

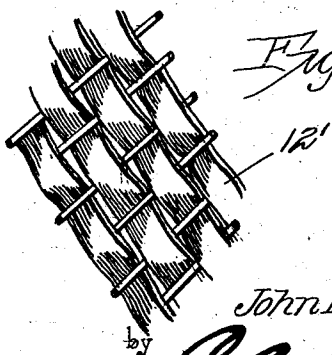
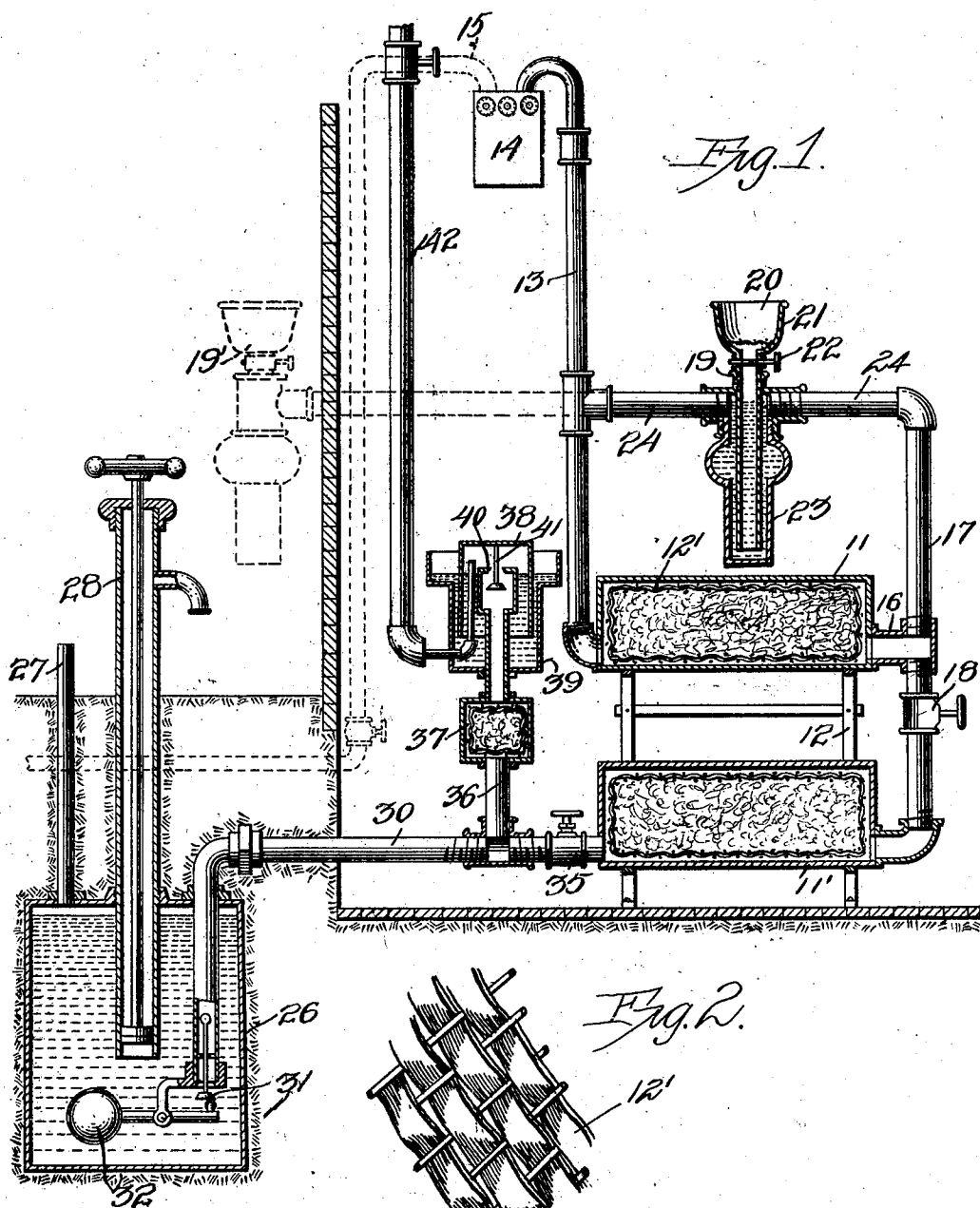
No. 763,074.

PATENTED JUNE 21, 1904.

J. RUTHVEN.
CARBURETER.

APPLICATION FILED AUG. 1, 1902. RENEWED APR. 25, 1904.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN RUTHVEN, OF CHICAGO, ILLINOIS.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 763,074, dated June 21, 1904.

Application filed August 1, 1902. Renewed April 25, 1904. Serial No. 204,909. (No model.)

To all whom it may concern:

Be it known that I, JOHN RUTHVEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Carbureter, of which the following is a specification.

My invention relates to certain improvements in carbureters, and has for its principal object to provide an improved form of carbureter especially adapted for enriching illuminating or fuel gas.

A further object of the invention is to provide a device of this character which may be placed in a dwelling-house or other building where gas is employed for illuminating or fuel purposes for the purpose of increasing the percentage of carbon contained in the gas.

A still further object of the invention is to provide for the manufacture of the carbureters on a commercial scale by providing carbureting vessels of uniform size and so arranged that any number may be supplied and readily connected, in accordance with the quantity of gas to be treated.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a sectional elevation of a carbureter and its connections constructed and arranged in accordance with my invention. Fig. 2 is a detail perspective view of a portion of the reticulated casing for containing the absorbent.

Each carbureting vessel is in the form of an elongated cylindrical tank, and in the present instance I have illustrated two of such tanks 11 and 11', connected by suitable pipes for the flow of the gas and the liquid hydrocarbon employed as an enriching agent. The two tanks are secured on a suitable stand 12, and in practice all of the tanks are made of uniform size, so that any number may be used and coupled together in accordance with the quantity of gas treated. In each tank is a cylindrical cage 12', preferably formed of woven wire, through which wicking or other suitable absorbent material is threaded to

form an inclosing chamber having absorbent walls. In the cage thus formed is placed a suitable absorbent, such as cotton or other fibrous material, which may be saturated with gasolene or other liquid hydrocarbon which it may be desired to employ. In the lower portion of each cylinder at opposite ends are threaded openings for the reception of connecting-pipes, and to the upper cylinder leads a pipe 13 from a gas-meter 14, which receives a supply of gas through a house-pipe 15 (indicated by dotted lines) or from any suitable gas-forming apparatus. The opposite end of the upper tank 11 is connected by a coupling-section 16 to a vertically-disposed pipe 17, leading to the lower tank 11' and provided with a suitable controlling-valve 18, which is employed when the tanks are being supplied with liquid hydrocarbon, although in some cases this valve may be dispensed with.

At a point above the upper tank 11 is a filling-pipe 19, having a funnel-shaped top 20 for convenience in filling with the liquid hydrocarbon, there being a suitable filtering-screen 21 in the lower portion of the funnel to arrest foreign matter in the oil. The filling-pipe 19 is provided with a valve 22 and extends down to a point near the bottom of a sealing-chamber 23, which is connected by piping-sections 24 to the tubes 13 and 17, the depth of the seal being such that the pressure of gas will be insufficient to permit the escape of gas through the filling-pipe should the valve 22 be accidentally left open after the filling operation.

At a convenient point below the carbureting-tanks is an oil-receiving tank 26, which in ordinary practice will be buried in the ground at a suitable point outside the house or dwelling. This tank is provided with a filling-pipe 27, the upper end of which extends above the surface of the ground and is further provided with a pump 28, by which a portion of the gasolene or other hydrocarbon in the tank may be removed for use in the carbureting-tanks. The lowermost carbureting-tank is connected with the oil-tank by a pipe 30, the lower end of which extends to a point below the suction-pipe of the pump and is provided with a valved outlet, which may be closed by

a lift-valve 31 under the control of a float 32. Under ordinary conditions when the tank contains oil in sufficient quantity to seal the mouth of the pipe 30 the valve is maintained open to permit any excess of oil from the carbureters to flow back into the tank, so that the carbureting-tank will not contain any liquid hydrocarbon except that which it absorbed by the packing in the tanks. If for any reason, such as leakage in the oil-tank, the supply of oil should become exhausted and unseal the mouth of the pipe 26, the float will descend, and the valve 31 will be raised against the valve-seat and prevent the escape of oil-vapors to the carbureting apparatus or the passage of gas from the carbureting apparatus to the tank and its subsequent escape through the pump-barrel. The pipe 30 is preferably provided with a valve 35 in order that a sufficient quantity of gasolene may be run into the lower tank 11' to thoroughly saturate the absorbent material therein, and the valve 18 may be employed for a similar purpose, the closure of the valve permitting the tanks to be completely filled with oil to permit the thorough saturation of the absorbent material, the excess of oil draining off into the tank 26 after the valves are open. In practice, however, the valves are not absolutely necessary, as the absorbent material will be thoroughly saturated by capillary attraction.

To the pipe 30 is connected a vertical pipe-section 36, leading to the lower end of a straining-chamber 37, which is packed with an absorbent material through which the gas is forced and compelled to yield any excess of moisture, the liquid oil flowing freely back to the tank, while the strained gas passes to a gas-bell 38, arranged in a liquid-containing tank 39, the outlet to the gas-bell being through a valve-opening 40, which may be closed by a valve 41, carried by the bell, in order to automatically shut off the flow of gas between intervals of consumption without cutting off the supply between the house-pipe and the carbureters. The gas finally escapes from the bell through a pipe 42, leading to the burners.

Where two or more carbureting-tanks are employed, the gas to be enriched passes through all of the tanks, being led from the pipe 13 through the upper tank 11 and thence through the connecting-pipe to the lower tank 11', from whence it is conducted to the strainer and gas-bell.

In some cases it is not desirable to fill the carbureter with gasolene from inside a building, and in such cases I employ a filling-pipe 19' at a point outside the building and connected by a suitable pipe to the carbureting-tanks, as indicated by dotted lines in the drawings.

In some cases the connecting-pipe 17 may be omitted and the gas-entrance pipe 13 and

its connection 24 used for conveying the hydrocarbon from the filling-pipe to the carbureting-tank. The filling operation may, however, be rendered more rapid by the employment of the pipe 17 and its connection 24, adding to the fact that the hydrocarbon may then be fed to both ends of the carbureting-tank. If fed to one end only and the absorbent material is tightly packed, the feed is retarded, owing to the slow absorption of the hydrocarbon.

While the apparatus herein described is intended principally for enriching the gas of comparatively low candle-power usually furnished in towns and cities, it may also be employed to carburet air or gases of any description for illuminating purposes or for use as fuel or motor-power.

While the construction herein described, and illustrated in the accompanying drawings, is the preferred form of the device, it is obvious 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.

Having thus described my invention, what I claim is—

1. The combination of the carbureting-tank, removable cages formed of reticulated material arranged within said tank and containing absorbent material, a sealed filling-pipe communicating with the tank, a drainage-receiving tank, a pipe leading from the carbureting-tank to the drainage-receiving tank, a chamber containing a straining or filtering material through which the gas is forced after leaving the carbureter, gas-pipes leading to and from the carbureter and from the straining-tank, and means for withdrawing the contents of the drainage-tank.

2. The combination with a carbureting-tank containing an absorbent material, of a filling-pipe arranged above the tank, a sealing-chamber connected to the tank and serving to receive the lower portion of the filling-pipe, a drain-pipe leading from the tank to a receiving-tank to convey any excess of hydrocarbon from said tank, a chamber in communication with the drain-pipe and containing a straining or filtering material, a valved outlet-pipe leading from the straining-tank, a movable gas-bell carrying said valve and adapted to automatically move the same to closed position, a gas-inlet pipe leading to the carbureting-tank, and a gas-outlet pipe leading from the gas-bell.

3. The combination of the superposed carbureting-chambers each containing absorbent material, a gas-supply pipe leading to the upper carbureter, a vertically-disposed pipe 17 connected to both the upper and the lower carbureters, a filling-pipe having at its upper end a funnel or basin, a strainer in the lower portion of said funnel or basin, a valve in the

filling-pipe, a sealing-chamber adapted to receive the lower portion of the filling-pipe, tubes 24 connecting the sealing-chamber to the gas-supply pipe and to the pipe 17 respectively, a drainage-tank, a drain-pipe leading thereto from the lower carbureter, a straining-chamber, a gas-bell in communication therewith, an automatic valve controlled by the gas-bell, and a gas-escape pipe leading from the bell, substantially as specified.

4. In a device of the class specified, a carbureting-tank, an inner cylinder formed of

wire-netting, wicking interwoven in the netting to form a cylindrical casing having absorbent walls, and an inner packing of absorbent material contained within said casing, substantially as specified.

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

JOHN RUTHVEN.

Witnesses:

R. DWORMAN,

H. FISHER.