

No. 640,054.

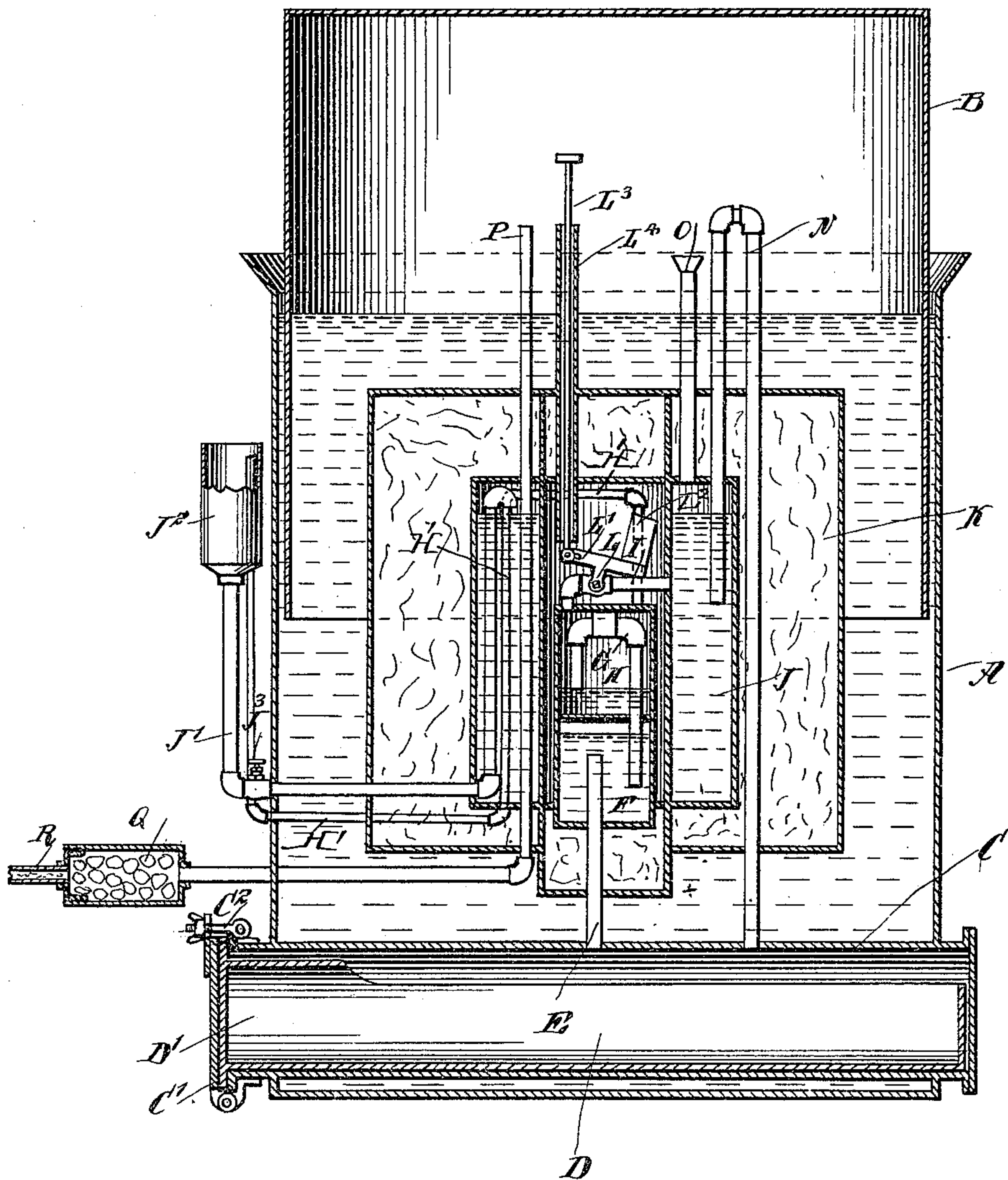
Patented Dec. 26, 1899.

L. B. WALTERS, W. H. DAVIS & A. L. HAWKINS.

ACETYLENE GAS GENERATOR.

(Application filed Aug. 1, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

LOREN B. WALTERS, WILL H. DAVIS, AND AUGUSTUS L. HAWKINS, OF
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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 640,054, dated December 26, 1899.

Application filed August 1, 1899. Serial No. 725,761. (No model.)

To all whom it may concern:

Be it known that we, LOREN B. WALTERS, WILL H. DAVIS, and AUGUSTUS L. HAWKINS, of Georgetown, in the county of Williamson and State of Texas, have invented a new and Improved Acetylene-Gas Generator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved gas-machine which is simple and durable in construction, not liable to freeze up in cold weather, and arranged to automatically control the generation of gas according to the amount used.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure is a sectional side elevation of the improvement.

The improved acetylene-gas machine is provided with a gasometer having a tank A and a bell B, adapted to rise and fall in a suitable brine or other liquid with which the tank A is filled. In the lower portion of the tank A is arranged a retort C, preferably made cylindrical and adapted to contain a carbide-holder D, made in the shape of a trough, the forward end D' being cylindrical and closed, as is plainly indicated in the drawing. A door C' is hinged on the outer end of the retort C and is adapted to be locked thereto by a suitable locking device C² for securely holding the carbide-holder D in position within the retort C.

Water adapted to pass upon the carbide in the holder D passes through a pipe E from a water-receptacle F, into which discharges the long leg of a siphon H, contained within a water-measure G, located directly above the receptacle F. The water-measure G receives its water-supply by way of a pipe I from a water-reservoir J, surrounded by a non-heat-conducting material contained in a vessel K, located in the gasometer and surrounded by the brine contained in the tank A. Any non-heat-conducting material may be used, such as mineral wool, asbestos, or dirt. Preferably dirt is employed. By this arrangement the

entire generator is located within the gasometer, and consequently the generating part proper is not liable to freeze, owing to the non-heat-conducting material surrounding the water-reservoir J and the parts contained therein.

In the pipe I is arranged a valve L, on the stem of which is secured a lever L', carrying at one end a weight L² and connected at the other end with an upwardly-extending rod L³, passing through a tube L⁴, carried by the tops of the water-reservoir J and the vessel K. The upper end of the rod L³ is adapted to be engaged by the top of the gasometer-bell B when the latter moves into a lowermost position, so that the bell imparts a downward sliding motion to said rod L³ to cause the rod to swing the lever L', so as to open the valve L to allow water to flow from the reservoir J into the measure G, and when the measure is filled then the water is siphoned out of the measure by the pipe H and delivered into the water-receptacle F and to the pipe E to finally flow down upon the carbide contained in the holder D.

The gas generated in the retort passes through a pipe N into the water-reservoir J, below the water-level thereof, to then rise through the water into the upper portion of the reservoir and to pass from the latter finally by way of a pipe O into the gasometer-bell B. The gas accumulating in the gasometer-bell B now causes the said bell to rise, so that the rod L³ is lifted, and the weight L² now returns the lever L' back to its former position and in doing so causes a shutting off of the pipe L to stop the flow of water from the reservoir J to the water-measure G.

When gas is withdrawn from the bell for lighting or other purposes, then the bell gradually sinks and finally acts on the rod L³ in the manner above described, so that water is again allowed to flow from the reservoir J by way of the pipe I into the measure G and from the latter by the siphon-pipe H into the receptacle F and to the pipe E, which delivers the water to the carbide contained in the carbide-holder D, located within the retort C.

Gas is withdrawn from the bell B through a pipe P, extending downwardly through the brine and through the vessel K and the water-

reservoir J, to then extend through the side of the tank A to the outside to connect with a casing Q, containing carbid, a pipe leading from said casing and filled with absorbent material, such as loose cotton. The pipe R leads to the gas-main for distributing the gas to the burners.

From the foregoing it is evident that the gas generated in the retort C passes first through water in the reservoir J to insure a washing of the gas and a consequent purifying thereof, and then the gas in passing from the bell B by way of the pipe P receives a drying by coming in contact with the carbid in the casing Q and which carbid takes up any moisture that may be contained in the gas. The gas is finally filtered by passing through the absorbent material R in the pipe P, so that the gas finally reaching the burners is in a perfect condition to produce an exceedingly beautiful white light.

The reservoir J is filled with water by means of a pipe J', extending to the outside of the gasometer and provided at its upper end with a filling vessel J², into which water is poured. The valve J³ in the lower portion of the pipe J' serves to cut off the water-reservoir from the filling vessel J² after the reservoir is filled with water to the level indicated in the drawing.

When the carbid in the holder D has been used up, the door C' is unlocked and the holder D is withdrawn from the retort to remove the residue and to refill the holder with a fresh charge of carbid, after which the holder is again pushed into the retort, the air being expelled through the open end of the said retort, and then said retort is closed by the door C' and locked in position by the device C². When the bell B sinks and the rod L³ is actuated, then water is again discharged upon the fresh carbid, and another batch of gas is generated and washed in the water of the reservoir J and then passed into the bell to again cause a rising thereof, as before explained.

The measure G is provided with a suitable vent-pipe H' to allow proper filling of the same. This vent-pipe H' extends upward from the chamber G and then passes alongside the filling-pipe J' to the outside of the apparatus. The outer end of the vent-pipe extends above the water-level. The pressure of the water column in the receptacle F exceeds the gas-pressure in the retort, and thus prevents the gas from blowing out of the vent.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. An acetylene-gas machine, comprising a gasometer for storing the generated gas, a generator located within said gasometer and comprising a water-reservoir having a gas connection with a gasometer-bell, a water-measure, a valved connection between the water-reservoir and said water-measure and controlled by the bell of the gasometer, a water-receptacle having a siphon connection

with said water-measure, a retort for containing the carbid and having a gas connection with said water-reservoir, and a water connection with said water-receptacle, substantially as shown and described.

2. An acetylene-gas machine, comprising a gasometer for storing the generated gas, a generator located within said gasometer and comprising a water-reservoir having a gas connection with a gasometer-bell, a water-measure, a valved connection between the water-reservoir and said water-measure and controlled by the bell of the gasometer, a water-receptacle having a siphon connection with said water-measure, a retort for containing the carbid and having a gas connection with said water-reservoir, a water connection with said water-receptacle, said retort having a door at one end, and a carbid-holder adapted to be placed into or removed from said retort, substantially as shown and described.

3. An acetylene-gas machine, comprising a gasometer for storing the generated gas, a generator located within said gasometer and comprising a water-reservoir having a gas connection with a gasometer-bell, a water-measure, a valved connection between the water-reservoir and said water-measure and controlled by the bell of the gasometer, a water-receptacle having a siphon connection with said water-measure, a retort for containing the carbid and having a gas connection with said water-reservoir and a water connection with said water-receptacle, and a gas-outlet pipe leading from the bell of the gasometer, substantially as shown and described.

4. An acetylene-gas machine, comprising a gasometer for storing the generated gas, a generator located within said gasometer and comprising a water-reservoir having a gas connection with a gasometer-bell, a water-measure, a valved connection between the water-reservoir and said water-measure and controlled by the bell of the gasometer, a water-receptacle having a siphon connection with said water-measure, a retort for containing the carbid and having a gas connection with said water-reservoir, a water connection with said water-receptacle, and a pipe leading to said water-reservoir and provided at its outer, upper end with a water filling-receptacle, substantially as shown and described.

5. An acetylene-gas machine, comprising a gasometer for storing the generated gas, a generator located within said gasometer and comprising a water-reservoir having a gas connection with a gasometer-bell, a water-measure, a pipe connecting said water-reservoir with said water-measure, a valve in said pipe, a weighted lever on the stem of said valve, a rod connected with said lever and adapted to be engaged by the bell, for operating the lever against its weight to open the valve, a carbid-holder, and a water connection between said water-measure and said carbid-holder, substantially as shown and described.

6. An acetylene-gas machine, comprising a gasometer for storing the generated gas, a generator located within said gasometer and comprising a water-reservoir having a gas connection with a gasometer-bell, a water-measure, a pipe connecting said water-reservoir with said water-measure, a valve in said pipe, a weighted lever on the stem of said valve, a rod connected with said lever and adapted to be engaged by the bell, for operating the lever against its weight to open the valve, a carbid-holder, a water connection between said water-measure and said carbid-holder, and a gas-pipe leading from said carbid-holder into the water contained in said reservoir, substantially as shown and described.

7. In an acetylene-gas machine, a gasometer, a carbid-holder, a water-reservoir within the gasometer, a water-conveying pipe leading from said water-reservoir and provided with a valve, connections between said valved pipe and the carbid-holder, a lever on the stem of said valve, a weight carried at one end of said lever, and a rod extending upward within the gasometer and having guided

vertical movement, the said rod being connected at its lower end with the other end of said lever, the upper free end of said rod being adapted to be engaged by the gasometer-bell, and connections between the carbid-holder and the gasometer-bell for the passage of the generated gas, substantially as described.

8. An acetylene-gas machine, comprising a gasometer, a generator comprising a water-reservoir, a water-measure, a pipe provided with a valve and connecting the water-reservoir and water-measure, means for controlling said valve, a water-receptacle having a siphon connection with said water-measure, a retort for containing the carbid, a pipe connecting said retort with the water-receptacle, a gas-conveying pipe leading from the retort, and a vent-pipe connected with the water-measure, substantially as described.

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