J. SPINKS.

FURNACE-DOORS.

No. 194,380. Patented Aug. 21, 1877.

Fig. 1

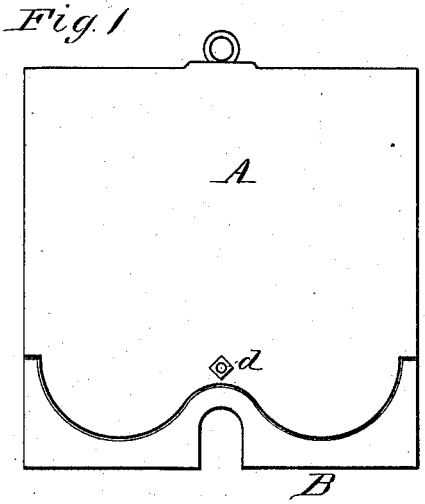


Fig. 2

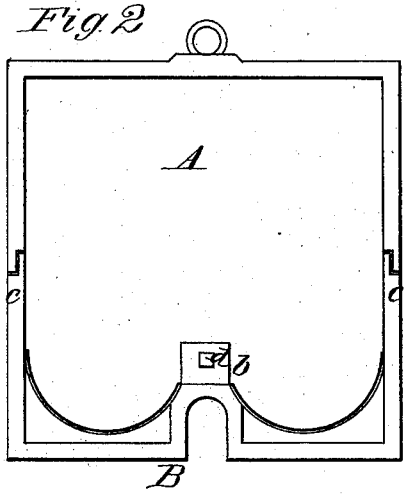


Fig. 3

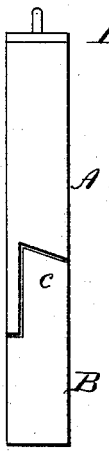
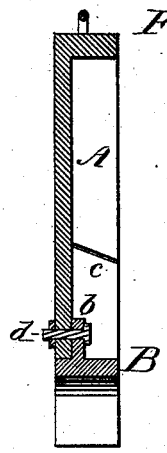


Fig. 4



Witnesses

J. B. Connolly

D. P. Lowe

By Connolly Bros. & Fish Attorneys

James Spinks Inventor

UNITED STATES PATENT OFFICE.

JAMES SPINKS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-FOURTH HIS RIGHT TO MICHAEL MUNDY, OF SAME PLACE.

IMPROVEMENT IN FURNACE-DOORS.

Specification forming part of Letters Patent No. **194,380**, dated August 21, 1877; application filed July 5, 1877.

To all whom it may concern:

Be it known that I, JAMES SPINKS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Furnace-Doors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a front view, Fig. 2 a rear view, Fig. 3 a side view, and Fig. 4 a vertical cross-section, of my improved furnace-door.

This invention relates to the construction of doors for puddling and similar furnaces, particularly those which are lined with fire-brick to protect the door-casing from intense heat; and consists in the construction and combination of parts, substantially as hereinafter more fully described and claimed.

These doors are nearly all alike—a rectangular casting having a continuous flange all around, so as to retain the lining. But, owing to the intense heat to which they are exposed, and the fact that generally the lower part of the flange is exposed the most, it very soon becomes burned away, and the lining, having no support, gives way, rendering the whole door utterly useless. The life of these doors is thus only for a few weeks, and their constant replacement by new ones causes a heavy expense upon mill-owners.

My door is as follows: I make it in two parts—the main casting and a removable bottom flange, or bottom flange and side portions, connected by one or more bolts passing through a lug rising from the bottom of the lower portion, so that the burned flange may be taken off and replaced by a new one at a trifling expense.

A designates the main door-casting, and B the bottom flange, having a lug, *b*, inside to keep it in place, and rabbeted into the corner of the casting A, or having portions *c c* of the two side flanges *a a*, which are fitted by a rabbet or dovetail joint, which also serve to brace the whole and keep the parts in place. This construction of the side portions will be readily understood from inspection of edge view in drawings.

The meeting edges of the two portions A and B may be provided with V-edges or rib and groove, to still further assist in bracing.

The portion B may have the work-hole constructed in it or not, according to the style of furnace to which it is to be applied. The parts are connected by one or more bolts, *d*, and nuts.

When the lower flange is burned away it is only necessary to take it off and place a new one in its stead, when the door is as good as new.

In heating furnaces where the hearth is level with the bottom of the door, the side flanges are apt to burn away to a greater extent than in a puddling-furnace. In such case the side extension of portion B may include the whole side flanges; or they may be separate pieces, and held in place by rabbet or dovetail joints at the corners.

I am aware that a furnace-door with a removable lower portion is not broadly new. I therefore confine my claim to my specific improvement, whereby the connection of the two parts is simplified and the door rendered cheaper and better adapted to general use.

What I claim as my invention is—

The combination, specifically, of the casting A and casting B, the latter having the lug *b* and the horizontal connecting bolt or bolts *d*, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of June, 1877.

JAMES SPINKS.

Witnesses:

THOS. J. MCTIGHE,

MICHAEL MUNDY.