(No Model.)

J. H. DARBY.

BASIC LINED FURNACE.

No. 484,181. Patented Oct. 11, 1892.

Fig. 1.

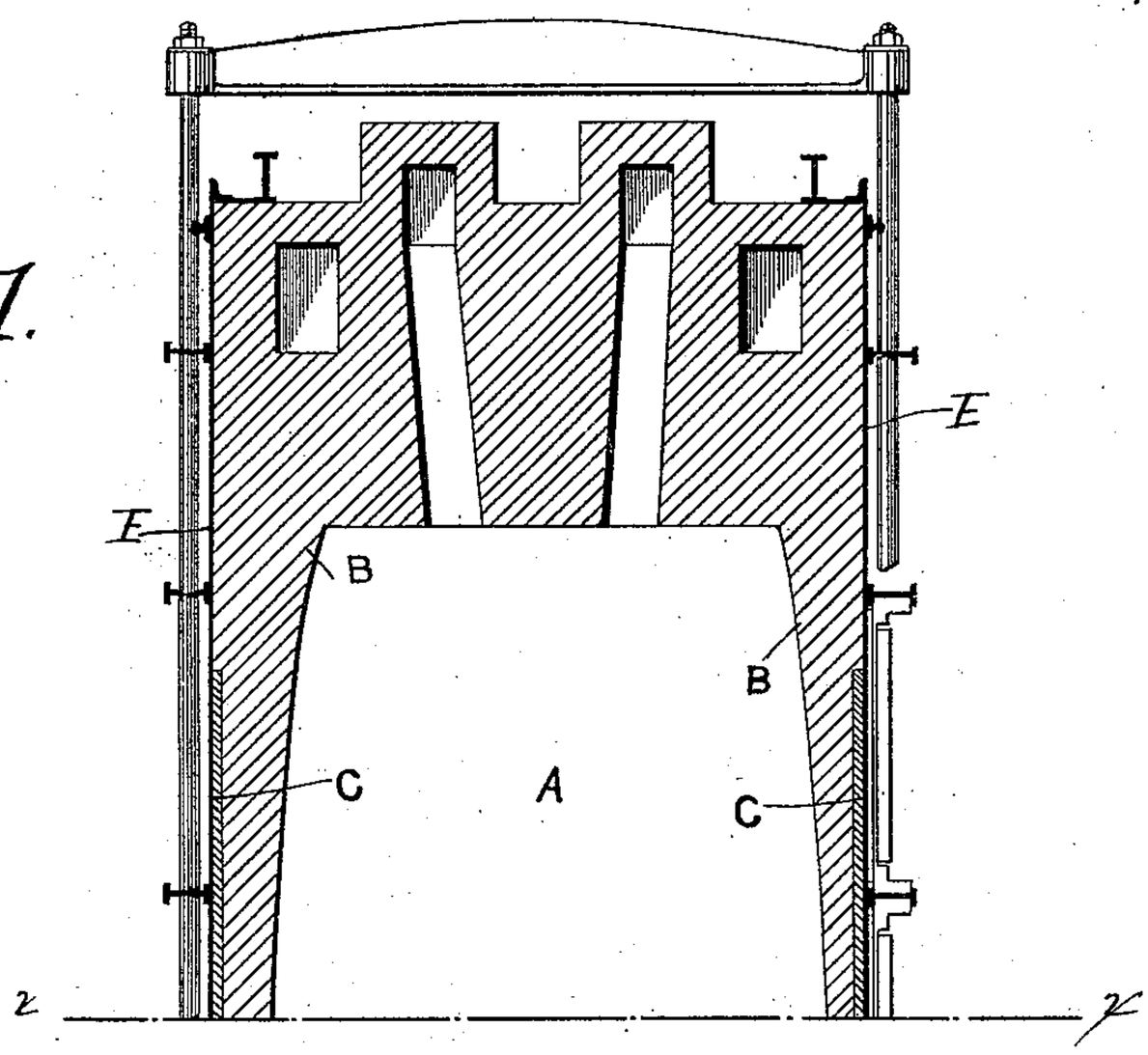
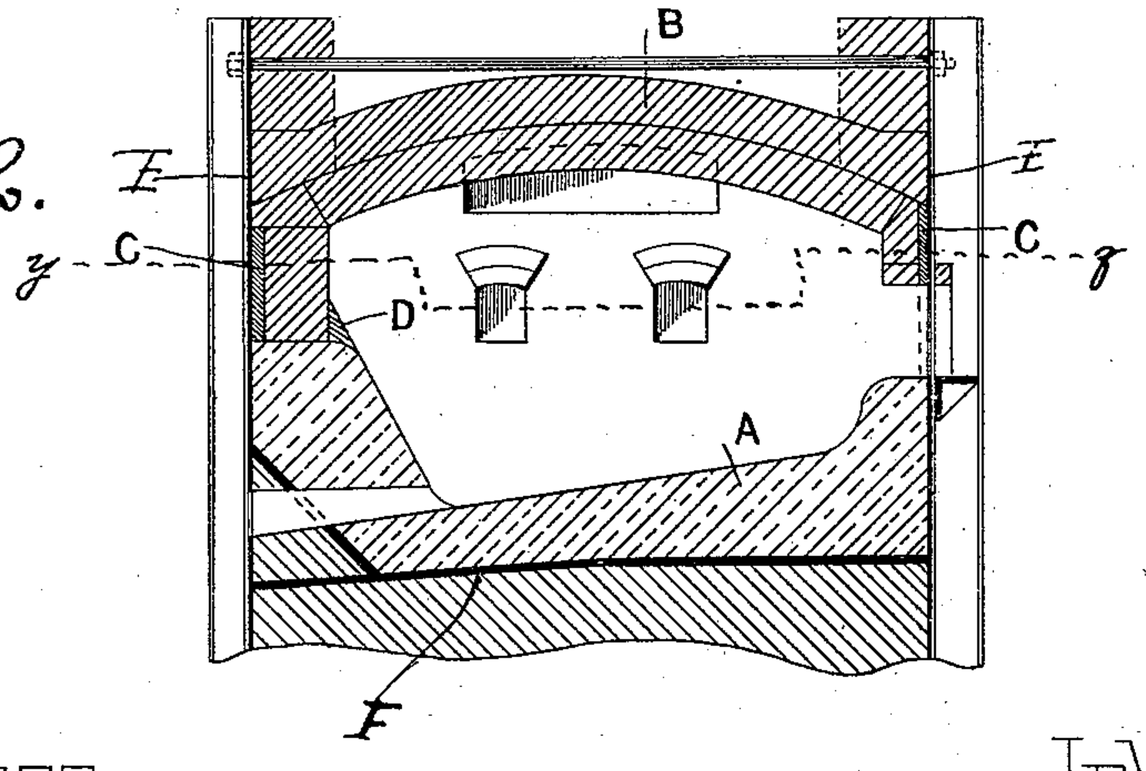


Fig. 2.



Witnesses
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JOHN HENRY DARBY, OF BRYMBO, NEAR WREXHAM, ENGLAND.

BASIC-LINED FURNACE.

SPECIFICATION forming part of Letters Patent No. 484,181, dated October 11, 1892.

Application filed November 27, 1891. Serial No. 413,247. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY DARBY, a subject of the Queen of Great Britain, residing at Brymbo, near Wrexham, in the county of Denbigh, Wales, have invented certain new and useful Improvements in Basic-Lined Furnaces, of which the following is a specification.

Many furnaces are so constructed that the hearth for containing the bath of metal is made of basic or neutral material, while the sides, roof, and ends are made of silicious bricks, &c. By the splashing of the slag and the basic dust in the furnace when at work the acid portions of the furnace are more or less quickly fluxed away, and the life of the furnace reduced thereby.

My invention relates to improvements in the construction of the furnace so as to lengthen its life in the way hereinafter to be described.

For the sake of illustration I will describe how my invention may be applied to a basic-lined open-hearth steel furnace, as set forth in the accompanying drawings; but I do not in any way limit myself to this class of furnace. The side walls of such a furnace, especially that opposite to the charging-doors, are cut away faster than the other parts of the furnace by the splashing of the basic slag and the basic dust in the furnace when at work. I propose to build the furnace as usual and when the side walls are being put in to leave a space of two to three inches between the acid bricks and the metal casing. This space I ram up with ground chrome ore and tar, magnesia and tar, or any other suitable material capable of withstanding the action of the basic slag, &c. It will be found when the inside casing of bricks is fluxed away that the layer of refactory material described above will have become dense and hard and will protect the metal casing from the heat for a long period, thereby prolonging the life of the furnace.

Referring to the drawings, Figure 1 is a horizontal sectional view taken on the line *y z* of Fig. 2. Fig. 2 is a vertical sectional view taken on the line *x x* of Fig. 1.

A A are basic linings, (shown in alternate full line and dot line;) B B, walls and roof of furnace, (shown in coarse hatching;) C, chrome ore and tar or other material of like nature, (shown in fine hatchings rammed, in as described;) D, a layer of similar material protecting the face of the junction of the sides with the basic lining; E, metallic framework of furnace. F represents fire-brick or other silicious material forming the furnace below the basic lining.

I declare that what I claim is—

1. A basic-lined furnace having a solid wall formed of acid material, a metallic backing, and a layer C of refactory substance of a neutral character between said wall and metallic backing.

2. The combination of the basic lining A A, the wall and roof B B of the furnace made of acid material, and the metallic casing or framework E, with the packing of refractory material of neutral character C placed between the walls B and the framework E, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN HENRY DARBY.

Witnesses:
WM. P. THOMPSON,
G. C. DYMOND.