C. F. DEGELMAN.

DOOR FOR FURNACES.

No. 176,741. Patented May 2, 1876.

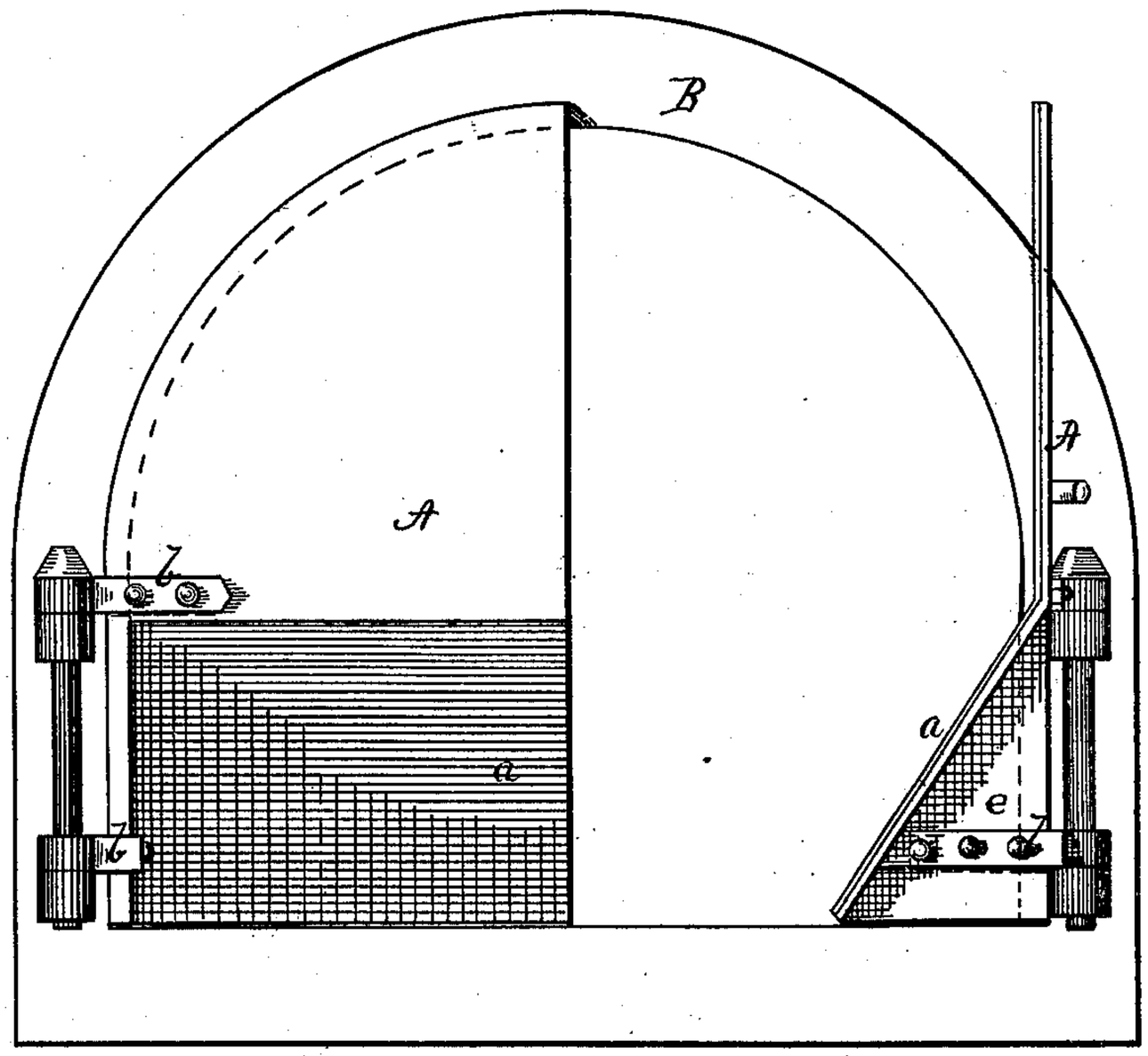

Fig. 1.

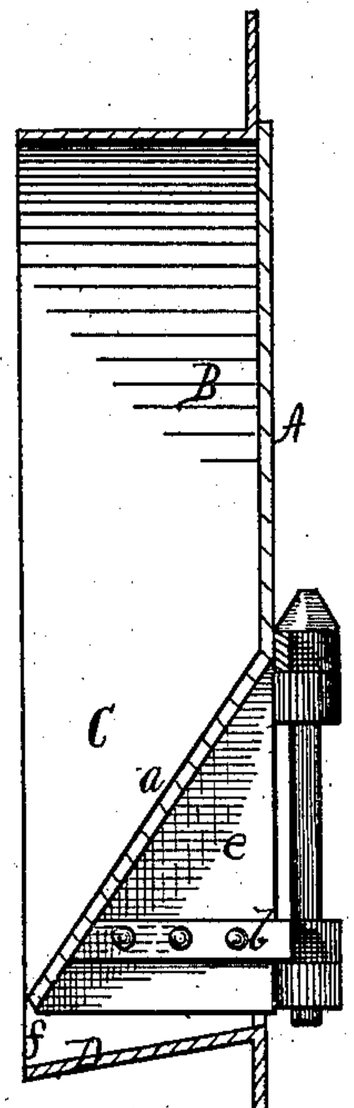

Fig. 2.

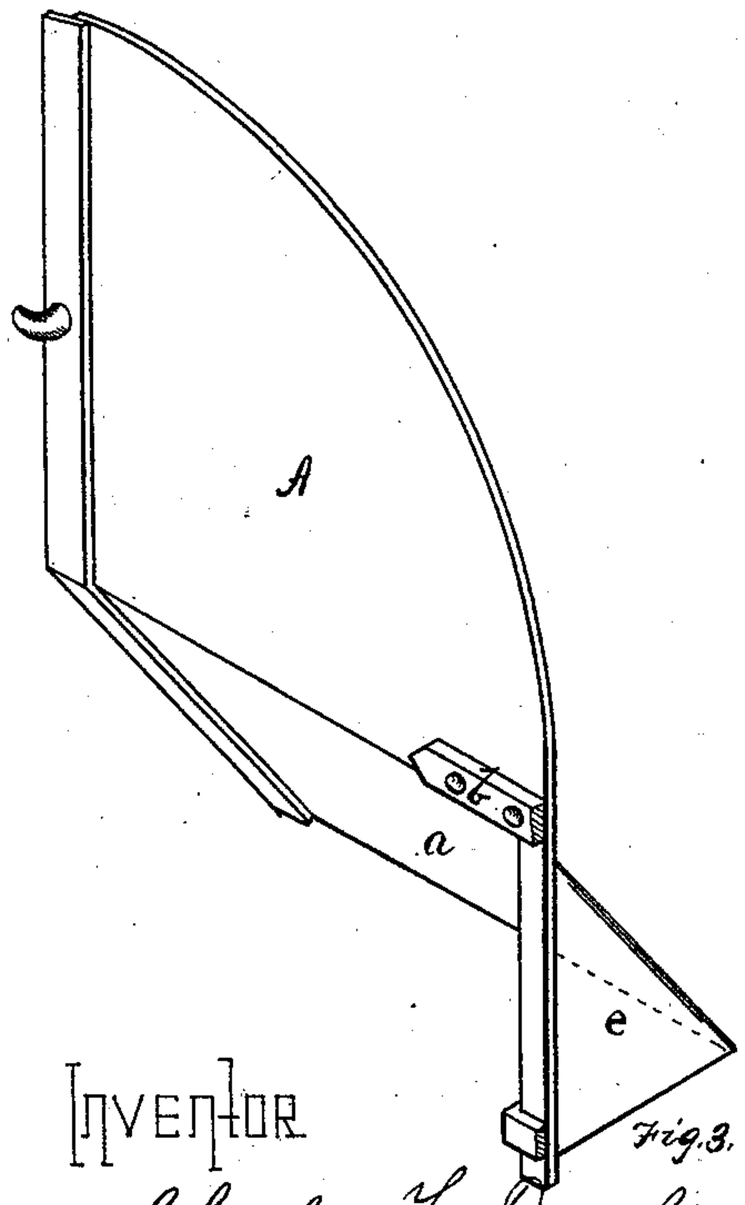

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES F. DEGELMAN, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN DOORS FOR FURNACES.

Specification forming part of Letters Patent No. **176,741**, dated May 2, 1876; application filed February 26, 1876.

To all whom it may concern:

Be it known that I, CHARLES F. DEGELMAN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Doors for Stoves and Furnaces; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a face view of my improved furnace and stove door, one door being open. Fig. 2 is a sectional view of the same; and Fig. 3 is a detached perspective view of one of the doors.

Like letters of reference indicate like parts in each.

My invention relates to the doors of furnaces and stoves in which the grate-bars of the furnace approach the level of the bottom of the door.

Hitherto, in doors of this class, the draft through the furnace has been over the top of the fire, thus cutting off the flame, and not generating so much heat as if the draft passed through the fuel. And, also, the ignited fuel rested directly against the liners of the furnace-door, and on account of the intense heat burned them out very soon, the ordinary liners not lasting more than six weeks.

My invention has for its object the remedying of these objections; and it consists, first, in causing the lower portion of the door or doors to project or bend in so as to form an induct, which heats the air and induces a current through the fuel on the front of the bars, and likewise forms an air-chamber which protects the lower portion of the liners; second, in closing the sides of the induct, formed by the curved doors, by means of triangular or suitable shaped plates, which prevent the draft from entering at the sides of the doors and passing over the fuel, instead of through the same.

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

In the drawing, B is the door-frame provided with the base-plate D and liners C, the base-plate and liners being in one piece. The base-plate D is preferably inclined, as shown in Fig. 2, though the same may be horizontal. Hinged at *v* are the doors A, which close against the door-frame B in the usual manner. The lower portions of the doors A are curved or bent at *a* in toward the furnace, until they are even or nearly even with the inner edge of the liners of the door-frame, and the triangular plates *e* are set in at the sides, so as to fit against the liners and prevent any fuel from coming against them, and also to direct the draft to the air-opening *f*. The lower hinges of the doors A extend onto and are attached to the triangular plates *e*. The bottoms of the doors A just clear the lower part of the door-frame B, so as to form the air-inlet or draft-opening *f*.

The advantages of my improved door are, that on account of the inclination of the doors A and base-plate D, the current of air is directed through the opening *f* downwardly, so as to rise through the fire, thus causing a more complete combustion of the fuel, and consequently a generation of more heat. That the inwardly-inclined doors prevent the ignited fuel from resting upon the liners of the furnace-doors and burning them away. The air-chamber, through which the draft is constantly passing, materially aids in cooling and preserving the liners. The triangular pieces, which are preferably flanged so as to form an overlap on the frame, like the door, prevent the entrance of air at the sides of the door.

I have found that, with a door of this construction, artificial draft may be dispensed with, and the natural draft relied on to support combustion, and that in either stoves or furnaces, of the class specified, the fires may be readily controlled.

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

1. In a boiler or similar furnace, wherein the grate-bars of the furnace approach the level of the bottom of the door, a door bent or curved inward at the bottom substantially as described, so as to cause the draft to pass through the fuel, as and for the purpose specified.

2. In a boiler or similar furnace, wherein the grate-bars of the furnace approach the level of the bottom of the door, a door or doors bent or curved inward in combination with

the liners of said furnace, so as to form on air-chamber for the protection of the liners, substantially as specified.

3. In combination with the curved or bent door or doors of a furnace, the side pieces for preventing the entrance of air at the sides of the door, substantially as specified.

In testimony whereof, I the said CHARLES F. DEGELMAN, have hereunto set my hand.

CHARLES F. DEGELMAN.

Witnesses:

DELMONT JONES,

JAMES I. KAY.