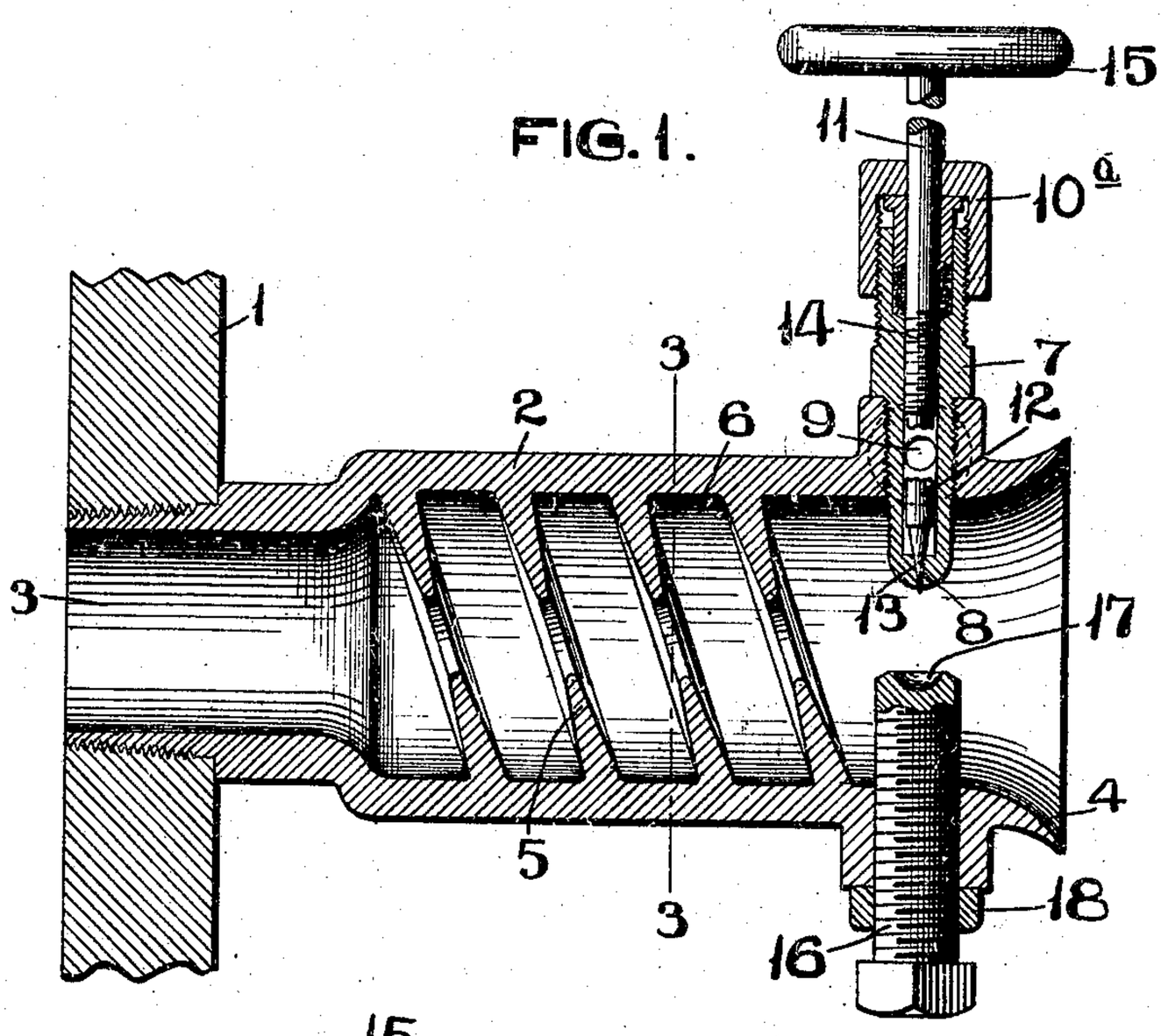
No. 867,604. PATENTED OCT. 8, 1907.

W. F. ROTHE.

CARBURETER.

APPLICATION FILED SEPT. 18, 1905.

FIG. 1.



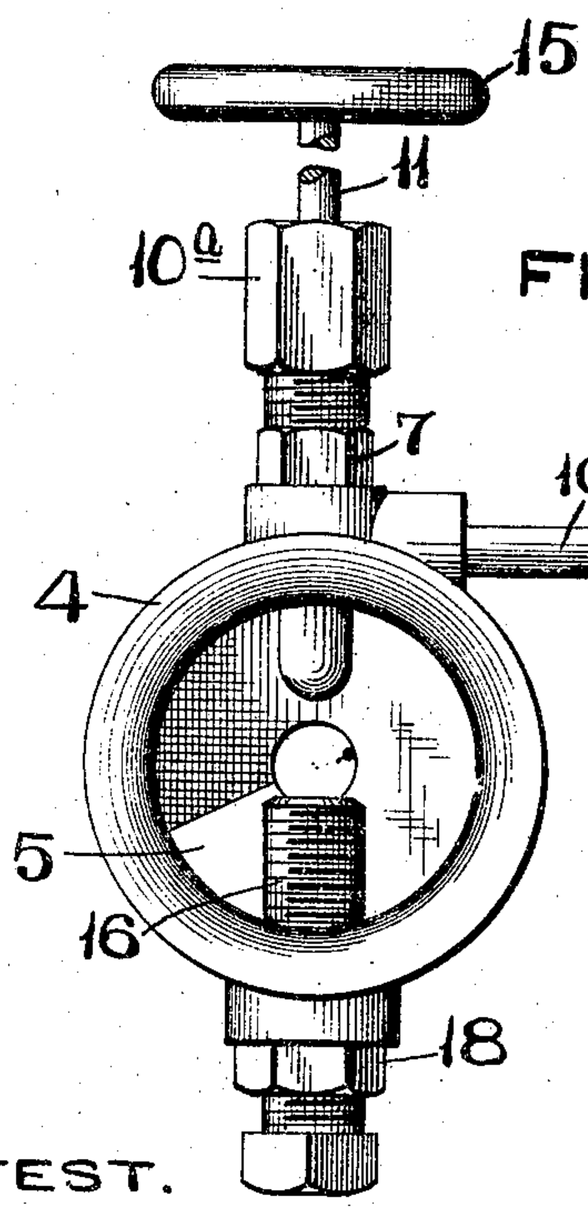
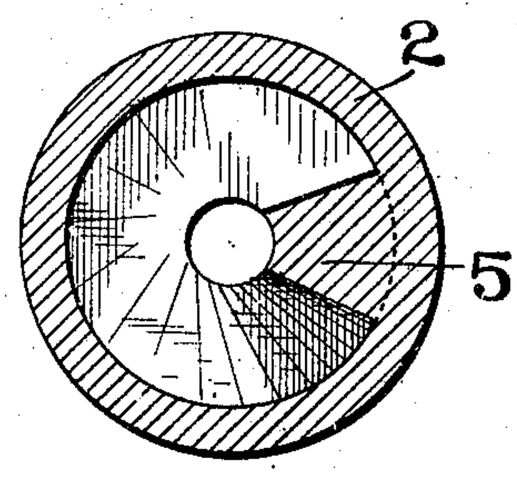


FIG. 2.

FIG. 3.



ATTEST.

W. J. Fletcher.

M. P. Smith.

INVENTOR.

WILLIAM F. ROTHE.

BY Higdon & Langan.

ATT'Y'S.

UNITED STATES PATENT OFFICE.

WILLIAM F. ROTHE, OF EAST ST. LOUIS, ILLINOIS.

CARBURETER.

No. 867,604. Specification of Letters Patent. Patented Oct. 8, 1907.

Application filed September 18, 1905. Serial No. 278,858.

To all whom it may concern:

Be it known that I, WILLIAM F. ROTHE, a citizen of the United States, and a resident of East St. Louis, St. Clair county, Illinois, have invented certain new and useful Improvements in Carbureters, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a carbureter, and the object of my invention is to provide a simple, inexpensive device for vaporizing and mixing the fluid used in the propulsion of gas, gasolene, and other like engines.

A further object of my invention is to construct a carbureter, or vaporizer, which will very thoroughly mix and commingle the air with the hydrocarbon, previous to its passage into the combustion chamber.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more clearly set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which

Figure 1 is a vertical section taken longitudinally through the center of a carbureter of my improved construction; Fig. 2 is a front elevation of the carbureter; Fig. 3 is a vertical section taken on the line 3—3 of Fig. 1.

Referring by numerals to the accompanying drawings: 1 indicates a portion of an engine casing to which my improved carbureter is secured. In the construction of the device as shown, the body of the carbureter comprises the hollow cylindrical member, 2, one end, 3, of which is exteriorly screw threaded and enters a correspondingly screw threaded aperture in the engine casing, 1. The outer end of the body, 2, is slightly flared, as indicated by 4. Formed integral with the body, 2, and upon the interior thereof, is a spiral rib, 5, thus forming a corresponding spiral passage, 6, through the body of the carbureter. Seated in the top of the outer end of the body, 2, is a vertically arranged cylindrical stem, 7, the lower end of which projects into the cylindrical body, 2, and being provided with a needle valve discharge aperture, 8. Leading into the chamber in the lower end of this stem, 7, is an aperture, 9, with which communicates the discharge end of an oil inlet pipe, 10. The upper end of the stem, 7, is provided with a suitable gland, or stuffing box, 10^a, and passing downwardly therethrough and through the stem, 7, is a valve stem, 11, the lower end of which is reduced in diameter, as indicated by 12, and there being a needle valve, 13, formed on the lower end of said stem, which is adapted to enter and close the valve opening, 8. The lower portion of the valve stem, 11, just above the reduced lower end thereof, is exteriorly screw threaded, as indicated by 14, and operates in a correspondingly screw threaded portion of the stem, 7. The valve stem, 11, is provided on its upper end with a suitable handle, 15.

Passing vertically through the lower portion of the front of the chamber, 2, is a screw bolt, 16, provided in its upper end with a pocket, or recess, 17. A nut, 18, located on the screw bolt, below the body, 2, serves to lock said bolt in position after it has been adjusted to the desired height.

The operation of my improved carbureter is as follows: The handle, 15, of the valve stem is manipulated so as to slightly elevate the needle valve, 13, from the valve seat, 8, and, as a result, a small quantity of oil will continually flow through the valve and discharge from said aperture, 8. The engine, or motor, on the suction stroke of its cycle, creates the usual vacuum, and thus causes air to be drawn into the open end of the cylindrical body, 2, and this inrushing air carries with it the oil, and said air and oil in traversing the spiral passage, 6, will necessarily be given a whirling motion, which will thoroughly atomize the oil, and, after thus being thoroughly mixed and commingled, it will be drawn into the engine in a highly inflammable, or explosive, condition. The expansive power of the mixture is controlled by the degree to which the valve is opened, as this regulates the quantity of oil that is discharged into the carbureter. Should too much oil be discharged by the valve, when first starting or when adjusting the valve stem, the surplus of oil will drop into the recess, or pocket, 17, and, if it overflows therefrom, it will travel down the thread on the exterior of the screw bolt, 16, which will allow it to be taken up freely by the air rushing through the carbureter.

By providing a spiral rib on the interior of the carbureter, the air is maintained in the carbureter considerably longer than if an ordinary straight pipe were used, and this, together with the whirling motion of the air as it passes through the spiral passage, 6, very thoroughly mixes and commingles the oil with the air.

I do not limit myself to the application of the spiral mixing chamber to carbureters employed in connection with hydrocarbon engines, as said chamber can be used to advantage in any engine using common city gas, suction producer gas, or oil gas.

I do not limit myself to the exact construction shown, as it is evident that the spiral mixing chamber can be located in any part of the fuel supply inlet of any hydrocarbon engine between the inlet of the passage and the inlet or suction valve of the engine.

A carbureter of my improved construction is simple, inexpensive, comprises a minimum number of parts, can be very easily adjusted, and is adapted to be used in all forms of gas, gasolene, and oil engines.

I claim:

1. In a carbureter, a cylindrical member provided with an interiorly arranged spiral passageway, means whereby oil is discharged into the cylindrical member in front of the spiral passageway, means whereby the discharge of oil

into the cylindrical member is regulated, and an adjustable member arranged beneath the oil inlet to receive the excess discharge of oil: substantially as specified.

2. In a carbureter, a cylindrical member, a spirally arranged flange integral with the interior of said cylindrical member, a hydrocarbon inlet arranged in the cylindrical member in front of the flange, and a vertically adjustable member arranged in the cylindrical member beneath the hydrocarbon inlet for receiving any excess hydrocarbon delivered to the front of the cylindrical member.

3. In a carbureter, an open ended cylindrical member, a spirally arranged flange integral with the cylindrical member on the interior thereof to form a spiral passageway through the greater portion of the cylindrical member, an oil inlet valve arranged in top of the cylindrical member in front of the spirally arranged flange, a screw threaded member operating through the bottom of the cylindrical member below the oil inlet, and there being a recess formed in the top of the screw threaded member to receive the excess of oil from the oil inlet valve.

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

WILLIAM F. ROTHE.

Witnesses:
M. P. SMITH,
JOHN C. HIGDON.