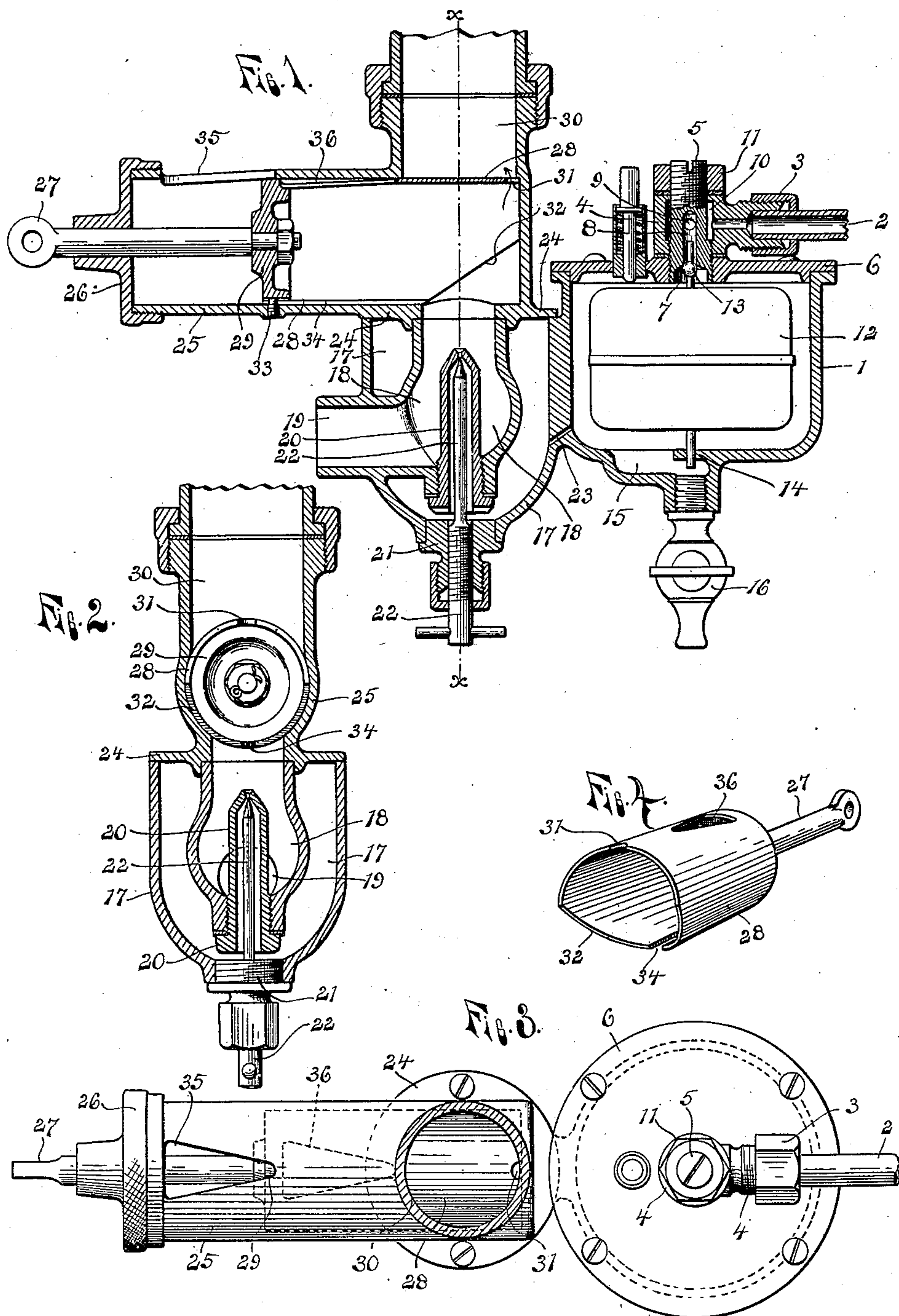


No. 886,527.

PATENTED MAY 5, 1908.

W. L. MARR.  
CARBURETER.

APPLICATION FILED APR. 20, 1906.



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# UNITED STATES PATENT OFFICE.

WALTER L. MARR, OF JACKSON, MICHIGAN.

## CARBURETER.

No. 886,527.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed April 20, 1906. Serial No. 312,768.

*To all whom it may concern:*

Be it known that I, WALTER L. MARR, a citizen of the United States of America, residing at Jackson, in the county of Jackson 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 drawings.

10 This invention relates to improvements in carbureters especially adapted for use upon combustible vapor engines to supply the explosive charges thereto, and more especially to that class of such carbureters in which the  
15 gasolene supply is automatically controlled by a float.

The object of the invention is to provide an efficient throttle valve for controlling the admission of the combustible mixture to the  
20 engine and also forming an auxiliary air inlet opened by the opening of the throttle, whereby as the vacuum in the carbureter is increased by the opening of said throttle and more fuel thus drawn in, an added amount of  
25 air proportionate to the increase in the fuel will also be admitted and mixed therewith.

A further object of the invention is to so construct the device that the height of the gasolene in the discharge nozzle will not be  
30 materially changed and the operation thus affected, by the tipping or jolting of the vehicle when the device is in use upon an automobile, and to provide a cheap, compact, and efficient device having the several ad-  
35 vantages of the particular construction, arrangement and combination of parts, all as hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawing, in  
40 which

Figure 1 is a longitudinal vertical section of a device embodying the invention; Fig. 2, a transverse section of the same on the line  $x-x$  of Fig. 1; Fig. 3, a plan view thereof;  
45 and Fig. 4, is a perspective view of the throttle valve detached.

Like numerals refer to like parts in all of the figures.

1 is a float chamber to which gasolene is  
50 supplied through a supply pipe 2 connected by means of a stuffing box 3 to a chambered sleeve 4 rotatably mounted upon a plug 5

which is screwed into an axial opening in the removable top 6 of the float chamber. Said plug is bored axially inward from its lower  
55 end to form a valve seat 7 at said end and a passage 8 leading from said seat and communicating through a transverse bore 9 in the plug with the chamber 10 in the sleeve 4 into which chamber the supply pipe opens. The  
60 sleeve may thus be turned upon the plug to any position most convenient for connecting the supply pipe thereto and is held from turning when so adjusted, by a lock nut 11 on the outer end of the plug. A suitable float 12 in  
65 the float chamber is guided thereon by a stem extending upward within the passage 8 and provided with a ball forming a valve 13 to engage the valve seat and stop the flow of  
70 gasolene when the float is raised by the accumulation in the chamber. A downwardly extending stem on the float engages a guide 14 at the bottom of the chamber and a recess  
75 15 is formed in the bottom of the chamber to receive the sediment, water etc., which may be drawn therefrom by opening a cock 16 in the bottom of the recess.

Formed integral with one side of the float chamber is a cylindrical gasolene chamber 17 closed at its bottom and formed with an  
80 axial mixing chamber 18 opening through the top of the gasolene chamber and communicating with the atmosphere through an air pipe or passage 19 opening through the side of said gasolene chamber. In the bottom of  
85 the mixing chamber 18 is a screw-threaded opening into which is screwed a hollow nozzle 20 extending upward in the axis of said chamber some distance and secured in an opening  
90 in the bottom of the gasolene chamber is a plug 21 formed with an axial screw-threaded bore to receive a valve stem 22 provided with a handle at its outer end and with a reduced inner end of considerably less diameter than  
95 the internal diameter of the bore of the nozzle and provided with a needle point to engage the discharge opening in the nozzle and regulate the flow of gasolene therefrom. Gasolene enters the chamber 17 from the float chamber through a restricted passage  
100 23 formed by boring a small hole through the wall separating said chambers and rises in the gasolene chamber and nozzle to the level at which it is maintained in the float cham-



ber. The passage 23 being small, the gasoline does not flow rapidly from one to the other of said chambers, and thus when the device is temporarily inclined in any direction as by the movement of the vehicle the level of the gasoline in one chamber is not materially changed; and the discharge nozzle being located in the axis of the gasoline chamber, the height of the gasoline in said nozzle is not affected by such tipping.

Formed integral with the top 24 of the chamber 17 is a horizontal tubular member or cylinder 25 into which the upper end of the mixing chamber opens near one end thereof, the opposite end of said cylinder being closed by a screw head 26 forming a guide for a valve stem 27 extending therethrough. A tubular valve 28 is provided with a head 29 in one end to close the same and to which head the inner end of the valve stem is secured. This valve is adapted to be moved longitudinally within the cylinder by any suitable means attached to its stem and thus projected across the open end of a pipe or engine intake passage 30 extending from the upper side of the cylinder in axial alignment with the mixing chamber and discharge nozzle, said passage being connected to the engine at its opposite end to deliver the explosive charges thereto and through which the contents of the carbureter are drawn by the suction of the engine piston. At its extreme inner end the tubular valve is provided with a small notch 31 so that the passage 30 can not be entirely closed off thereby, and at its lower side said valve is cut away at 32 so as not to close the upper end of the mixing chamber. Said valve is prevented from rotation in its cylinder by a guide screw 33 engaging a longitudinal slot 34 in said valve tube.

When the throttle valve is opened, the speed of the engine is increased, thus increasing the vacuum in the carbureter and drawing in more gasoline from the nozzle. The capacity of the air inlet to the mixing chamber being fixed, to supply an increased amount of air in proportion to the increase in the gasoline, an auxiliary air inlet is provided by forming a V-shaped opening 35 in the cylinder at its outer end and a correspondingly shaped opening 36 in the valve tube so that as the valve is moved outward to open the discharge passage, the opening in the valve will be brought opposite the opening in the cylinder and air will be drawn in through said openings and mixed with the ingoing charges from the mixing chamber. By making these holes V-shaped with their larger ends toward the outer end of the cylinder, the size of the opening is rapidly increased as the valve is opened, and when the valve is nearly closed and but little extra air

is needed to give the proper mixture, the opening will be correspondingly small.

Having thus fully described my invention, what I claim is:—

1. In a carbureter, the combination with a float chamber, and a float in said chamber, of a gasoline chamber, a restricted passage connecting said float and gasoline chambers, a mixing chamber within the axis of the gasoline chamber, and a nozzle in the axis of the mixing chamber in free communication with the gasoline chamber.

2. In a carbureter, the combination with a float chamber and a float in said chamber, of a gasoline chamber formed integral with the float chamber with a restricted passage connecting said chambers, a mixing chamber in the axis of the gasoline chamber opening through the top thereof and formed with an air intake passage extending outward through the side of said chamber, a nozzle extending upward in the axis of the mixing chamber and through the bottom thereof in free communication with the gasoline chamber, and a needle valve extending through the bottom of the gasoline chamber and upward within the nozzle.

3. In a float feed carbureter, a gasoline chamber communicating through a restricted passage with the float chamber, a mixing chamber in the axis of the gasoline chamber opening through its top and formed with an air inlet opening through the side of said gasoline chamber, a cylinder on the top of the gasoline chamber extending laterally therefrom and formed with an air opening in its side, said mixing chamber opening into said cylinder near one end thereof, a pipe forming part of the intake passage of the engine opening into the cylinder opposite the open end of the mixing chamber, and a tubular valve member movable longitudinally in said chamber to restrict the opening into the intake passage and provided with an opening to coincide with the opening in the cylinder.

4. A carbureter comprising a float chamber, an inlet valve for said chamber, a float to operate said valve, a gasoline chamber communicating with the float chamber through a restricted passage, a mixing chamber in the axis of the gasoline chamber and having an air intake passage opening through the side of the said gasoline chamber, a hollow nozzle open at its lower end and engaging an opening in the bottom of the mixing chamber and extending upward therein, a needle valve extending through the bottom of the gasoline chamber and upward within the nozzle, a laterally extending cylinder on the top of the gasoline chamber into which cylinder the mixing chamber opens and provided with an air opening in

its side, a pipe forming part of the intake passage of an engine opening into the cylinder opposite the mixing chamber, a valve movable longitudinally in said cylinder and consisting of a tube having a V-shaped opening in its upper side, a notch in one end and cut away at its lower side at said end and a head to close the opposite end of said tube, and a valve stem secured to the head and extending through the end of the 10 cylinder.

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

WALTER L. MARR.

Witnesses:

N. D. HASKIN,  
H. L. McCALLUM.