(No Model.)

W. H. SMITH.

BRICK FOR GAS REGENERATING FURNACES.

No. 346,782. Patented Aug. 3, 1886.

Fig. 1.

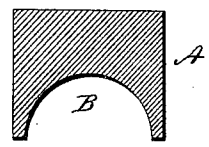


Fig. 2.

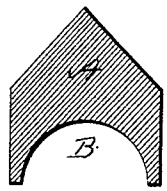


Fig. 3.

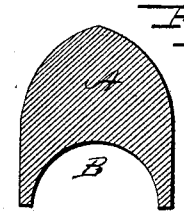
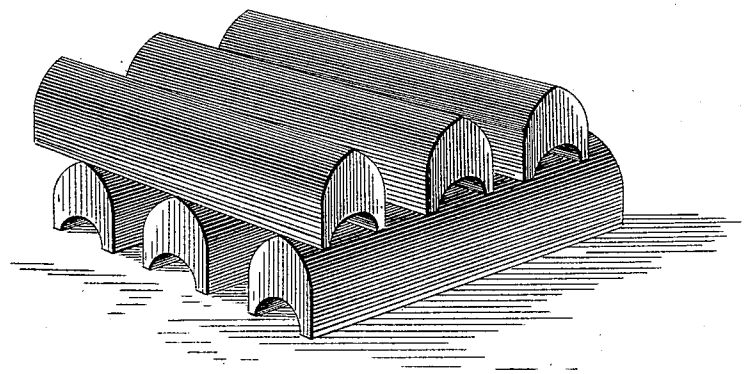


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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BRICK FOR GAS-REGENERATING FURNACES.

SPECIFICATION forming part of Letters Patent No. 346,782, dated August 3, 1886.

Application filed February 26, 1886. Serial No. 193,311. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SMITH, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Bricks for Regenerator Gas-Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in the construction of bricks for regenerator gas-furnaces, the object of which is to obtain a greater heating-surface to bring the air and gases to the proper temperature to effect a complete combustion of the gases in the furnace.

My invention consists in providing the under surface of the brick with a longitudinal, semicircular, or concave groove, so as to offer more resistance to the incoming air and gas, without contracting or reducing the area or spaces between the checker-brick and allowing the products of combustion to pass freely out of the regenerators, the said concave portion of the bricks, owing to their peculiar construction, forms a vortex, which gives to the waste products as they rush through the regenerators a swirling motion or action, and effectually cleans the regenerator-brick of all soot and other extraneous matter, which would otherwise adhere thereto.

Referring to the drawings, Figure 1 is an end view of a brick having a flat top. Fig. 2 is an end view of a brick having a pointed or angular top. Fig. 3 is an end view of a brick having its top rounded or oval in cross-section. Fig. 4 is a view in perspective of a series of brick as arranged in the regenerative-chamber of the furnace.

A indicates the main body of my improved brick, the top of which may be flat, oval, triangular, or pointed in cross-section, as may be preferred. The lower side, however, is provided with a recess, B, throughout the entire length of the brick, such recess being concave or semicircular in cross-section, as shown in the drawings.

The objects of making the checker-brick concave, or with a semicircular groove on the under side, are twofold: first, to obstruct the gas and air on the incoming side, which, in their passage upward, are checked or pocketed in the concave or semicircular grooves or cavities, and a higher degree of heat imparted to them than has heretofore been attained before they come together in the combustion-chamber; and, second, the concave or semicircular grooves of the brick form a vortex as the waste products of combustion are passing out at the other side, which gives to the same a whirling action, which tends to free the bricks of soot or other extraneous matter deposited thereon, and in this way prevents the regenerators from becoming clogged up.

In the use of these bricks it will be understood by those skilled in the art of constructing regenerator-furnaces that these bricks are piled up in the air and gas regenerator-chambers at each end of the combustion or melting chamber, with one layer of brick crossing the next adjacent layer in the form of checker-work, so as to form passages through which the gas and air find their way to the combustion-chamber, and through which the waste products pass on the opposite end from that in which the air and gas are being admitted, as is common in regenerator-furnaces.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A fire-brick for the air and gas regenerators of a regenerative gas-furnace, having its under side provided with a longitudinal, concave, or semicircular groove, as and for the purpose set forth.

2. A fire-brick for the air and gas-regenerators of a regenerator gas-furnace, having a concaved or semicircular groove on its under side, and plain top and sides, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. SMITH.

Witnesses:
R. E. MCCLURE,
WM. BLAKELEY.