

R. E. WYNN.
CARBURETER.

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964,831

Patented July 19, 1910.

Fig. 1.

Fig. 3.

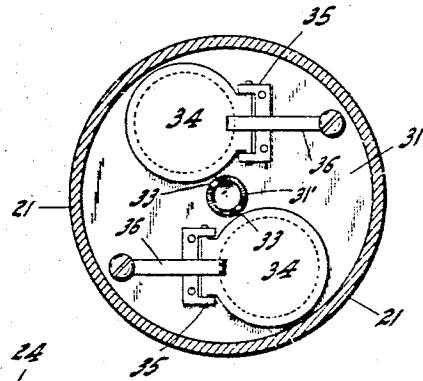
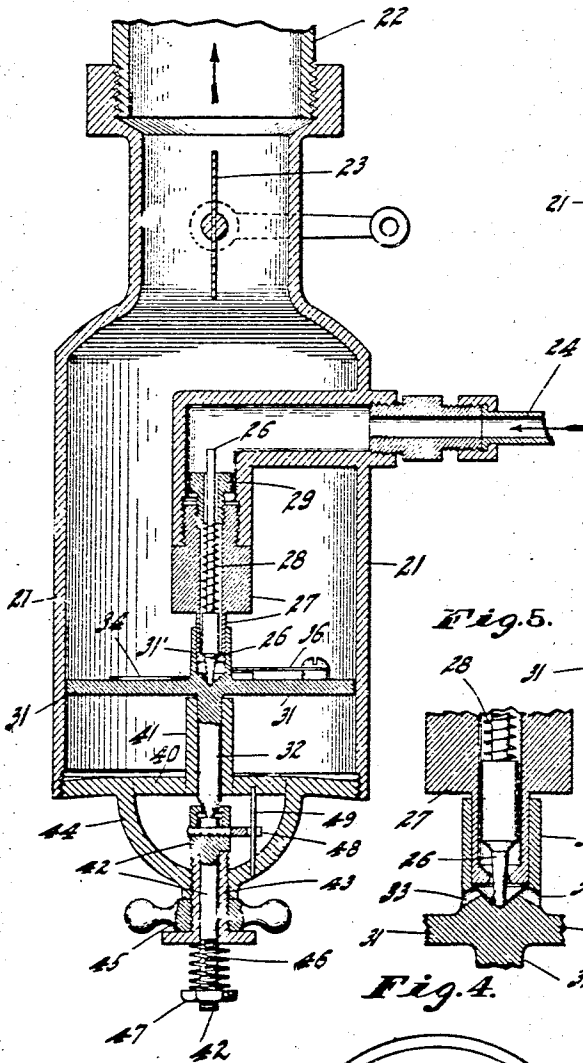


Fig. 2.

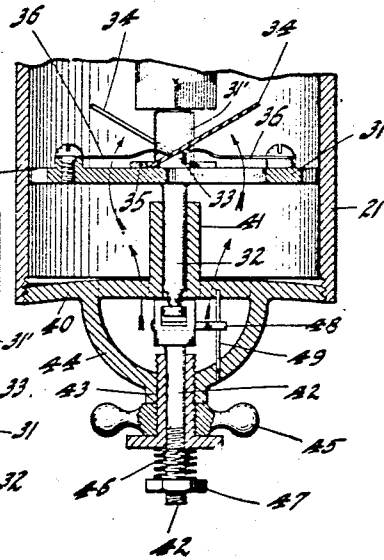
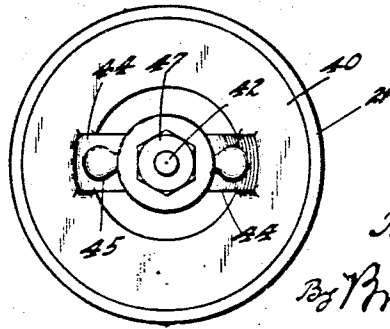
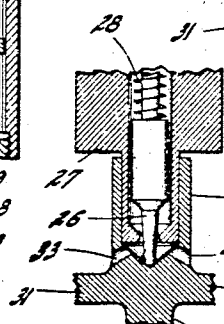


Fig. 5.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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CARBURETER.

964,831.

Specification of Letters Patent. Patented July 19, 1910.

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To all whom it may concern:

Be it known that I, ROBERT E. WYNN, a citizen of the United States, residing at Brownsburg, in the county of Hendricks and State of Indiana, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

My present invention relates to that class of carbureters designed to be principally used with gasoline driven motor vehicles.

The object is to produce a mixture of even consistency, rapidly, and in large quantities.

Said invention consists in the novel constructions, arrangements and combinations of parts hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a central sectional view of a carbureter embodying my said invention when in closed or inoperative position; Fig. 2 a sectional view (the sections being taken at differing points so as to illustrate various features) of so much thereof as includes the valves, the parts being shown in the position they occupy when the valves are open and the device is in full operation; Fig. 3 a horizontal sectional view taken just above the revolving bottom of the mixing chamber, showing the air inlet valves and said revolving bottom on which they are mounted in top plan; Fig. 4 an underside plan of the complete structure, and Fig. 5 a detail sectional view, on an enlarged scale, otherwise similar to a portion of Fig. 1, but showing the needle valve open as when raised by an upward movement of the revolving bottom or plate.

The shell or casing 21 has leading therefrom the ordinary gas discharge pipe 22, and an ordinary "butterfly" valve 23 is arranged to control the discharge of gas through this pipe. The gasoline enters the carbureter through a pipe 24 leading from a source of supply, and the flow of gasoline into the chamber of the carbureter is controlled by a needle valve 26, which is contained within a tubular part 27 embodying the valve seat. Normally, this needle valve is kept seated by means of a suitable spring 28, and can only be opened by the application of sufficient force to overcome the force of said spring. The tension of the spring

is adjustable by means of a screw plug 29 between which and a shoulder on the stem of said valve the spring is placed.

The mixing chamber has as its bottom a circular plate 31 whose diameter is substantially the same as the internal diameter of said chamber, and which is provided with a central shaft 32 on which it revolves. Centrally thereon, at the upper side, is provided a cup-shaped receptacle 31' into which the point of the needle valve extends, and, leading out from the bottom of said receptacle are small perforations 33 through which gasoline may escape to the upper surface of plate or bottom 31. The parts are so adjusted that when plate 31 is at rest, in its lowermost position, it is just free of contact with the point of needle valve 26, (see Fig. 1) and said valve is then closed tight, and prevents the passage of any gasoline into the mixing chamber. When, however, by means of the suction from the engine, the plate 31 is raised somewhat, it will press upon the point of said needle valve and thus open the same (see Fig. 5) and permit gasoline to flow through the orifices 33 toward the orifices in plate 31. At the same time the suction in question will open the two valves 34 in said plate 31, admitting atmospheric air from the outside. These valves 34 are hinged, and the hinges 35 are on opposite sides, so that when they are opened they form inclined wings extending in opposite directions. This converts the structure into what amounts to a wind mill, so that the plate 31 is caused to rapidly rotate by the passage of the air, and this has the effect to finely divide or spray the gasoline, and thoroughly mix it with the air which is entering the mixing chamber—this operation being aided by the rapid passage of the open valves or wings through the air, as will be readily understood. These valves 34 are normally kept closed by springs 36, which are secured to the top of the plate at one end, and the other or free ends of which rest upon the said valves and press them downwardly upon their seats over the openings in plate 31.

The shaft 32 rests in a bearing 41 forming a part of the structure, and the lower end of said shaft has a formation which engages, but somewhat loosely, with a spring-actuated rod 42 arranged below it. This spring-actuated rod has its bearing in a screw-threaded sleeve 43, mounted in the frame-part 44, and

said sleeve is adjusted to vary the distance which the rod 42 may travel, and may be locked in adjusted position by means of a lock nut 45. Said rod 42 extends on down 5 to below the sleeve 43, where a spring 46 surrounds its lower end, and it bears upon its extreme lower end a nut 47 by which the tension of the spring may be regulated—said spring being interposed between said nut 10 and the lower end of sleeve 43. The inter-engagement between the shaft 32 and rod 42 is somewhat loose, (the movement and relative positions may be seen by comparing Figs. 1 and 2) so that the plate 31 may move 15 slightly without compressing spring 46. The rod 42 is kept from turning by means of a guide 48 engaging with slide 49.

The operation of this carbureter is as follows: When the engines are started, by 20 "cranking" or otherwise, the first effect is to produce a suction in the mixing chamber of the carbureter. This raises the plate 31, and opens the needle valve 26, permitting a small amount of gasoline to flow into the 25 mixing chamber. This suction also opens the valves 34, admitting atmospheric air from the outside. The plate 31 is immediately set in motion, as above stated, with the effect of thoroughly mixing the air and 30 gasoline and producing the vapor or gas for use. As the suction increases, and the requirements of the engines also increase, the plate 31 is drawn up still further, the increased power of the suction compressing the 35 spring 46, with the result that the needle valve (the extension whereof below the seating surface is of tapered formation) is opened still wider, and the flow of gasoline, and the consequent production of vapor or 40 gas, is increased. As will also be readily understood, the greater the suction force into and through the mixing chamber, the more rapid the rotation of plate 31 will become, up to a certain limit, and consequently its 45 action is proportioned to the requirements made upon it. However, when the suction force becomes so strong as to nearly overcome the force of the springs 36 the acceleration of the speed of plate 31 will cease, these 50 springs being so proportioned as to secure just the maximum speed desired. When the engine is stopped, the suction of course ceases, and the parts all immediately return (under the force of the springs and of gravity) to their initial position, so that the flow 55 of gasoline is cut off simultaneously with the stopping of the gas-or-vapor producing operation.

The parts 41 and 44 are carried by a plate 60 40 which forms the extreme lower end of the chamber. As indicated, there are orifices through this plate in its central portion, up through which the air is drawn during the operation of the device. Outside 65 of these openings the plate inclines down-

wardly toward the edges, thus leaving a depressed portion around the edges which may receive any gasoline which passes from the other parts, and which might otherwise 70 overflow and drip onto the ground or adjacent parts of the machine. This small body of gasoline, surrounding, as it does, the openings in this extreme bottom portion, will evaporate to some extent, so that when 75 the inflow of air begins it will be converted into a gasoline vapor, which will assist in starting the engine.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is:— 80

1. The combination, in a carbureter, of the inlet pipe, the needle valve closing the discharge to said pipe, a plate positioned below said valve and capable of movement axially of said valve to open the same, orifices in said plate for the introduction of air 85 to the mixing chamber, and valves to said orifices, said valves and said plate being arranged to be moved by the suction force from the engine. 90

2. The combination, in a carbureter, of the inlet pipe, the needle valve closing the discharge to said pipe, a plate positioned below said valve and capable of movement axially of said valve to open the same, orifices 95 in said plate for the introduction of air to the mixing chamber, and valves to said orifices, said valves and said plate being arranged to be moved by the suction force from the engine, and said valves being arranged to 100 open in directions opposite to each other whereby they constitute when open inclined wings whereby the plate to which they are connected will be given a rotary motion by 105 the passage of the air through the openings and against said wing-like valves.

3. The combination, in a carbureter, of the inlet pipe, the needle valve closing the discharge to said pipe, a plate positioned below said valve and capable of movement 110 axially of said valve to open the same, orifices in said plate for the introduction of air to the mixing chamber, valves to said orifices, and springs for holding said valves closed over said orifices, said valves and 115 said plate being arranged to be moved by the suction force from the engine.

4. The combination, in a carbureter, of an inflow pipe, the needle valve for controlling the inflow, said valve having a projection 120 which extends beyond the seat, a plate having a cup-shaped receptacle into which said needle valve extends, said plate being capable of a movement axially of said valve and provided with orifices for the entrance 125 of air to the mixing chamber above said plate, inwardly opening valves arranged over said orifices, and orifices leading radially from the cup-shaped receptacle toward the air-admitting orifices in the plate, where- 130

by the fluid is discharged from said cup-shaped receptacle centrifugally into the incoming air currents.

5 5. The combination, in a carbureter, of a needle valve for controlling the inflow of fluid and having a projection which extends beyond the valve seat, a plate arranged below the said projecting portion and capable of a movement axially of the valve to open the same and also provided with a shaft extending in line with said valve, and a rod in line with said shaft and having a loose connection therewith permitting a slight independent movement of said plate and its shaft.

10 6. The combination, in a carbureter, of a needle valve for controlling the inflow of fluid and having a projection which extends beyond the valve seat, a plate arranged below the said projecting portion and capable of a movement axially of the valve to open the same and also provided with a shaft extending in line with said valve, and a rod in line with said shaft and having a connection therewith permitting a slight independent movement of said plate and its shaft, said rod being spring mounted whereby by the application of additional force a greater movement of the plate and its shaft is permitted.

15 7. The combination, in a carbureter, of a needle valve for controlling the inflow of fluid and having a projection which extends beyond the valve seat, a plate arranged below the said projecting portion and capable of a movement axially of the valve to open the same and also provided with a shaft extending in line with said valve, and a rod in line with said shaft and having a connection therewith permitting a slight independent movement of said plate and its shaft, said rod being provided with an adjustable mounting whereby the force necessary to be applied may be adjustably determined.

8. The combination, in a carbureter, of a 45 needle valve for controlling the inflow of fluid and having a projection which extends beyond the valve seat, a plate arranged below the said projecting portion and capable of a movement axially of the valve to open the same and also provided with a shaft extending in line with said valve, and a rod in line with said shaft and having a connection therewith permitting a slight independent movement of said plate and its shaft, 50 said rod being spring mounted whereby by the application of additional force a greater movement of the plate and its shaft is permitted, and said rod being also provided with a sliding guide whereby rotation thereof is prevented.

9. The combination, in a carbureter, with the inflow and its valve, of a revolubly mounted plate containing orifices for the inflow of air, and oppositely-mounted 65 inwardly-opening valves to said orifices whereby rotary motion is imparted to said plate by the inflowing air and the fluid flowing on to the surface of said plate thereby finely divided by the resulting centrifugal 70 force.

10. The combination, in a carbureter, with a mixing chamber containing a distributing plate, and means for revolving said plate, of a bottom portion having orifices through 75 which the air may be admitted, and having a depressed portion surrounding said orifices to receive and contain excess fluid which might otherwise overflow.

In witness whereof, I have hereunto set 80 my hand and seal at Indianapolis, Indiana, this twenty-eighth day of May, A. D. one thousand nine hundred and nine.

ROBERT E. WYNN. [L. S.]

Witnesses:

CHESTER BRADFORD,

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