gasoline acting on the diaphragm N, which additional lift will increase with the grade. Hence the mixture ratio will be independent of the grade.

What I claim is:

1. A floatless self-feed carburetor adapted to obtain its fuel from a fuel tank located beneath said carburetor through an intermediate fuel supply chamber, an air entrance, an eccentrically pivoted air valve located therein inherently adapted to be opened by the pressure of the atmosphere, yieldable means for closing said air valve, a mixture chamber on the engine side of said air valve, a primary venturi communicating with said air entrance and discharging into said mixture chamber, fuel openings in the throat of said venturi, a passage connecting said fuel openings with said fuel supply chamber, a movable valve forming a variable restriction in said fuel passage, a throttle in the mixture outlet, mechanical connecting means interconnecting the valve controlling the variable restriction with said throttle, the negative head of fuel at said fuel restriction being that corresponding to the height of said fuel restriction above the level of the fuel in said fuel supply tank, a movable wall in said passage subject to slightly less but substantially the same negative head, and a mechanical connection from said wall to said air valve to apply thereto an additional closing force.

2. A device as set forth in claim 1 in which there is an additional movable wall in said fuel

passage located between the first mentioned wall and the valve controlling the variable restriction in said fuel passage and in which the said second movable wall is connected to said valve controlling said variable restriction and in which the mechanical connection interconnecting the said valve of said variable restriction with the throttle consists of a one way mechanical connection for closing the restriction by means of the said valve and spring means for moving the connection on opening the throttle and in which there is a non-return valve in the fuel passage between the first and second movable walls.

STANLEY M. UDALE.