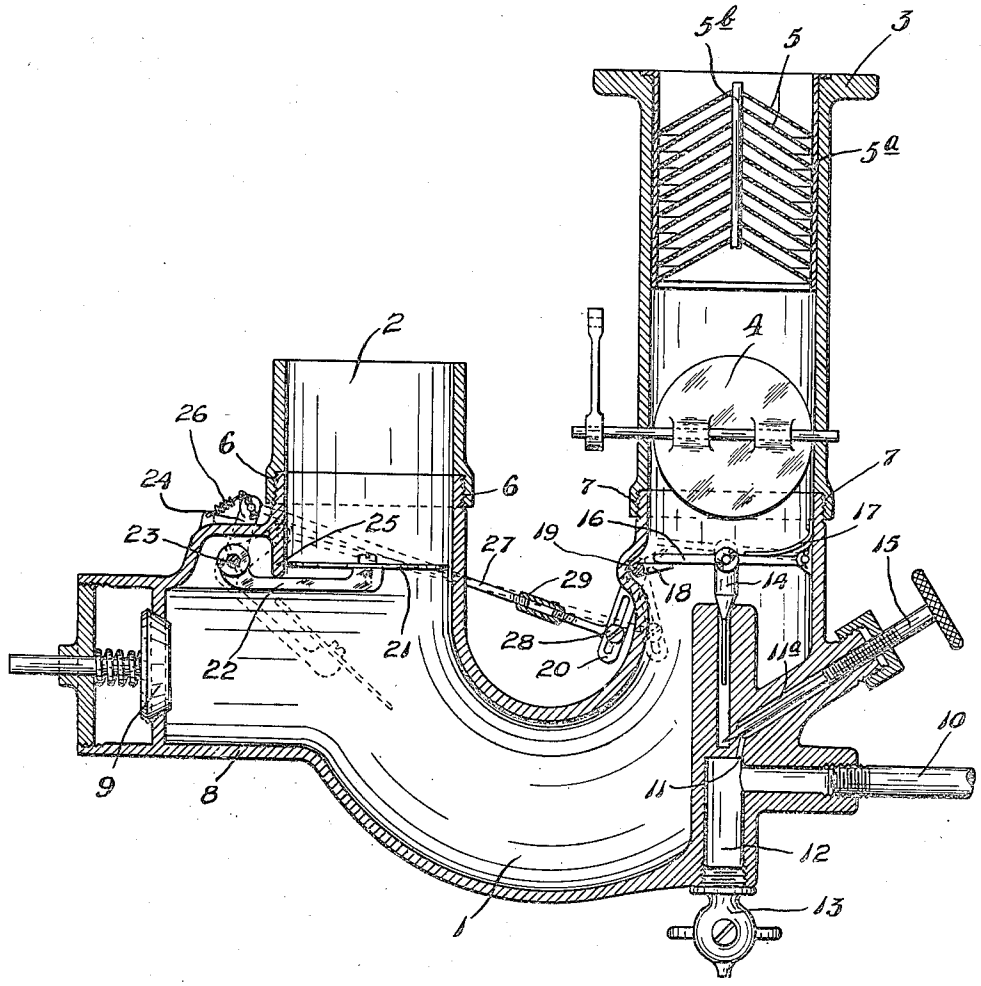
L. T. SEVERSON.

CARBURETER.

APPLICATION FILED MAY 27, 1916.

1,294,182.

Patented Feb. 11, 1919.



Witnesses.
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UNITED STATES PATENT OFFICE.

LOUIS T. SEVERSON, OF BATTLE LAKE, MINNESOTA.

CARBURETER.

1,294,182. Specification of Letters Patent. Patented Feb. 11, 1919.

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To all whom it may concern:

Be it known that I, LOUIS T. SEVERSON, a citizen of the United States, residing at Battle Lake, in the county of Ottertail and State of Minnesota, have invented certain new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an extremely simple and highly efficient carbureter for use in connection with explosive engines; and, to such ends, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claim.

The invention is illustrated in a single view of drawings, wherein the numeral 1 indicates a U-shape tube having an air intake port 2 at one end and at its other end, as shown, having a flange 3 adapted to be bolted or otherwise secured to the intake manifold of the engine, not shown. In the delivery end of the tube 1, is a throttle valve 4 and a multiple cone mixing screen of novel construction.

This mixing screen is made up of a multiplicity of cone-shaped wire screens 5 placed one over the other and secured at their edges to a sleeve 5^a that is telescoped into the upper end 3 of the tube 1 above the throttle valve 4 and has a flange at its upper end countersunk into the said upper end 3. The mixing cones 5 are also preferably centrally connected by a small rod 5^b. With this construction the entire mixing screen including the tube 5^a may be readily removed from the main tube for the purpose of cleaning or repairs. When in a working position it serves to break up the vapor into a very fine mist in which the air is very thoroughly mixed with the hydrocarbon vapor.

The said tube 1, as shown, is made up of three sections connected by screw-threaded engagement at 6 and 7. The intake 2 may take air direct from the atmosphere at atmospheric temperature, or it may receive the air through a heating device heated from the exhaust of the engine. The latter arrangement is not new, but would be desirable where the heavier hydrocarbon, such as kerosene, is to be used as the air carbureting medium.

The receiving end of the tube 1 is preferably provided with an extended sleeve 8 that is closed by a spring pressed safety valve 9. This safety valve 9 remains closed under all normal operations, but will open in case of back-firing and thus relieve the tube and other parts from intense strains, such as might break the same.

The fluid hydrocarbon or liquid fuel is supplied from a suitable tank or source of supply, through a small pipe 10 that delivers directly into an upright nozzle tube 11, the interior of which affords a small gasolene chamber 12 that is adapted to be drained by a normal draining cock 13. The upper end of the nozzle tube 11 is at the axis of the lower portion of the long or delivery arm of the main or body tube 1, and it is adapted to be opened and closed by a needle valve 14 which, as shown, has a small stem below its tapered portion, working with clearance within said nozzle tube. The passage through the upper portion of the nozzle tube 11 is adapted to be opened or closed to a greater or less extent by a choke valve 15 of the needle valve type, which has threaded engagement with, and works in an extended sleeve 11^a of the tube 11.

The needle valve 14 is connected to the intermediate portion of a small lever 16 pivoted at one end to the tube 1 and subject to a light spring 17 that yieldingly presses the same downward and normally holds the needle valve 14 in a closed position. The free end of the lever 16 is adapted to be raised by a small arm 18, carried by a short rock shaft 19 journaled in one side of the delivery end of the tube 1 and provided with a slotted depending arm 20. The arm 18 is within the tube 1 and the arm 20 is on the exterior of one side of said tube.

The intake passage 2 is normally closed by a disk-like valve actuator, for distinction, herewith designated as a valve actuating gate. This gate 21 is attached to the free end of an arm 22, the other end of which is secured to a rock shaft 23 journaled in the extension 8 of the tube 1 and subject to a spring 26 that normally holds said arm against a stop flange 25, and the said gate in a closed position. Outside of the tube, the rock shaft 23 is provided with an arm 24, but is connected by a link or connecting rod 27 to the arm 20 of the rock shaft 19. The pivotal connection between the link 27 and arm 24 is made adjustable by a nut-equipped wrist pin 28 that is adjustably secured in the

slot of the said arm. The link or connecting rod 27 is made longitudinally adjustable by a turnbuckle 29.

Operation.

The suction produced in the tube 1 by the first suction stroke of the engine will move the same downward or toward the position indicated by dotted lines, and the extent of movement of the said gate will, of course, be in proportion with the intensity of the suction produced in the said tube. Obviously, the faster the engine runs, the greater will be the suction in the tube 1, and hence, the greater will be the movement of the gate 21 from its normal position. The farther it moves from its normal position, the larger will be the opening from the inlet 2 to the interior of the tube 1.

When the gate 21 is moved downward or from its closed toward its open position, the rock shaft 19, through the connections 20, 26, and 27, will be oscillated and its arm 18 moved upward and thereby cause it to act upon the lever 16 and raise the needle valve 14 into an open position. Furthermore, the extent to which the needle valve will open the fluid fuel discharge passage from the nozzle 11 will be in proportion to the movement given to the gate 21. In this way, the supply of fluid fuel and air are properly proportioned, the one in respect to the other, and both in respect to the running speed of the engine. The running speed of the engine is, of course, controlled by the throttle valve 4. By adjustments of the turnbuckle 29, the arm 7 can be properly set in respect to the lever 16, and by adjustment of the wrist pin 28 in the slot of the arm 20, the richness of the explosive mixture may be varied.

What I claim is:

In a carbureter for explosive engines, the combination with a body tube provided with an air intake port at one end and a throttle valve in its delivery portion, a fluid fuel intake port opening into said tube, a yieldingly held lever pivoted in the tube, a needle valve pivoted to the lever and normally closing the fluid fuel intake port, a rock shaft provided with an arm for lifting said lever to open the valve, a second rock shaft provided with a gate-equipped arm, said gate normally approximately closing the air intake port, and an adjustable connection between said two rock shafts, said connection adapted to be set to permit a movement of the gate with respect to the valve and also to vary the extent of the opening movement of the valve.

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

LOUIS T. SEVERSON.

Witnesses:
G. W. BATES,
L. A. LEVORSEN.