

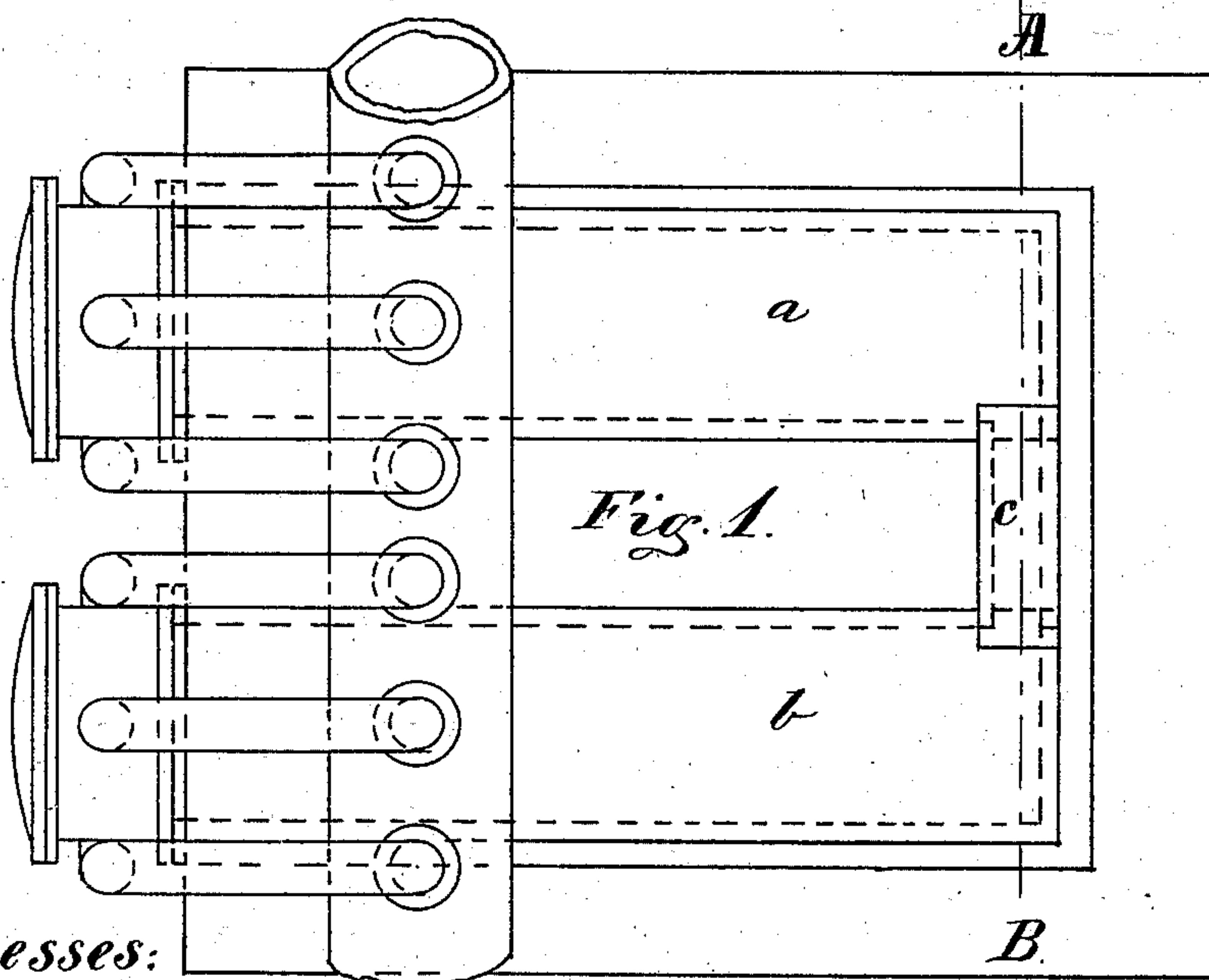
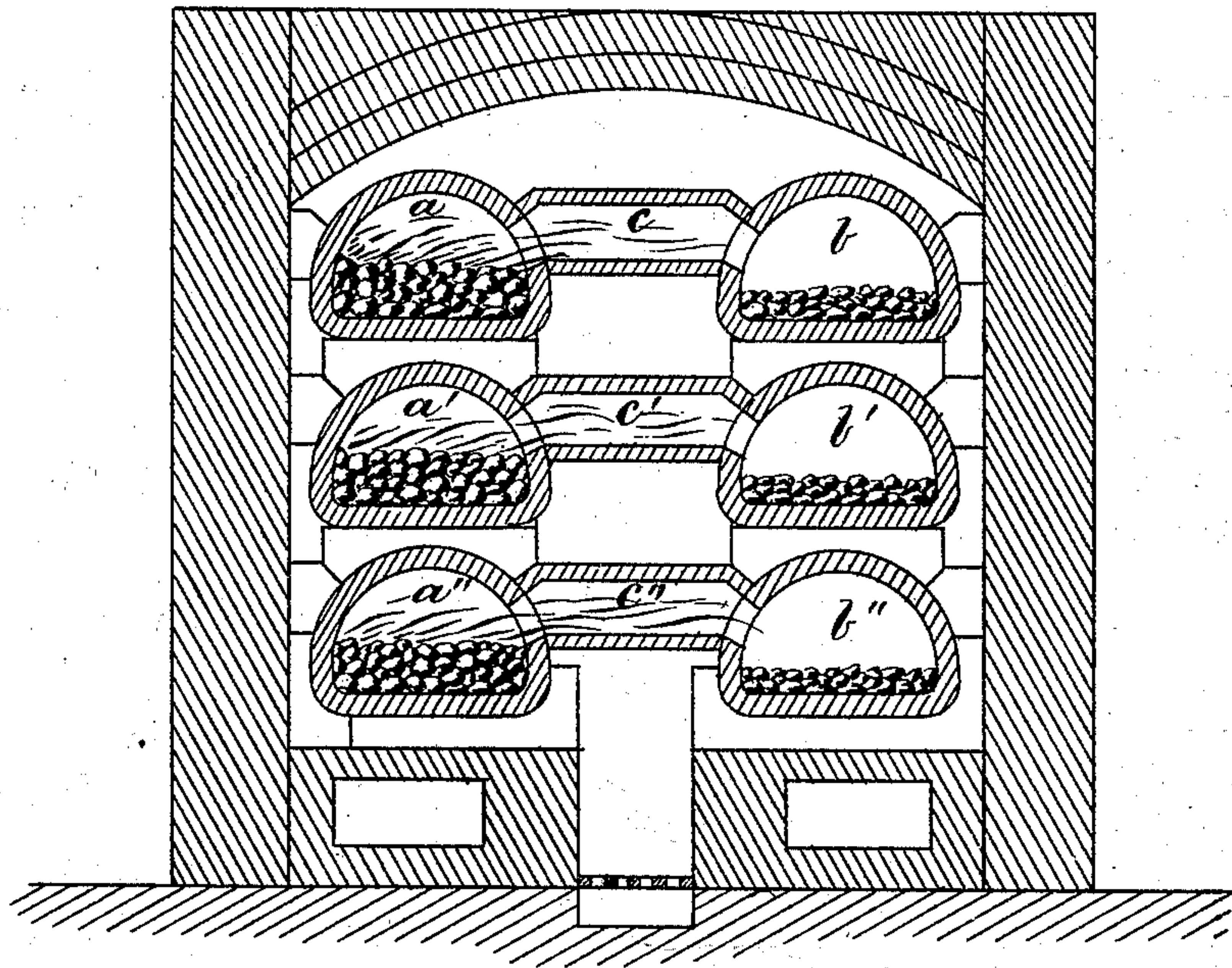
E. JONES.

Apparatus for the Manufacture of Coal-Gas.

No. 135,647.

Patented Feb. 11, 1873.

Fig. 2.



Witnesses:

John R. Heard.  
Jos. C. Torrey

Inventor.

Edward Jones.  
by Adrian Andren his atty.



# UNITED STATES PATENT OFFICE.

EDWARD JONES, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF COAL-GAS.

Specification forming part of Letters Patent No. 135,647, dated February 11, 1873.

*To all whom it may concern:*

Be it known that I, EDWARD JONES, of Boston, in the county of Suffolk, in the State of Massachusetts, have invented certain new and useful Improvements in the Manufacture of Coal-Gas, of which the following is a specification:

My invention relates to improvements in the manufacture of coal-gas, and in the retorts for that purpose; and consists in establishing a connecting pipe or channel between two successive retorts in such a manner that the gas or gases from the most heavily charged retort is conducted into the less charged, and consequently warmest, retort where the gas is superheated, and the coal-tar that follows with the gas from the first-named retort is subjected to additional heat, whereby the amount of illuminating-gas is increased at the same time as the deposit of coal-tar is decreased, thus enabling me to produce an extra quantity of gas from the same quantity of coal as compared with the ordinary method of manufacturing coal-gas.

On the drawing, Figure 1 represents a ground plan of a set of six retorts; and Fig. 2 represents a cross-section taken on the line A B on Fig. 1.

Similar letters of reference refer to similar parts wherever they occur on the drawing.

$a\ a'\ a''\ b\ b'\ b''$  represent the retorts set in suitable brick-work in the usual manner.  $a\ b$ ,  $a'\ b'$ , and  $a''\ b''$  constitute each a pair of retorts that are connected together by means of the pipes or channels  $c$ ,  $c'$ , and  $c''$ , as shown. Orifices are made in the retorts at the places where the pipes  $c\ c'\ c''$  connect with the retorts, so that an open communication is always had between each pair of retorts. The pipes  $c\ c'\ c''$  may be made of fire-brick or any other suitable material, and may be made of such a shape as to serve as settings for the retorts.

The object of these channels or pipes  $c\ c'\ c''$  is to allow the gas to pass unobstructed from one retort to another, where it is superheated, and from which it passes to the stand-pipe and hydraulic main.

The manner in which I work the retorts is as follows: I put a heavy charge—say, about two hundred pounds—in each of the retorts  $a\ a'\ a''$ , and a smaller charge—say, about one hundred pounds—in each of the retorts  $b\ b'$

$b''$ . The latter I have in direct and open communication with the hydraulic main, whereas I use the dip seal to prevent the gas from the retorts  $a\ a'\ a''$  entering the hydraulic main. The gas from the retorts  $a\ a'\ a''$  is thereby forced through the channel  $c\ c'\ c''$  into the lighter-charged and warmer retorts  $b\ b'\ b''$ , where the coal-tar that follows with the gas is superheated and compelled to give off a great quantity of its volatile gases before it passes directly into the hydraulic main.

When the retorts are to be charged anew I reverse the conditions of the charges and put the heavy charge in the retorts  $b\ b'\ b''$  and the light charge in the retorts  $a\ a'\ a''$ , in which case I close the direct passage from the retorts  $b\ b'\ b''$  to the hydraulic main and keep the retorts  $a\ a'\ a''$  in open and direct communication with the main, thus compelling the gases from the retorts  $b\ b'\ b''$  to pass through the pipes  $c\ c'\ c''$  into the retorts  $a\ a'\ a''$  where they are superheated, as above named, before entering the hydraulic main.

By this manner of manufacturing coal-gas I am able to produce more and better illuminating-gas from the coal, as compared with the ordinary method, at the same time as I reduce the quantity of coal-tar deposited in the retorts and hydraulic main.

I do not, however, confine myself to connecting two retorts only, as I may, to the same or better advantage, connect a series of retorts in a like manner and compel the gas produced in the first retort to pass through the whole series to the last retort in the series before it is allowed to enter the direct passage to the hydraulic main.

It will be understood that no explosion or accident can occur in the heavily-charged retorts in case any of the connecting-pipes  $c\ c'\ c''$  should happen to be clogged up, as the gas from the said heavily-charged retorts would then pass through the dip-seal into the hydraulic main in the usual manner.

I have shown the pipes  $c\ c'\ c''$  on the drawing to be placed at the rear end of the retorts, but this position is not important, as I may place the said connecting-pipes  $c\ c'\ c''$  at any desired part of the said retorts.

Having thus fully described the nature and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The improved process for manufacturing coal-gas, as herein described, consisting in forcing the gas produced in one retort through one or more retorts without leaving the furnace, in a manner set forth.

2. A connecting-pipe or channel, *c*, or its equivalent, in the furnace between two or more retorts for the purpose of forcing the gas from one retort to another, as herein shown and described.

3. The process, as herein described, of charging a pair of retorts with unequal charges and forcing the gas from the heavier-charged retort into the lighter-charged and warmer retort without leaving the furnace, in a manner set forth.

EDWARD JONES.

Witnesses:

E. E. TORREY,  
ALBAN ANDRÉN.