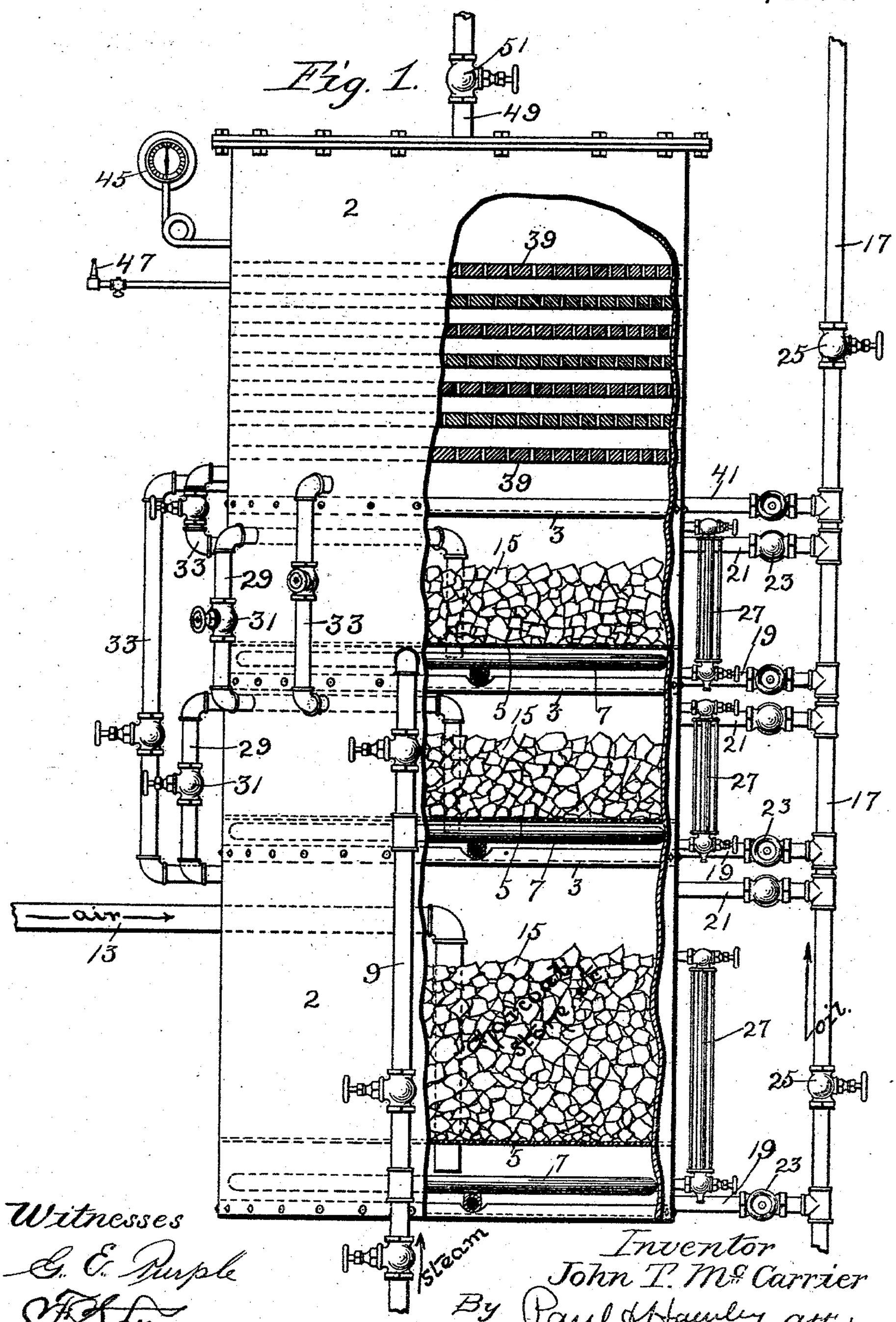
(No Model.) 2 Sheets—Sheet 1.

J. T. McCARRIER.

CARBURETOR.

No. 515,440. Patented Feb. 27, 1894.

Fig. 1.



Witnesses
G. E. Purple
F. S. Lyon

Inventor
John T. McCarrier
By Paul & Hanley atty's.

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WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

J. T. McCARRIER.

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No. 515,440. Patented Feb. 27, 1894.

Fig. 2

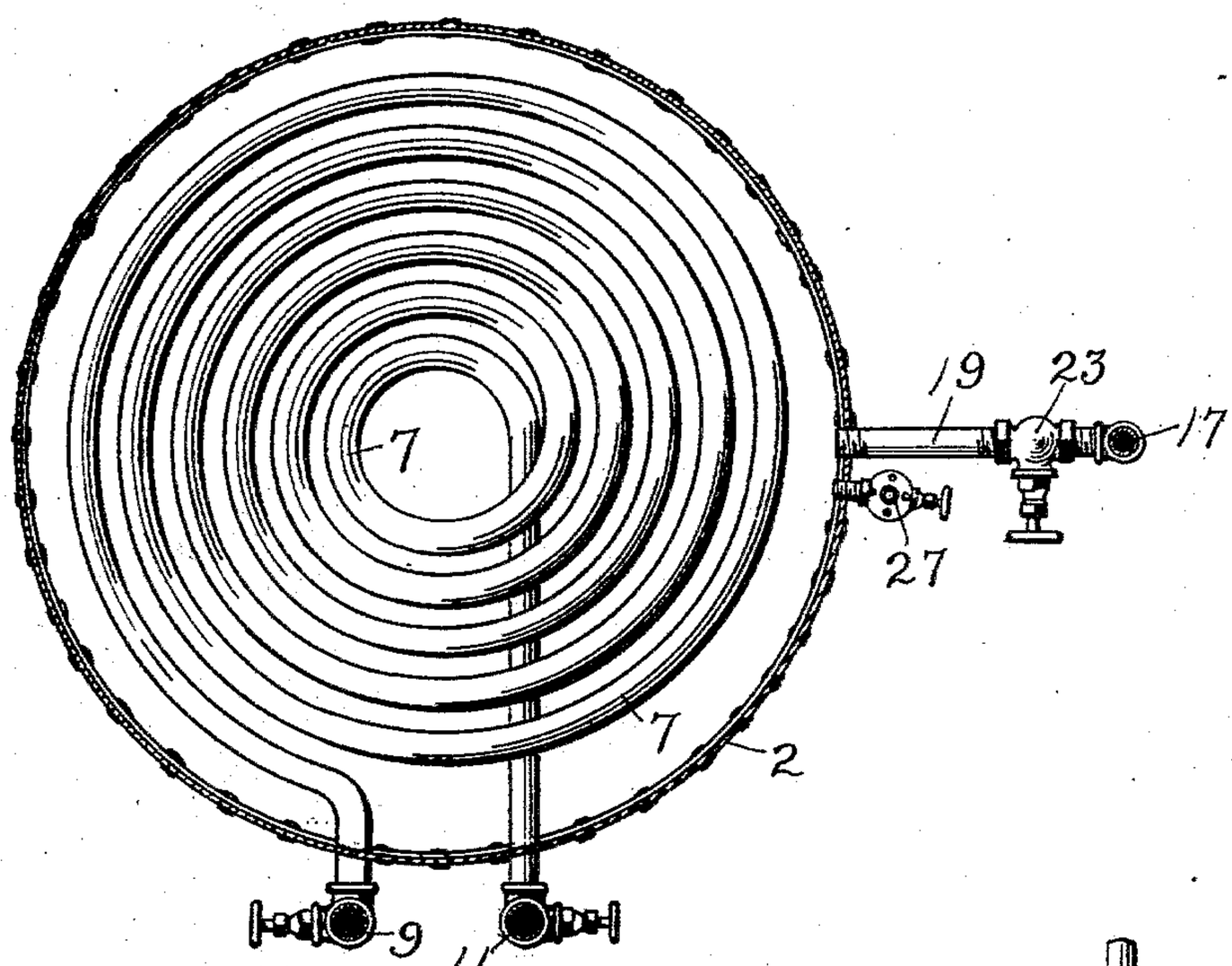

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN T. McCARRIER, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF FIVE-SIXTHS TO EDWARD S. AUSTIN, AMASA C. PAUL, AND CHARLES G. HAWLEY, OF SAME PLACE.

CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 515,440, dated February 27, 1894.

Application filed June 15, 1893. Serial No. 477,639. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. MCCARRIER, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Carburetors, of which the following is a specification.

This invention relates to improvements in carburetors and particularly to improvements in carburetors designed for use in carbureting air by passing a current of air through a body of oil whereby the oil-vapor is taken up by the air and is carried to the point of ignition. This forms a gaseous body which if subjected to sufficient heat will be made into a fixed gas.

The object which I have in view is to provide a carburetor of a cheap and simple construction, in which the whole volume of air may be carbureted and in which the gas may be passed through a single chamber of the carburetor or through several chambers in succession and afterward through a scourer, wherein any of the oil that will condense will be taken out and the gaseous product left in condition for passage to the holder free from any condensable matter.

In the accompanying drawings forming part of this specification; Figure 1 is a front elevation and partial section of a generator constructed in accordance with my invention. Fig. 2 is a horizontal section of the same. Fig. 3 is a partial front elevation.

In the drawings, 2 represents the casing which preferably incloses all of the parts of the generator and also incloses the scrubber or scourer. This casing is preferably divided into a series of compartments by means of the transverse partitions 3. Each of the compartments except the upper one is preferably a generator, and each is provided with a perforated bottom 5 beneath which is a coiled steam pipe 7 connected both to an intake pipe 9 and exhaust pipe 11. The steam entering through this pipe passes around through the coiled pipe 7 and then escapes through the pipe 11. An air pipe 13 enters the lower chamber of the generator from any suitable air forcing device and the lower end of the pipe opens into the generator below the partition 5. The chamber is preferably filled or partially filled above the perforated plate 5 with charcoal, broken stone or other suitable material 15 which, being loosely piled into the chamber provides a large number of interstices forming irregular passages for the air to pass through. An oil pipe 17 is arranged with a branch pipe 19 extending to the bottom and another pipe 21 to the top of each compartment, said branch pipes being preferably provided with suitable valves 23 and a pipe 17 being also provided with valves 25. Each of the compartments is also preferably provided with a suitable gage glass 27 which shows the amount of oil contained in the compartment. Extending from the upper portion of each compartment is a pipe 29 which projects into the next compartment above and has its lower end extending below the perforated plate 5. The pipes 29 are provided with suitable valves 31 by means of which they may be closed if preferred. Pipes 33 also extend from the top of each compartment into the lower part of the compartment containing the scrubber or scourer, so that if preferred the gas from any compartment may be led into the scourer without being carried through another compartment or, if preferred, the gas may be passed successively through all of the compartments before being led into the scourer. The scourer is preferably provided with a series of transverse plates 39 formed of wood or other suitable material each having a series of small openings or holes therein so that as the gas passes through these openings any of the oil carried thereby that is condensable will be taken out and will collect in the bottom of the compartment where it may be drawn out through the pipe 41 into the pipe 17. As all of the branch pipes extending from the pipe 17 to the compartments of the generator are provided with valves the oil may be drawn out of any compartment when desired. The steam pipes 9 and 11 are also provided with suitable valves for the purpose of controlling the inlet and outlet of steam from the various compartments.

The scouring chamber is preferably provided with a suitable pressure gage 45 and with a test burner 47, and this chamber is also provided with an outlet pipe 49 having

a suitable valve 51 through which the flow of gas from the generator to the holder may be regulated.

The apparatus is capable of being varied in detail without departing from my invention, and it will be understood that it may be made of any size and any number of compartments may be arranged therein.

The operation of the apparatus is as follows: One or more of the chambers of the carburetor are filled with oil which is inserted through the pipe 17. Steam is supplied to the steam-coils from the pipe 9 and a current of air is forced through the pipe 13. This air enters the lower compartment beneath the perforated bottom and then passes up through the compartment in the spaces between the broken stone or charcoal 15. The oil in each compartment is heated by the steam-pipe and a considerable quantity of vapor is taken up and carried by the air-current into the next compartment or directly into the scourer as desired, the operation being determined by opening or closing the valves in the pipe. After passing through the chambers the gaseous product enters the scourer and passes through the plates 39. Any of the oil that will condense is removed and is let out of the scourer through the pipe 41. The gaseous product is led from the scourer to a suitable holder from which it may be piped to points where it is to be used.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a carburetor, the combination, with a suitable casing divided into a series of carbureting compartments, each provided with a perforated bottom, a steam coil arranged in said compartment below said bottom, steam inlet and outlet pipes connected with all of said steam coils, oil pipes for supplying oil to each of said compartments, an air inlet pipe extending into the lower compartment and having its open end below said perforated bottom, and a pipe extending from the top of each compartment into the next compartment and having its open end below said perforated bottom, for the purpose specified.

2. In a carburetor and scourer, the combination, of a suitable casing, provided with a series of carbureting compartments, each being provided with a perforated bottom, a coiled steam pipe arranged in each carbureting compartment below the perforated bottom, an air inlet pipe extending into the lower compartment and having its open end below the perforated bottom, a scouring compartment located above said carbureting compartments a pipe extending from each carbureting compartment into the scouring compartment and another pipe extending from each carbureting compartment into the next succeeding carbureting compartment, and valves provided in said pipes whereby the gas from each compartment may be led directly into the scourer or may be led into the next succeeding generator, and pipes for supplying oil to said carburetors, substantially as described.

In testimony whereof I have hereunto set my hand this 1st day of June, 1893.

JOHN T. McCARRIER.

In presence of—
F. S. LYON,
R. C. PAUL.