

W. D. SEAL.

Gas Purifier.

No. 52,893.

Patented Feb. 27, 1866.

FIG. 1.

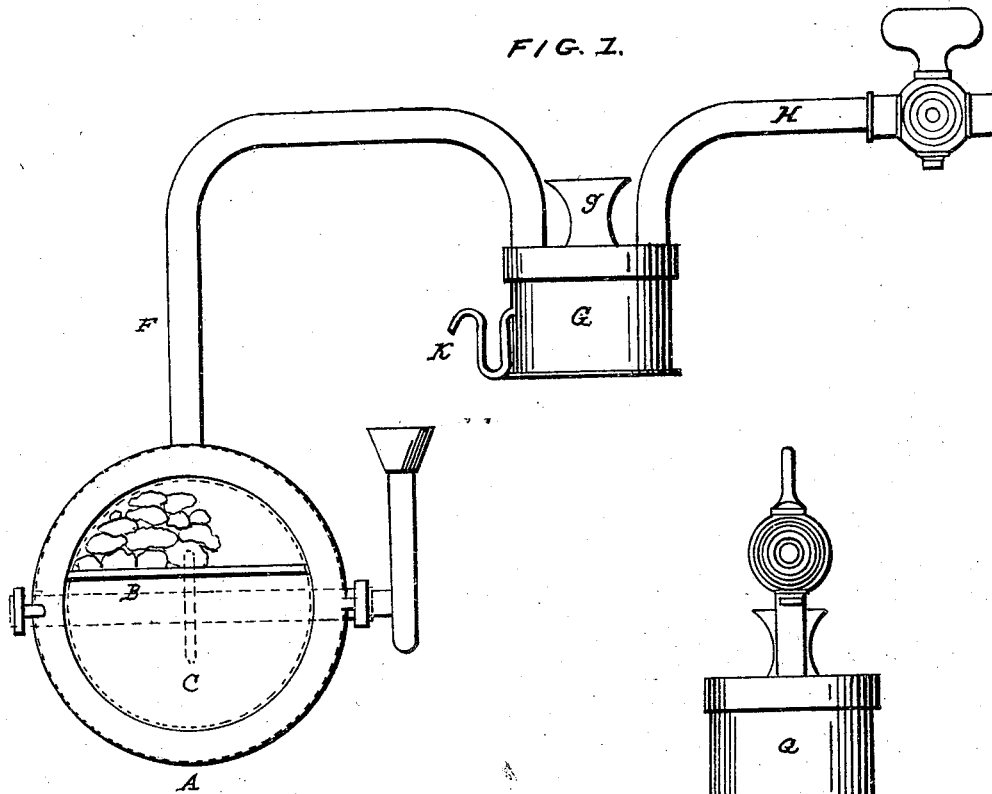
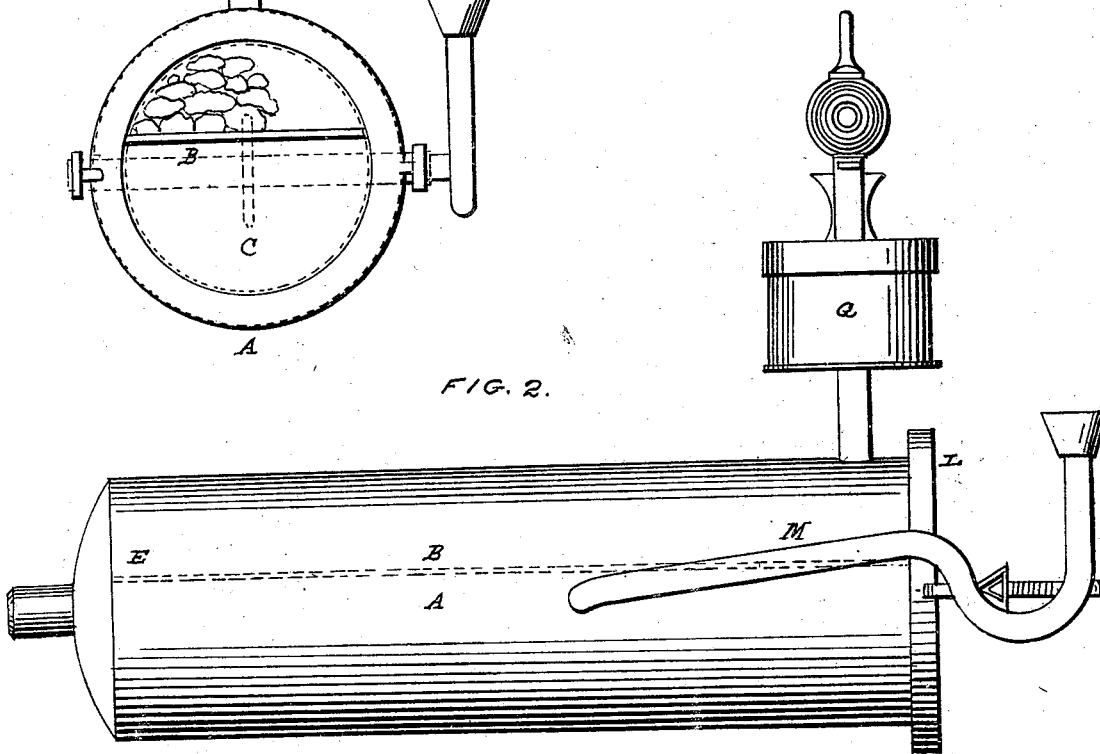


FIG. 2.



WITNESSES:

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INVENTOR.

Wm. D. Seal
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UNITED STATES PATENT OFFICE.

WILLIAM D. SEAL, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN THE MANUFACTURE OF ILLUMINATING-GAS.

Specification forming part of Letters Patent No. 52,893, dated February 27, 1866.

To all whom it may concern:

Be it known that I, WILLIAM D. SEAL, of the city and county of Washington, in the District of Columbia, have invented a new and useful Improvement in the Method of Manufacturing Carbureted-Hydrogen Gas for Illuminating Purposes; and I do hereby declare that the following is 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, in which—

Figure 1 represents a front view of my retort, and Fig. 2 is a side elevation of the same.

The usual modes of purifying carbureted-hydrogen gas produced from the destructive distillation of coals or other hydrocarbons is tedious, expensive, and defective, and it is the object of my invention to effect the purification of this gas within the retort wherein it is generated, and within the time required for its passing from the retort; and to this end my invention consists in dividing the retort into two or more compartments, so that while the destructive distillation shall be in progress in one compartment of the retort the gas generated therefrom shall pass through, among, or over a body of quicklime contained in the other compartment of the retort.

To carry out the objects of my invention I prefer to use a cylindrical retort, A, of any proper refractory material, divided by a metallic partition, B, situated above the center and extending from the front to within a short distance of the rear of the retort, thus giving in the larger portion of the retort C ample space for the distillation of the hydrocarbon and the smaller space D for the quicklime, with an open communication, E, between the two compartments for the gas to pass from the one to the other, and escape through a pipe, F, situated in the front of the retort, into a tank, G, in which the tar may be deposited, and whence the purified gas may pass through the main pipe H to the burners. The tank G may be partially filled with water through the tube I, and the tar may be drawn from the tank by a siphon, K.

When coal is to be distilled for producing gas it may be introduced into the retort by removing the cap L and replacing it with luting, if necessary; but when liquid hydrocarbons are to be distilled they can be introduced into the luted retort through the pipe M when it is provided with a proper stop-cock, or even such a bend as will retain liquid enough to fill the pipe and prevent gas from passing.

The operation is manifest. As destructive distillation progresses in the lower part of the retort the gas generated therefrom rises and passes from the lower compartment around and over the rear end of the partition, through, among, and over the lime to the tank G, and the gas is deprived of its nitrogen by contact with the quicklime, that acquires a red heat, but does not deprive the gas of its carbon, and thus delivers it to the tank in a nearly pure condition for burning, and as the lime acquires a high heat it does not become clogged by the absorption of nitrogen, but continues to exercise its purifying qualities for an indefinite length of time.

It is obvious that my invention may be applied effectively to other forms of retorts, and that a series of shelves containing lime may be introduced to continue the gas a longer distance and greater length of time in contact with the heated lime; but the single shelf I have found by repeated experiment to be quite effective.

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

1. The process herein described of passing the gas as generated over a mass of quicklime when the gas is generated in the retort where the lime is placed for it to pass through and be purified, substantially as set forth.

2. The retort constructed, arranged, and operating substantially as described, that the gas may be generated and purified in a single retort, as set forth.

In testimony whereof I have hereunto subscribed my name.

WM. D. SEAL.

Witnesses:

EDM. F. BROWN,
J. I. PEYTON.