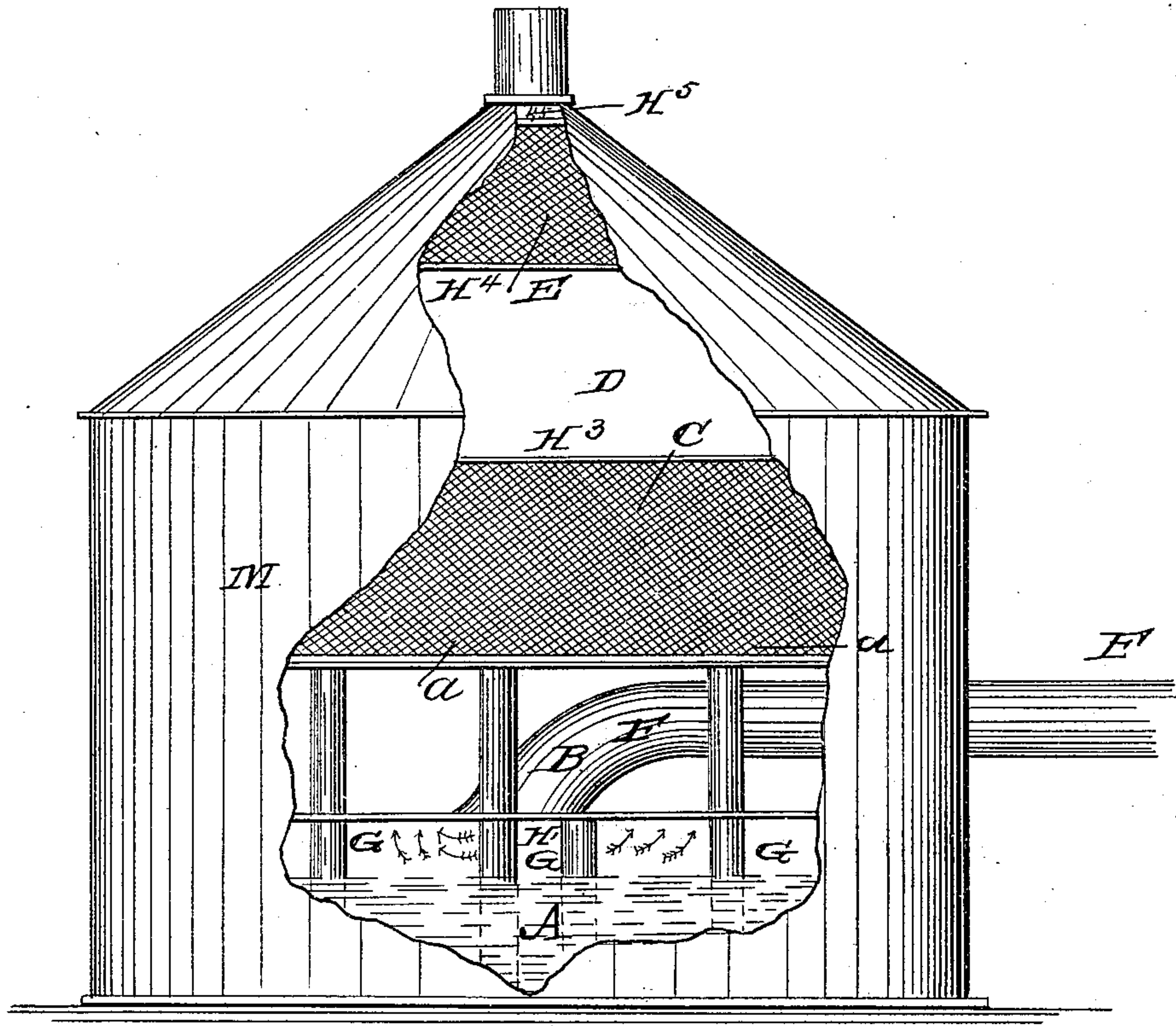


P. HOGAN.

Apparatus for Carbureting Gas.

No. 53,979.

Patented April 17, 1866.



Witnesses  
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# UNITED STATES PATENT OFFICE.

PETER HOGAN, OF ALBANY, NEW YORK.

## IMPROVED APPARATUS FOR CARBURETING GAS.

Specification forming part of Letters Patent No. 53,979, dated April 17, 1866.

*To all whom it may concern:*

Be it known that I, PETER HOGAN, of the city and county of Albany, in the State of New York, have invented a new and useful apparatus for increasing the illuminating power of gas, which apparatus I denominate a "Gas-Carbonizer;" and I do hereby declare the following to be a full, clear, and exact description of my said apparatus, which will be better understood by reference to the accompanying drawing, which is an elevation of the same, with so much of the front portion thereof removed as will show the internal arrangement and operation.

The illuminating-gas manufactured for common use at various public gas-works is often so poorly supplied with carbonaceous matter as to be only capable of producing a very feeble light. Efforts have long since been made to enrich it by supplying it with an additional amount of carbon, and various contrivances have been proposed for that purpose. Some of these consist of different forms of apparatus by which the gas that is to be enriched is intermingled with the vapor of naphtha, gasoline, or some of the other volatile hydrocarbons which are heavily charged with carbonaceous matter.

My invention consists in a peculiar apparatus hereinafter described for effecting this very purpose and which is found represented in my drawing. It consists of a vessel, M, of a suitable size, formed of sheet metal or other proper material, having a chamber, A, which is kept constantly partly filled with naphtha or its equivalent.

H', H<sup>2</sup>, H<sup>3</sup>, H<sup>4</sup>, and H<sup>5</sup> are diaphragms placed horizontally. They are circular in form, extending in all directions to the sides of the vessel M, and are filled with fine perforations, through which the gas can pass in a finely-divided state, as hereinafter described.

F is a pipe through which the gas is introduced into the vessel. It is soldered fast to the diaphragm H', so as to admit the gas into the lower chamber, A. A corresponding pipe may be made available for the introduction of the necessary amount of liquid hydrocarbon, which should only partially fill the chamber A.

G G are pipes soldered fast to the diaphragm H<sup>2</sup>, and passing through the diaphragm H'. They should be made to penetrate below the surface of the liquid in the chamber A, though this is not indispensable.

The space between H<sup>2</sup> and H<sup>3</sup>, I fill with some porous substance. I prefer granulated charcoal for this purpose broken into grains of about the size of cubes the sides of which are one-sixteenth of an inch, or thereabout.

The pipes G G are filled with wicking or some other fibrous substance, which extends into the liquid at the bottom of the vessel and is connected with the charcoal or other substance which fills the chamber C.

The chamber E is filled with clean-washed silica, or its equivalent, in grains about equal in size to those in chamber C, as hereinbefore described. I prefer for this purpose a material which is not porous or absorbent, for a reason hereinafter stated.

The gas to be enriched being admitted into the upper portion of the chamber A will spread itself out all over that chamber. By passing through the fine perforations in the diaphragm H' and by an opportunity to intermingle thoroughly in the vacant chamber B it will be rendered uniform in quality.

By means of capillary attraction the liquid in chamber A will be drawn by slow degrees through the fibrous material in the tubes G, and will keep the granulated charcoal or other equivalent substance in the chamber C constantly moistened. By these means a very large surface will be constantly exposed to the action of the gas, which will carry with it as much of the vapor of the hydrocarbon as may be necessary into the chamber D. In this manner the gas will often become overcharged with this vapor, which will condense in the service-pipes and thus produce serious inconvenience. The chamber E, filled with granulated silica, or some equivalent substance, is intended to prevent such an inconvenience. As the gas which is overcharged with the vapor of the liquid hydrocarbon passes through this chamber the excess of vapor will be condensed and remain in this chamber, from whence it will drop down upon the diaphragm H<sup>3</sup> below, thus relieving the service-pipes from all danger of being obstructed by the condensed vapor.

I sometimes place a coating of felting upon the diaphragm H<sup>2</sup>, as shown in the drawing at *a*, but this is not essential.

I am aware that many other contrivances have been invented and patented having the same general end in view. I therefore make

no comprehensive claim to the enriching of illuminating-gas upon this principle, but only to the specific means employed by me for this purpose.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. In a carbonizing apparatus for improving the quality of illuminating-gas, the application and use of the perforated plate or diaphragm H', for spreading or diffusing the gas before it passes through the carbonizing-chamber C.

2. In such a carbonizing apparatus, the application and use of the carbonizing-chamber C, filled with granulated charcoal, or its equivalent, which is confined between perforated plates H<sup>2</sup> and H<sup>3</sup>, substantially as described.

3. In an apparatus of the character above

described, the application and use of the regulating-chamber E, with its contents of granulated silica, or its equivalent, constructed substantially as and for the purpose described.

4. In an apparatus for enriching and purifying gas, the use of granulated charcoal in the carbonizing-chamber, which, while it enriches the gas, will also effect in a great degree its purification.

5. In an apparatus of the character herein contemplated, the combination of the perforated plate H', the carbonizing-chamber C, and the regulating-chamber E, constructed and arranged substantially as above described.

PETER HOGAN.

Witnesses:

R. T. CAMPBELL,

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