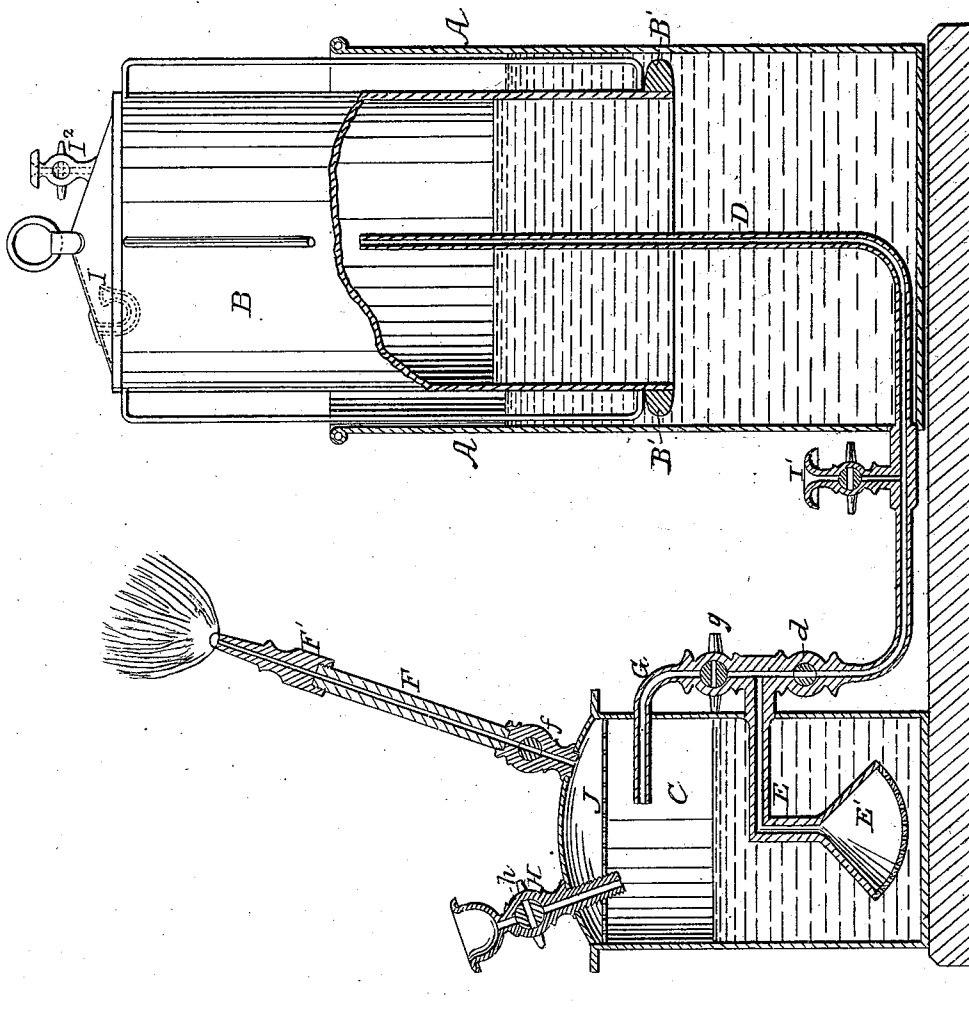


H. L. McAVOY.

Air Carburetor.

No. 43,948.

Patented Aug. 23, 1864.



Witnesses.

Edward H. Knight
Per Pro.

Inventor.

Hugh L. McAvoy.
by
Munn & Co.
Atty.

UNITED STATES PATENT OFFICE.

HUGH L. McAVOY, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF
AND ELIAS S. HUTCHINSON, OF SAME PLACE.

IMPROVEMENT IN APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 43,948, dated August 23, 1864.

To all whom it may concern:

Be it known that I, HUGH L. McAVOY, of the city and county of Baltimore, in the State of Maryland, have invented a new and Improved Method of Generating Gas for Illuminating Purposes; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawing, which represents a vertical section of my improved apparatus.

This invention relates to a method of producing gas which, besides constituting a most brilliant illuminating medium, may be produced or employed at greatly reduced cost. To carry this into effect the invention embraces an apparatus of novel construction, which consists, essentially, of a gravitating air-holder and an oil-reservoir in which the gas is generated, all as will be hereinafter fully explained.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe the manner of carrying it into effect.

In the accompanying drawing, A represents a cylindrical vessel formed of any desirable metal, as are also the other parts of the apparatus to be described. Within this vessel A projects a pipe or tube, D, which communicates with a reservoir or receiver, C, the vertical portion of the pipe D within the vessel A being designed to occupy a central or nearly central position therein. Into this vessel I introduce water (indicated by the blue disconnected lines) in such quantity that its upper surface will be at a point somewhat below the terminus of the pipe D, which is open.

B is a cylinder, which is closed at top and open at bottom and of sufficiently small dimensions to be placed within the vessel A in an upright position. This cylinder B is inserted into the vessel A and over the pipe D with its lower end submerged and closed by the water in the manner shown. An annular metallic flange, B', soldered or otherwise secured to the lower end of the cylinder B, increases the weight of the latter to such an extent that it would, on being introduced into the vessel A, sink immediately to the bottom thereof, if not prevented by the presence of air between the surface of the water and the top of said cylinder. The weight of the cylin-

der B B' is sufficient, however, to displace in a very gradual manner the air contained within the same by forcing it into and through the pipe D, whence it is conducted into the reservoir C, through a pipe, E. The reservoir C is supplied with petroleum or hydrocarbon oil, as indicated; and the pipe E, after projecting horizontally as far as the vertical center of the reservoir C, is deflected in a downward direction and provided with a conical or funnel shaped distributor, E', which is suspended in a position in close proximity with the bottom of said reservoir. This air, which by the weight of the holder or cylinder B B' is forced from the same through the pipes D and E, is injected through the perforations of the distributor into the body of the hydrocarbon oil contained within the reservoir C. The air thus introduced mingles with the oil and produces an inflammable vapor or gas, which, when in a state of combustion, furnishes an exceedingly brilliant light. The vapor or gas generated in this manner rises from the surface of the oil, and then, by the turning of the cock *f*, it may be allowed to pass through the pipe F and a burner F', the gas being consumed in customary manner as it issues from the latter. In this gas a very small proportion of the hydrocarbon will suffice to produce a flame of great luster, and hence its consumption is attended with little expense.

d is a cock whereby the tube D may be partially closed so as to regulate the quantity of air which passes into the reservoir C, and thereby vary the density of the vapor or gas produced.

As an additional medium for securing the proper density of the gas, I employ a pipe, G, which communicates with the pipe D and projects into the reservoir C at a point above the surface of the oil. This pipe G can be thrown into communication with the interior of the reservoir C by a cock, *g*, and thus the proportion of the atmospheric air of the vapor or gas may be increased after the gas has been formed, for the purpose of rarefying the same, as circumstances may require.

H is a tube, through which oil may be introduced into the receiver C. After the oil has been passed into the reservoir, the tube H may be closed to prevent the gas escaping through the same by a cock, *h*. The cylinder

B will contain enough air to last for a considerable time, but when the said cylinder has descended until all the air has been forced from the same through the tube D, an additional quantity will pass into the cylinder through a valve, I, which is adapted to be automatically thrown open by the act of elevating the cylinder and to close when the latter is at rest.

Although I prefer to supply the cylinder with air by the above means, the object may be accomplished in many other ways, such as by the employment of cocks similar to those indicated by I' and I².

J is a diaphragm or sieve located between the surface of the hydrocarbon liquid within the reservoir C and the top of said reservoir. The use of this diaphragm is to separate from the gas any small particles of matter which

may rise therewith, or rather to prevent the passage of such particles into the pipe F.

The above-described apparatus may be readily conveyed from place to place.

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

The combination of the gravitating air-holder B, charged, in the act of raising, by an automatic valve, with the generating apparatus C, substantially as herein described.

The above specification of my improved method of generating gas for illuminating purposes signed this 30th day of June, 1864.

HUGH L. McAVOY.

Witnesses:

EDWARD H. KNIGHT,
JAMES H. GRIDLEY.