June 3, 1930. F. H. SCHOETTLER 1,761,846

CARBURETOR

Filed Aug. 15, 1923 2 Sheets-Sheet 1

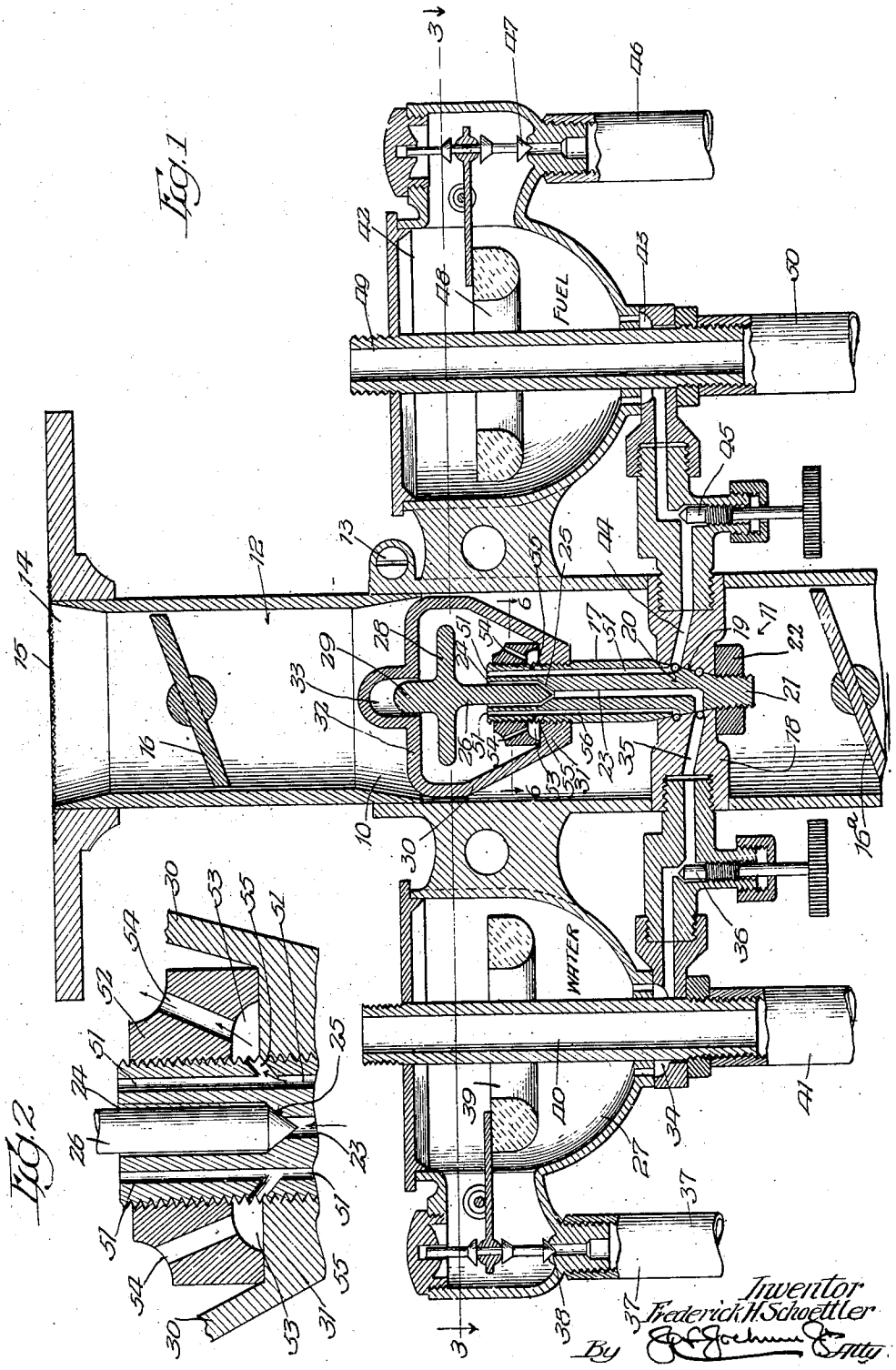

FIG. 1

FIG. 2

Inventor
Frederick H. Schoettler
By
Attorney

June 3, 1930. F. H. SCHOETTLER 1,761,846

CARBURETOR

Filed Aug. 15, 1923 2 Sheets-Sheet. 2

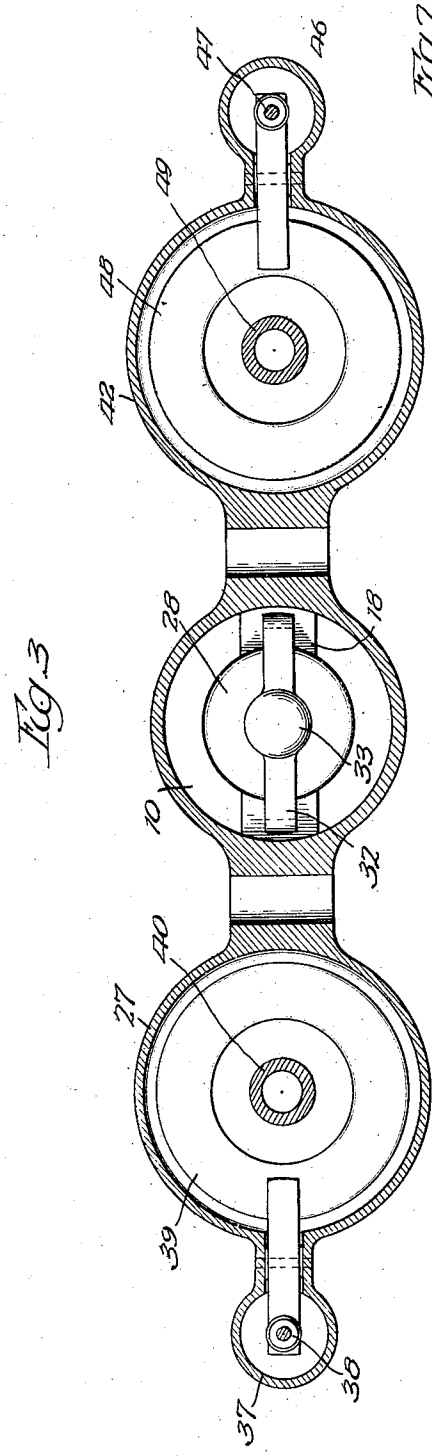

Fig. 3

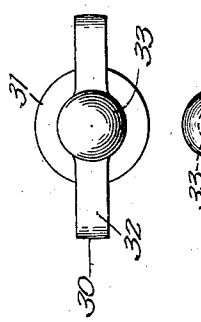

Fig. 7

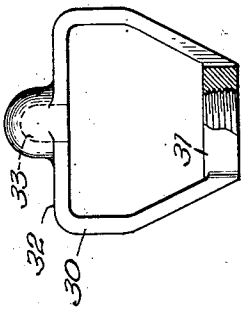

Fig. 8

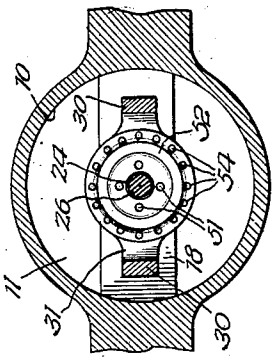

Fig. 6

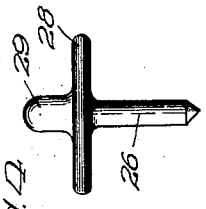

Fig. 4

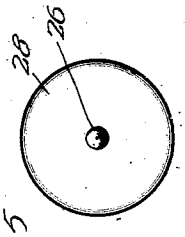

Fig. 5

Inventor
Frederick H. Schoettler

By. [signature] Atty.

Patented June 3, 1930

1,761,846

UNITED STATES PATENT OFFICE

FREDERICK H. SCHOETTLER, OF CHICAGO, ILLINOIS, ASSIGNOR OF THIRTY-FIVE PER CENT TO JOHN H. TAFT, OF CHICAGO, ILLINOIS, AND TWENTY-FIVE PER CENT TO WILLIAM F. BRUGMANN, OF EVANSTON, ILLINOIS

CARBURETOR

Application filed August 15, 1923. Serial No. 657,543.

This invention relates to improvements in carburetors and one of the objects of the same is to improve and simplify the construction of a carburetor and to provide improved means for supplying and mixing a fluid, such as water, with the charge of fuel and then deliver the mixture to the engine thereby reducing the fuel consumption and at the same time eliminate the formation of carbon.

A further object is to provide an improved device of this character in which the supply of fluid is controlled by means of a floating valve, the valve being actuated in one direction by gravity and being influenced in its operation in the opposite direction by suction created in the engine cylinder.

A further object is to provide an improved device of this character which will be simple, durable, and compact in construction and effective and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction and in the combination and arrangement of the several parts as hereinafter more fully described and claimed and as shown in the accompanying drawings, in which

Fig. 1, is a vertical longitudinal sectional view of the carburetor.

Fig. 2, is an enlarged detail sectional view of the end of the nozzle and interchangeable tip.

Fig. 3, is a horizontal sectional view as taken on line 3—3 Figure 1.

Fig. 4, is a side elevation of the floating valve.

Fig. 5, is a bottom plan view of Figure 4.

Fig. 6, is a detail sectional view as taken on line 6—6 Figure 1.

Fig. 7, is a top plan view of Figure 8.

Fig. 8, is a side elevation, partly broken away, of the yoke like member for limiting the movement of the floating valve in one direction.

Referring more particularly to the drawings the numeral 10, designates generally a mixing chamber having an inlet 11, for outside air and an outlet to which may be attached a tubular extension 12, which latter is held in position in any suitable manner such as by clamping means 13. The outlet 14, of the extension 12, communicates with the intake of the engine, and if desired a protecting screen 15, may be employed to prevent foreign particles from being drawn into the engine. Obviously the screen 15, may be located in any desired or suitable position, and the usual throttle valve 16, may be employed.

A nozzle designated generally by the reference numeral 17, is arranged to discharge into the mixing chamber 10, and is preferably arranged entirely within the casing which forms part of the mixing chamber. The nozzle is preferably supported by means of a casting or member 18, having an opening 19, therethrough to receive the tapered portion 20, of the nozzle, the extremity 21, of which portion extends beyond the member 18, and is threaded to receive a nut or collar 22, by means of which latter the nozzle is removably secured in position.

Within the nozzle 17, is a passage 23, which extends longitudinally thereof and discharges through the upper end of the nozzle, preferably centrally thereof. The portion of the passage adjacent the upper end thereof is enlarged as at 24, and the bottom of the enlarged portion is shaped to form a valve seat 25.

A floating valve 26, extends into the portion 24, of the passage 23, and co-operates with the seat 25, for shutting off the supply of fluid from a supply tank or chamber 27. The valve 25, is held upon its seat by gravity and is provided with a circumferential flange 28, preferably spaced from the upper end 29, of the valve and upon which flange the suction created in the engine operates to unseat the valve 26, against the weight of the valve. The extent of the unseating movement of the valve being controlled by the degree of suction in the engine.

As a means for limiting the unseating movement of the valve by the suction in the engine, any suitable means may be employed, such as a yoke 30, having a base 31, provided with a threaded opening therethrough to receive

the threaded extremity of the nozzle 17, which latter is provided with external threads to adjustably receive the yoke 30. The top 32, of the yoke is provided with a downwardly opening recess 33, adapted to receive the extremity 29, of the valve 26, and serves as a means for assisting in guiding the valve in its seating and unseating movements. The external diameter of the valve 26, is slightly less than the internal diameter of the portion 24, of the passage 23, so that when the valve is unseated the fluid will flow thereabout. By adjusting the yoke 30, upon the end of the nozzle 17, it will be manifest that the extent of movement of the valve may be varied.

The supply chamber 27, is provided with an outlet 34, which has communication with the passage 23, preferably through the medium of a passage 35, in the member 18, and if desired any suitable means may be provided for controlling the supply of fluid from the chamber 27, to the nozzle 18, such as a suitable valve 36, here shown as a needle valve construction.

The chamber 27, receives its supply from any suitable source through the inlet pipe 37, controlled by a valve 38, which latter is in turn controlled by a float 39. A pipe 40, may be provided to extend through the chamber 27, out of communication therewith and through which pipe, through a suitable connection 41, the exhaust gases from the engine may be passed to preheat the fluid before it is supplied to the nozzle 17.

A second supply chamber 42, is provided for maintaining a supply of fuel, such as gasoline, kerosene, or the like, the chamber having an outlet 43, which latter has communication with a passage 44, in the member 18. This passage 44, is also provided with a suitable controlling means such as a needle valve 45, whereby the amount of fuel delivered from the chamber 42, may be controlled.

The chamber 42, is supplied through a pipe 46, from any suitable source and is controlled by a suitable valve 47, which valve in turn is controlled by a float 48, arranged within the chamber 42.

If desired a pipe 49, may be extended through the chamber 42, out of communication therewith so that the exhaust gases from the engine may be delivered thereto through a suitable connection 50, to preheat the contents of the chamber. The passage 44, has communication with a plurality of passages 51, in the nozzle 18, any number of which latter passages may be provided to extend longitudinally of the nozzle and encompass the passage 23, as well as the enlarged portion 24, thereof. If desired the passages 51, may extend through the end of the nozzle although this is not necessary.

Adjustably mounted upon the threaded extremity of the nozzle 17, adjacent the valve 26, is a tip 52, having a chamber 53, opening through the lower face thereof and a plurality of openings or jet orifices 54, in communication with the chamber 53.

Any number of these orifices 54, may be provided to meet the requirements of the engine and the tip is interchangeable to permit of the employment of a tip having the desired or required number of jet openings or orifices 54. The tip is adapted to rest against the base 31, of the yoke 30, and encompasses the end of the nozzle as well as the valve 26. The chamber 53, has communication with the passages 51, in the nozzle 17, preferably through the medium of passages or openings 55, in the nozzle 17, so that the fuel which is delivered into the chamber 53, in the tip will be distributed through the openings 54, into the mixing chamber 10, where it will be mixed with the fluid from the passage 23, and also with the air drawn into the mixing chamber through the open end 11, of the latter.

As the suction in the engine increases the valve 26, will be unseated and fluid will be drawn from the passage 23, and mixed with the fuel from the jet openings 54. Obviously the valves 36 and 45 may be so adjusted or set to obtain the desired proportions of the fluid and fuel supplied to the nozzle 17.

With this improved construction it will be manifest that the fluid from the chamber 27, as it is drawn from the passage 23, will be encompassed by the fuel drawn from the chamber 42, thereby insuring a complete mixture and atomization of the fuel and fluid.

The suction upon the nozzle is controlled by the throttle 16, and during the operation of the engine air will be drawn into the mixing chamber 10, through the opening 11, thereof. As drawn in, the air will encompass the nozzle as well as the fluid and fuel delivered from the nozzle 17, to mix therewith in the mixing chamber 10, the entire mixture being delivered into the engine.

By supplying such a mixture to the engine the consumption of fuel will be reduced to a minimum and the efficiency of the engine will be increased. At the same time carbon will be eliminated.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts within the scope of the claims without departing from the spirit of this invention.

What is claimed as new is:

1. A carburetor including a mixing chamber, a nozzle discharging into the chamber, means for separately supplying two different fluids to the nozzle, said means embodying outlets extending through the end of the nozzle, a floating valve for controlling one of said outlets, an imperforate baffle connected

with the valve and extending across both of said outlets, said baffle being disposed between said outlets and the intake of the engine and against which baffle both of the fluids are directed to mix them, and means mounted upon the nozzle for limiting the movement of the valve.

2. A carburetor including a mixing chamber, a nozzle discharging into the chamber, means for separately supplying two different fluids to the nozzle, said means embodying outlets extending through the end of the nozzle, a floating valve for controlling one of said outlets, said valve being controlled in its action by engine suction, an imperforate disc like formation connected with the valve and extending across both of said outlets, said disc being disposed between said outlets and the intake of the engine, and against which disc both of the fluids are directed to mix them, and a cage like structure mounted on said nozzle and in which case the valve and disc freely operate.

3. A carburetor including a mixing chamber, a nozzle discharging into the chamber, means for separately supplying two different fluids to the nozzle, said means embodying outlets extending through the end of the nozzle, a floating valve for controlling one of said outlets, said valve being controlled in its action by engine suction, a disc like formation connected with the valve and extending across both of said outlets and against which disc both of the fluids are directed to mix them, a cage like structure in which the valve and disc freely operate, and means adjustably mounting said cage upon the nozzle.

In testimony whereof I have signed my name to this specification, on this 13th day of August, A. D. 1923.

FREDERICK H. SCHOETTLER.