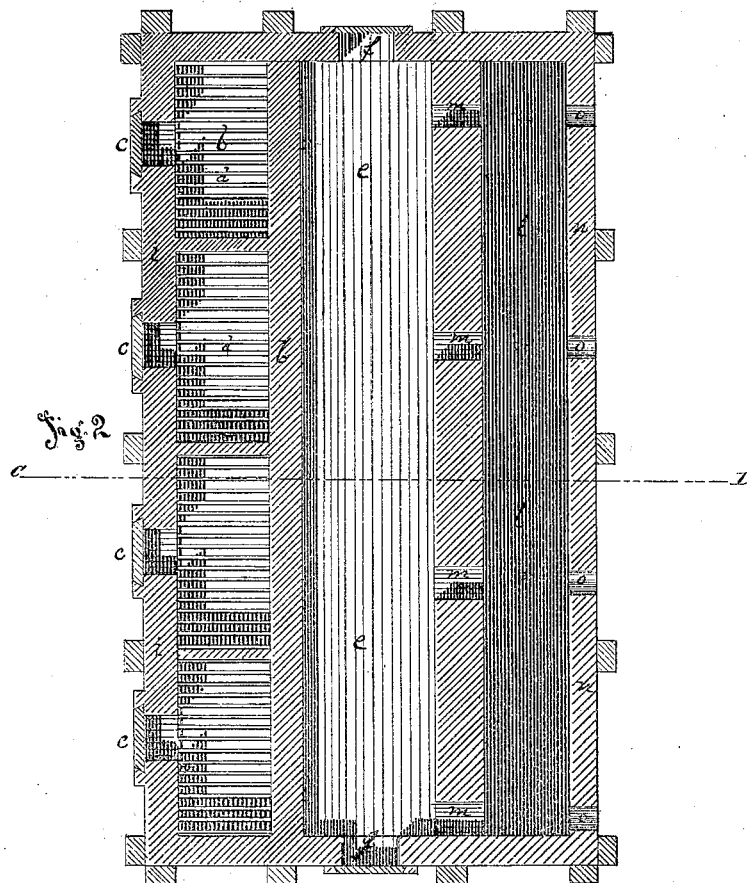
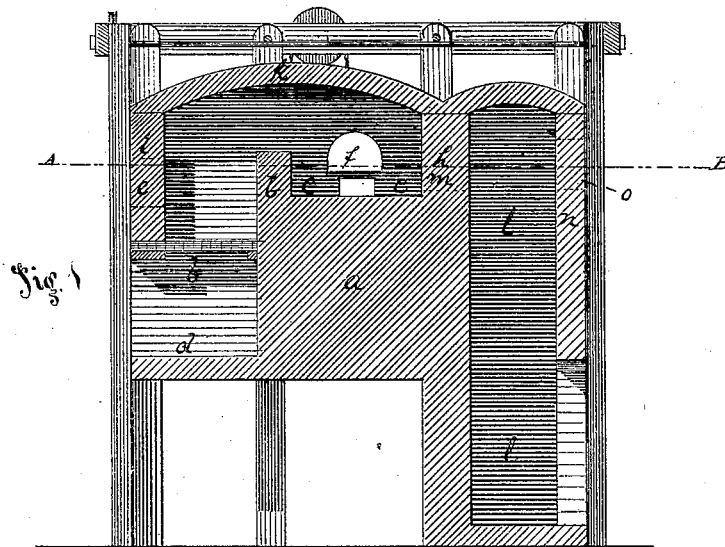


JOSEPH DAVIS.

Improvement in Reverberatory Furnaces.

No. 114,774.

Patented May 16, 1871.



Witnesses {
Thos. R. Kerr
R. C. Minshall

Inventor *Joseph Davis*
 by *Edw. W. Johnston, his Attys.*

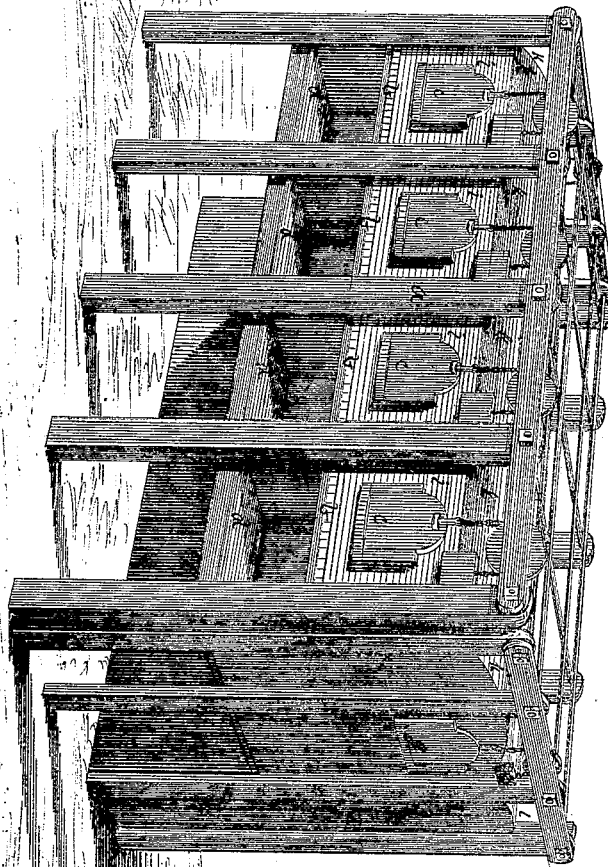
2 Sheets--Sheet 2.

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Inventor Joseph Davis
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United States Patent Office.

JOSEPH DAVIS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENT, TO HIMSELF, JOHN RIGBY, AND A. FILSON DALZELL.

Letters Patent No. 114,774, dated May 16, 1871.

IMPROVEMENT IN REVERBERATORY FURNACES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSEPH DAVIS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Reverberatory Furnace; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, in two sheets, making a part of this specification, in which—

Figure 1, plate A, is a vertical section of my improved furnace through the line C D, fig. 2;

Figure 2, plate A, is a horizontal section of the same through the line A B, fig. 1; and

Figure 3, plate B, is a perspective view, showing the front of the furnace.

Like letters of reference indicate like parts in each.

My invention consists in the construction of a reverberatory furnace, in which, by making the arch or cover to lie flat upon the jamb-wall of the furnace, and by having a series of openings in the jamb-wall for the passage of the hot air, I am enabled to dispense entirely with the blast and to regulate the heat.

To enable others skilled in the art to make and use my invention, I will describe its construction and mode of operation.

The furnace *a*, made of any desired length, has along its front a number of fire-grates, *b*, as many as the length of the furnace may render necessary.

These grates are supplied with fuel through an equal number of openings, which are closed by doors *c c* of the usual construction.

Below each grate is the ash-pit *d*, having a large opening, through which the air is admitted to the furnace in the usual manner.

Just behind the grates *b*, and separated from them by the wall *b'*, is the hearth *e*, which is of a rectangular form, and runs along the full length of the furnace.

At one end of the hearth is an opening, *f*, closed by a door of the usual construction, through which the workman stirs and works the iron.

At the other end of the furnace is a larger opening, *g*, also closed by a door, through which the ball of iron is taken from the furnace previously to being taken to the rolls.

Back of the hearth, and forming one of its sides, is the jamb-wall *h*.

Upon this wall, and upon the front wall *i* of the furnace, rests the top or arch *k*.

Back of the jamb-wall *h* is the drop-flue *l*, through which the smoke, &c., passes to the stack.

Communication is established between the hearth *e* and the drop-flue *l*, and a passage for the smoke is secured by a series of openings, *m*, in the jamb-wall *h*.

As the top or arch *k* fits tightly upon the jamb-wall *h* the smoke and flame to escape must pass through the openings *m*.

In the back wall *n* is a number of holes, *o*, each one of which is directly opposite one of the openings, *m*.

By means of a suitably-shaped fire-brick, operated by a hook or pair of tongs through the holes *o*, I am enabled to regulate and direct the heat of the furnace.

If I require great heat, as is necessary in bringing the iron to "nature," I reduce the size of the openings *m*; if I require an ordinary heat, I leave the openings intact; if I desire to direct the heat to any particular part of the hearth, I close all the openings but the one at the part where the heat is desired.

By this construction of furnace and by the arrangements described for regulating and applying the heat I am enabled to dispense with the blast, and, at the same time, have a very sensible increase of heat over that secured in the furnaces heretofore in use.

The furnace may be made of any desired length without injuring its effectiveness, provided the whole length of hearth has a corresponding length of fire-grate in front of it.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A reverberatory furnace having the top or arch resting upon the jamb-wall, and a series of openings in the jamb-wall communicating with the drop-flue, substantially as and for the purposes described.

2. A series of openings in the back wall of a reverberatory furnace, through which to operate devices for opening and closing apertures in the jamb-wall of the furnace, substantially as described.

In testimony whereof I, the said JOSEPH DAVIS, have hereunto set my hand.

JOSEPH DAVIS.

Witnesses:

A. S. NICHOLSON,
THOS. B. KERR.