No. 887,230. PATENTED MAY 12, 1908.

A. H. RIFE.

CARBURETER.

APPLICATION FILED JUNE 30, 1905.

2 SHEETS—SHEET 1.

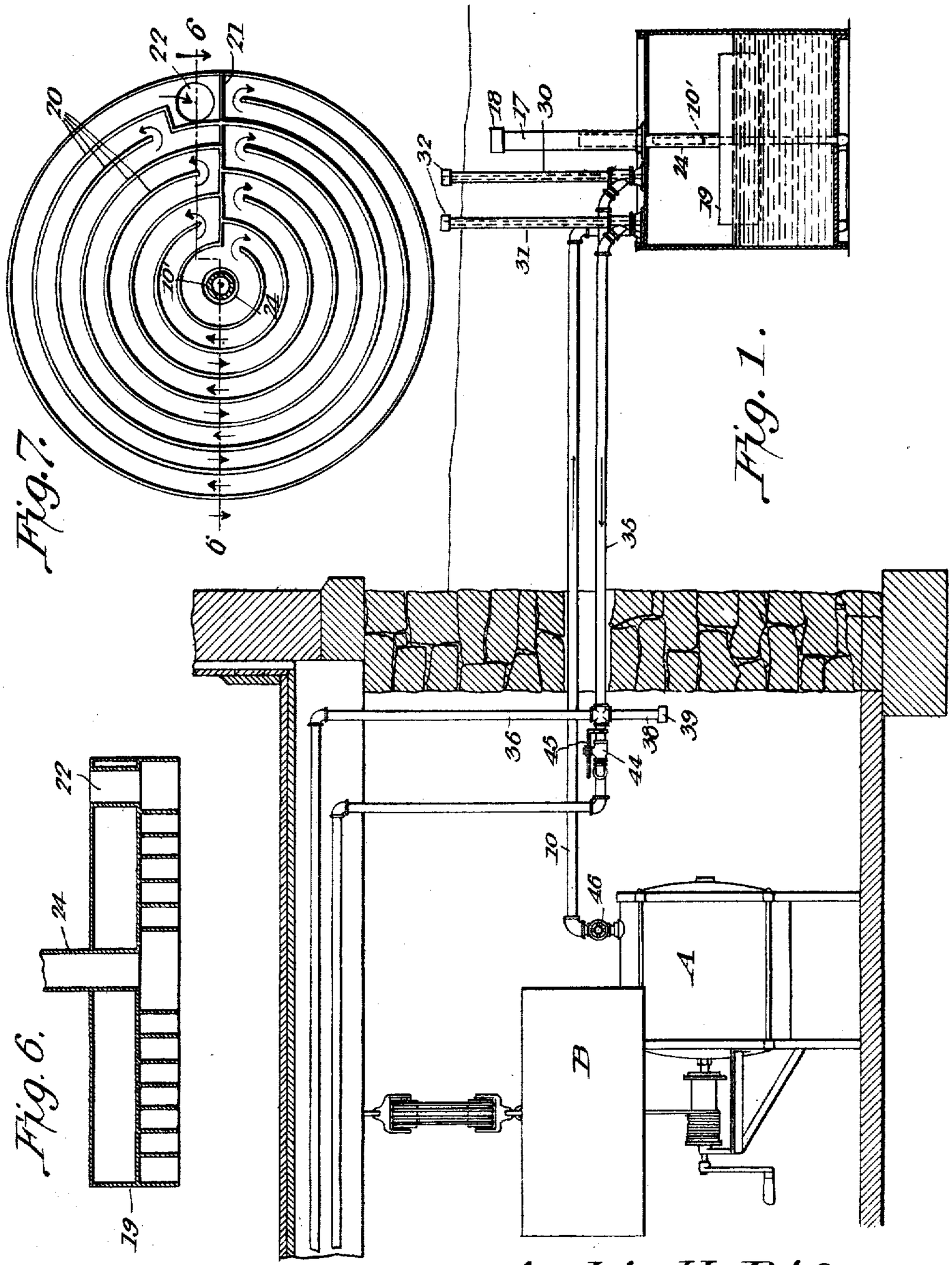

Fig. 7.

Fig. 1.

Fig. 6.

Witnesses

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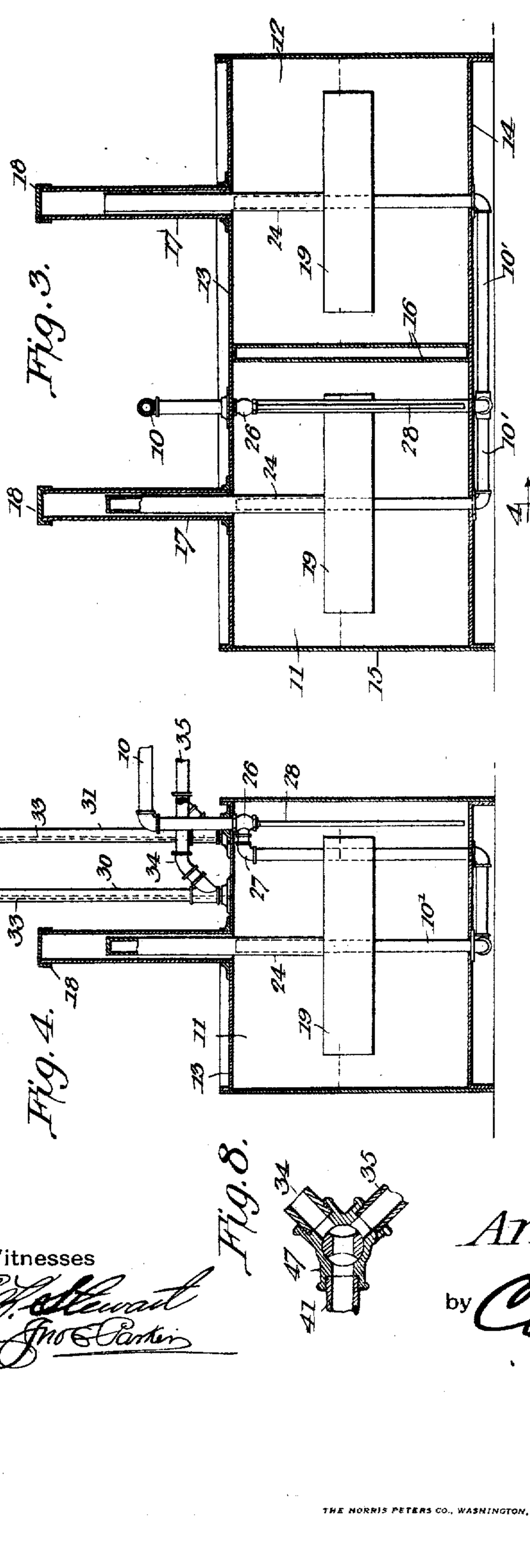

Fig. 3.

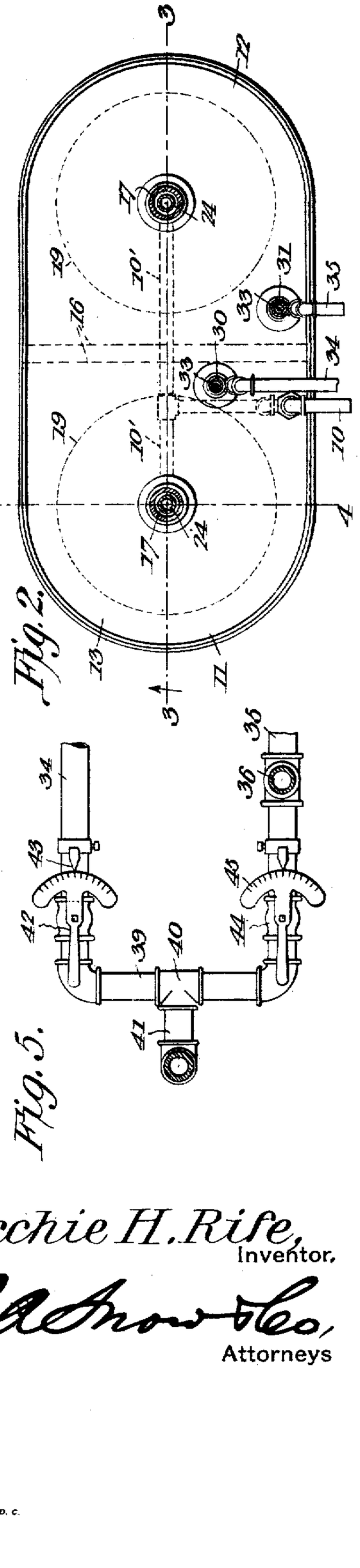

Fig. 2.

Fig. 4.

Fig. 5.

Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

ARCHIE HENRY RIFE, OF DALLAS CITY, ILLINOIS.

CARBURETER.

No. 887,230. Specification of Letters Patent. Patented May 12, 1908.

Application filed June 30, 1905. Serial No. 267,771.

To all whom it may concern:

Be it known that I, ARCHIE HENRY RIFE, a citizen of the United States, residing at Dallas City, in the county of Hancock and State of Illinois, have invented a new and useful Carbureter, of which the following is a specification.

This invention relates to apparatus for carbureting air to be used for lighting and heating or power purposes.

One object of the invention is to provide an apparatus in which a constant supply of gas of any desired candle power may be obtained without the necessity of stopping operations at intervals for the purpose of removing the heavy residue from the hydro-carbon tanks or carbureting chambers after the more volatile portions of the hydro-carbon have passed off.

A further object of the invention is to provide a carbureting apparatus in which a plurality of carbureting tanks or chambers are employed, one of which may be arranged to contain a high grade gasolene, and the other a low grade gasolene or other hydro-carbon, the latter being suitable for the production of carbureted air for heating or power purposes, while the former may be employed for lighting purposes, and to provide means whereby the quality of the vapor may be readily controlled, a greater or less percentage of the carbureted air from the low grade chamber being mingled with the carbureted air from the high grade chamber in case the gas is too rich, and the gases may be mingled in suitable proportions before reaching the burner.

A still further object of the invention is to provide a novel form of carbureter in which a carbureting float is so arranged as to remain immersed to practically the same extent without regard to the specific gravity of the gasolene, the float being provided with tortuous passages which serve to confine a thin stratum of air between the gasolene and the bottom of the float.

A still further object of the invention is to provide a novel means for conducting the air through the carbureter to the central portion or intake end of the carbureter float.

A still further object of the invention is to provide a novel means for permitting the escape of any moisture which may condense in the air pipe leading to the carbureter.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is an elevation, partly in section, of a carbureting apparatus constructed in accordance with the invention. Fig. 2 is a plan view of the carbureting chambers or tanks. Fig. 3 is a vertical section of the same on the line 3—3 of Fig. 2. Fig. 4 is a transverse sectional view through one of the carbureting chambers, on the line 4—4 of Fig. 2. Fig. 5 is a plan view of a portion of the mechanism shown in Fig. 1, illustrating more particularly the valves for controlling the quantity of gas passing from each carbureting chamber to the service pipe. Fig. 6 is a sectional elevation, on an enlarged scale, of one of the carbureting floats. Fig. 7 is a detail view, looking from the bottom of the float. Fig. 8 is a detail view, illustrating a modified form of controlling valve.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The apparatus is arranged in the usual manner, the carbureting tanks being embedded in the ground at some distance from the building, and being connected by an air pipe 10 to a suitable pump A which may be actuated by a weight B, the pump being of any ordinary construction and being usually placed in the cellar of the building to which the gas is to be supplied.

The two tanks 11 and 12 are formed of sheet metal, which, in some cases, may be separate and independent structures, but, for purpose of economy, and with a view of strengthening the structure, the upper and lower plates 13 and 14 of both tanks are formed integral and are provided with marginal flanges, riveted or otherwise secured to the sheet metal casing 15. The tanks are separated from each other by a pair of spaced vertically disposed partitions 16, having flanged upper and lower edges that are riveted to the top and bottom plates, so that the tanks are separated, and gasolene cannot leak from one to the other.

To the central upper portion of each of the tanks is secured a tubular casing or guide 17, the lower end of which communicates with the tank, while the upper end is closed by a cap 18 to prevent the escape of gas.

Arranged within each tank is a float 19, said float comprising a substantially circular hollow body of sufficient buoyancy to float on top of the liquid. On the lower face of the float are arranged a number of concentric annular partitions 20, which, in connection with a radial partition 21, serve to form a tortuous passage from the central portion of the float to the periphery thereof, and through this passage is forced the air to be carbureted, the air remaining in a thin film, on top of the liquid and becoming saturated. The gas escapes at the end of the passage through a vertical tube 22 that extends through the float proper.

To the central portion of the float is secured a pipe 24, the lower end of which is open at the bottom of the float proper, while the upper end of the pipe is closed. This pipe fits loosely within the tubular casing 18, the latter forming a guide to permit free vertical movement of the float as the liquid level alters.

The air pipe 10 leads from the pump A to a point over the tanks, and, after passing through the top of the tank 11, is connected to a reducing T 26, and thence to an elbow 27, from which the pipe leads down to the bottom of the tank. From the bottom of the tank lead two branches 10′, one of which extends upward through each float, and into the pipe 24, the air discharging into the pipe 24, and thence passing downward through said pipe to the central portion of the float, and at the entrance end of the tortuous passage formed on the bottom of the float.

Depending from the reducing T 26 is a small pipe 28 for the purpose of conducting any moisture which may condense in the air pipe to the bottom of the carbureting tank, thereby preventing accumulations of water and other condensations that would be detrimental to a free air supply.

From the top of the respective tanks project pipes 30 and 31, the upper ends of which project above the surface of the ground and are provided with caps 32 which may be removed when it is necessary to replenish the supply of gasolene or other hydro-carbon. Arranged within each of these pipes is a small vent pipe 33 to permit the escape of air or gas during the filling operation.

To the pipes 30 and 31 are coupled gas pipes 34 and 35, respectively, the pipe 34 being arranged to convey the carbureted air or gas from the tank 11, which, in the present instance, is supposed to contain a high grade gasolene, while the pipe 35 serves to conduct the carbureted air or gas from the tank 12, which may be arranged to contain a low grade gasolene or other hydro-carbon. From the pipe 35 extends a service pipe 36 leading to a stove, heater, engine, or other device where the fuel is to be utilized, and on this pipe 35, as well as on the pipe 34, is arranged a short drip pipe 38, having a detachable cap 39 which may be removed from time to time to permit the escape of any liquid hydro-carbon which may be carried over by the gas.

The two pipes 34 and 35 are coupled together by a cross pipe 39 at the central portion of which is a T 40 that is connected to a service pipe 41, leading to the gas fixture. Pipe 34 is provided with a valve 42, and a suitable indicator 43, to show the extent to which the valve is opened. A similar valve 44, provided with an indicator 45 is placed on the pipe 35, and said valves may be independently opened to any desired extent in order to control the quality of the gas passing to the service pipe 41.

If the gas from the pipe 34 is too rich, valve 42 is partly closed, and the gas is diluted by opening the valve 44 to the desired extent, or if the gas is not of the proper candle power, valve 44 may be wholly closed and valve 42 opened, thus providing a simple means by which the candle power of the gas may be accurately regulated.

In operation, the cap of the filling pipe 30 is removed, and the carbureting tank 11 is filled with the high grade gasolene or other hydro-carbon. After filling the carbureter 11 and replacing the cap, the cap of the filling pipe 31 is removed and the carbureting chamber 12 is filled with low grade gasolene or other hydro-carbon. After replacing this cap, the valve 46 of the pipe 10 is opened, and then the gas may be tested by applying a lighted match to one of the burners. After the gas is ignited, it can be immediately ascertained whether the gas is too rich or too poor, and it is merely necessary to open or close the valves 42 and 44 to secure a gas of the proper candle power.

In some cases the supply valves 42 and 44 may be dispensed with, and a simple form of three way cock 47 of the character shown in Fig. 8 may be employed for the purpose of controlling the quality of the gas.

Having thus described the invention, what is claimed is:—

In a carbureting apparatus, the combination of a pair of carbureting tanks for producing gas of different qualities, a float in each tank having a tortuous passage on its under surface with an exit opening at the periphery of the float, an upright axial tube closed at its upper end and opening at its lower end into the tortuous passage, a tubular casing closed at its upper end rising from each carbureting tank and serving as a guide for the axial tube on the float in said tanks, an air pump, an air pipe leading therefrom to the carbureting tanks and extending into one

of said tanks from the top, a T coupling on the end of said air pipe at the top of said tank, a pipe leading from said T coupling downwardly through the bottom of said tank thence dividing, and a branch reënter-ing through the bottom of each tank and extending into the axial tube of the float contained therein, a drain tube or trap leading from said T-coupling to the bottom of the tank, an outlet pipe leading from each tank and joined by a connecting pipe, a stop cock on each pipe, a delivery pipe leading from one of said outlet pipes before reaching the valve therein, and a second delivery pipe leading from the pipe connecting the two outlet pipes.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ARCHIE HENRY RIFE.

Witnesses:
GEO. LAYBOURN,
HERBERT L. JACKSON.