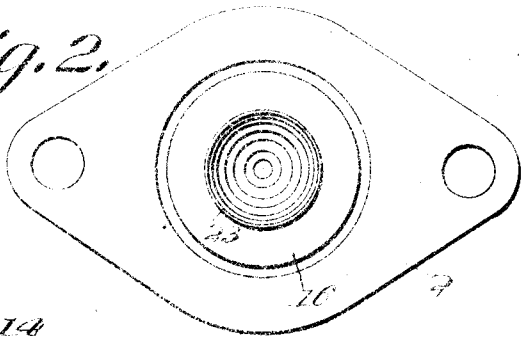
J. D. WARREN.

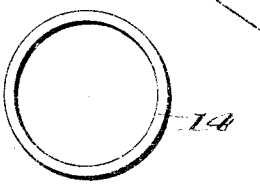
CARBURETER.

APPLICATION FILED MAY 9, 1910.

1,038,804. Patented Sept. 17, 1912.

Fig. 2.





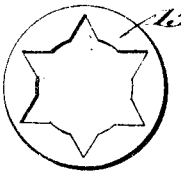


Fig. 5.

Fig. 6.

Fig. 3.

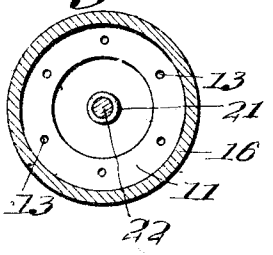


Fig. 1.

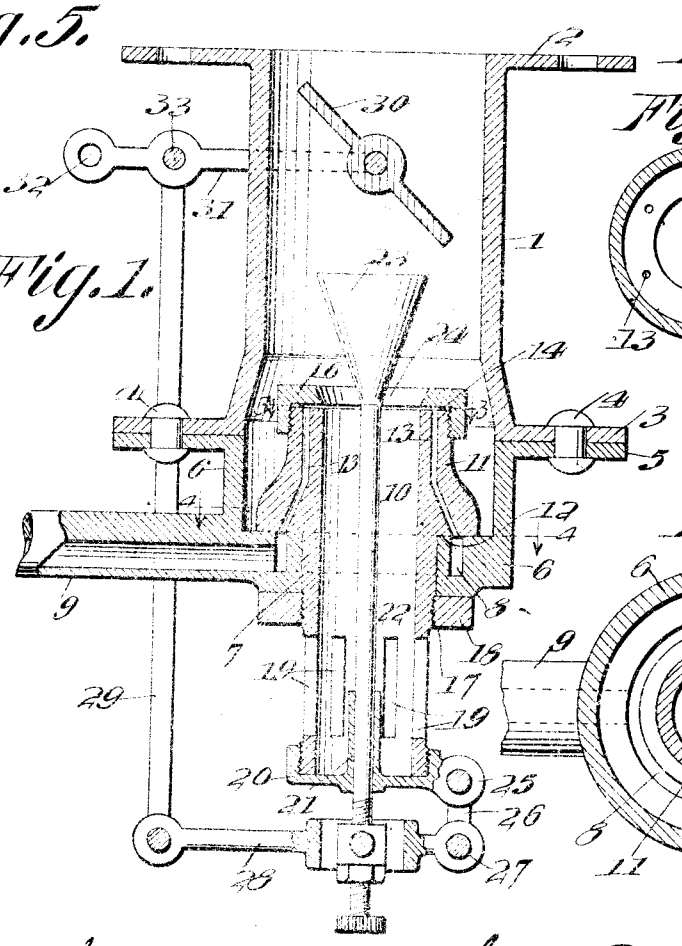
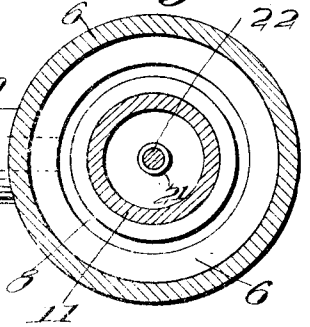


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CARBURETER.

1,038,804. Specification of Letters Patent. Patented Sept. 17, 1912

Application filed May 9, 1910. Serial No. 560,109.

To all whom it may concern:

Be it known that I, JOSEPH D. WARREN, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Carbureters, of which the following is a specification.

This invention relates to certain new and useful improvements in carbureters and relates more particularly to the spray nozzle and mixing tube thereof.

The object of the invention is to supply the gasolene to the air at right angles to the path of travel of, or on the outer circumference of the air as distinguished from the usual type of carbureter where the air surrounds the gasolene pipe.

A further object of the invention is to provide means whereby the supply of gasolene to the air may be limited and regulated at will and to also provide for a novel type of throttle and operating means therefor whereby as the throttle is closed a greater suction effect will be had on the air thereby causing the latter to take up an increased amount of gasolene resulting in the supply of a richer compound to the engine.

Further and other objects will later appear.

In the drawings: Figure 1 is a central vertical sectional view of the invention, Fig. 2 is a top plan view thereof, 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, and Figs. 5 and 6 are detail views of the disks for regulating the supply of gasolene.

The invention includes a casing composed of an upper section 1 having an attaching flange 2 at its upper end, and a flange 3 at its lower end, the latter being secured by means of rivets or bolts 4 or the like to a similar flange 5 carried by the lower section 6 of the casing. The lower section 6 has its bottom formed with a central opening 7 and an annular chamber 8, there being a gasolene supply pipe 9 formed integral with the lower section 6 having its inner end discharging into the chamber 8. The nozzle 10 snugly fits within the opening 7 of the bottom of the lower section and has its head 11 projecting outwardly therefrom to form an annular shoulder 12 which seats on the upper face of the bottom of section 6 and thereby restricts the downward movement of the nozzle. Head 11 is formed with channels 13 which are of angular contour and which at one end communicate with the chamber 8 and at their opposite ends extend through the upper end of the head 11 of the nozzle.

In Figs. 5 and 6 are shown two different forms of disks, Fig. 5 showing a plain disk of ring-like form and Fig. 6 showing a different form of slotted disk. The disk designated 14 is shown in Fig. 1 as seating on the upper edge of the nozzle head 11, it being obvious that by the use of the plain disk a complete flow of gasolene is had. By use of the slotted disk designated 15, the latter may be adjusted so as to partially cover the channels 13 in an obvious manner to thereby limit the supply of gasolene to the air, or if desired it is very obvious that a combination of disks may be employed.

A cap 16 is screw-threaded onto the head 11 and secures the disk between itself and the upper end of the nozzle head 11. The lower end of the nozzle which projects through the bottom of the lower section 6 is screw-threaded as at 17 and receives a lock nut 18, the latter engaging the bottom of the lower casing. Below the screw-threaded portion 17 the nozzle is formed with a plurality of longitudinally arranged air openings 19. A closure cap 20 is threaded onto the lowermost end of the nozzle and carries a perforated boss 21 in the perforations of which is slidably mounted a valve stem 22 carrying a cone-shaped valve 23 on its upper end, the valve being adapted to seat in the valve seat 24 formed in the cap 16 of the nozzle. The cap 20 is further formed with an integral outwardly extending perforated ear 25 to which is pivotally connected a link 26, the latter being in turn pivoted to the ear 27 of the yoke member 28, the yoke member being connected to the lower end of the valve stem 22 and in turn being pivoted to a vertical rod 29.

The throttle valve 30 is pivoted in the upper end portion of the upper section 1 of the casing, and is rigidly connected to an arm 31 which latter is formed with an eye 32 for connection with any suitable operating medium and is further pivoted as at 33 to the vertical rod 29.

In operation it will be understood that gasolene enters pipe 9, thence flows to chamber 8, thence through the channels 13 until it is intercepted by the cap 16 which latter is spaced from the upper end of nozzle head 11 by either one or a combination of disks 14 and 15, the gasolene thus being projected

at right angles to the course of travel of the air, the latter entering the nozzle through the air inlets 19 and courses upwardly. Thus the gasolene is supplied to the air on the outer circumference of the latter or at right angles to its course of travel. It will further be seen that the cone-shaped valve is so connected to the throttle that as the arm 31 is operated to open the throttle the cone valve will be lifted, permitting a greater flow of air to come in contact with the gasolene spray. On the other hand as the throttle is closed the cone will be depressed creating more of a suction on the air, taking up more gasolene, and supplying a richer compound to the engine.

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

1. In a carbureter, an outer casing, a hollow nozzle in the lower end of the outer casing composed of a head formed with vertical channels and a chamber, a disk seating on the upper end of the nozzle, a cap formed with a valve seat for holding said disk on said nozzle, said channels registering with the space between the cap and the nozzle, a valve movably mounted in the nozzle and adapted to seat in said valve seat, a throttle in the upper end of the casing and connections between the throttle and valve whereby when the throttle is moved to open position the valve will be lifted.

2. In a carbureter, an outer casing having an opening formed in its bottom, and a chamber surrounding the opening, a gasolene pipe leading into the chamber, a hollow nozzle having a head, said nozzle having its lower end formed with air ports and extending through said opening in the casing bottom, said nozzle head being formed with vertical channels which extend from said chamber through the upper end of the nozzle, a disk seating on the upper end of the nozzle, a cap formed with a valve seat seating on the disk to hold the latter in position, and to also leave a space between the cap and the upper end of the nozzle to allow the gasolene to communicate with the interior of the nozzle, a cap on the lower end of the nozzle formed with a perforated boss, a valve adapted to seat in said valve seat formed with a stem which passes through the perforated boss, a yoke member pivotally connected to the nozzle and to said valve stem, a throttle pivoted in the casing above the valve, an arm rigidly connected to the throttle and a vertical rod pivoted to said arm and to said yoke.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH D. WARREN.

Witnesses:
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