July 18, 1933. F. W. SCHAFFNER 1,919,134

CARBURETOR JET AND CONTROL THEREFOR

Filed March 2, 1932

Fig. 1.

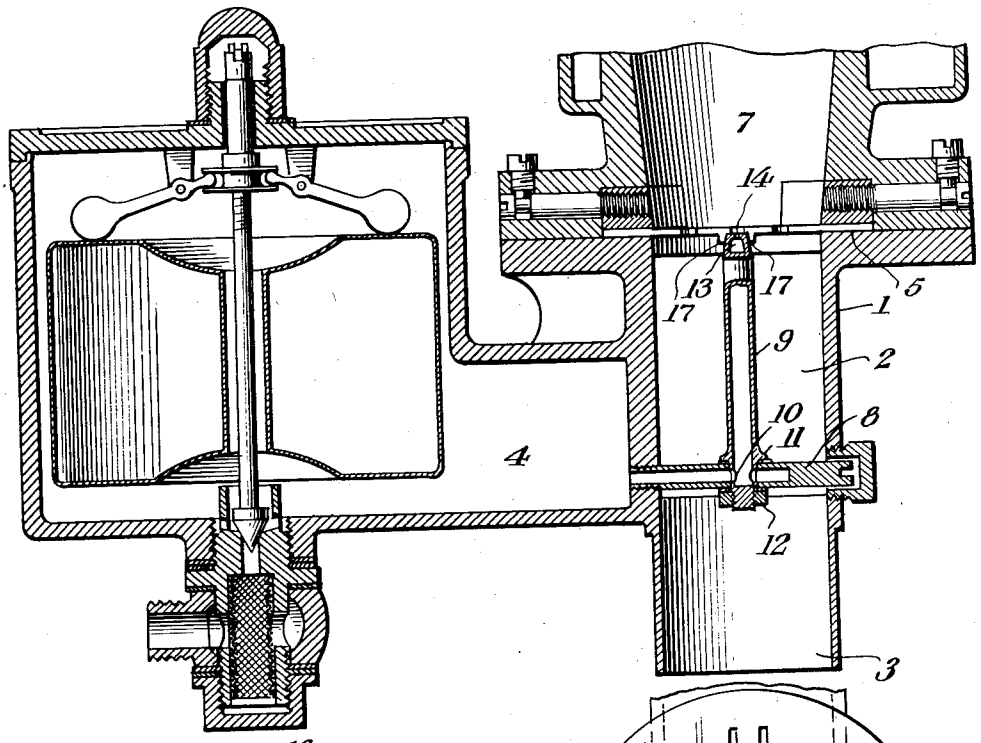


Fig. 4.

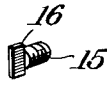


Fig. 2.

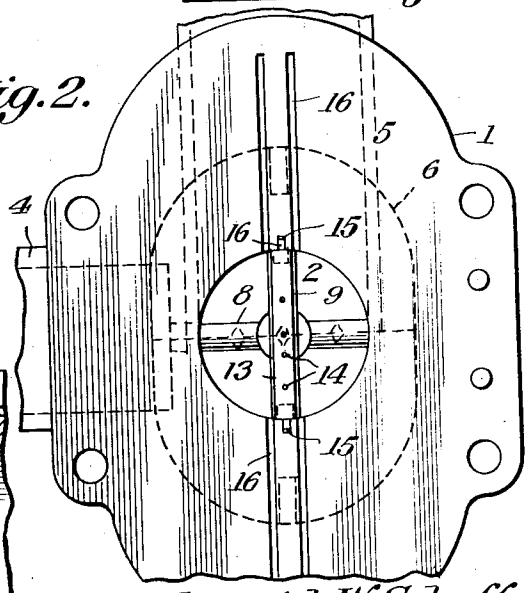
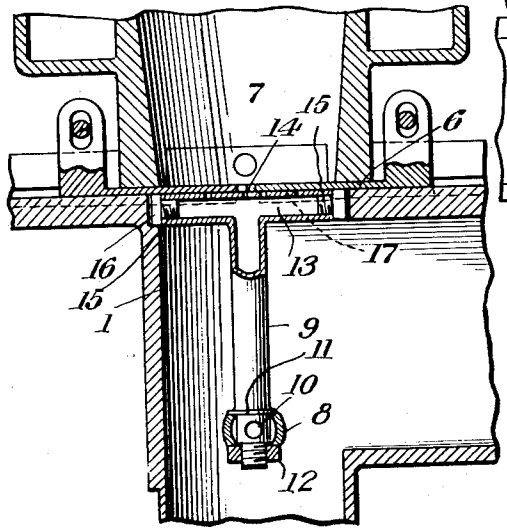


Fig. 3.



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UNITED STATES PATENT OFFICE

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CARBURETOR JET AND CONTROL THEREFOR

Application filed March 2, 1932. Serial No. 596,352.

This invention relates to jets and controls therefor especially adapted for carburetors and preferably of the type set forth in my co-pending application filed September 3, 1931, Serial No. 561,068, which matured to Patent 1,862,434, granted June 7, 1932 and has for the primary object, the provision of a device of the above stated character which will efficiently deliver fuel to the venturi of the carburetor, so that the fuel in proper amounts, will quickly and thoroughly mix with air to produce a volatile mixture capable of producing maximum power when ignited in an engine and free of unvaporized fuel, thereby eliminating waste of fuel and carbonization of the engine.

Another object of this invention is the provision of a T-shaped jet having a series of jet openings successively controlled by sliding gate valves which also control the air to the venturi of the carburetor in proper amounts to the amounts of fuel and said gates having wiping contact with the jet causing capillary action to the fuel within the jet to deposit the fuel on the exterior of the jet in spread globules rendering the fuel easy to take up by the suction of the engine and the passing of the air by the jet.

A further object of this invention is the provision of means for removably mounting the jet in a carburetor and having means for properly centering or positioning thereof in the carburetor so that the gate valves may slide smoothly relative thereto and with wiping contact therewith and which also permits the jet to be easily cleansed of any foreign matter when removed from the carburetor.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which

Figure 1 is a fragmentary vertical sectional view illustrating a carburetor with a jet and control therefor mounted in the carburetor and constructed in accordance with my invention.

Figure 2 is a plan view showing one section of the carburetor with the jet mounted therein and properly centered with the guides of the sliding gates.

Figure 3 is a fragmentary vertical sectional view illustrating the gates associated with the jet.

Figure 4 is a perspective view illustrating one of the jet centering elements removable from the jet to permit the latter to be easily cleansed.

Referring in detail to the drawing, the numeral 1 indicates a fragmentary portion of a carburetor constructed in accordance with the subject-matter of my co-pending application above referred to and consists of an air chamber 2 having an inlet 3 and formed integrally with a fuel chamber 4. The upper end of the air chamber 2 is flanged to form seats 5 for sliding gate valves 6 operated by the movements of the throttle valve of the carburetor. It is to be understood that the gate valves are suitably connected to the throttle valve by linkage so that during the closing and opening of the throttle valve, the gate valves will be moved away and towards each other respectively which controls the amount of air into the venturi 7 of the carburetor in accordance with the speed of the engine. The venturi at its lower end is removably secured to the seats 5 of the mixing chamber.

A fuel tube 8 is removably mounted in the carburetor and traverses the air chamber 2 between the latter and its intake 3 and has one end in communication with the fuel chamber 4. The tube 7 has an opening therethrough to receive the lower portion of a T-shaped jet 9 of hollow construction provided with a series of openings 10 in communication with the interior of the fuel tube 7 for the purpose of receiving fuel therefrom. A shoulder 11 is formed on the jet 9 and rests against the jet 8 while the lower end of the tube is closed and screw-threaded to receive a nut 12 cooperating with the shoulder 11 in detachably securing the jet to the tube. The head 13 extends across the air chamber 2 where the

latter communicates with the venturi and is provided with a series of jet openings 14 in the top face thereof. The ends of the head 13 are opened and closed by removable plugs 15 having formed integrally therewith finger pieces 16 to permit the plugs to be easily gripped for application and removal from the head and normally seat in slots or notches 15 formed in the valve seats 5 for the purpose of aligning the head 13 with guide grooves 16 formed in the seats 5 and which slidably receive guide flanges 17 formed on the gate valves. The top face of the head is flat and the side walls of said head taper towards the flat wall as shown in Figure 1 to be engaged by the guide flanges 17 on the gate valves with the latter in wiping contact with said flat top face of the head. The removable plugs permit the head to be easily cleansed of any foreign matter when removed from the carburetor and also form centering means for aligning the head with the guide flanges of the gate valves when the jet is mounted within the carburetor.

The adjacent edges of the gate valves are notched for the purpose of always allowing one of the jet openings to be uncovered to permit sufficient fuel to enter the venturi for maintaining the engine running at idling speed. These notches also permit sufficient air to pass into the venturi when the gate valves are in closed position to support the amount of fuel entering the venturi for the purpose of maintaining the engine running at said idling speed.

As the throttle valve (not shown) is moved towards an opened position the gate valves simultaneously move apart with a wiping contact with the head 13 of the jet causing a capillary action on the fuel within the jet and depositing the fuel on the flat surface of the head in spread or elongated globules so that the suction can easily pick up the fuel along with the air and thereby giving the engine to which the carburetor is applied quick acceleration. It is to be understood that the sliding movement of the gate valves successively open and close the jet openings in accordance with the speed of the engine, the speed of the engine being controlled by the throttle valve.

The above construction described permits the jet to be easily removed from the carburetor when desiring to clean the same and due to the removable plugs 15 a small instrument or wire may be run through the head and also through the vertical portion of the jet by way of the openings 10 to remove therefrom any foreign matter which may have become trapped within the jet.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of my invention, as claimed.

Having thus described my invention, what I claim is:

1. A carburetor jet comprising a hollow T-shaped element to receive fuel and including leg and head portions, said head portion in the top wall thereof having jet openings, said head portion having its ends opened, removable plugs for closing the opened ends of the head, and means on said plugs to facilitate the removal and application of the latter to the head, said means engaging the carburetor for centering the T-shaped element within the carburetor.

2. In combination with a carburetor having an air chamber and a fuel chamber, a T-shaped jet in the air chamber and communicative with the fuel chamber and including leg and head portions, said head portion having a flat top face provided with jet openings, sliding gate valves carried by the carburetor to have wiping contact with the head for successively controlling the jet openings, removable plugs for the head portion, said carburetor having notches, and means on the plugs to fit in said notches for centering the head portion within the air chamber and in proper alignment with the gate valves to permit the latter to have free sliding and wiping contact therewith.

3. A carburetor comprising a body having guide grooves and notches, a venturi formed in said body, a fuel supply element traversing the venturi and provided with jet openings for directing fuel into the venturi, sliding gates carried by the body and having wiping contact with the element to control the jet openings thereof, guide means on the gates and slidable in the grooves and against said element, and means on the ends of the element and fitting in the notches to align said element with the grooves and guide means.

4. A carburetor comprising a body having guide grooves and notches, a venturi formed in said body, a fuel supply element traversing the venturi and provided with jet openings for directing fuel into the venturi, said element having opened ends, sliding gates carried by the body and having wiping contact with the element to control the jet openings thereof, guide means on the gates and slidable in the grooves and against said element, and removable means closing the ends of the element and fitting in the notches to align said element with the grooves and guide means and to permit cleaning of the element when removed from the carburetor.

5. A carburetor comprising a body having guide grooves and notches, a venturi formed in said body, a fuel supply element traversing the venturi and provided with jet openings for directing fuel into the venturi, said element having opened ends, slid-

ing gates carried by the body and having wiping contact with the element to control the jet openings thereof, guide means on the gates and slidable in the grooves and against said element, and headed plugs threaded in the ends of the element and fitting in the notches to align said element with the grooves and guide means and to permit cleaning of the element when removed from the carburetor.

6. A carburetor comprising a body having guide grooves and notches, a venturi formed in said body, a hollow fuel supply element traversing the venturi and having a flat top face provided with jet openings, said element having bevelled sides and opened ends, sliding gates carried by the body and having wiping contact with the flat top face of the element to control the jet openings thereof, guide flanges on the gates and slidable in the grooves and against the bevelled sides of the element, and removable means closing the ends of the element and fitting in the notches to align said element with the grooves and guide flanges and to permit cleaning of the element when removed from the carburetor.

FREDERICK W. SCHAFFNER.