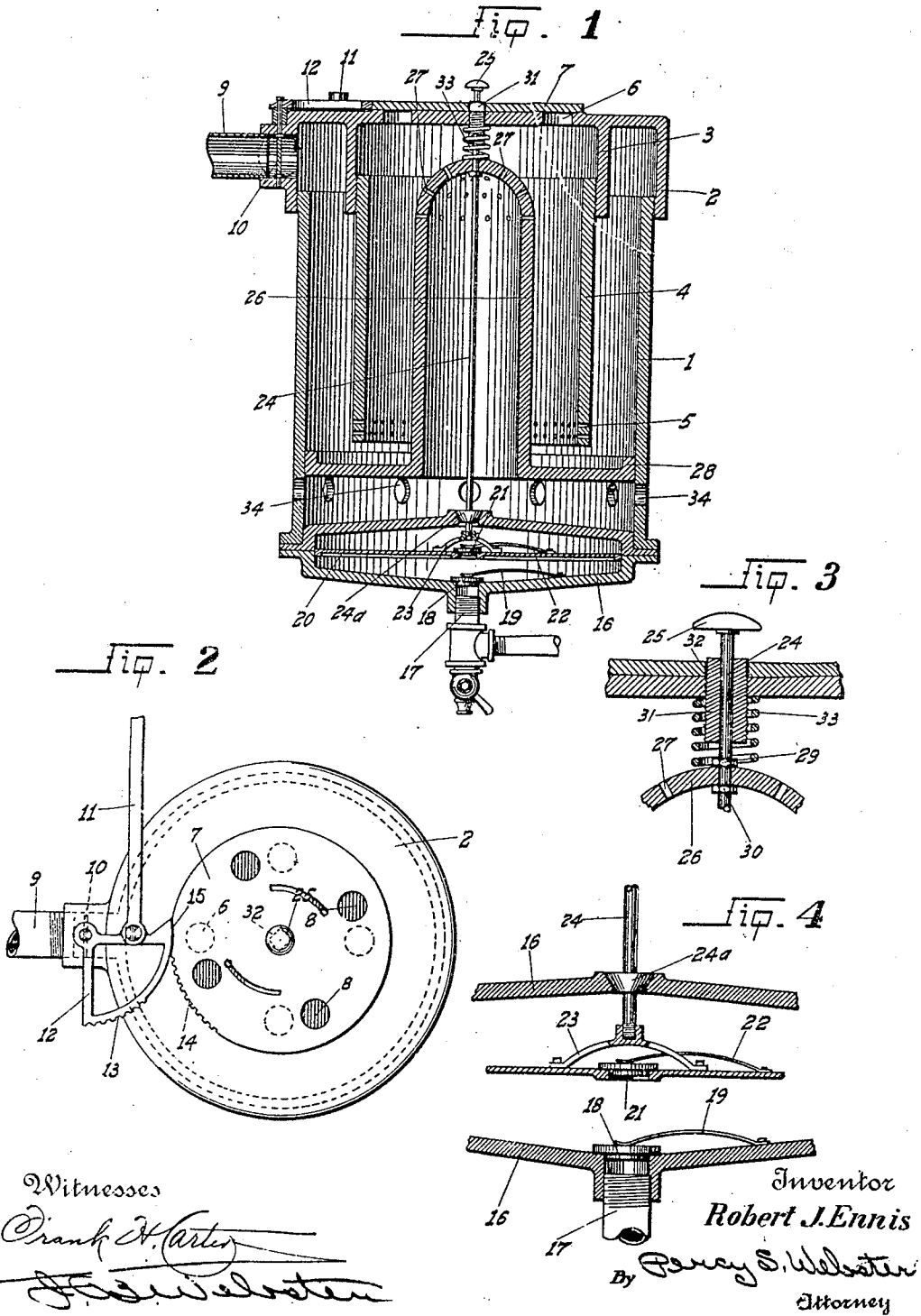


R. J. ENNIS.
CARBURETER.

APPLICATION FILED DEC. 27, 1907. RENEWED JAN. 31, 1910.

955,956.

Patented Apr. 26, 1910.



UNITED STATES PATENT OFFICE.

ROBERT J. ENNIS, OF JENNY LIND, CALIFORNIA.

CARBURETER.

955,956.

Specification of Letters Patent.

Patented Apr. 26, 1910

Application filed December 27, 1907, Serial No. 408,279. Renewed January 31, 1910. Serial no. 541,157.

To all whom it may concern:

Be it known that I, ROBERT J. ENNIS, a citizen of the United States, residing at Jenny Lind, in the county of Calaveras and State of California, have invented certain new and useful Improvements in Carbureters; and I do declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in carbureters used on gas and gasoline engines of all characters, the object of the invention being to produce a device whereby the mixture of air and gasoline and the gasifying of the same will be complete and perfect; also one in which the air and gasoline will be fed into the carbureter automatically and in just the proper quantities according to the speed of the engine, and circulated through the carbureter in such manner as to thoroughly vaporize the gasoline and mix it with the air in a proper manner. These objects are accomplished by means of a carbureter formed of an outer and inner fixed casing, inverted one within the other, a gasoline chamber at the lower end of the outer casing, means for conveying the gasoline into said outer casing, means conveying air into said casing, a mixing mechanism in said casings; and by such other and further construction as will appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a vertical section of the improved carbureter. Fig. 2 is a top plan view of the same. Fig. 3 is a fragmentary view of a screw and spring adjustment and priming rod. Fig. 4 is a fragmentary view of a valve mechanism.

Referring more particularly to the characters of reference on the drawings 1 designates an outer casing on which is screwed a cap 2. Depending within the cap 2 is a cylindrical flange 3 into which is screwed an inner casing 4 having a plurality of holes 5 near its lower end, the said lower end being open. In the top of the cap 2 and opening into the casing 4 are holes 6 over which is

disposed a rotating valve 7 having ports 8 adapted to register with the holes 6 under certain conditions, as will appear.

9 is the port leading to the engine in which is the usual butterfly throttle valve 10 having a throttle lever 11. Secured on the throttle lever 11 is a quadrant 12 having gear 13 adapted to intermesh with gears 14 on the valve 7 under certain conditions, the valve 7 having a curved notch 15 in which the flat or smooth portion of the quadrant 12 normally travels thereby holding the said valve 7 shut until desired to be opened as will appear.

Secured at the bottom of the casing 1 is a gasoline chamber 16 into which enters the supply pipe 17 having a check valve 18 at its entrance into the chamber 16, which valve is regulated by means of a spring 19 to overcome the natural gravity pressure of the gasoline.

Disposed in the chamber 16 is a diaphragm 20, in the center of which is a valve 21 regulated by a spring 22 for the same reason as is the valve 18. Secured over the valve 21 is a cage 23 secured in which is a rod 24 extending upwardly through the members 2 and 7 and provided with an upper handle button 25, and a valve 24^a at its juncture with the chamber 16.

Hung on the rod 24 within the casing 4 is an inverted tube 26 having a plurality of holes 27 in its upper end, while surrounding the lower end of said tube 26 is a plunger 28 bearing against the inner sides of the casing 1. On the rod 24 on each side of the top of the member 26 are adjustment nuts 29 and 30, while 31 is a screw surrounding the rod 24 and screwed into the member 2 and having a square shoulder 32 fitted into the member 7. Encircling the member 31 and bearing between the top of the member 26 and the under side of the member 2 is a spring 33.

The casing 1 is provided with holes 34 in its sides intermediate the chamber 16 and plunger 28, all for a purpose as will appear.

In practice when the throttle 10 is open the suction from the engine draws the plunger 28 and incidentally the tube 26, rod 24 and diaphragm 20 upward. The air passes through the holes 34 and gasoline through the valve 24^a. Said air and gasoline is then sucked through the holes 27 and down through the casing 4 and through its holes 5 and thence through the port 9 to the en-

gine. The travel of the same as described thoroughly vaporizes the gasoline and mixes it with the air, thereby forming a perfect combustible mixture, which is what is required to produce perfect action in a gas engine. The upward movement of the diaphragm 20 aids in spraying the gasoline through the valve 24, and at the same time draws more gasoline into the chamber 16 through the valve 18. Then when the diaphragm 20 travels downward again it closes the valve 18 and opens the valve 21, thus forcing the gasoline to the upper side of the said diaphragm. As before stated the springs 19 and 22 overcome the natural gravity pressure of the gasoline, and hence prevent any imperfect action on the part of the valves 18 and 21. Until the throttle 10 is open more than a quarter turn the member 7 is held normally closed by means of the notch 15. However, after the quarter turn of the throttle is reached the gear 13 engages the gear 14 and rotates the member 7, thereby bringing the ports 8 into register with the holes 6, thus permitting a greater amount of air to be drawn into the casing 4. Incidental to this operation the turning of the member 7 screws the member 31 upward, thus permitting the upward drive of the plunger 28 to be greater, thereby intaking more gasoline, thus increasing the charge on a full open throttle.

The spring 33 maintains the normal position of the plunger 28. The finger member 25 may be used to operate the rod 24 for priming purposes.

From the foregoing description it will be seen that I have produced a carbureter which substantially fulfils all the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred embodiment of the invention, still in practice many small deviations from such detail may be resorted to without departing from the spirit of the invention.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:—

1. A carbureter comprising an outer casing provided with a plurality of holes in its lower end, an inner inverted casing, a plunger disposed in said outer casing between said holes and said inner casing, an inverted tube extending upward from said plunger into said inner casing and provided with holes in its upper end, a fuel feed means connected with said outer casing, means connected with said tube for operating said fuel feed means, and a port leading from said outer casing, said port being adapted to be

connected with the suction of an engine to operate said plunger.

2. A carbureter comprising an outer casing having a plurality of holes near its lower end, an inverted casing therein having a plurality of holes in its lower end, a plunger in said outer casing between the holes therein and said inner casing, a tube extending upward from said plunger into said inverted casing and having a plurality of holes in its upper end, a fuel feed means connected with said outer casing, means connected with said tube for operating such fuel feed means, and a port leading from said outer casing and adapted to connect with the suction of an engine to operate said plunger, as described.

3. A carbureter comprising a casing having a plurality of holes near its lower end, a plunger disposed in said casing, a tube extending upward from said plunger and provided with a plurality of holes in its top, a gasoline chamber secured in the bottom of said casing, a diaphragm in said chamber, a rod connecting said tube and said diaphragm, a valve in said diaphragm, a valve between said chamber and said casing, means for conveying gasoline to said chamber, and a port leading from said casing, as set forth.

4. A casing having holes in its top, a port leading from said casing, a rotary valve disposed on said casing and having ports adapted to be brought into register with said holes, gears on said valve, a throttle in said first named port having a throttle lever, a quadrant on said throttle lever, gears on said quadrant adapted to engage the gears on said valve, a mixing means in said casing, and means conveying air and gasoline to said casing, as set forth.

5. A carbureter comprising an outer casing having a plurality of holes near its lower end, an inverted inner casing having a plurality of holes in its lower end, said outer casing having holes opening in its top into said inner casing, a plunger disposed in said outer casing between the lower holes therein and said inner casing, a tube formed upward from said plunger and having a plurality of holes in its top, a fuel feed means, means connected with said tube to operate such fuel feed means, and a port leading from said outer casing and adapted to be connected with the suction of an engine to operate said plunger.

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

ROBERT J. ENNIS.

Witnesses:

JOSHUA B. WEBSTER,

PERCY S. WEBSTER.