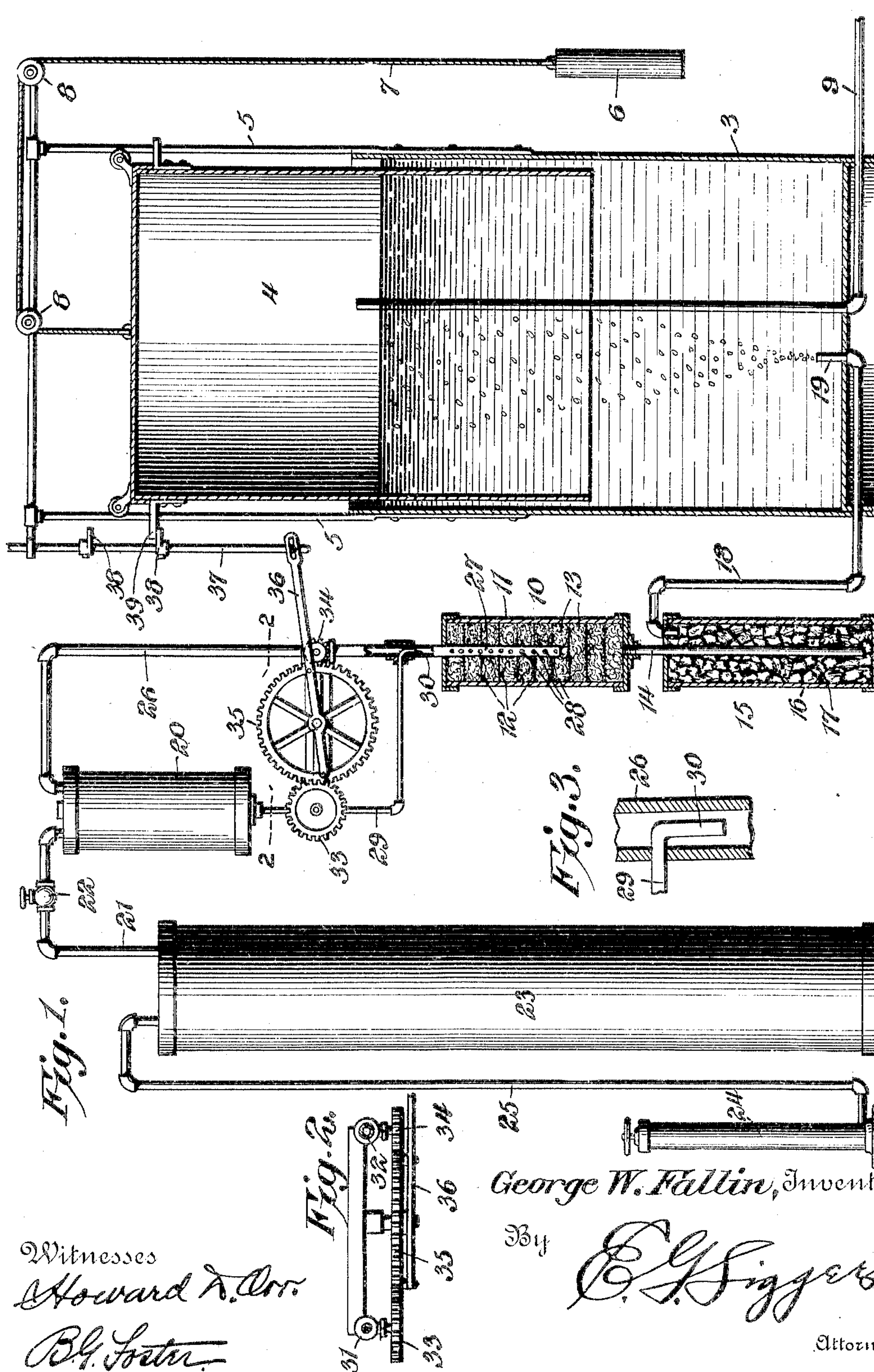


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G. W. FALLIN.
CARBURETER.

APPLICATION FILED AUG. 9, 1904.



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CARBURETER.

SPECIFICATION forming part of Letters Patent No. 793,776, dated July 4, 1905.

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To all whom it may concern:

Be it known that I, GEORGE W. FALLIN, a citizen of the United States, residing at Eastlake, in the county of Jefferson and State of Alabama, have invented a new and useful Carbureting Apparatus, of which the following is a specification.

This invention relates to apparatus employed in generating gas from hydrocarbon by the admixture of air and hydrocarbon oil and the vaporization of the latter by the former.

The object is to provide novel means of a simple nature for effecting the thorough and proper vaporization of the oil without the necessity of the employment of heat and to secure the automatic proportional regulation of the air and hydrocarbon without regard to the amount of gas being used or generated.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a view of the complete apparatus, partly in elevation and partly in section. Fig. 2 is a detail sectional view on the line 2 2 of Fig. 1. Fig. 3 is a detail sectional view, on an enlarged scale, through a portion of the air-pipe, showing the inclosed nozzle of the hydrocarbon-pipe.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

In the embodiment illustrated a movable gas-holder is employed comprising the usual water-tank 3, within which is mounted a vertically-movable gas-bell 4, guided in a frame 5 and having a counterweight 6 attached thereto by means of a cable 7, which passes over suitable pulleys 8, mounted on the frame. The weight 6 is of course lighter than the gas-bell and may be varied as desired to secure different gas-pressures. The service-pipe is shown at 9 and extends through the bottom of the water-tank, thence upwardly above the surface of the water contained therein.

The carbureter is shown at 10 and comprises a casing 11, within which are located foraminous transversely-disposed partitions 12, spaced apart and having absorbent ma-

terial 13 arranged between them. The outlet from said carbureter is through the bottom and through a pipe 14, that depends within a purifier 15, comprising a casing 16, filled with lime and carbon 17 or other suitable material. The pipe 14 extends nearly to the bottom of the purifier, while a supply-pipe 18, connected to the top of said purifier, has a discharge-nozzle 19 vertically disposed in the bottom of the water-tank 3. The hydrocarbon-reservoir is shown at 20, and connected thereto by a pipe 21, having a valve 22, is a compressed-air-storage reservoir 23. This reservoir 23 is supplied with air from any source—as, for instance, a pump 24, connected to the same by a pipe 25. The reservoir 20, and consequently the air-reservoir 23, has communication with the carbureter 10 by means of an air-pipe 26, connected to the top of the hydrocarbon-reservoir 20 and having a depending terminal 27, that extends downwardly into the carbureter through a plurality of partitions therein, said depending end being provided with lateral discharge-openings 28. A hydrocarbon-supply pipe 29, connected to the bottom of the hydrocarbon-reservoir 20, extends into the air-pipe 26 and is provided with an offset downturned nozzle 30, located within said air-pipe just above the carbureter.

Valves 31 and 32, located, respectively, in the air-pipe 26 and the hydrocarbon-supply pipe 29, control the supply of air and oil there-through, and said valves have on the projecting portions of their stems gears 33 and 34 of different sizes, the gear 33 of the hydrocarbon-controlling valve being larger than that of the air-pipe valve. A master-gear 35 is journaled between and meshes with the gears 33 and 34, said master-gear carrying a rigidly-mounted lever 36. The free end of this lever is attached to the lower end of a vertically supported and movable actuating-rod 37, carrying offset ears 38, that are located on opposite sides and in the path of movement of a projection 39, secured to the gas-bell.

Assuming the bell 4 filled with gas, it will thus be raised to its fullest extent, so that the actuating-rod 37 will be elevated and the gearing turned in such a manner that the

valves will be closed. If now a draft of gas should take place through the service-pipe, it will be evident that the gas-bell will lower. This will cause the projection 39 to engage the lower ear 38, thereby moving the actuating-rod 37 downwardly and swinging the lever. As a result the master-gear will be operated, and consequently the gear-wheels in mesh therewith will be moved, opening the valves and permitting the flow of air and hydrocarbon to the carbureter. This air and oil will be mixed prior to its entrance to the carbureter, so that the vaporization will be partially effected, and afterward in the carbureter the oil will be entirely vaporized, the gas passing through the purifier into the pipe 18 and thence bubbling through the water. As soon as the supply of gas is sufficient to again raise the bell the oil and air will again be cut off.

The peculiar arrangement of the oil and air supply and the connection of the same with the carbureter has been found very efficient in the vaporization of the oil and the elimination of any surplus or residue. Moreover, it will be noted that because of the valve-operating means the air-pipe will always be opened to a greater extent than the oil-pipe, and this proportional movement is maintained without regard to the extent of the opening and closing movements. Therefore after having the parts once adjusted it is found that the proper proportions of air and oil are always supplied without regard to the amount of flow of the same, caused by abnormal drafts of gas from the gas-holder. Moreover, in this structure the necessity of heat in vaporizing is eliminated and the gas is thoroughly purified before it enters the service-pipe.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In carbureting apparatus, the combination with a carbureter comprising a casing having perforate partitions and absorbent material located between the partitions, of a hydrocarbon-reservoir, a compressed-air reservoir having communication with the hydrocarbon-reservoir and an air-pipe having a discharge end that extends into the casing of the carbureter through certain of the partitions, said pipe being provided with lateral perforations located within the partitions, a hydrocarbon-supply pipe connected to the

hydrocarbon-reservoir, and an offset discharge-nozzle connected with the hydrocarbon-supply pipe and located within the air-pipe contiguous to its connection with the carbureter.

2. In carbureting apparatus, the combination with a carbureter, of a movable gas-holder, means for supplying air and hydrocarbon to the carbureter, valves for controlling said supplies, and means connected directly to said valves and operated by the gas-holder for operating both valves.

3. In carbureting apparatus, the combination with a carbureter, of a movable gas-holder, means for supplying air and hydrocarbon to the carbureter, valves for controlling said supplies, gearing connected directly to the valves, and means operated by the gas-holder for actuating the gearing.

4. In carbureting apparatus, the combination with a carbureter, of a movable gas-holder, means for supplying air and hydrocarbon to the carbureter, valves controlling the supplies, and means operated by the gas-holder for actuating the valves at different speeds.

5. In carbureting apparatus, the combination with a carbureter, of a movable gas-holder, separate means for supplying air and hydrocarbon to the carbureter, valves for controlling the supplies, gearing connecting the valves for moving the same different relative distances, and means actuated by the gas-holder for operating the gearing.

6. In carbureting apparatus, the combination with a carbureter, of a movable gas-holder, a hydrocarbon-supply conduit and an air-conduit connected to the carbureter, valves controlling the supplies through the conduits, a master-gear, gears operated by the master-gear and connected to the valves, and means for operating the gearing from the movable gas-holder.

7. In carbureting apparatus, the combination with a carbureter, of a movable gas-holder, a hydrocarbon-supply conduit and an air-conduit connected to the carbureter, valves controlling the supplies through the conduits, a master-gear, gears of different sizes secured to the valves and operated by the master-gear, and means connected to the master-gear for operating the gearing from the movable holder.

8. In carbureting apparatus, the combination with a carbureter, of a vertically-movable gas-holding bell, a compressed-air reservoir having an air-pipe connection with the carbureter, a hydrocarbon-reservoir having a hydrocarbon-pipe connection with the carbureter, rotary valves located in the hydrocarbon and air pipes, gear-wheels of different sizes carried by the valves, a master-gear located between and meshing with the valve-gears, a vertically-movable rod located ad-

jacent to the gas-bell, a lever secured to the master-gear and having a connection with the rod, and means carried by the bell for operating the rod.

5 9. In carbureting apparatus, the combination with a carbureter, of a movable gas-holder, means for supplying air and hydrocarbon to the carbureter, separate valves for controlling the supplies, and means actuated
10 by the gas-holder and connected to both

valves for effecting the relative variable movements thereof.

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

GEORGE W. FALLIN.

Witnesses:

H. W. HAWKINS,
CHAS. W. BURNEY.