

P. E. SHEAR.
DOOR OR FRAME FOR PUDDLING FURNACES.

No. 87,438.

Patented Mar. 2, 1869.

Fig. 1.

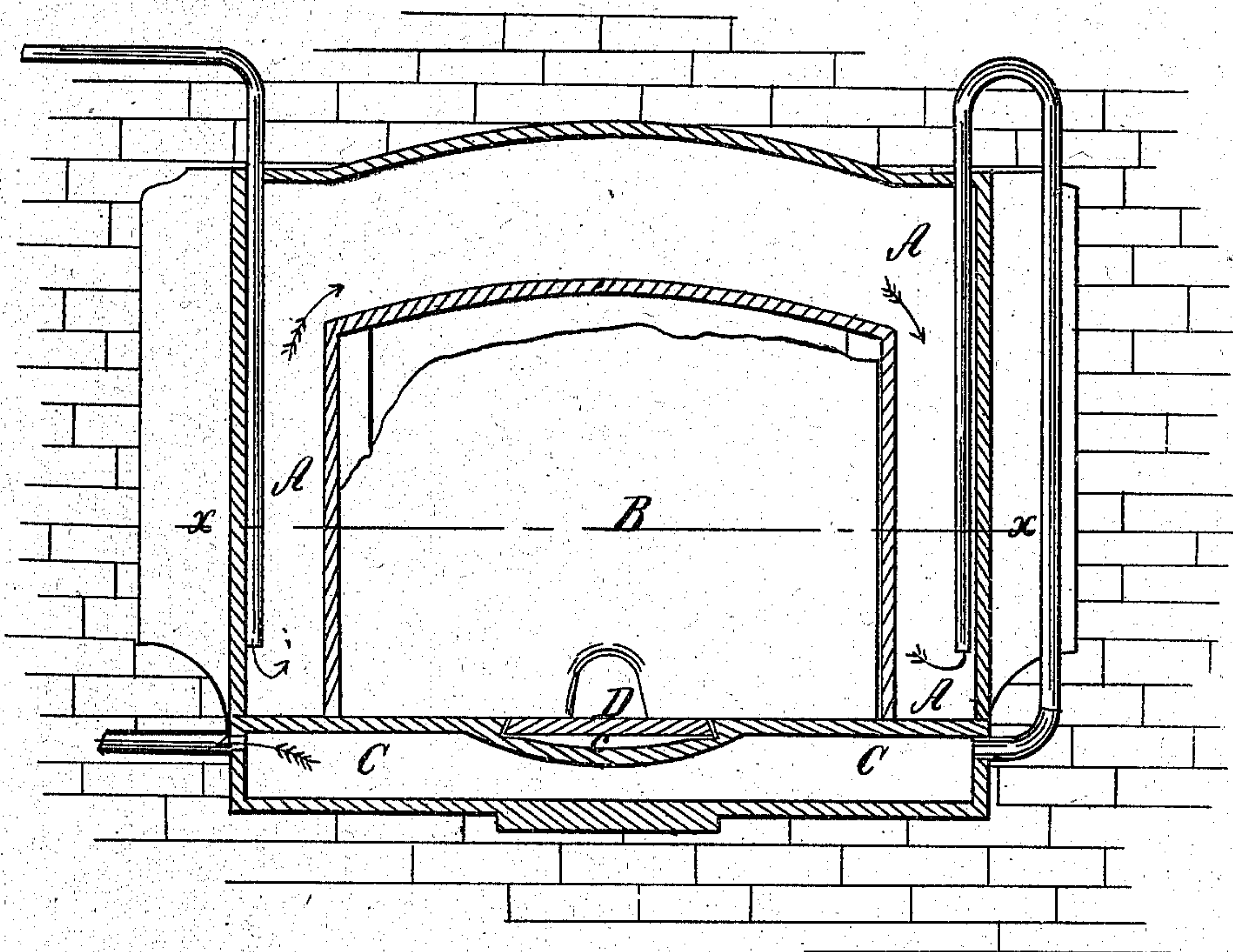


Fig. 2.

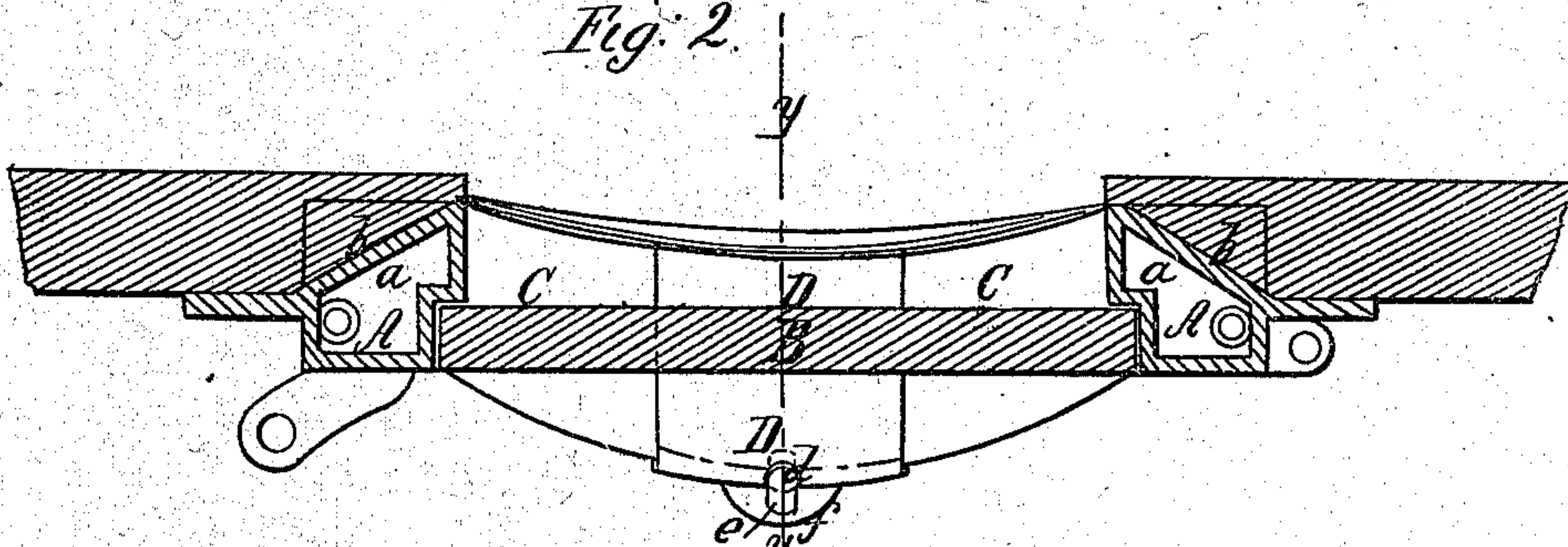
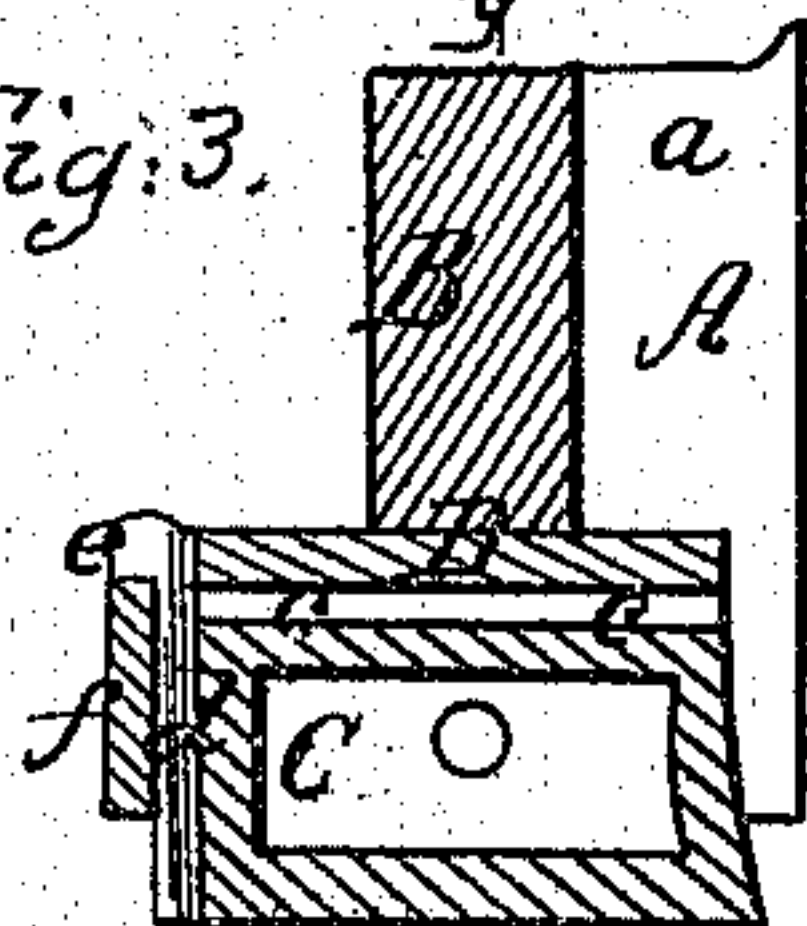


Fig. 3.



Witnesses;
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per *[Signature]*
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United States Patent Office.

PETER E. SHEAR, OF SAUGERTIES, NEW YORK, ASSIGNOR TO HIMSELF AND WILLIAM MULLIGAN, OF THE SAME PLACE.

Letters Patent No. 87,438, dated March 2, 1869.

IMPROVEMENT IN THE DOORS OR FRAMES OF PUDDLING-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, PETER E. SHEAR, of Saugerties, in the county of Ulster, and State of New York, have invented a new and improved Puddling-Furnace Frame; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical longitudinal section of my improved puddling-furnace frame.

Figure 2 is a horizontal section of the same, taken on the plane of the line *x x*, fig. 1.

Figure 3 is a detail vertical transverse section of the same, taken on the line *y y*, fig. 2.

Similar letters of reference indicate like parts.

The object of this invention is to so construct the bit or tool-support of a puddling-furnace door, that it cannot shrink and bend by coming in contact with the cold metallic surface underneath, and that it can be moved in, if its inner exposed edge has been destroyed by the excessive heat; also to so construct the frame of the door, that the fire-brick built against it can be left stronger, to be less liable to burn out.

The invention consists, first, in arranging the bit, which is dovetailed into the frame, above a concave surface, so that its under side cannot come in contact with the cold metal surface of the frame, to prevent its becoming bent.

The invention consists, second, in the application, to such sliding bit, of a retaining-pin, which is arranged in front of it, and which has a head projecting from one side. By turning this head inward, the bit will be moved, and held further in, and it can thus be made available, even after its inner edge has been burnt.

The invention finally consists in forming an inclined face on the back of the hollow metallic door-frame, so that the brick in contact with the said frame will not so easily burn, and fall to pieces.

A, in the drawing, represents the metallic frame of a puddling-furnace door. The same is cast hollow, to allow the circulation of water, as indicated in figs. 1 and 2, and has, to bring the water in rear of the door B, an inward-projecting part *a*, as usual.

This portion *a* has heretofore always been of rectangular cross-section, but I make it triangular, thereby producing the inclined back face *b*, which is clearly shown in fig. 2.

The fire-brick, built up against the frame A, are thus considerably thicker, where they come in contact with the inclined face *b*, than they could be if built against the rectangular projection. They will consequently not be so easily burnt and destroyed, and the frame will not so soon be exposed to the direct action of the fire as it formerly was.

C represents the hollow sill of the frame. In its upper surface is formed a recess, for the reception of the flat bit-plate D, which bit-plate has bevelled edges, so that it is dovetailed into the recess, as shown in fig. 1.

The surface of the recess is concave, as shown, so that there will be an open space, *c*, under the bit, for the purpose heretofore set forth.

d represents a pin, with a head, *e*, projecting from one side. It is fitted through a perforated ear, *f*, which projects from the sill C, and fits against the front edge of the bit D.

When the rear edge of the bit is burnt, the pin is turned, with its head, inward, to hold the bit further in.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. Providing the hollow metallic frame of a puddling-furnace door, with an inclined back face, *b*, substantially as herein shown and described, for the purpose specified.

2. The sliding bit D, when fitted over the concave face of the sill C, for the purpose of not coming in contact with the metallic surface of the sill, as set forth.

3. The pin *d*, having the head *e* on one side, in combination with the sliding bit-plate D, all arranged substantially as herein shown and described.

P. E. SHEAR.

Witnesses:

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GEORGE SHEAR.