J. ASHCROFT.

FURNACE DOOR.

No. 184,949.

Patented Dec. 5, 1876.

Fig: 1.

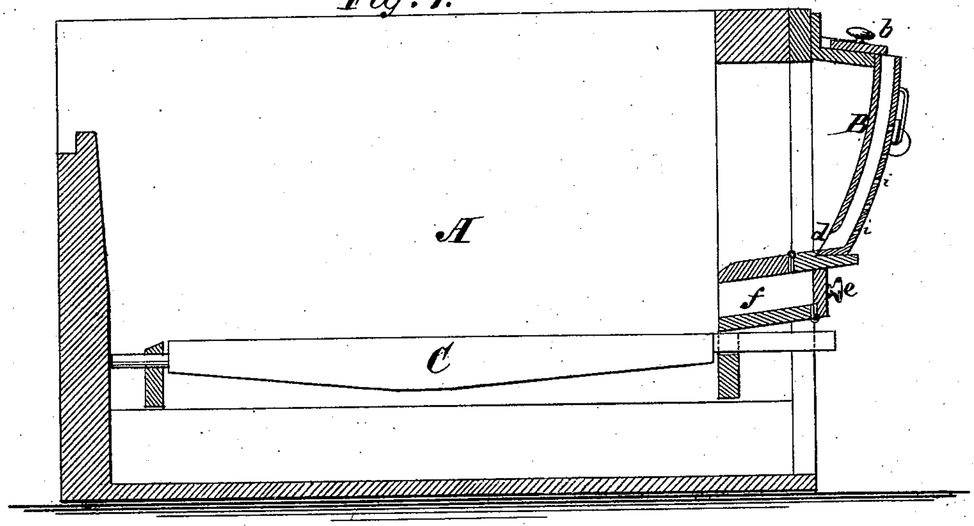


Fig: 2.

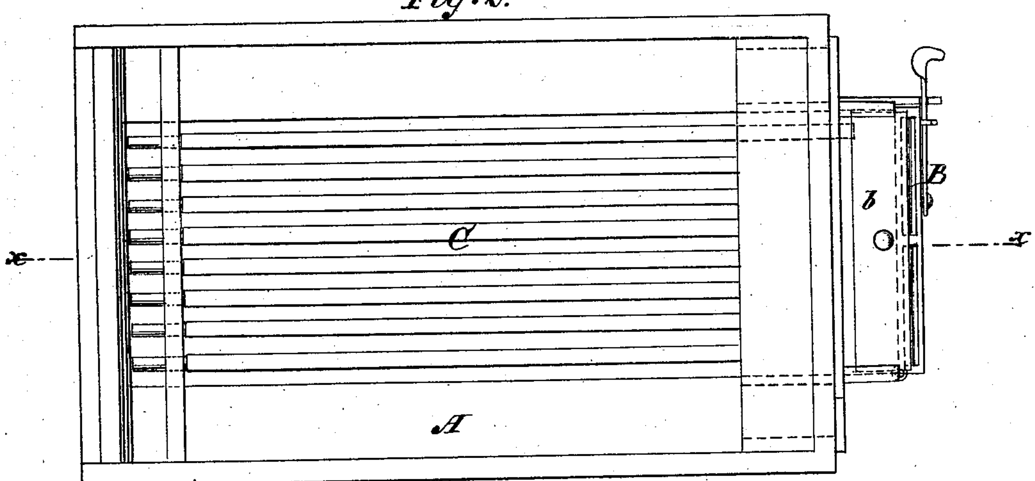
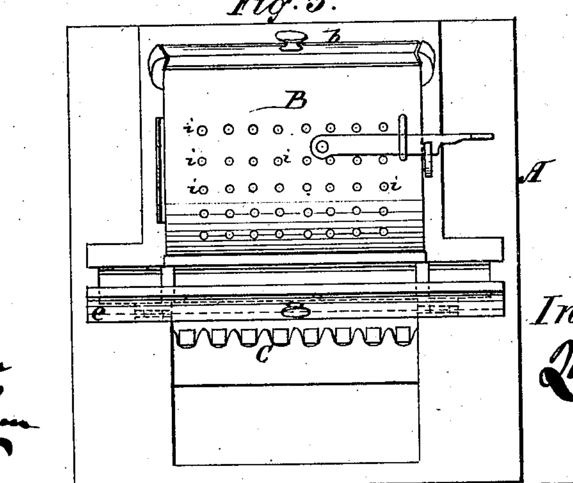


Fig: 3.



Witnesses:
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UNITED STATES PATENT OFFICE

JOHN ASHCROFT, OF BROOKLYN, NEW YORK, ASSIGNOR TO SARAH J. ASHCROFT, OF SAME PLACE.

IMPROVEMENT IN FURNACE-DOORS.

Specification forming part of Letters Patent No. **184,949**, dated December 5, 1876; application filed August 14, 1876.

To all whom it may concern:

Be it known that I, JOHN ASHCROFT, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Furnace-Doors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a sectional view of a furnace and the improved door on the line *x x* in Fig. 2. Fig. 2 is a top or plan view of the furnace and door, with top of furnace removed. Fig. 3 is a front elevation of the furnace and door.

The nature of my invention consists, first, in a furnace-door constructed with two walls, inclined inward, and curved from top to bottom, to direct the currents of air, open also at the top and bottom, with a register to regulate the admission of air; second, in a double hollow dead-plate, the upper part of which is hinged together, with a trap or hinged door below the furnace-door proper, to facilitate the slicing of the fire and the admission of air when necessary.

The frame for the door is constructed so as to project from the end of the furnace about seven inches at the top, and one inch at the bottom, and the side frames curve inward from top to bottom. Upon the top of this frame is placed a slide valve or cover, *b*, which is intended to slide onto and over the openings in the top of the door when closed, to regulate the admission of air. Upon the side of this frame is hinged the door, by any means ordinarily used in hinging on curved lines.

The door B is constructed of two parallel walls from top to bottom, closed at the sides and bottom, and open at the top, and the inner wall perforated at the bottom by a horizontal slot or slots, *d*, opening into the furnace. The outer wall is also perforated with holes *i i i*, also for the admission of air. These walls composing the door are curved inward from top to bottom, for the purpose of so directing the currents of air to be introduced to the fuel that they shall be deflected downward and inward directly upon and over the dead-plate to the point of combustion, thus conveying the air where it is most needed to produce complete combustion of the fuel and gases. *f* is a double hollow dead-plate, the upper part of which, in front of the door, is hinged at the outer side. In front of this, and directly under the door, is provided a trap-door, *e*, hinged on its under side. The advantage derived by this arrangement lies in the ease with which the fires can be sliced or broken up, stirred, or raked without opening the door proper. By opening the trap-door *e*, a slicer or iron rod may be introduced, and the fuel sliced or stirred, the hinged part of the dead-plate yielding upward to the movements of the slicer.

In connection with the improved door, I have provided a grate-bar, *c*, similar in shape to the ordinary grate-bar, pivoted at its inner end, and cast square at the outer end, which projects outward to the front of the furnace, and rests upon a bearer provided with grooves, in which it can turn. With an ordinary wrench applied to the square end it can be shaken or oscillated to free it from ashes.

Having described my invention, what I claim as new is—

1. A double furnace-door, inclined inward, and curved from top to bottom, to direct the currents of air, and open also at top and bottom, provided with a register to regulate the admission of air.

2. The combination of the hinged dead-plate with an opening or door, *e*, substantially as described.

JOHN ASHCROFT.

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