

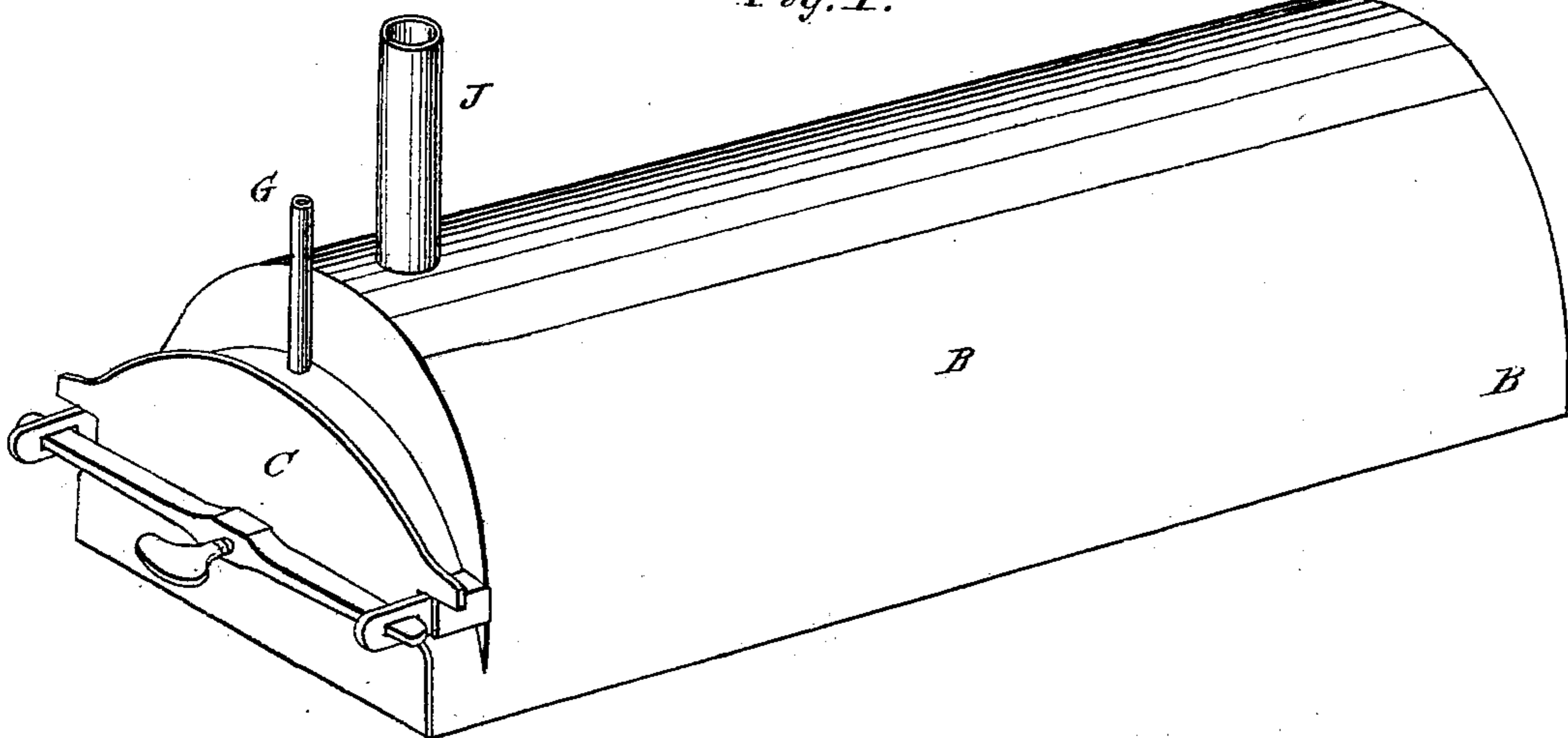
*L. Stevens.*

*Making Illuminating Gas.*

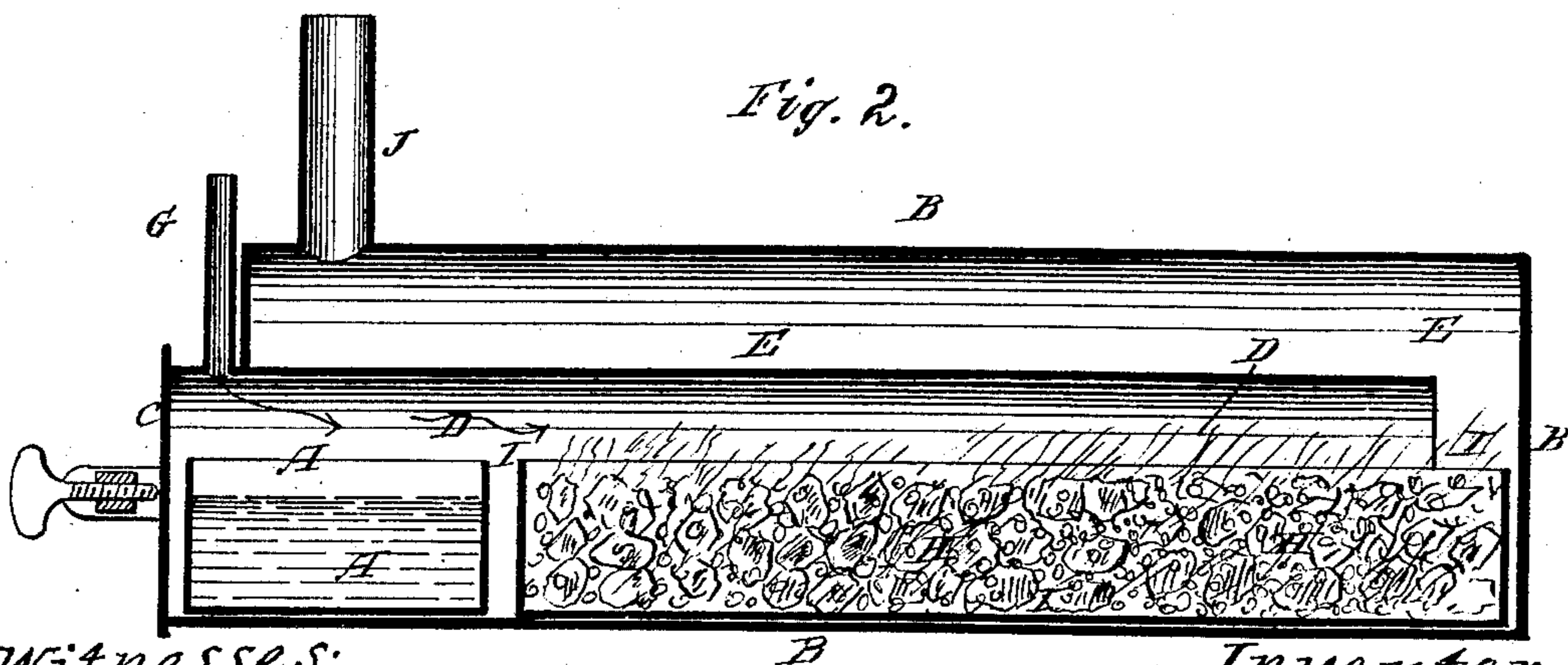
*N<sup>o</sup> 86,187.*

*Patented Jan. 26, 1869.*

*Fig. 1.*



*Fig. 2.*



*Witnesses:*

*Jno. D. Patten.*  
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*Inventor:*

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*By Atty A. B. Stoughton.*

# UNITED STATES PATENT OFFICE.

LEVI STEVENS, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN THE MANUFACTURE OF ILLUMINATING-GAS.

Specification forming part of Letters Patent No. 86,187, dated January 26, 1869.

*To all whom it may concern:*

Be it known that I, LEVI STEVENS, of the city and county of Washington and District of Columbia, have invented a new and useful Improvement in the Manufacture of Illuminating-Gas; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents, in perspective, a view of the exterior of one of the mixing and retorting apparatus I have used for the purpose; and Fig. 2 represents a longitudinal vertical section through the same.

Similar letters of reference where they occur in the separate figures denote like parts in both of the drawings.

My invention consists, first, in a receiver or chamber wherein are mixed and combined all the elements for making gas, previous to being retorted; and my invention secondly consists in combining, with a close receiver or chamber wherein are mixed all the elements for making gas, a retort wherein such mixed elements are retorted into a fixed gas; and my invention further consists in charging the hydrocarbon into the chamber or receiver where the elements of the gas are mixed in a separate vessel or pan.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

B represents the exterior of an apparatus which contains within it all the elements for making gas, when said apparatus is charged and subjected to external heat. This apparatus is provided with a door, C, through which it is charged and the residuum removed. The interior of this apparatus is divided into two compartments or chambers, D E, that have a communicating passage, F, at one end thereof. Into the front of the chamber D is introduced and placed a vessel or pan, A, containing a hydrocarbon; and into the chamber D is also introduced highly-heated steam through a pipe, G, and so that the steam will mingle with the vapor of the hydrocarbon as it rises, and the two mixed vapors pass from this mixing-chamber, in a commingled or united form,

to the roasting or retorting chamber E, where it is converted from vapor into a fixed gas, and from thence the gas may be taken to a gasometer, main, or burner, through the pipe J.

The object of the receiving or mixing chamber D is to receive and mix all the elements of which the gas is made before they go to the roaster or retorting-chamber; and this previous mixing of the vapors in a chamber before going to the converting or roasting chamber simplifies and very much economizes the process. In addition to the mixing of the vapors in the chamber D the generating of one of them (the hydrocarbon vapor) is effected in this chamber.

The object in charging the hydrocarbon into the chamber in a separate vessel or pan, A, is that the vessel may be removed, carried to the common supply, and there filled, and then carried back to the apparatus, thus avoiding the necessity of pouring or filling, and consequent spilling, of the hydrocarbon on or around the heated bench, and its liability to ignite and produce conflagration.

The pan or vessel A, with its contents, is placed at the front of the chamber, where it projects beyond the arch, and is there not subjected to so high a heat, though sufficient to vaporize the hydrocarbon; and when it does not vaporize fast enough there the vessel may be pushed farther into the chamber, where the heat is more dense.

In the chamber D, and back of the vessel A, is placed a composition of coal-dust and lime, and coal-tar, or the residuum from gas-works, well mixed, which composition, under the external heat, furnishes an equivalent of hydrogen to combine with the superabundance of carbon, and is carried along in the form of carbureted hydrogen, instead of being deposited in the retort in the form of coal-tar. This mixture or composition of coal-dust, lime, coal-tar, or residuum of the works, is valuable when oil is used instead of hydrocarbon. I have shown the composition as placed in a box, in the drawing. It is not necessary to so introduce it, as it may be thrown into the chamber loosely. The residuum of this composition makes a very good coke, and may be used as a fuel.

Having thus fully described my invention, what I claim is—

1. The receiving and mixing chamber D, for receiving and mixing all the elements for making gas, prior to its passage into the retort, where it is heated and mixed, substantially as described.

2. In combination with the receiving and mixing chamber D, the roasting or retorting

chamber E and communicating passage F, as and for the purpose described.

3. Charging the hydrocarbon or oil into the mixing-chamber D in a separate vessel, A, as and for the purpose described.

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Witnesses:

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