

W. M. GENTLE.
CARBURETER.
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1,060,545.

Patented Apr. 29, 1913.

Fig. 1.

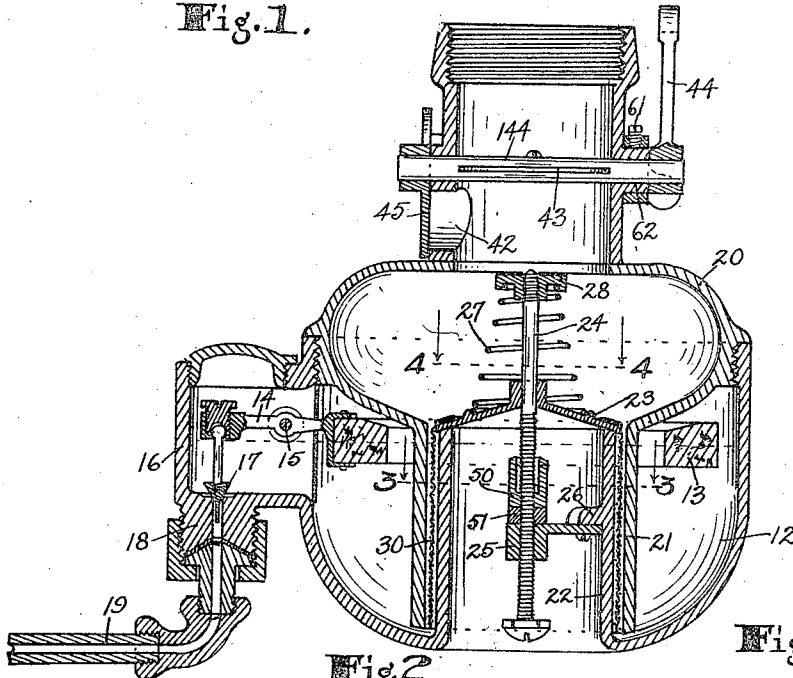
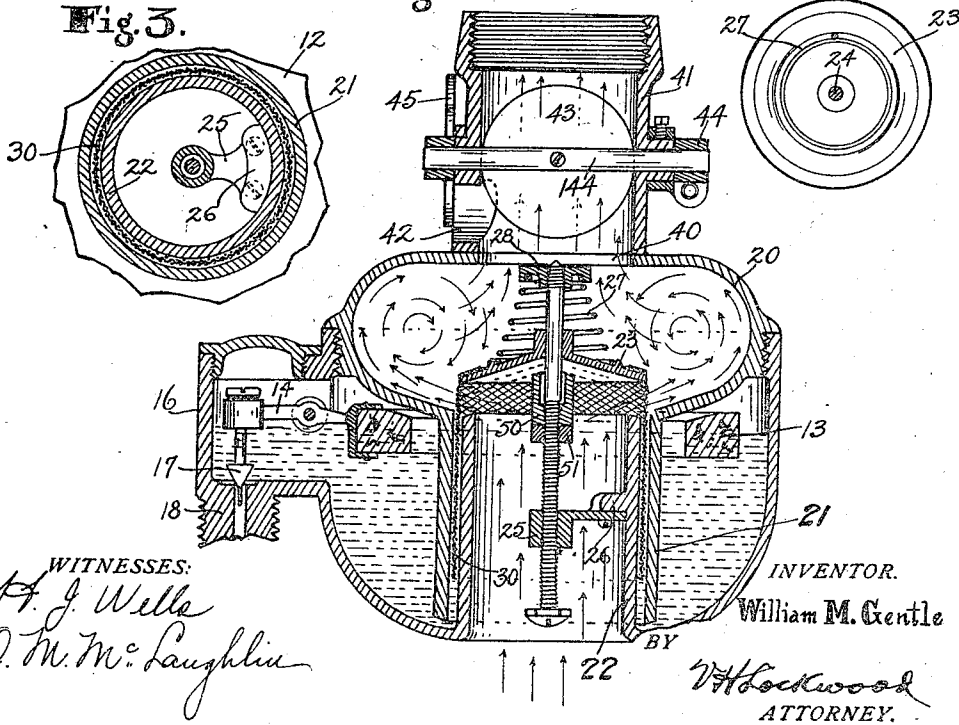


Fig. 2.

Fig. 4.

Fig. 3.



WITNESSES:

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CARBURETER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM M. GENTLE, a citizen of the United States, and a resident of Greenwood, county of Johnson, and State of Indiana, have invented a certain useful Carbureter; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

The object of this invention is to improve the construction and operation of carbureters by way of a division out of and an improvement over the carbureter set forth in my former application, Serial No. 531,022, filed Dec. 19, 1909.

The nature of the invention will be understood from the accompanying drawings and the following description and claims.

Figure 1 is a vertical section midway of the device. Fig. 2 is the same with some parts omitted and the other parts in actuated position. Fig. 3 is a section on the line 3-3 of Fig. 1. Fig. 4 is a section on the line 4-4 of Fig. 1.

In detail, 12 represents the float chamber which is substantially semi-spherical in vertical section, as shown in Fig. 1.

13 is a float mounted on the lever 14 fulcrumed on the pin 15 in the extension 16 from the float chamber and actuates the valve 17 which regulates the supply of fuel through the inlet nipple 18 and tube 19.

The carbureting chamber 20 screws like a lid into connection with the upper part of the float chamber and has a large downward central circular extension 21 which surrounds a corresponding upward extension 22 of the float chamber so as to leave some space between said extensions. Hence there is a large vertical air passageway through said extension 22 of the float chamber which leads to the mixing chamber. This air passageway is closed when the device is idle by what may be termed the automatic air valve 23.

This valve is slidable on the rod 24 which screws through the arm 25 the latter being secured to the flange 26 which extends inwardly and horizontally from the inner wall of the extension 22 of the float chamber. By this means the vertical position of the rod 24 is adjusted. The automatic air valve is imperforate and is held downward by a spring 27 which surrounds the rod 24 and rests on the valve 23 and at its upper end engages the nut 28 which is on the upper end of the rod 24. Hence, the tension of the spring 27 can be regulated by adjusting the nut 28 as well as the rod 24.

A cylindrical screen 30 depends from the periphery of the valve 23 and surrounds the extension 22 of the float chamber. The valve 23 is actuated only by the suction of the engine, and, therefore, after it is under way, it is actuated against the yielding pressure of the spring 27 in proportion to the suction of the engine from the position shown in Fig. 1 to the elevated position shown in Fig. 2, and when thus elevated, air enters through the passageway of the extension 22 and through the screen 30 into the carbureting chamber and distributes laterally in all directions therein, as indicated by the arrows in Fig. 2.

There is an opening 40 through the top of the carbureting chamber 20 into a cylindrical extension 41 which might be termed a secondary carbureting chamber because it has a secondary air inlet opening 42 near the bottom thereof and on a lower level than the throttle valve 43. This throttle valve is secured on the shaft 144, which extends entirely through the chamber 41, and on one of its outer ends carries a throttle crank 44 while on the other outer end it carries the valve 45 for closing the secondary air inlet 42. The opening 42 is preferably curved segmentally, and likewise the valve 45 is segmental in shape and is adjustably secured on the shaft 144 by the clamping arms 46 and screw 47. Hence this valve can be adjusted with relation to the throttle crank so that its action by way of closing and opening the secondary air inlet 42 will be modified. In either event it is so adjusted on the shaft 144 with reference to the throttle crank that the valve will close the air inlet 42 when the throttle crank moves the throttle valve 43 to the closing position, and as the throttle valve 43 tends to open, there is also a corresponding opening movement of the valve 45, although the gradual opening of the air inlet 42 by the valve 45 may begin at an earlier or later period during the movement of the throttle crank according to the adjustment of said valve.

In operation, as soon as the throttle valve is opened somewhat, suction from the piston lifts the valve 23, and the incoming air rushes laterally through the screen 30 and over the space between the extension 21 of the carbureting chamber and the extension 22 of the float chamber and through which the fuel issues and is carried and evaporated by the sweep of the incoming air, as indicated by the arrows in Fig. 9. As the throttle valve is further opened and the engine

receives more and more fuel, the secondary air intake 42 is gradually opened more and more. Thereafter during the operation the valve 23 is maintained in the open position in proportion to the suction of the engine.

A stop 50 is mounted on said valve rod 24 so it can be vertically adjustable thereon and is held in place by a nut 51. The stop 50 can be adjustably located on the rod 24 for limiting the closing movement of the valve. This is illustrated in Fig. 2, where said stop 50 is so high that it would prevent the entire closing movement of the valve.

I claim as my invention:

1. A carbureter including a fuel chamber, a carbureter chamber, an air inlet chamber, a movable screen interposed between the air inlet chamber and the carbureter chamber and projecting into the fuel chamber, and means controlled by the suction of the engine for moving said screen for varying the portion therein between the air inlet chamber and carbureter chamber.
2. A carbureter including a fuel chamber, a carbureter chamber, an air inlet chamber, a movable screen interposed between the air inlet chamber and the carbureter chamber and projecting into the fuel chamber, and a suction-actuated valve secured to said screen so as to move the same and increase or diminish the portion of said screen between the air inlet chamber and the carbureter chamber.
3. A carbureter including a float chamber for the liquid fuel having an upwardly extending tubular projection forming an air intake, a carbureting chamber secured to and above the float chamber having a downwardly extending tubular projection loosely surrounding the tubular projection of the float chamber so as to leave a small chamber between, a valve for closing the upper end of the air intake, yielding means for holding said valve closed, and a screen extending downward from said valve in the space between said extensions.
4. A carbureter including a float chamber for the liquid fuel having an upwardly extending tubular projection forming an air intake, a substantially ellipsoidal carbureting chamber secured to and closing the upper end of the float chamber, a tubular projection integral with said carbureting chamber and extending downward therefrom and loosely surrounding the tubular projection of the float chamber forming thereby an annular fuel passageway connecting the float chamber with the carbureting chamber, and means for deflecting the air intake across the fuel passageway onto the concave wall

of the carbureting chamber, whereby the air and fuel will be rolled inwardly in a mixing manner before passing out of said carbureting chamber.

5. A carbureter including a float chamber for the liquid fuel having an upwardly extending tubular projection forming an air intake, a carbureting chamber secured to and closing the upper end of the fuel chamber, a tubular projection integral with the carbureting chamber and extending downwardly therefrom and loosely surrounding the tubular projection of the float chamber so as to form a small tubular chamber between said projections, and means extending downwardly in said circular chamber for the liquid fuel to climb upwardly thereon.

6. A carbureter including a float chamber for the liquid fuel having an upwardly extending tubular projection forming an air intake, a carbureting chamber secured to and closing the upper end of the fuel chamber, a tubular projection integral with the carbureting chamber and extending downwardly therefrom and loosely surrounding the tubular projection of the float chamber so as to form a small annular chamber between said projections, a valve for closing the upper end of the tubular air intake in said fuel chamber, a yielding means for holding said valve closed, whereby suction from the engine will open said valve and deflect the incoming air across the upper end of the tubular chamber, and means for lifting the liquid fuel into the path of the intake of air.

7. A carbureter including a float chamber for the liquid fuel having an upwardly extending tubular projection forming an air intake, a carbureting chamber secured to and closing the upper end of the fuel chamber, a tubular projection integral with the carbureting chamber and extending downwardly therefrom and loosely surrounding the tubular projection of the float chamber so as to form a small annular chamber between said projections, a valve for closing the upper end of the tubular intake in said fuel chamber, and a yielding means for holding said valve closed, whereby the tubular opening will always form a direct communication between the fuel and the carbureting chambers.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

WILLIAM M. GENTLE.

Witnesses:

G. H. BRINK,

O. M. McLAUGHLIN.