No. 871,480. PATENTED NOV. 19, 1907.

H. B. CORNISH.

CARBURETER.

APPLICATION FILED MAR. 4, 1907.

2 SHEETS—SHEET 1.

Fig 1.

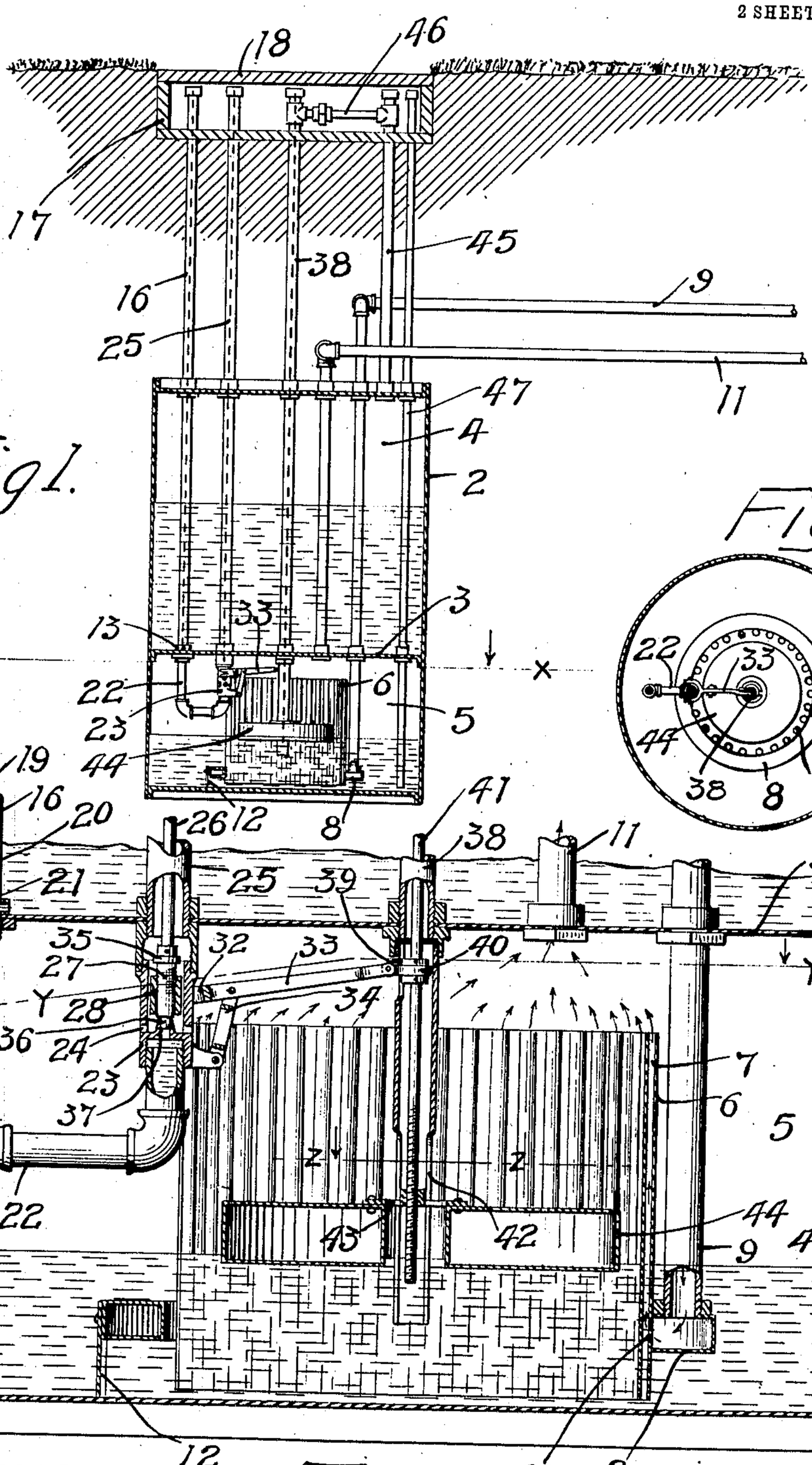

Fig 3.

Fig 2.

WITNESSES

J. B. Era.

INVENTOR

HARRY B. CORNISH

BY Paul & Paul

HIS ATTORNEYS

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2 SHEETS—SHEET 2.

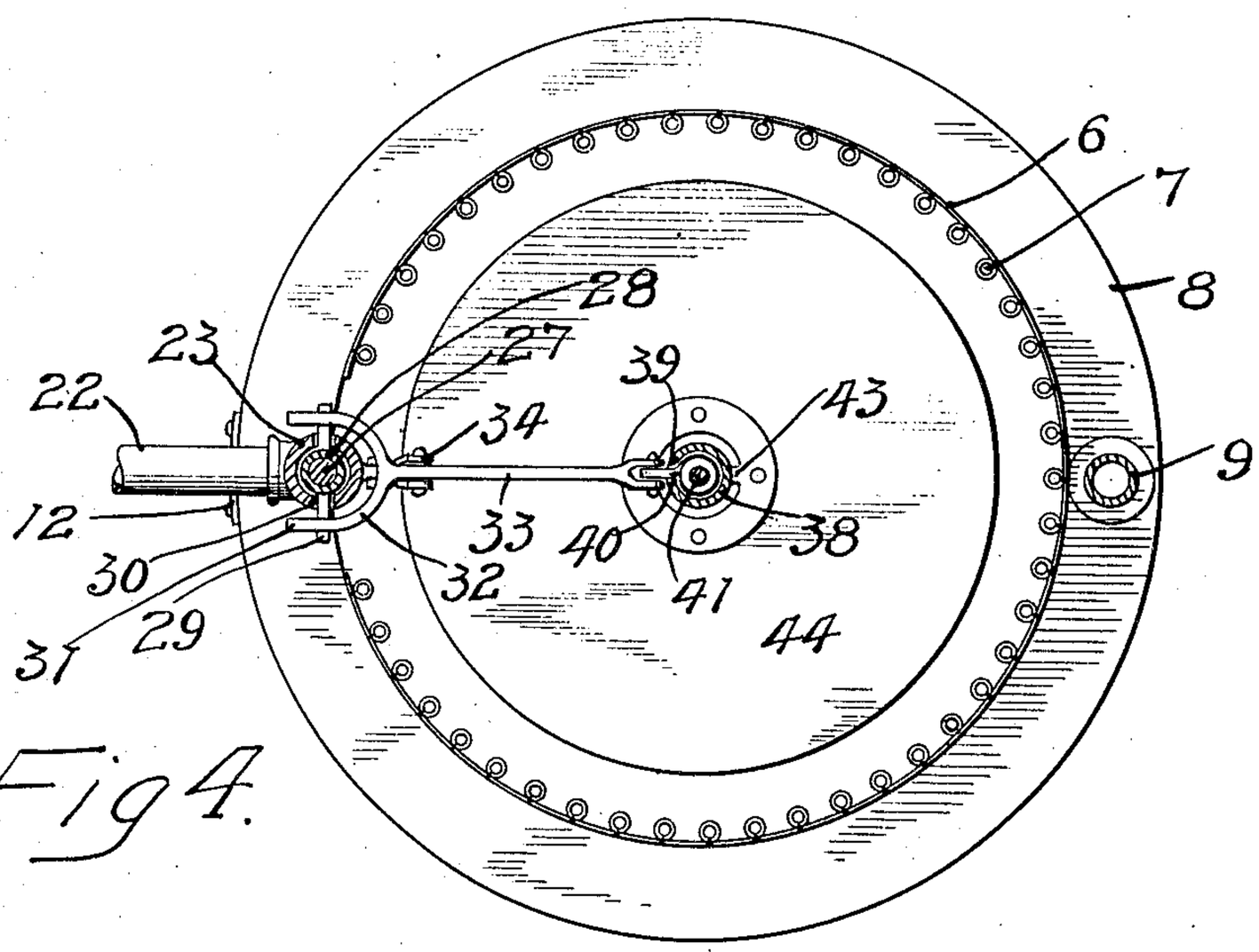

Fig 4.

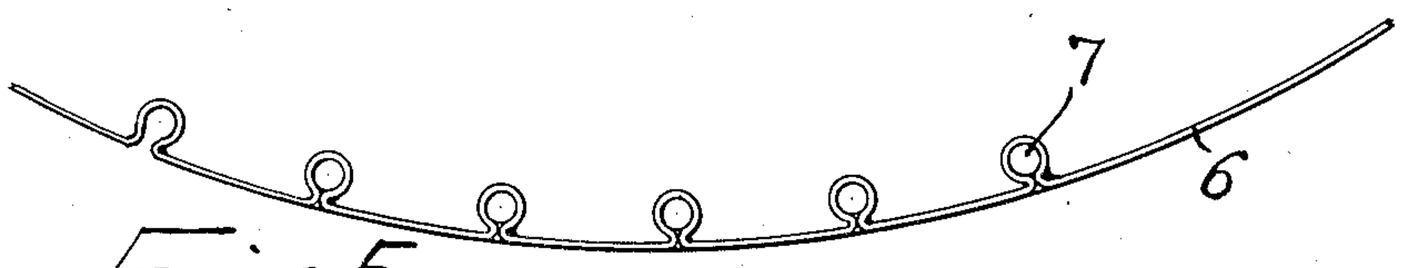

Fig 5.

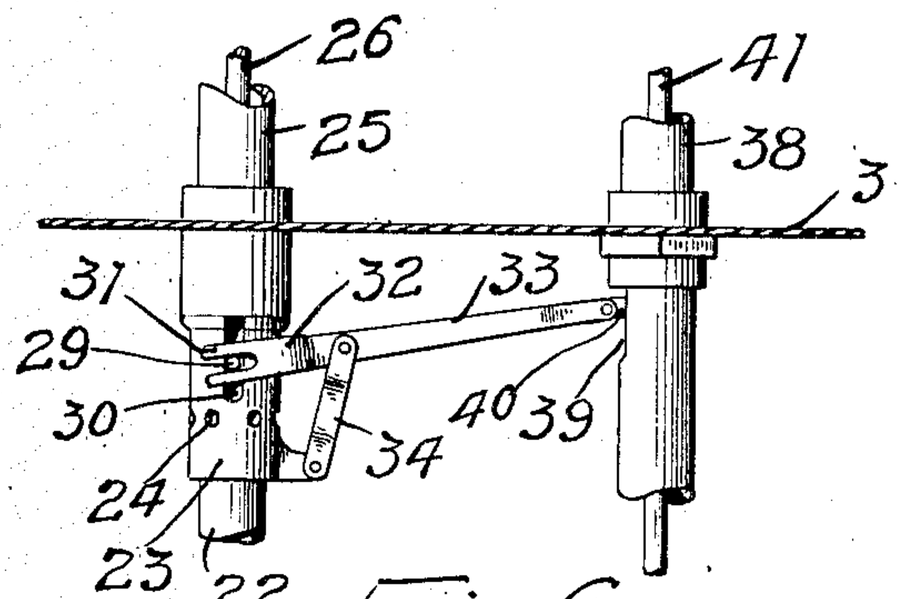

Fig 6.

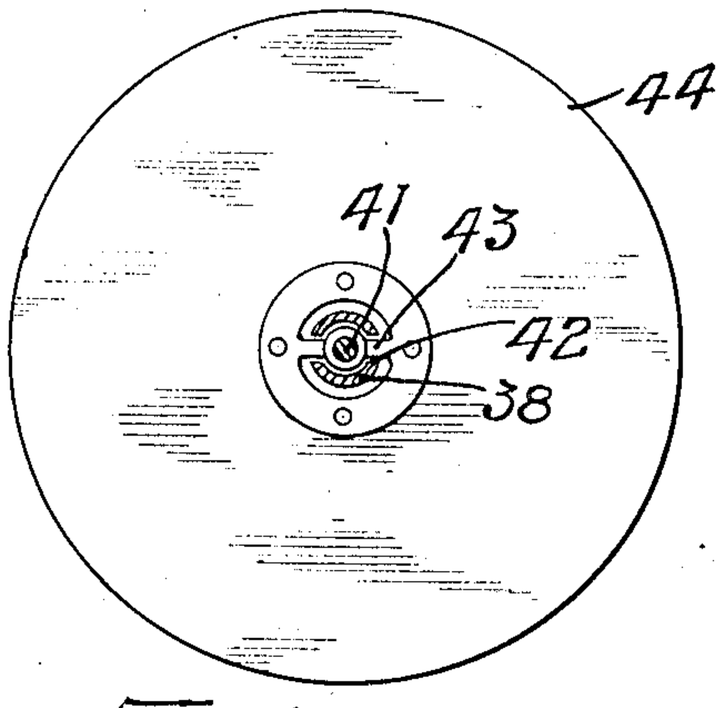

Fig 7.

WITNESSES

J. B. Era.

INVENTOR
HARRY B. CORNISH
BY Paul & Paul
HIS ATTORNEYS

UNITED STATES PATENT OFFICE.

HARRY B. CORNISH, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO P. PETERSON, OF GLENWOOD, MINNESOTA.

CARBURETER.

No. 871,480. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed March 4, 1907. Serial No. 360,593.

To all whom it may concern:

Be it known that I, HARRY B. CORNISH, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

The object of my invention is to provide a carbureter of economical construction and one that will be very durable and not likely to get out of order.

A further object is to provide a carbureter having its valves readily accessible for the purpose of cleaning or repairs.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical sectional view of a carbureter embodying my invention. Fig. 2 is a detail sectional view of the same, the upper or gasolene storage tank portion of the apparatus being omitted. Fig. 3 is a transverse sectional view on the line *x*—*x* of Fig. 1. Fig. 4 is a sectional view on the line *y*—*y* of Fig. 2. Fig. 5 is a detail view showing the manner of forming the ducts in the wall of the carbureter. Fig. 6 is a detail view illustrating the construction of the valve which controls the flow of gasolene to the carbureting chamber. Fig. 7 is a sectional view on the line *z*—*z* of Fig. 2.

In the drawing, 2 represents a tank of suitable size adapted to be placed under ground as usual in an apparatus of this kind and provided with a horizontal partition 3 dividing the interior of the tank into an upper or gasolene storage chamber 4 and a lower or carbureting chamber 5.

Within the carbureter is a sheet metal cylinder 6, preferably of copper, open at both ends and having a series of vertical crimps or folds formed therein at intervals by bending the metal inwardly and then uniting the outer edges of the crimps so formed by soldering them together. A series of vertical ducts 7 are thereby formed, open at the top and bottom, the lower ends of the ducts with the open lower end of the cylinder being normally immersed in the gasolene contained in the carbureting chamber.

A hollow ring 8 incloses the cylinder 6 and is secured thereto near its lower end, said ring communicating through a pipe 9 with the air pressure supply, and each duct is provided with a port 10 leading from the hollow ring to the interior of the duct. The air entering the ducts through the ports 10 will mingle with the gasolene therein and be thoroughly carbureted and will pass out through the open upper ends of the ducts into the top of the carbureting chamber above the level of the gasolene and from thence through a pipe 11 to the system. The ring 8 is preferably provided at intervals with legs 12 which rest upon the bottom of the carbureting chamber and support the cylinder a sufficient distance above said bottom to allow the gasolene to flow readily into the open lower ends of the ducts.

The partition wall 3 is provided with a valve casing 13 having a seat 14 and ports 15 leading into the gasolene chamber. A pipe 16 is mounted on said valve and extends upwardly through the top of the tank 2 and into a box 17 that is fitted within a pit or depression in the surface of the ground, preferably, and has a suitable cover 18 through which access may be had to the upper end of the pipe.

A rod 19 is provided within the pipe 16 and a plug 20 is secured to the lower end of said rod and is exteriorly threaded to fit the interiorly threaded walls of the casing 13 and is provided at its lower end with a socket into which a stopper 21 of yielding material, preferably cork, is fitted and is adapted to bear on the seat 14 and close the ports against the passage of gasolene therethrough. This construction allows convenient removal of the plug and stopper for renewal or cleaning and also permits access to the seat in case sand or sediment of any kind collects thereon, which would prevent the valve from closing tightly.

A pipe 22 leads from the valve casing 13 to a valve casing 23 secured to the partition wall 3 but located below the same in the carbureting chamber. This valve has ports 24 through which the gasolene is discharged into the carbureting chamber.

A pipe 25 extends up through the top of the tank into the box 17. A rod 26 is provided in said pipe and a plug 27 is secured to the lower end of said rod and is exteriorly threaded to fit within an interiorly threaded sleeve 28 that is arranged within the valve

casing 23 and has pins 29 projecting through slots 30 therein and into the notched ends 31 of a fork 32 provided on the end of a lever 33 that has a link connection 34 with the valve casing.

The upper end of the plug 27 is provided with an annular shoulder 35 which limits the distance it can be screwed into the sleeve, and the lower end of the plug through the sleeve, and has a socket to receive the stopper 36 similar to the one provided in connection with the plug 20. A seat 37 is formed in said casing for the said stopper and when the plug is screwed down into the sleeve the stopper will close the opening in the valve and prevent the passage of the gasolene through the ports 24 into the carbureting chamber. This plug and its stopper may be removed for the purpose of cleaning or repairs as described with reference to the discharge valve in the gasolene storage chamber. In the middle of the carbureting chamber above the cylinder 6 is a pipe 38 having a slot 39 in its wall through which connection is made by means of a coupling 40 upon the lever 33, and a rod 41 that is arranged within said pipe and extends up through into the box 17. The lower end of the pipe 38 has a slot 42 to permit the pipe to straddle a bar 43 mounted on a float 44 within the carbureting chamber. The lower end of the rod 41 is threaded to fit within a correspondingly threaded portion of the bar 43 and when the rod is revolved, as it may be by opening the box 17, the float will be raised or lowered on the rod according to the direction in which it is turned. This float controls the entrance of gasolene into the carbureting chamber through the ports 24. The float is preferably made with considerable area and the pressure of the gasolene on its under surface will have a tendency to raise the float and its rod, rock the lever 33 and force the stopper 36 down upon its seat and shut off the entrance of gasolene. The degree of this pressure can be regulated by the adjustment of the float and this adjustment can be easily and accurately obtained without the necessity of having access directly to the carbureting chamber.

A pipe 45 leads into the top of the gasolene tank for filling purposes, and a branch pipe 46 preferably connects the pipe 45 with the pipe 38 to equalize the air pressure in the gasolene and carbureting chambers. A pipe 47 preferably extends down through the top of the tank to the bottom of the carbureting chamber so that a pump may be attached thereto for the purpose of cleaning out the tank.

In operation, the float is set in the desired position to admit gasolene into the carbureting tank, and the air flowing in through the pipe 9 and around the cylinder through the hollow ring 8, will enter the ducts and mingling with the oil be thoroughly carbureted and finally pass out through the upper ends of the ducts and from thence to the pipe 11.

I claim as my invention:—

1. A carbureter comprising a wall having a series of ducts formed thereon and open at their upper and lower ends, the outer walls of said ducts being provided with ports, and the lower portion of said ducts being normally immersed in a body of oil, and means outside said wall for delivering air under pressure to said ducts through said ports whereby it will be thoroughly carbureted upon its discharge from said ducts, substantially as described.

2. The combination, with a wall having a series of ducts therein and open at the top and bottom, and provided with ports in their walls, a hollow ring inclosing said wall and communicating with said ports, a pipe connected with said ring and through which air under pressure is admitted thereto, and the lower portions of said walls being normally immersed in gasolene whereby the air passing through said ducts and mingling with the oil therein will be carbureted, substantially as described.

3. A carbureter comprising a cylinder open at each end and having a series of ducts formed in its walls and also open at each end, said ducts having ports in their outer side walls and the lower portion of said ducts being normally immersed in oil, and means outside said wall and inclosing said cylinder for delivering air under pressure to said ports whereby it will be carbureted in said ducts.

4. The combination, with a tank adapted to contain a supply of gasolene, of a wall suspended therein and having a series of ducts with open upper and lower ends, the lower ends of said ducts being normally immersed in the oil in said tank, said ducts having ports in their outer walls, and means inclosing said wall for admitting air under pressure to said ports whereby it will be carbureted in said ducts.

5. The combination, with a tank having a horizontal partition dividing it into an upper storage or gasolene chamber and a lower carbureting chamber, of a wall provided in said carbureting chamber and having a series of vertical ducts formed therein and open at their upper and lower ends into said carbureting chamber, and said ducts having ports in their outer walls, an air trunk inclosing the ducts and communicating with said ports, and with a source of air pressure, and the lower portion of said wall being immersed in gasolene in said chamber whereby the air flowing upwardly through said ducts will be carbureted, substantially as described.

6. The combination, with the tank, of a cylinder provided therein and open at each

end and having a series of vertical ducts formed in its walls and also open at each end and provided with ports in their outer walls, a hollow ring inclosing said cylinder and communicating with said ports and with a source of air supply, and the lower portion of said cylinder being normally immersed in gasolene in said tank, whereby the air flowing through said ports and ducts will be carbureted, substantially as described.

7. A carbureter comprising a cylinder open at each end and having a series of longitudinal ducts formed therein by bending or crimping the material lengthwise and securing the edges of the folds or bends together, the ducts having open ends and ports in their outer walls, and the lower ends of said ducts being normally immersed in oil, and means for delivering air under pressure to said ports whereby it will be carbureted when discharged from said ducts, substantially as described.

In witness whereof, I have hereunto set my hand this 23d day of February 1907.

HARRY B. CORNISH.

Witnesses:
RICHARD PAUL,
J. B. EVA.