(No Model.)

2 Sheets—Sheet 1.

F. SIEMENS.

REGENERATIVE GAS FURNACE.

No. 590,864. Patented Sept. 28, 1897.

Fig. 1.

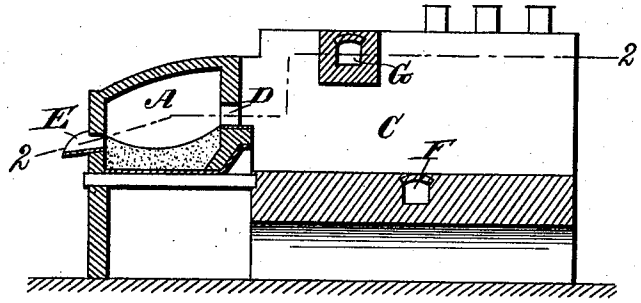
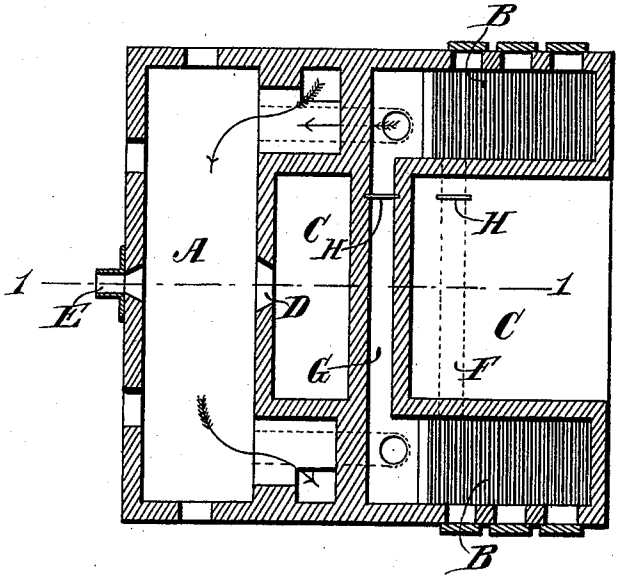


Fig. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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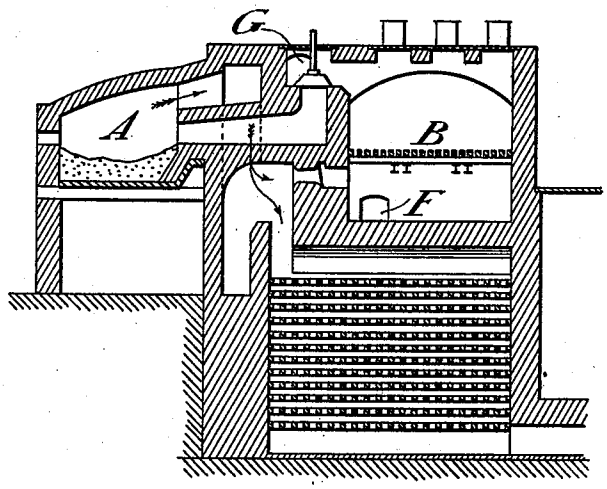
Fig. 3.



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UNITED STATES PATENT OFFICE.

FREDERICK SIEMENS, OF DRESDEN, GERMANY.

REGENERATIVE GAS-FURNACE.

SPECIFICATION forming part of Letters Patent No. 590,864, dated September 28, 1897.

Application filed February 26, 1897. Serial No. 625,228. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK SIEMENS, a citizen of Saxony, residing at Dresden, in the Empire of Germany, have invented new and useful Improvements in Regenerative Gas-Furnaces, of which the following is a specification.

In my previous United States patents, No. 468,834, dated February 16, 1892; No. 468,835, dated February 16, 1892; No. 501,107, dated July 11, 1893, and No. 534,408, dated February 19, 1895, I have described regenerative gas-furnaces with gas-producers in proximity to their beds with both gas and air reversing valves, and with passages and steam-injectors so arranged that not only air but also, when desired, portions of the products of combustion with or without heated air could be passed through the producers.

The space behind the furnace being occupied by the producers access could not in these furnaces be got to any door through the back wall, through which tools could be passed to clear or close from inside the tap-hole in the front wall, which is required in furnaces for melting steel, iron, or other metals.

According to my present invention I divide the structure of the producers into two separate structures, building one at each end of the furnace with a central space between them giving access to a door or doors in the back wall of the furnace-bed.

Referring to the accompanying drawings, forming a part of this specification, Figure 1 is a vertical sectional view of my improved furnace, taken on the line 1 1 of Fig. 2; and Fig. 2 is a horizontal sectional view thereof, taken on the line 2 2 of Fig. 1. Fig. 3 is a vertical sectional view taken through one of the gas-producers.

A is the furnace-chamber; B B, the two producers, having between them a free space C, giving access to a door D in the rear wall of the chamber in line with the tapping hole or spout E. Instead of one door D there may be several in the back wall. I connect the valve-chambers into which gas passes from the producers by a flue G, preferably over the space C, and when necessary I connect the lower chamber of the producers by a flue F under the space C. In the upper flue G and also in the lower flue F, when such a flue exists, I provide valves or dampers H, which are closed when either of the producers is being cleaned or cleared of ashes or repaired, the other producer alone, with additional blast, if necessary, supplying gas for the furnace-flame which sweeps along the bed to the outlet near the end where the temporarily-idle producer is situated.

Fig. 3 shows one of the producers B and one of the regenerative-chambers under it, which, as shown, is receiving the products of combustion from the furnace A, part of these products passing into the space under the grate of the producer to take up additional carbon in passing through the hot fuel on the grate. The valve on the communication from the producer to the furnace is shown closed, so that the produced gas has to pass by the flue G to the other end of the furnace.

Having thus described the nature of this invention and the best means I know for carrying the same into practical effect, I claim—

1. In a regenerative gas-furnace, the combination with the furnace-chamber having a tap-hole in its front wall and a door in its rear wall in line with said tap-hole, of two connected gas-producers respectively arranged behind and opening into the opposite ends of the furnace-chamber and having a free space between them to afford access to said door, substantially as described.

2. In a regenerative gas-furnace, the combination with the furnace-chamber, of two gas-producers each having an upper and lower chamber, said producers being respectively arranged behind and opening into the opposite ends of the furnace-chamber and having a free space between them, and valved flues connecting the upper and lower chambers of said producers, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 8th day of February, A. D. 1897.

FREDERICK SIEMENS.

Witnesses:

O. MÜSCHLICH,

HERNANDO DE SOTO.