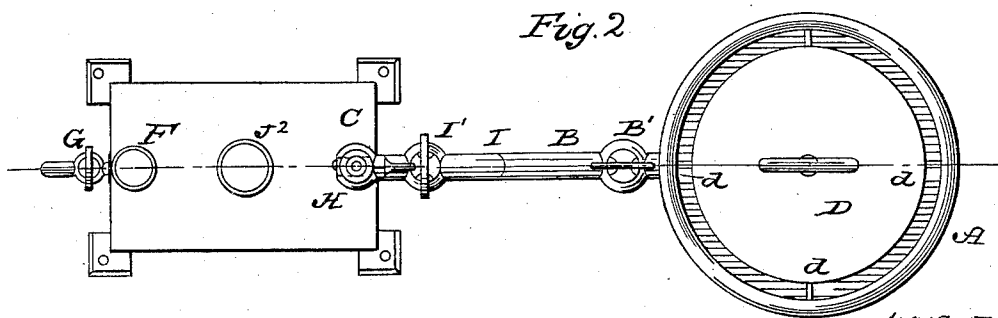
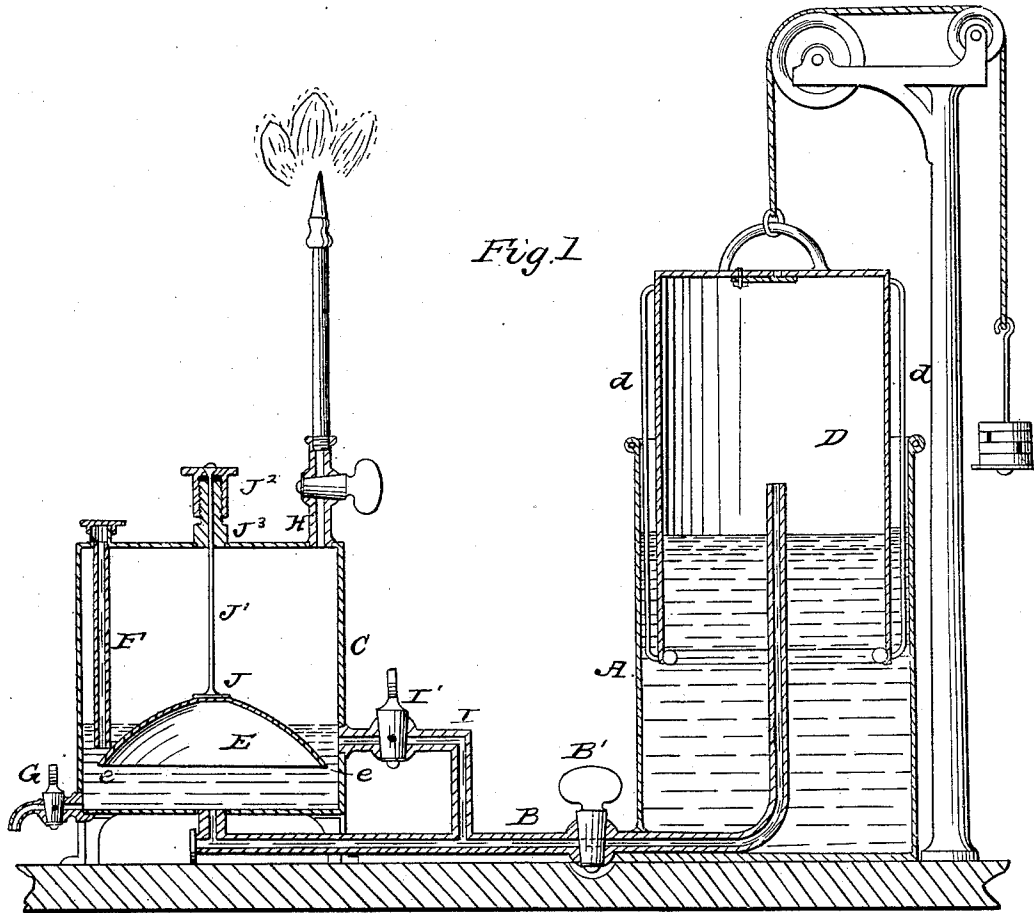


H. L. McAVOY.

Carburetor.

No. 45,206.

Patented Nov. 22, 1864.



WITNESSES
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UNITED STATES PATENT OFFICE.

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

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 45,206, dated November 22, 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 useful Improvement in the Generators of Air-Gas Apparatuses; 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 embodying my invention. Fig. 2 is a vertical section in the line *x x*, this figure also illustrating the employment of weights for regulating the descent of the air-holder.

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

My present invention relates to an apparatus in which gas is generated by the carbonization of air, which is effected by causing the air to first permeate and then pass off from a quantity of benzine or petroleum contained within a reservoir.

The invention consists, chiefly, in the employment of a novel device which insures a most thorough and complete admixture of the air and benzine, and hence the generation of more highly-carbonized gas for a given amount of air than can be produced by the means hitherto employed.

Furthermore, the invention comprises means whereby the gas produced may be prevented from being surcharged with either of its constituents, 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 its construction and operation.

A is a cylindrical metallic vessel, within which rises a pipe, B, the latter extending from and communicating with an oil-reservoir, C.

D is an air-holder, which consists of an inverted cylinder, open at bottom and closed at top, and having guides *d* to adapt it to disallow any lateral movement when occupying the cylinder.

The vessel A is supplied with a quantity of water, and the holder D inserted in the manner shown in Fig. 2. The air-holder, being

thus inserted, has no communication whatever with the external air. The air contained in the holder D is forced through the pipe B into the reservoir C in such gradual manner as may be permitted by weights, which are suspended at one of a rope which passes over pulleys upon a standard and is attached to the top of the air-holder. This contrivance is indicated by the red lines in Fig. 2, and is common in gas apparatuses generally. The pipe is opened and closed at will by a cock, B', located at a suitable point between the vessel A and reservoir C. The pipe B communicates with the reservoir C at the under side and vertical center, so that as the air passes from the pipe into the reservoir it will ascend into an inverted cup, E, which is suspended within the reservoir so as to be partially submerged in the fluid contained therein. This cup is of such size that between its edges and the sides of the reservoir will exist a space, as shown at *e e*. Now, when the air enters the reservoir C from the pipe B it does not pass immediately through the oil, but is collected within or beneath the cup E, and is thereby retained until thoroughly carbonized, when it is discharged around the edges of the cup.

The most effectual carbonization of the oil is the result of the use of a retainer or cup of the above description, inasmuch as the air is caused to remain within the body of oil and to pass therefrom in an indirect course, whereas in apparatuses of this class hitherto devised the air is allowed to pass through and be discharged from the oil with scarcely any interception. The oil is introduced into the reservoir through a pipe, F, and the refuse drawn off at the cock G.

The gas, after being formed in the manner described, ascends to the upper part of the reservoir, passes into the pipe H, and is consumed at the burner. (Indicated by red lines.)

In order to increase the proportion of oxygen in the gas, I employ a pipe, I, which communicates with the pipe B, and when opened by the cock I' discharges air into the reservoir at a point below the surface of the liquid therein, but above the edges of the cup E. The advantage derived from the employment of this pipe is, that while it constitutes a medium for reducing the carbon proportionably it serves to produce gas, which, being carbonized, (though

but slightly,) is better adapted than the air alone to regulate that which is consumed.

In the top of the cup E is an opening, which, under ordinary circumstances, is closed by a valve, J, upon the lower end of the stem J', the latter passing through the top of the reservoir, and having upon its projecting end a socket, J², which fits over and works vertically upon a screw-threaded stem, J³.

If the gas should be so highly carbonized as to produce smoke in burning, this may be effectually and instantly remedied by turning the socket J² so as to elevate the valve J, and thus uncloze the opening in the top of the cup E, which permits the air from the pipe B to pass directly upward through the oil without being retained and becoming highly carbonized.

The air-holder D descends by gravitation, and after it has become exhausted it is only

necessary to elevate the same by the handle D', a valve, d', being so arranged as to open and admit air into the holder on the raising of the latter, and to close and remain closed as it descends.

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

The combination of the inverted bowl or open-mouthed chamber E with the air-discharging pipe B beneath it, substantially as and for the purpose described.

The above specification of my improvement in the generators of gas apparatuses signed this 6th day of August, 1864.

H. L. McAVOY.

Witnesses:

CHARLES D. SMITH,
T. SCHEITLIN.