N. P. TREADWELL & E. R. HOPKINS.

Apparatus for the Manufacture of Illuminating Gas.

No. 146,963. Patented Jan. 27, 1874.

Fig. 1.

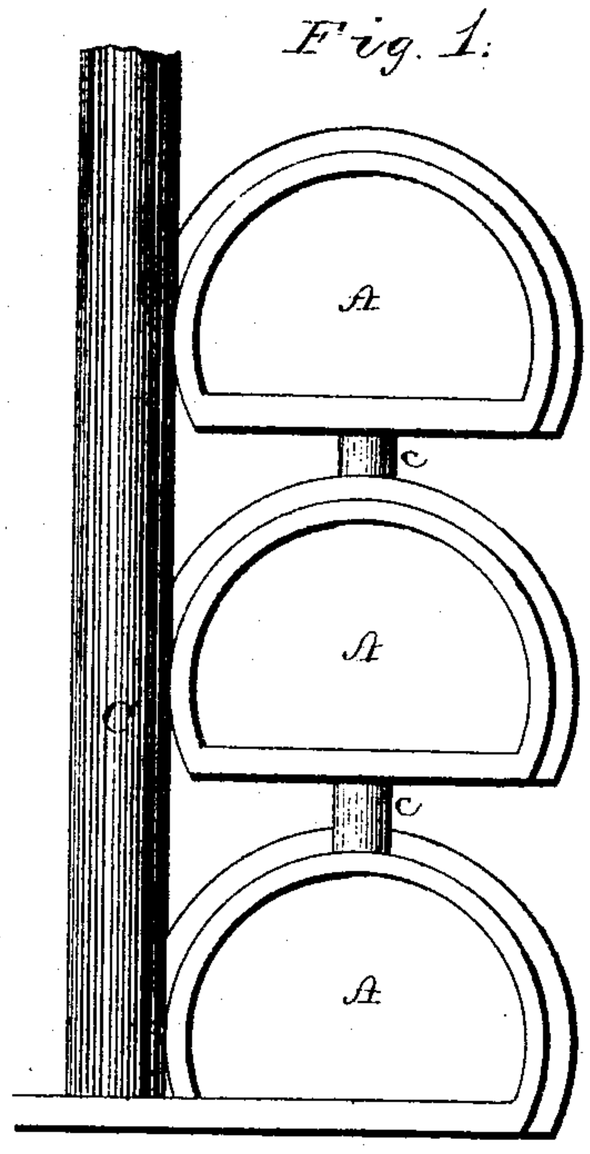


Fig. 2.

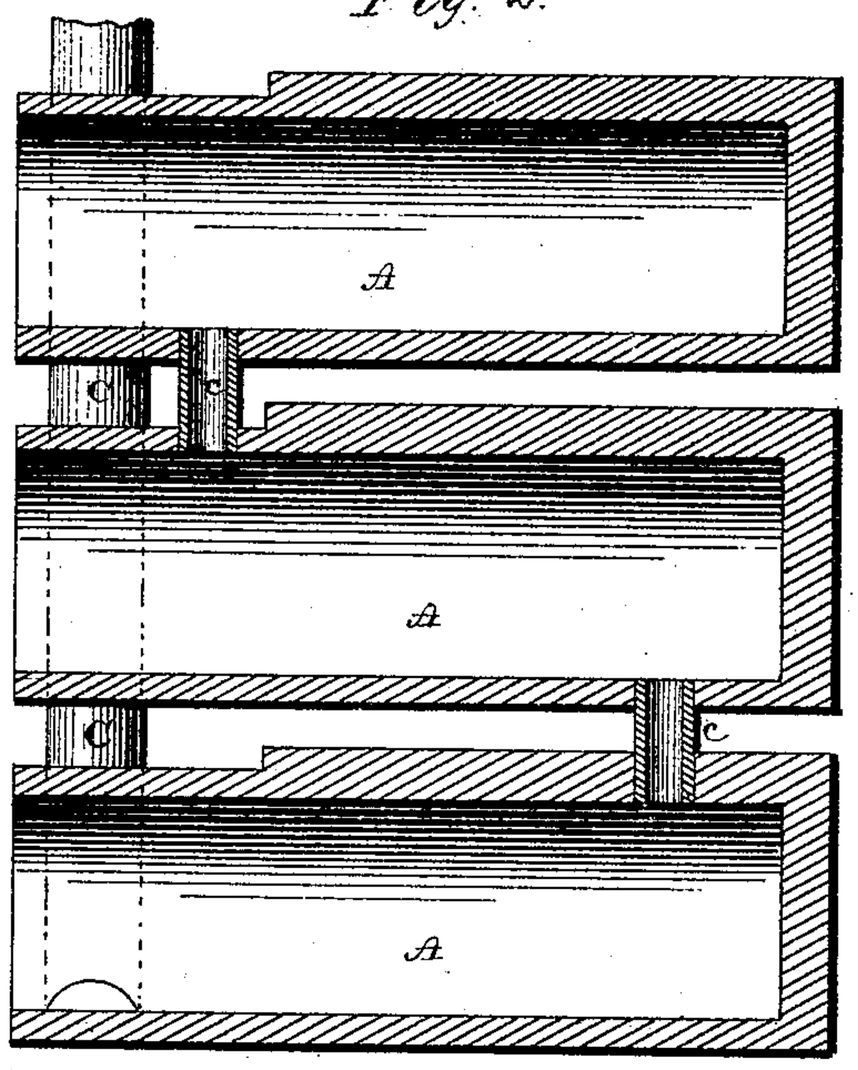


Fig. 3.

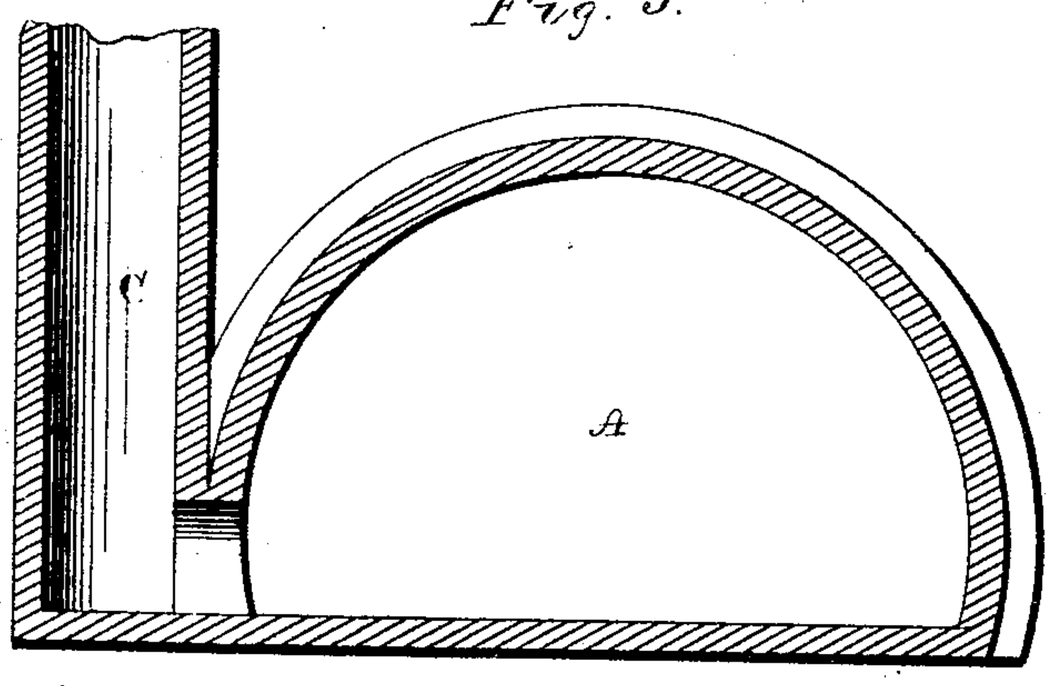
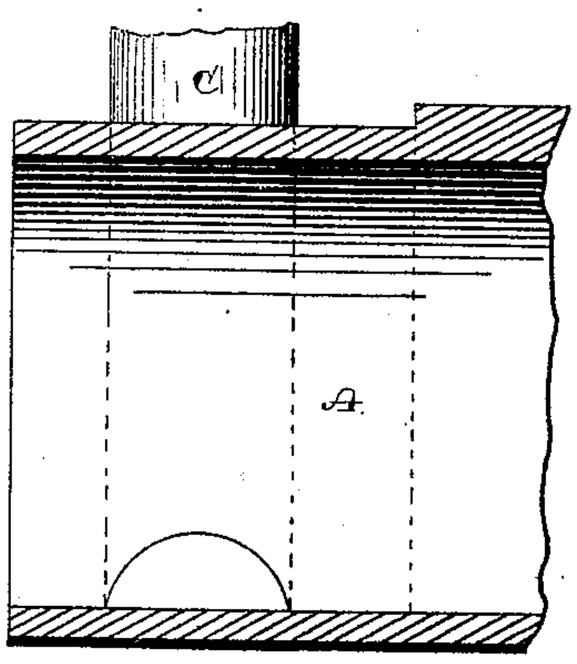


Fig. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

NATHAN P. TREADWELL, OF NEW YORK, N. Y., AND EDWARD R. HOPKINS, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS.

Specification forming part of Letters Patent No. **146,963**, dated January 27, 1874; application filed January 12, 1874.

To all whom it may concern:

Be it known that we, NATHAN P. TREADWELL, of the city and State of New York, and EDWARD R. HOPKINS, of the city of Newark and State of New Jersey, have made a useful Improvement for the Manufacture of Illuminating-Gas, of which the following is an explanation, which will enable those skilled in gas manufacture to apply the same.

The nature of our invention relates to an improvement in gas-retorts; and it consists in connecting together a number of retorts, one placed above the other, and equally charged, so that the gas from a higher retort will be compelled to pass down through a lower one, so as to more equally mix the carbonic and hydrogen gases, the lower retort alone being provided with a stand-pipe, whose mouth for the outlet of the gases is lower than the top of the charge of the coal in the retort, as will be more fully described hereafter.

The accompanying drawings represent our invention.

A represents a number of retorts placed one above the other in the furnace, and which are to be equally charged, except when the lowest retort is the hottest, and then the largest charge will be placed in that one, though we prefer to always charge them the same. These retorts are connected together by short pipes *c*, which extend downward from the bottom of the upper retort into the top of a lower one, so that the gas generated in an upper retort will be compelled to pass downward into and through a lower one before it will reach and escape through the stand-pipe C in the reservoir. Where the retorts are so connected that the gases escape upward from one to the other, the hydrogen gas being so much lighter than the products of the carbon, much of it escapes up the stand-pipe without being properly mixed with the carbon, to the great loss of the illuminating power of the gas. Where both gases pass downward from and through a lower retort, they are equally mixed, and a much better illuminating-gas is produced. The stand-pipe C is connected with the lowest retort alone, and has its mouth for the outlet of the gas made lower than the charge of coal in the retort, so that all the gas will be compelled to pass downward through the coal before it can reach the pipe to escape.

Having thus described our invention, we claim—

1. The combination of two or more retorts, A, placed at different elevations, and connected together by the pipes *c*, which extend down from the bottom of one retort into the top of another, with the stand-pipe C, which is connected with the lowest retort alone, substantially as set forth.

2. In combination with the mouth-piece of the retort, the stand-pipe C, opening into the mouth-piece at a point lower than the top of the charge in the retort, substantially as shown and described.

NATHAN P. TREADWELL.
EDWARD R. HOPKINS.

Witnesses:
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