H. L. McAVOY.

Apparatus for Carbureting Air.

No. 46,302. Patented Feb. 7, 1865.

Fig. 1.

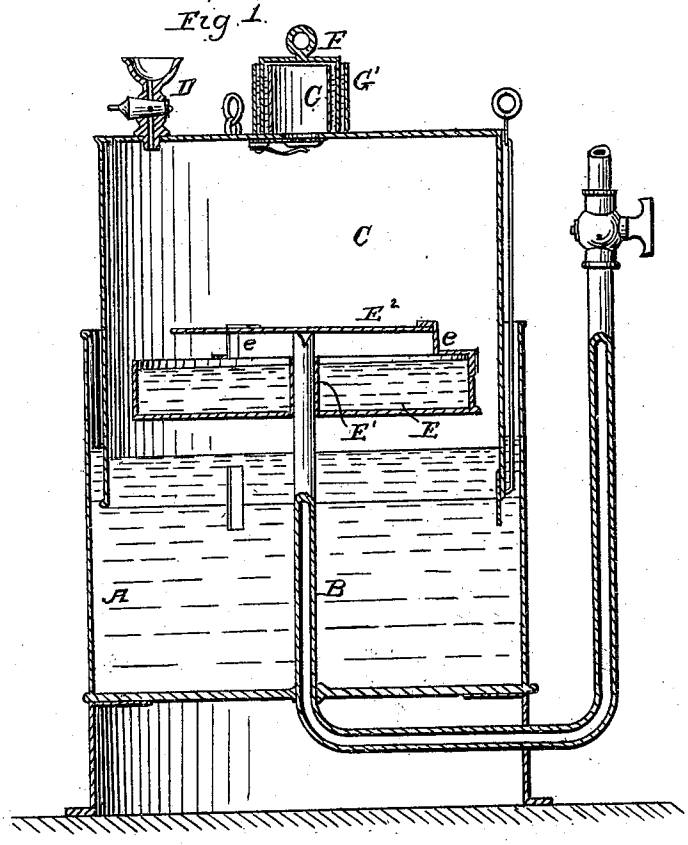
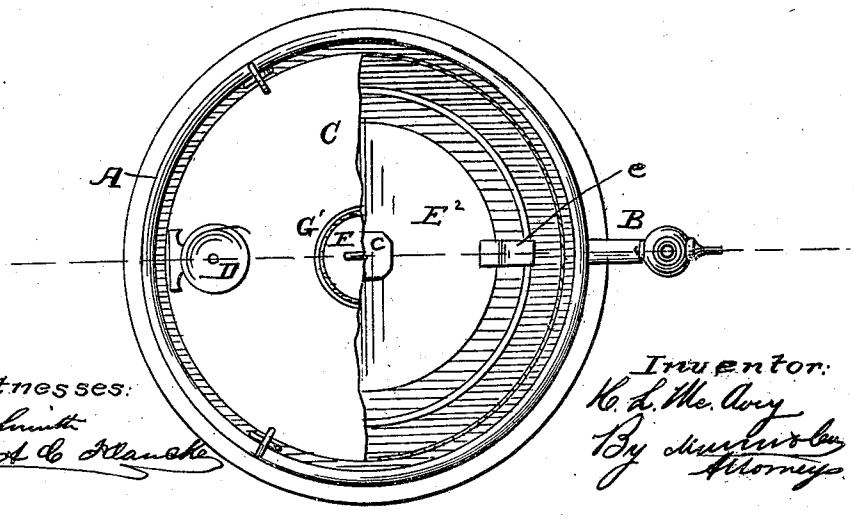


Fig. 2.



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UNITED STATES PATENT OFFICE.

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

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 43,302, dated February 7, 1865.

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 Mode of Carbureting Air; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of an apparatus illustrative of my invention, a part being broken away to expose the interior. Fig. 2 is a vertical central section of the same.

Similar letters of reference indicate corresponding parts in the two figures.

The object of my present invention is to carburet atmospheric air without subjecting it to a forced passage through or to mutual agitation with the hydrocarbonaceous liquid.

I have ascertained by very successful experiment that air gas of a superior illuminating character may be made by a much more simple and less expensive process than any hitherto devised.

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.

A represents a vessel of any desired capacity, and B a pipe which receives the gas at top and conducts it off to be burned.

C represents an air-holder, having a valve, *c*, through which the holder is supplied with air automatically on being raised. Through a cock, D, oil may be introduced into the vessel A.

The devices above described may be said to represent the entire apparatus which it is necessary to employ in the process which my invention essentially involves.

The vessel A may be first supplied with a quantity of water, and then hydrocarbonaceous liquid or oil is poured into the vessel until it reaches any desirable point below the open top of the pipe B, which extends upward in the vessel to within a short distance of the top of the latter. The oil overspreads the surface of the water, and, being the lightest, is sustained thereon. Evaporation ensues as soon as the holder C is charged, and the air contained therein becomes mixed with the vapor, thereby being converted into gas capable of affording a brilliant light. By the gravitation of the holder C the gas thus formed is forced out through the pipe B, to be consumed or to be received into a suitable retainer.

E represents a pan, having a central sleeve, E′, fitting over the pipe B. A plate or cover, E^2, attached to the pan E by arms *e e*, rests upon the top of the pipe B, retaining the pan in an elevated position near the top of said pipe B, the latter being notched to allow the gas to pass into it around its upper edge when the pan E is used. This pan E may be filled with oil instead of pouring the latter directly upon the water, and may be employed to cause the air in its passage to the pipe B to move in contact with the oil under such degree of pressure as may be desired. It will be seen that while the pan E and plate E^2 may be used advantageously they are not indispensable.

The above method is equally well adapted for carbureting air and enriching carbureted hydrogen. The fluid may be introduced through the top or from a reservoir. The residuum can be drawn out by a siphon or pumped out by any suitable mode.

The employment of water in the vessel A excludes external air from that in the holder C and confines the gas within said holder. I propose to use any other means. The pan E may be permanent, as described, or may be adapted to float.

A seal, consisting of an inverted cup, F, with its lower edges submerged in suitable liquid contained in the annular space between two cylinders, G G′, may be located on the top or at the side of the holder C and over an opening therein. When the cup F occupies its lower position—that is to say, when its lower edge is submerged—no air can escape from the holder C; but when in the act of raising the holder the cup F is elevated so that its lower edge occupies a point above the surface of the water between cylinders G G′, the external air has free ingress to the holder through the opening, which is sealed by the cup when down. This sealing device may be employed alone or in connection with

the valve *c*, both being adapted for the same purpose.

The cup F can be raised in any convenient manner.

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

1. Manufacturing air-gas and enriching other gas by the described mode of using a holder, C, to contain air, receive the carbonaceous matter as it rises from the oil in the form of vapor, and force the gas into a pipe, wherein it is conducted off, as explained.

2. The plate E^2, employed in connection with the pan E, to cause the air to pass to the pipe B in contact with the oil and in a state of compressure, substantially as set forth.

3. The sealing device, consisting of the cup F, cylinders G G′, and a body of liquid between the latter, substantially as described.

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