A. W. PORTER.

CARBURETER.

APPLICATION FILED JULY 31, 1917.

1,283,294.

Patented Oct. 29, 1918.

2 SHEETS—SHEET 1.

Fig. 3.

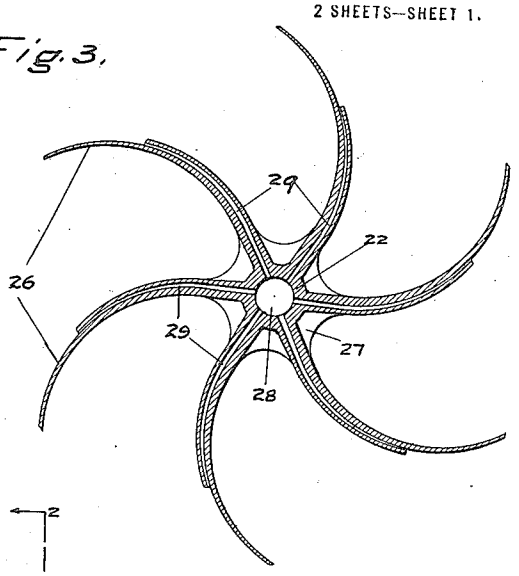
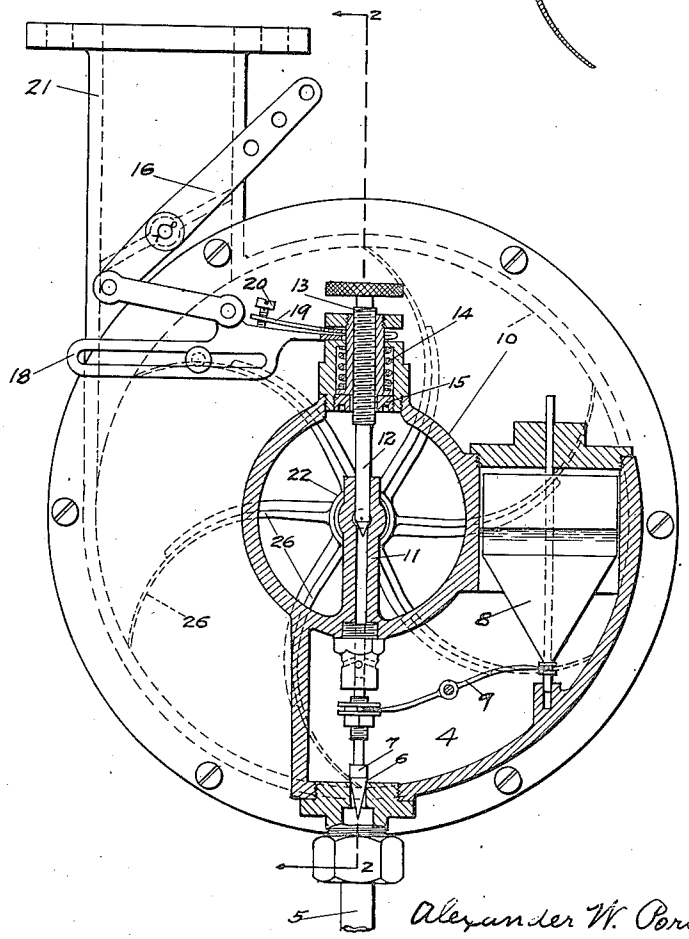


Fig. 1.



Alexander W. Porter, Inventor

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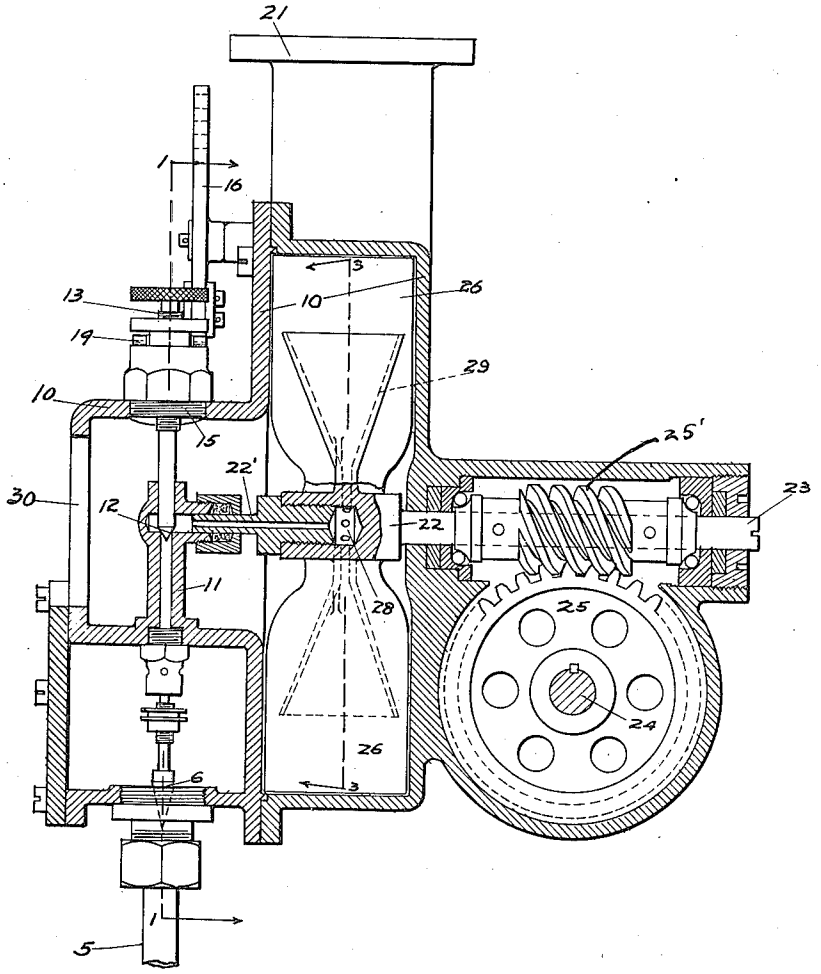
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

ALEXANDER W. PORTER, OF KELSO, WASHINGTON, ASSIGNOR OF ONE-HALF TO J. W. CROUCH, OF KELSO, WASHINGTON.

CARBURETER.

1,283,294. Specification of Letters Patent. Patented Oct. 29, 1918.

Application filed July 31, 1917. Serial No. 183,768.

To all whom it may concern:

Be it known that I, ALEXANDER W. PORTER, a citizen of the United States, residing at Kelso, in the county of Cowlitz, State of Washington, have invented a new and useful Improvement in Carbureters, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to a class of devices provided to distribute the fuel within the air to form the explosive mixture in a carbureter required for internal combustion engines.

The object of my invention is to provide a rotatable means for effectually distributing the fuel into the air within a chamber to form the said mixture to the best advantage. I attain this object, as well as others, by the construction, combination and arrangement of parts, illustrated in the accompanying drawings which form a part hereof.

Figure 1 is a front elevation of the device with parts in section on the line 1—1 of Fig. 2.

Fig. 2 is a sectional elevation on the line 2—2 of Fig. 1.

Fig. 3 is a transverse section through the distributer on the line 3—3 in Fig. 1.

Like numerals refer to like parts in all views.

A fuel intake chamber 4 of suitable form is provided. A feed pipe 5 extends from the chamber 4 to a source of liquid fuel supply. The pipe 5 has an inlet port 6 with a vertical needle valve 7 therein. This valve is provided with an automatic governing means within the chamber 4 consisting of the float 8 and a centrally pivoted arm 9 adjustably connected at one of its ends to the lower end of the float, the opposite end of the arm being adjustably connected to the stem of the valve 7. Adjacent to the chamber 4 is a carbureter chamber 10 of suitable form. A vertical fuel inlet tube 11 extends from the chamber 4 to a suitable height within the carbureter 10. Within the end of the tube 11 is a vertical regulating valve 12. The valve 12 has adjusting means consisting of the screw 13, coil spring 14 and sleeve nut 15. The valve 12 has an operating accelerator consisting of the lever 16, the arm 18, and adjusting spring 19 with its set screw 20. A pipe 21 extends from the carbureter to the desired place for discharge of the fuel mixture, such as an engine manifold.

Within the chamber 10 a vertical fan 22 is rigidly secured upon a horizontal shaft 23. This shaft 23 is rotated by means of a shaft 24 extending to a source of power and the intervening pinion 25 and worm gear 25′. The fan 22 has vanes 26 and a reinforcing web 27. Within the center of the fan is an opening 28 and from this extend slots or narrow passages 29 along each vane which openings taper outwardly to a thin slit. From the opening 28 a tube 22′ extends to a position above the port of the valve 12. An air inlet 30 is provided in a suitable position in the wall of the chamber 10.

It will now be seen that when liquid fuel in a desired quantity is admitted to the center of the fan, by operating the accelerator, it flows outwardly through the openings 29 and covers the vanes with a thin film. The fan being rotated at the same time draws air within, through the port 30, and distributes the fuel on its surface in a desired and operative mechanical mixture with the air. The mixture is then forced by the fan through the pipe 21 to the place arranged for its discharge. This is accomplished in connection with the suction of the engine. The velocity and quantity of mixture set into the pipe 21 are determined by the speed of the engine and rotation of the fan. The fan is arranged to be rotated at a pre-determined speed in relation to the speed of the crank shaft of an engine to be operated, so that the velocity of the mixture discharged by the fan shall increase and decrease in a given ratio with the speed of the engine shaft.

I claim:

1. In a device of the character described, the combination of a carbureter chamber having an air intake port and a fuel mixture discharge port, with a fan for mechanically mixing liquid fuel with air within the chamber in pre-determined proportions, said fan being rotatably mounted within the chamber and arranged to be rotated at a pre-determined speed, also having in its center an opening to which a liquid fuel supply passage extends and about which opening a series of suitably curved fan vanes extend outwardly, said vanes having in each slots or narrow openings extending from said central fan opening along each vane and tapering to narrow slits, the vane openings being arranged to induce a flow of the liquid

fuel upon the outer surface of the vanes in a manner to cause the fuel to be uniformly distributed through the air in the chamber during the rotation of the fan to form a desired fuel mixture thereof, substantially as described.

2. In a device of the character described, the combination of a carbureter chamber having an air intake port and a fuel mixture discharge port, with a fan for mechanically mixing liquid fuel with air within the chamber in pre-determined proportions, said fan being rotatably mounted within the chamber and arranged to be rotated at a predetermined speed, also having in its center an opening to which a liquid fuel supply passage extends and about which opening a series of suitably curved fan vanes extend outwardly, said vanes having in each slots or narrow openings extending from said central fan opening along each vane and tapering to narrow slits, the vane openings being arranged to induce a flow of the liquid fuel upon the outer surface of the vanes in a manner to cause the fuel to be uniformly distributed through the air in the chamber during the rotation of the fan in the chamber, to form a desired fuel mixture thereof, and mechanism to provide and regulate a desired supply of liquid fuel to be discharged into and through the said passage extending to the center of the fan, substantially as described.

ALEXANDER W. PORTER.

Witnesses:
W. E. STONE,
L. C. WALLACE.