B. N. PIERCE.

CARBURETER.

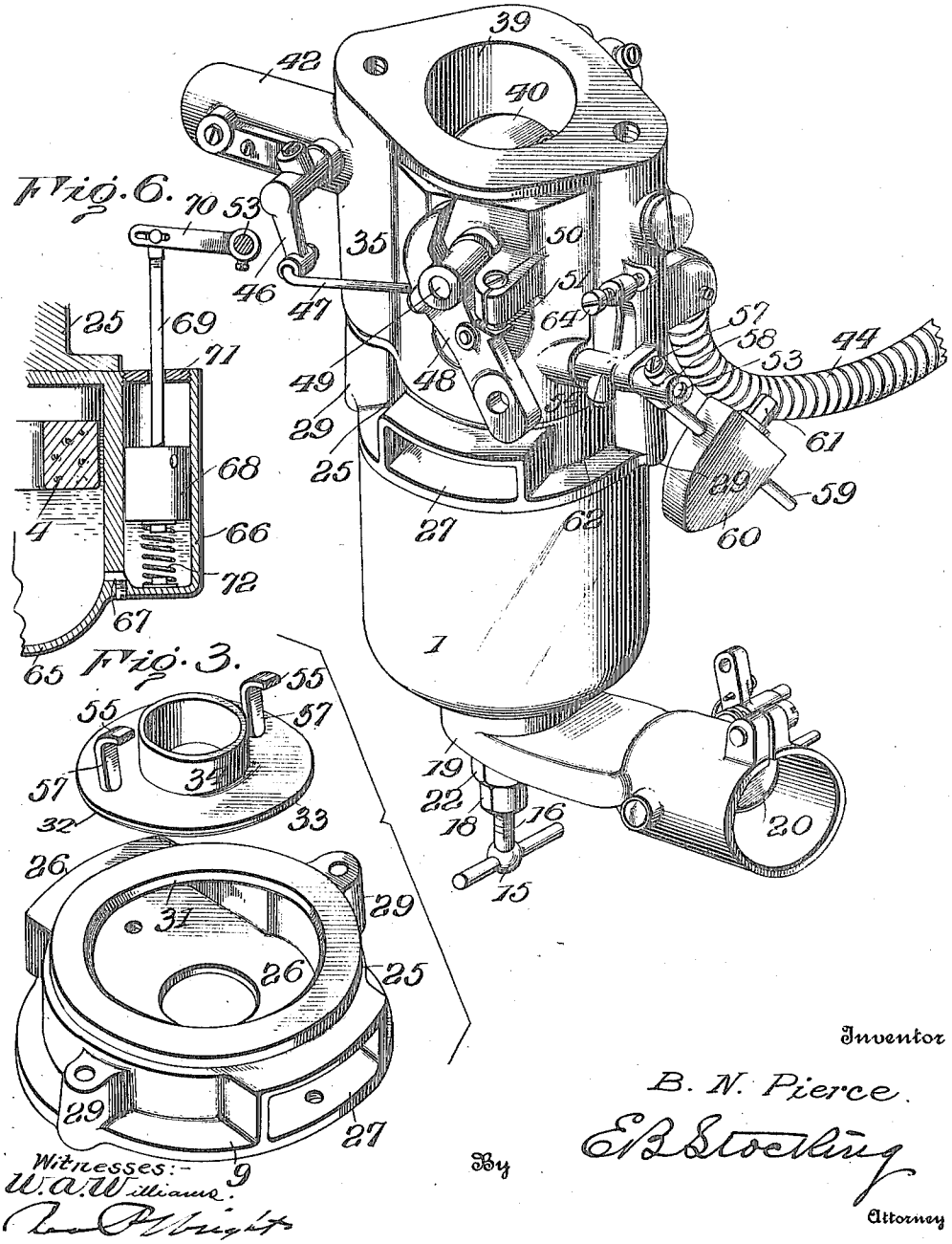
APPLICATION FILED FEB. 19, 1915.

1,264,126.

Patented Apr. 23, 1918.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:-

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2 SHEETS—SHEET 2.

Fig. 2.

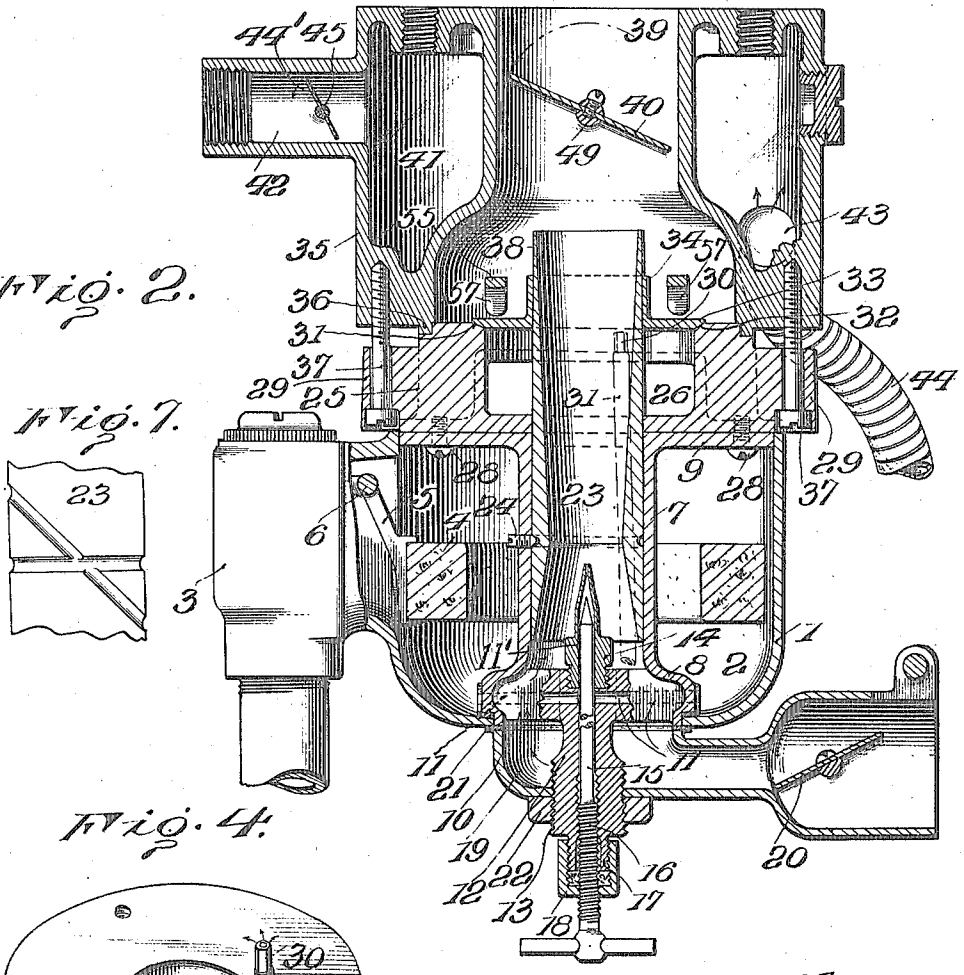


Fig. 1.

Fig. 4.

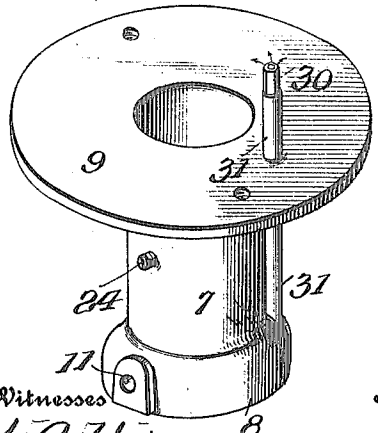
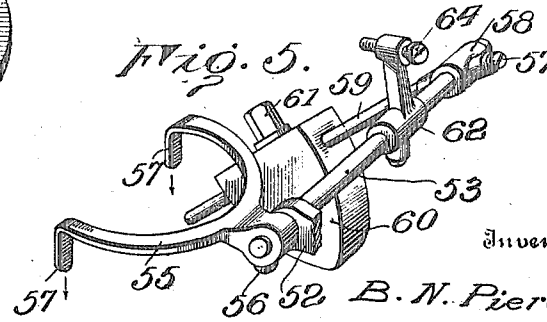


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

BURT NEULON PIERCE, OF FLINT, MICHIGAN.

CARBURETER.

1,264,126. Specification of Letters Patent. Patented Apr. 23, 1918.

Application filed February 19, 1915. Serial No. 9,324.

To all whom it may concern:

Be it known that I, BURT NEULON PIERCE, a citizen of the United States, residing at Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Carbureters, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in carbureters adapted to be used in connection with hydrocarbon engines and the like; the object being to provide a carbureter with a main fuel supply nozzle having a main air inlet surrounding the same and over which is arranged a Venturi tube which extends into a mixing chamber of the carbureter and in which a partial vacuum is created by the suction of the engine in order to draw the fuel out of the main supply nozzle so that the same will be thoroughly mixed with the incoming volume of air.

Another object of the invention is to provide a carbureter with an auxiliary air chamber below the mixing chamber and separated therefrom by a floating suction-controlled valve, said auxiliary air chamber having a high speed jet or nozzle extending into the same and terminating adjacent the floating valve which is provided with an initial free movement in order to allow the same to be raised by the suction of the engine and having adjustable means for retarding the movement of said valve in proportion to the suction of the engine, whereby an additional charge of gasolene is proportionately supplied to the main mixing chamber as the speed of the engine is increased.

Another object of my invention is to provide novel means for retarding the opening movement of the floating suction valve comprising a pivoted fork arranged in the path of travel of said valve, having means for exerting a resistance to the movement of said fork and means for adjusting the position of said fork in respect to the suction-controlled floating valve whereby the same can be adjusted to a nicety in order to obtain the proper mixture when running on high speed.

Another object of the invention is to provide a carbureter which is exceedingly simple and cheap in construction and one in which the same is formed of a plurality of castings so united that a very compact carbureter is formed and one which can be readily assembled or taken apart in order to make the necessary repairs.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings—

Figure 1, is a perspective of my improved construction of carbureter;

Fig. 2, is a longitudinal vertical section through the same, showing the fuel supply casing in elevation;

Fig. 3, is a perspective of the auxiliary air casing and floating valve;

Fig. 4, is a perspective of the float chamber closure and Venturi tube support;

Fig. 5, is a perspective of the pivoted fork and crank shaft showing one form of means for retarding the oscillation of the crank shaft in order to produce a resistance to the opening movement of the floating suction controlled valve;

Fig. 6, is a detail section showing another form of means for exerting a resistance to the opening movement of the suction-controlled valve; and

Fig. 7, is a detail view of the Venturi tube showing the annular groove and the obliquely arranged intersecting groove in order to provide means for adjusting the Venturi tube.

Like numerals of reference refer to like parts in the several figures of the drawings.

In carrying out my improved construction of carbureter, I employ a bowl 1 forming a fuel and float chamber 2 provided with the usual fuel supply chamber 3 having a needle valve, not shown, mounted therein for controlling the supply of fuel, said valve being controlled by a ring float 4 carried by the long arm 5 of a crank 6, this being the ordinary form of fuel control now employed in carbureters and forming no part of my invention.

Mounted within the float and fuel chamber 2 is a central tubular member 7 having an enlarged lower end 8 which is annularly reduced and is seated in a central opening formed in the bottom of the bowl as clearly shown in Fig. 2.

The upper end of the tubular member 7 is provided with an annular flange 9 forming a closure for the bowl 1. The enlarged portion 8 of the tubular member 7 is provided

with an integral cross bar 10 having a transverse passage 11 formed therein, the outer ends of which communicate with the bottom of the bowl and said passage is intersected by a vertical passage 11' formed in an integral plug 12 which is provided with an enlarged threaded portion 13.

The top of the cross bar 10 is provided with a threaded recess in which is secured a nozzle 14 having a passage communicating with the passage 11 formed in the plug as clearly shown in Fig. 2, and provided with a valve seat for a needle valve 15 which is provided with a threaded portion 16 working in a correspondingly threaded portion of the plug 12.

The plug is provided with a reduced threaded portion 17 over which is arranged a stuffing box 18 through which the valve stem passes, said valve stem being provided with a cross bar at its end in order to allow the same to be readily manipulated in order to adjust the flow of gasolene through the nozzle 14.

Arranged over the opening in the bottom of the bowl, which is closed by the enlarged lower end of the tubular member 7, is an air duct 19 having means at its outer end for connecting the same to a suitable source of supply and provided with a suitable choker valve 20. A lead gasket 21 is arranged between the ends of the air duct and the bottom of the bowl 1 and said air duct is secured in position upon the bottom of the bowl by a nut 22 working on the threaded portion 13 of the plug 12.

From the construction so far described, it will be seen that a main fuel supply nozzle is provided in a centrally arranged tubular member having a main air supply in order to allow the air to be thoroughly mixed with the liquid fuel sucked from the main nozzle.

Mounted within the tubular member 7 is a Venturi tube 23 which is provided with an annular groove in which extends a set screw 24 passing through the tubular member 7 for securing the Venturi tube in position therein, said tube extending upwardly beyond the upper end of the bowl, as clearly shown and for the purpose, as will be hereinafter fully described.

Mounted on the annular flange 9 is a casing 25 forming an auxiliary air chamber 26 which is provided with oppositely disposed air inlet ports 27; said casing being secured to the annular flange 9 of the tubular member 7 by screws 28 as clearly shown in Fig. 2. The casing is provided with oppositely disposed apertured lugs 29 for the purpose hereinafter fully described.

Arranged within the auxiliary air chamber 26 is a high speed nozzle 30 carried by a tube 31 extending downwardly through the flange 9 of the tubular member and terminating adjacent the enlarged portion 8 of the tubular member and through which, fuel is adapted to be sucked when the engine is traveling at a high rate of speed.

The top of the auxiliary air chamber 26 is provided with a conical valve seat 31 in which is adapted to be seated the conical marginal edge 32 of a floating valve 33 which is provided with a bearing sleeve 34 slidably mounted on the upper end portion of the Venturi tube 23 as clearly shown in Fig. 2.

Mounted on the top of the casing 25 is a casing 35 which is provided with an annular depending flange 36 seated in an annular rabbet formed on the casing 25 said casings being secured together by screws 37 extending through the apertured lugs 29 into suitably threaded sockets formed in the casing 25, as clearly shown in Fig. 2.

The casing 35 is provided with a mixing chamber 38 at its lower end into which the upper end of the Venturi tube extends. A throttle chamber 39 is formed at the upper end of the casing and is provided with a pivoted wing throttle valve 40.

The casing 35 is provided with a heating chamber 41 surrounding the throttle chamber and the upper portion of the mixing chamber 38, having an exhaust inlet tube 42 and an outlet 43 to which is connected a flexible tube 44.

The exhaust inlet 42 is provided with a wing valve 44' carried by a stem 45 extending outwardly through the wall thereof and is provided with a crank arm 46 to which is connected a rod 47 having a connection at its free end with a crank arm 48 mounted on the outer end of the stem 49 of the throttle valve 40 of substantially the same construction as that shown in my prior patent granted to me, July 16, 1912, #1,032,937; the movement of the crank arm 48 being regulated by a screw 50 mounted in a lug 51 extending from the casing 35 in the path of travel of said crank.

The inner wall of the mixing chamber is provided with an apertured lug 52 in which is mounted the inner end of a shaft 53, the outer end portion being mounted in a suitable bearing 54 formed on the casing 35 as clearly shown in Fig. 1.

Mounted on the inner end of the shaft 53 adjacent the lug 52 is a fork 55 which is secured in position thereon by a set screw 56, the arms of said fork being provided with depending ends 57 arranged in the path of travel of the floating valve 33 for the purpose of retarding the upward movement of the valve, as will be later described.

Secured on the outer end of the shaft 53 by a set screw 57 is a collar 58 provided with an arm 59 on which is slidably mounted a weight 60 locked in its adjusted position by a set screw 61 said weight normally holding the arms of the fork in proximity to the

floating valve, the relative position of the arms to the floating valve being adjusted by an arm 62 secured on the shaft 63 and provided with an adjusting screw 64 at its outer end which contacts with a suitable lug on the casing 35. By this construction, it will be seen that the position of the arms of the fork can be readily adjusted in respect to the floating valve and I have found by experimenting that under ordinary conditions, the arms are adjusted so that the valve is allowed a slight vertical movement before the arms are engaged to exert a resistance to the valve in its upward movement. By this construction, it will be seen that as the speed of the engine is increased, the suction is increased to such an extent that the floating valve is raised upwardly against the resistance of the arms which are normally held in lowered position by the weight, and it will also be seen that by adjusting the weight on the crank arm carried by the shaft 53, the resistance exerted against the floating valve can be readily increased or decreased to suit the motor to which the carbureter is attached.

While I have shown in the preferred form, a weight for exerting a resistance to the upper movement of the floating suction valve, it is, of course, understood that any form of dash pot can be used for accomplishing the same purpose and in Fig. 6, the fuel bowl 65 is provided with an integral cylinder 66 having a passage 67 communicating with the lower end. Mounted within the cylinder 66 is a piston 68 provided with a piston rod 69 having its upper end slidably connected to a crank arm 70 carried by the shaft 53, said cylinder being closed at its upper end by a cap 71.

Arranged within the cylinder under the piston 68 is a coil spring 72 and it will be seen that by a construction as shown in this form, when the shaft 53 is oscillated by the upward movement of the suction-controlled floating valve, a resistance is exerted against the upward movement on the downward movement of the piston within the cylinder and while I have shown a spring for increasing the resistance of the downward movement of the piston it is, of course, understood that this can be dispensed with and that the liquid can be relied upon to form the resistance.

While I have shown and described the particular form of dash pot arrangement for exerting a resistance to the opening movement of the suction-controlled throttle valve, I wish it to be clearly understood that I do not wish to limit myself to any particular form as various forms can be used, such as air dash pots or analogous devices for exerting a resistance to the movement of the suction-controlled valve, without departing from the spirit of my invention.

In order to provide means for adjusting the position of the Venturi tube within the tubular member forming the main air passage, the periphery of the tube is provided with an annular groove which is intersected by an obliquely arranged groove as clearly shown in Fig. 7, into which is adapted to extend a screw 24 and it will be seen that by loosening said screw and oscillating said Venturi tube, the same can be adjusted up and down within the tubular member in order to adjust the relative position of said Venturi tube in respect to the main fuel nozzle.

In Fig. 2, I have shown the Venturi tube in its intermediate position with the screw 24 within the annular groove and in order to adjust the same either up or down, it is only necessary to turn the Venturi tube until the screw is brought into register with the oblique slot and by oscillating the same and exerting a downward pressure or pulling upwardly on the tube, the same can be adjusted quickly in respect to the nozzle and locked in such position by tightening the set screw 24.

From the foregoing description, it will be seen that I have provided a carbureter with a fuel chamber having a centrally arranged air passage formed by a tubular member arranged therein, which is provided with an air duct at its lower end, and with a valve-controlled fuel nozzle having passages communicating with the fuel chamber for supplying fuel to the nozzle directly from the fuel chamber. By this construction, means is provided for admitting air around the main fuel nozzle in order to suck the fuel therefrom, which is conveyed by a Venturi tube to a mixing chamber arranged above the auxiliary air chamber which has an opening communicating therewith for admitting an additional supply of air, said auxiliary air chamber having a high speed nozzle extending from the fuel chamber, and a suction-controlled floating valve mounted above the end of the nozzle and adapted to be opened by the suction of the engine when the speed of the same is increased in order to increase the richness of the mixture, means being provided for retarding the upward movement of the suction-controlled valve and for adjusting the relative position of said retarding means in respect to said valve in order to allow an initial free movement of the floating valve.

The operation of my improved carbureter is as follows:

Supposing that the valves of the carbureter are in the position shown in Fig. 2, when the throttle valve is opened, a partial vacuum is created within the mixing chamber and Venturi tube so as to cause the fuel to be sucked out of the main nozzle 14 and

as the speed of the engine increases, the vacuum is increased within the mixing chamber causing the floating valve 33 to be raised and as this valve is allowed an initial free movement, the same is raised until it is brought into engagement with the depending ends of the fork and as the speed of the engine is increased, the incoming air through the auxiliary air inlets 27 raises the valve against the retarding means so as to suck an additional charge of fuel out of the high speed nozzle 30.

It will be seen that the upper end of the high speed nozzle is in a plane slightly below the plane of the lower edge of the floating valve so that liquid fuel is not drawn out of the high speed jet until the floating valve has been raised to a considerable extent, caused by the increased speed of the engine to which the upper end of the casing 35 is adapted to be connected, in the ordinary manner.

I claim:

1. In a carbureter, the combination with a centrally disposed Venturi tube having a nozzle arranged therein, of a noncommunicating auxiliary air chamber surrounding said Venturi tube provided with air inlets, a mixing chamber arranged above said auxiliary air chamber having communication with said Venturi tube and auxiliary air chamber, a floating suction controlled valve for controlling communication between said auxiliary air chamber and mixing chamber, a nozzle arranged under said valve adjacent thereto, a pivoted member arranged in the path of travel of said suction-controlled valve for retarding the movement thereof, and means for holding said member out of contact with said valve to allow an initial movement of said floating suction controlled valve.

2. In a carbureter, the combination with a shell having a liquid fuel chamber and a centrally disposed Venturi tube, of an auxiliary air chamber surrounding said Venturi tube provided with air inlets, a nozzle arranged within said Venturi tube, a nozzle arranged within said auxiliary air chamber, a floating suction controlled valve arranged over said air chamber, a pivoted fork arranged in the path of travel of said valve and normally held out of contact therewith, and means for retarding the oscillation of said fork.

3. A carbureter having a Venturi tube, a nozzle arranged therein, a noncommunicating air chamber surrounding said Venturi tube provided with air inlets, a mixing chamber having communication with said Venturi tube and auxiliary air chamber, a high speed nozzle arranged within said air chamber, and a floating valve slidably mounted upon said Venturi tube at a point adjacent the discharge end of said high speed nozzle for closing the communication between said auxiliary air chamber and said mixing chamber.

4. A carbureter having a mixing chamber, and a main fuel nozzle and a high speed fuel nozzle for supplying liquid fuel thereto, a Venturi tube surrounding the main fuel nozzle, an air chamber surrounding said Venturi tube in which the high speed nozzle is disposed, a floating valve arranged over the auxiliary fuel nozzle for closing communication between the auxiliary air chamber and said mixing chamber, and means for allowing an initial free movement of said floating valve and for retarding the final movement thereof.

5. In a carbureter, the combination with an air chamber having air inlets, of a Venturi tube disposed centrally within said air chamber, a fuel nozzle arranged within said air chamber, a fuel nozzle arranged within said Venturi tube, a suction-controlled valve arranged over the first mentioned fuel nozzle, a movable member arranged in the path of travel of said suction-controlled valve, and means for allowing an initial free movement of said suction-controlled valve and for retarding the final movement of said valve.

6. In a carbureter, the combination with a mixing chamber, of an air chamber having an opening communicating therewith, a Venturi tube extending centrally through said air chamber, a main fuel nozzle arranged within said Venturi tube, a high speed nozzle arranged within said air chamber, a suction-controlled floating valve for closing the opening communicating with the mixing chamber, a shaft mounted in said mixing chamber, a member carried by said shaft arranged in the path of travel of said suction-controlled floating valve, and normally out of contact therewith, an arm fixed on said shaft, and a weight adjustably mounted upon said arm for retarding the oscillation of said shaft.

7. A carbureter having a centrally disposed Venturi tube communicating with the mixing chamber, an auxiliary air chamber surrounding said Venturi tube having a communication with said mixing chamber, and high speed fuel nozzles arranged respectively within said Venturi tube and auxiliary air chamber, a suction-controlled floating valve for closing said auxiliary air chamber, a movable member arranged in the path of travel of said floating valve and normally held out of contact therewith for allowing the initial movement thereof, and means for adjusting the relative position of said member in respect to said valve.

8. In a carbureter, the combination with an auxiliary air chamber having air inlets, of a fuel nozzle arranged in said air chamber, a suction-controlled valve for closing said

chamber, a shaft, a member carried by said shaft arranged in the path of travel of said suction-controlled valve, an arm carried by said shaft, and an adjusting screw mounted in said arm for limiting the movement of said shaft in one direction.

9. In a carbureter, the combination with a suction-controlled floating valve, of a movable member arranged in the path of travel of said valve, a shaft upon which said movable member is mounted, means for retarding the oscillation of said shaft, an arm carried by said shaft, and an adjusting screw mounted in said arm for limiting the movement of said shaft.

10. A carbureter having a Venturi tube provided with a fuel nozzle, and an auxiliary air chamber provided with a high speed fuel nozzle, a mixing chamber disposed above said air chamber, a suction-controlled valve for controlling communication between said auxiliary air chamber and said mixing chamber, and means for controlling said suction-controlled valve for allowing an initial free movement thereof and for retarding the final movement thereof.

11. A carbureter, formed of superposed castings, comprising a base casting forming a fuel chamber, an intermediate casting, an auxiliary air chamber and a top casting a mixing chamber, said mixing chamber being in communication with the air chamber, said fuel chamber having a centrally arranged air passage, a fuel nozzle arranged within said centrally arranged air passage, a Venturi tube arranged within said passage extending through said air chamber into said mixing chamber, a high speed nozzle arranged within said auxiliary air chamber, a suction-controlled valve slidably mounted upon said Venturi tube for closing the opening between said mixing chamber and air chamber, and means for retarding the upward movement of said suction-controlled valve.

12. In a carbureter, the combination with a mixing chamber thereof, of a Venturi tube extending into said mixing chamber having a main fuel nozzle, an auxiliary air chamber surrounding said Venturi tube, a high speed nozzle arranged within said auxiliary air chamber, a suction-controlled valve for closing said air chamber, a pivoted member arranged in the path of travel of said suction-controlled valve and normally held out of contact therewith for allowing an initial free movement of said valve, and means for retarding the movement of said pivoted member when engaged by said valve.

13. In a carbureter, the combination with a fuel chamber, of an auxiliary air chamber arranged above said fuel chamber, a mixing chamber arranged above said auxiliary air chamber, a Venturi tube disposed centrally within said fuel chamber extending through said air chamber into said mixing chamber, a main fuel nozzle disposed within said Venturi tube, a floating suction controlled valve for closing communication between said mixing chamber and auxiliary air chamber, a fuel nozzle arranged within said auxiliary air chamber under said suction-controlled valve, and means for allowing an initial free movement of said valve and for retarding the final movement thereof.

14. In a carbureter, the combination with a main fuel nozzle, of a Venturi tube surrounding said nozzle, a main air inlet duct for supplying air to said fuel nozzle, an auxiliary air chamber through which said Venturi tube extends, a mixing chamber arranged above said auxiliary air chamber, a floating suction-controlled valve mounted upon said Venturi tube for normally closing communication between said auxiliary air chamber and mixing chamber, a high speed nozzle arranged within said air chamber, and means for allowing said suction-controlled valve an initial free movement and for retarding the final movement thereof.

15. In a carbureter, the combination with a fuel chamber, of a tubular member arranged within said fuel chamber having a flange for closing the same and provided with an air inlet passage at its lower end, a fuel nozzle arranged within said tubular member, an auxiliary air chamber arranged above said fuel chamber, a mixing chamber arranged above said auxiliary air chamber, a Venturi tube mounted within said tubular member extending through said air chamber and terminating in the mixing chamber, a high speed nozzle arranged within said auxiliary air chamber, a floating suction-controlled valve mounted upon said Venturi tube for closing the auxiliary air chamber, and means for retarding the upward movement of said floating valve.

16. In a carbureter, the combination with a main fuel nozzle, of a high speed nozzle, air passages for supplying air to said nozzles, a mixing chamber adapted to receive fuel from said nozzles, a floating suction-controlled air valve for closing the air passage of the high speed nozzle, an oscillating fork member arranged in the path of travel of said suction-controlled valve, and normally held out of contact therewith, and means for retarding the oscillation of said shaft.

17. In a carbureter, the combination with a main air inlet passage, of a fuel nozzle arranged centrally therein, a Venturi tube surrounding said fuel nozzle, an air chamber arranged around said Venturi tube, a high speed nozzle arranged within said air chamber, a suction-controlled valve slidably mounted upon said Venturi tube for closing the air chamber at a point adjacent the delivering end thereof, and a pivoted member

arranged in the path of travel of said suction-controlled valve for retarding the upward movement thereof.

18. In a carbureter, the combination with an auxiliary air chamber having inlets, of a fuel nozzle arranged within said air chamber, a suction-controlled valve for closing said air chamber, a pivoted fork arranged in the path of travel of said suction-controlled valve, a shaft upon which said fork is mounted, an arm carried by said shaft, and a weight adjustably mounted upon said arm.

19. A carbureter, having a fuel chamber provided with a central air passage, an air duct connected to the lower end of said passage, a fuel nozzle arranged within said passage, a Venturi tube arranged within said passage above said fuel nozzle, an auxiliary air chamber arranged above said air passage through which said Venturi tube extends, a mixing chamber surrounding the upper end of said Venturi tube, a floating suction-controlled valve slidably mounted upon said Venturi tube for closing the auxiliary air chamber, a high speed nozzle arranged within said auxiliary air passage, and means arranged in the path of travel of said suction-controlled valve for retarding the upward movement thereof.

20. In a carbureter, the combination with a fuel chamber having a central air passage, of an auxiliary air chamber arranged above said fuel chamber, a Venturi tube arranged within said air passage extending through said auxiliary air chamber, a mixing chamber arranged above said auxiliary air chamber, a suction-controlled valve controlling communication between said mixing chamber and auxiliary air chamber, a high speed nozzle arranged within said auxiliary air chamber, a fuel nozzle arranged within said Venturi tube, and means for retarding the upward movement of said suction-controlled valve.

21. In a carbureter, the combination with a high speed nozzle, of an air chamber in which said nozzle is mounted having air inlets, a mixing chamber arranged above said air chamber, a suction-controlled valve for controlling communication between said mixing chamber and air chamber, a pivoted fork arranged in the path of travel of said suction-controlled valve and normally held out of contact therewith, and means for retarding the movement of said fork.

22. A carbureter having a main air passage and a Venturi tube arranged therein, a nozzle arranged to deliver fuel thereto, a noncommunicating air chamber surrounding said Venturi tube, provided with an air inlet, a mixing chamber having communication with said Venturi tube and auxiliary air chamber, a high speed nozzle arranged within said air chamber, and a floating valve for controlling the communication between said auxiliary air chamber and said mixing chamber.

23. A carbureter having an auxiliary air chamber provided with a high speed nozzle, a suction controlled-valve for closing said auxiliary air chamber, said high speed nozzle being arranged adjacent the edge of said valve, a shaft, a fork fixed on said shaft arranged in the path of travel of said suction controlled-valve, means carried by said shaft for limiting the oscillation of said shaft for adjusting the relative position of said fork to said valve and means for retarding the oscillation of said shaft.

24. In a carbureter, the combination with a main fuel nozzle, of a high speed nozzle, a suction-controlled valve arranged above said high speed nozzle and adjacent to the discharge end thereof, a shaft, a member carried by said shaft arranged in the path of travel of said suction-controlled valve, means for retarding the oscillation of said shaft, and means for adjusting the relative position of said member in respect to said suction-controlled valve.

25. A carbureter, having a main air inlet passage provided with a fuel nozzle, an air chamber surrounding said passage, a mixing chamber having communication with said air chamber and passage, a suction-controlled valve for controlling communication between said mixing chamber and air chamber, a pivoted member arranged in the path of travel of said suction-controlled valve and normally held out of contact therewith, and means for retarding the movement of said pivoted member.

26. A carbureter, formed of superposed castings, the lower casting forming a fuel chamber, the intermediate casting an air chamber, and the top casting a mixing chamber, said mixing chamber being in communication with the air chamber, said fuel chamber having a centrally arranged air passage, a fuel nozzle arranged within said passage extending through said air chamber into said mixing chamber, a suction-controlled valve slidably mounted upon said Venturi tube for closing communication between said mixing chamber and air chamber, a high speed nozzle arranged within said air chamber, and means for retarding the upward movement of said suction-controlled valve.

27. A carbureter having a mixing chamber and a passage for supplying air thereto, a fuel nozzle for delivering fuel into said passage, a noncommunicating auxiliary chamber surrounding said passage, communication with said mixing chamber, a high speed nozzle arranged in said auxiliary air chamber, and a floating suction-controlled valve for controlling the communication between said auxiliary air chamber and mixing chamber.

28. A carbureter, having a main fuel nozzle and a high speed nozzle, means for admitting air to said nozzles, a suction-controlled valve arranged over said high speed nozzle adjacent the delivery end thereof, a pivoted member arranged in the path of travel of said suction-controlled valve, means for adjusting the relative position of said pivoted member in respect to said suction-controlled valve, and means for retarding the upward movement of said pivoted member.

29. In a carbureter, the combination with a main air inlet passage having a fuel nozzle, of a mixing chamber, a Venturi tube surrounding said nozzle for conveying the partially mixed gases to the mixing chamber, an auxiliary air chamber having an opening communicating with said mixing chamber and provided with oppositely disposed air inlets, a high speed nozzle arranged within said auxiliary air chamber, a suction-controlled valve arranged adjacent said high speed nozzle for closing the opening of said auxiliary air chamber, and a pivoted member arranged in the path of travel of said suction-controlled valve for retarding the upward movement thereof.

30. In a carbureter, the combination with an auxiliary air chamber, of a fuel nozzle arranged in said air chamber, a suction controlled valve for closing said chamber, a shaft, a member carried by said shaft arranged in the path of travel of said suction controlled valve, an arm carried by said shaft, a weight adjustably mounted on said arm for retarding the oscillation of said shaft and means carried by said shaft for limiting the movement of said shaft in one direction.

31. A carbureter, comprising a fuel chamber having a centrally arranged air passage, a fuel nozzle disposed centrally within said air passage, a Venturi tube slidably mounted within said air passage having an annular groove intersected by an obliquely arranged groove, and a screw arranged in the wall of the air passage extending into said groove for locking said Venturi tube in adjusted position.

32. The combination with a suction controlled floating valve, of a movable member arranged in the path of travel of said valve and normally held out of contact therewith, a shaft upon which said member is mounted, means for retarding the oscillation of said shaft, and means carried by said shaft for limiting the movement thereof in one direction.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

BURT NEULON PIERCE.

Witnesses:
J. R. FRANCIS,
J. E. GILES.