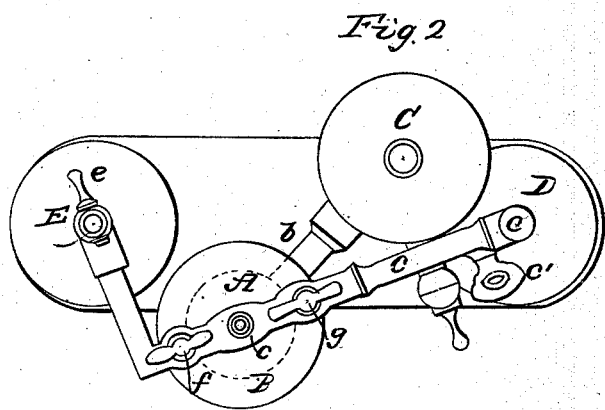
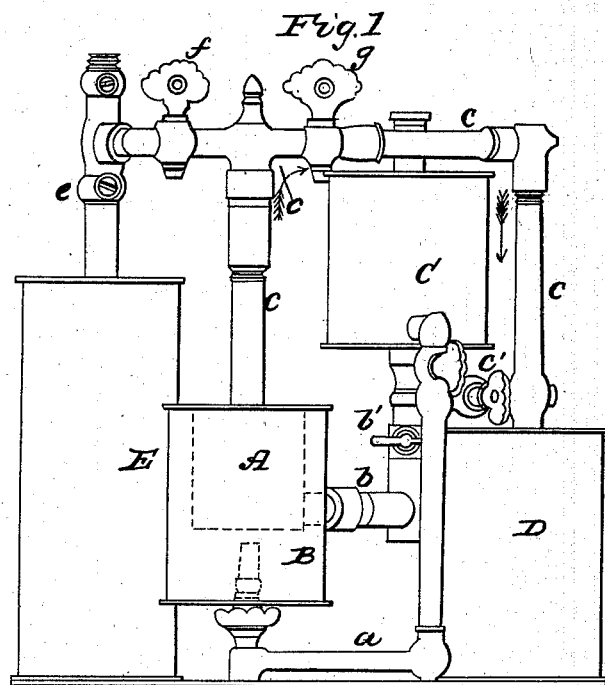


D. M. GRAHAM.

Apparatus for Generating Gas from Petroleum.

No. 47,634.

Patented May 9, 1865.



Witnesses
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UNITED STATES PATENT OFFICE.

DAVID M. GRAHAM, OF EVANSVILLE, INDIANA.

IMPROVED APPARATUS FOR GENERATING GAS FROM PETROLEUM.

Specification forming part of Letters Patent No. 47,634, dated May 9, 1865.

To all whom it may concern:

Be it known that I, DAVID M. GRAHAM, of the city of Evansville, in the county of Vanderburg and State of Indiana, have invented a new apparatus for generating gas from petroleum or benzoin, or such oil as may be extracted therefrom for illumination or other purposes; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, of which—

Figure 1 is a side elevation; Fig. 2, a plan or top view.

Like letters in both figures of the drawings indicate corresponding parts.

The nature of my invention consists in generating gas from petroleum, benzoin, or any other gaseous material from which gas may be generated, for illumination and other purposes for which gas is or may be used, by means of a generating-chamber being heated by the oil through an ordinary gas-burner connected to a receiver containing the oil, and when heated to a sufficient extent the introduction of the oil therein from another portion of the same receiver or receivers, the gas from which being conveyed to a gasometer, and when filled the oil being cut off from further use for heating the chamber, and the gas thus made giving the required heat through the same burner thereafter.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I place or attach the generating-chamber (above referred to) within or surrounded by a cylindrical or other shaped chamber, B, (see the same in both figures in dotted lines, letter A,) in such a manner as to condense and retain the heat from the gas-burner around the chamber, so as to intensify and concentrate it upon the same, and thereby accomplish the generation of gas from the oil speedily and effectually. At a proper and safe distance from the condensing-chamber is a receiver, C, in which petroleum or benzoin, or such other oil as may be extracted therefrom, is placed. Connected thereto is an ordinary gas-pipe, *a*, with burner attached, projecting partially within the condensing-chamber and directly under

the generating chamber, at a proper distance from it. (See Fig. 1, letter *a'*, in dotted lines.) Connected at the bottom of the receiver, and likewise to the side of the gas-chamber, near the bottom of it, is a pipe, *b*. Through this pipe the oil is conveyed. The generator is first heated by the burner underneath simply burning the oil in a fluid state without wick. The heating of the same to the desired temperature is ascertained by the application of a thermometer to the sides of the condensing-chamber, which if it indicates 300° the chamber is ready to receive the oil from the receiver, which is let on by the thumb-key *b'* being turned in the proper direction. If a thermometer is not convenient, the proper heating of the chamber may be ascertained in another manner—by dropping a drop of water on the top of the condenser, at which time, if it boils, the oil is introduced, as above stated, and the gas begins to generate as soon as admitted, and is then conveyed by means of piping or tubes *c* to a gasometer, D, the filling of which may be ascertained by placing the palm of the hand around the sides. The heat therefrom affecting it perceptibly indicates that the gasometer is full or sufficiently supplied with gas, at which time the thumb-key *c'* in the connection between the piping and burner-pipe is opened and the gas introduced into the same pipe to which the burner is attached, (as herein referred to,) and, reaching the oil flame, is instantaneously ignited, which as soon as discovered the oil is cut off from the burner by a thumb-key, *d*, in the pipe. The chamber is thereafter heated by the gas from the gasometer, and, without any cessation of the heat or flame, the uniting of the gas with the oil-flame being attended without any danger, the only consequence being from a conjunction of the two, a too great an increase of heat resulting from the flame being augmented, which is obviated, as above stated, by the oil-flame being cut off. The chamber may be heated by the oil-flame for the generation of gas therein, and which may be immediately applied for the purposes of illumination without sending it to the gasometer, or independent of the same, if there should be gas in it, by turning the thumb-keys in the proper direction; but as the odor from the oil by this means is rather offensive I have adopt-

ed the gasometer to obviate this, and besides a greater degree of heat is obtained from the gas-flame.

It will be observed that the generating-chamber is self acting in its nature—that is to say, it supplies itself with the means by which the heat is made, which is required for the generation of gas for illumination. If the generating-chamber should fail to force the gas to the top of the building or dwelling or other place or places, then the gas is introduced into a gasometer, E, of the proper capacity for holding the same, by means of piping or tubes connecting the two together, (the thumb-keys *e* and *f* first being left open,) from which additional power is given to force the gas to any desired part of the building. The force of the gas in the distributing-pipes, or power given to forcing the gas from the chamber through the same, is regulated by means of the thumb key *e* in the gasometer-pipe. By closing the thumb-key *g* a sufficient quantity of gas is retained in the gasometer for producing heat for the generation of gas for the ensuing evening.

With the present facilities for obtaining petroleum, and at a comparatively small expense, any family can generate enough gas with this apparatus in the space of a very few minutes to lighten their whole house, requiring but very little trouble in the management of it, and with nothing like the expense required in the use of the present gas that is made. It can be constructed compactly enough to be inclosed in a metallic box, when it may be placed in any part of the house where one or more rooms may be lighted with safety and ease. It may be made to illuminate large

cities and towns by constructing it on a larger scale, and thereby supersede the use of coal and wood for gas-generating purposes.

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

1. Heating the generating-chamber A from the oil in the receiver C through an ordinary gas burner, *a'*, for the purpose of generating gas for the continuation of heat by gas alone from the gasometer D through and by the same burner, substantially in the manner as herein set forth.

2. The receiver C, gas-burner *a'*, and pipe *b*, in combination with the generating-chamber A, whereby the same is heated by the oil, substantially in the manner and for the purpose as herein set forth.

3. The gasometer D, piping or tubes *c*, and gas-burner *a*, in combination with the generating chamber A, whereby the same is heated by gas, substantially in the manner and for the purpose as herein set forth.

4. The cylindrical chamber B, in combination with the generating-chamber A, whereby the heat is condensed and retained around the same, substantially in the manner as herein set forth.

5. The gasometer E, in combination with the generating-chamber A, whereby an additional power is given to force the gas through distributing-pipes, substantially in the manner as herein set forth.

D. M. GRAHAM.

Witnesses:

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