P. D. NICOLS.

CONSTRUCTION OF REVERBERATORY FURNACE-BOTTOMS.

No. 191,543. Patented June 5, 1877.

*Fig. 1*

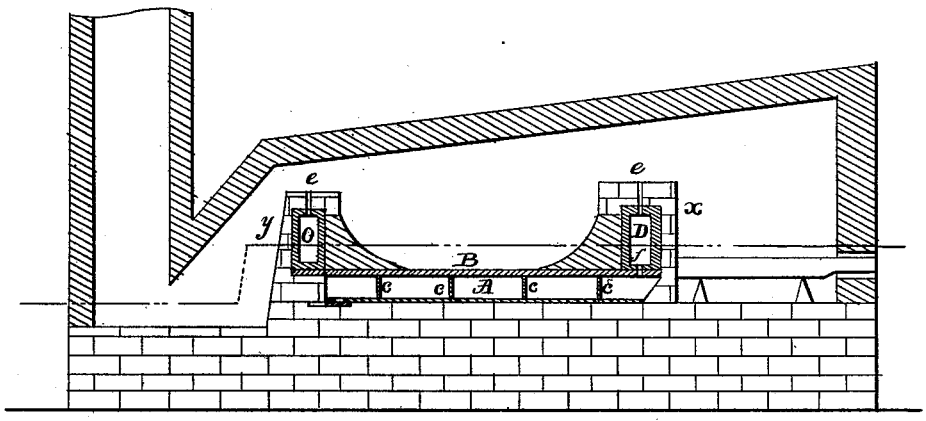



*Fig. 2.*

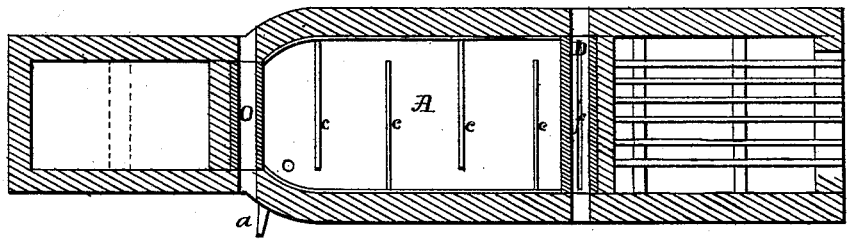



*Fig 3.*

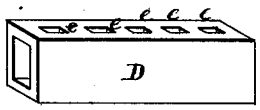
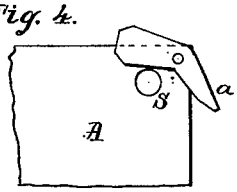



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

PARSHALL D. NICOLS, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN THE CONSTRUCTION OF REVERBERATORY-FURNACE BOTTOMS.

Specification forming part of Letters Patent No. **191,543**, dated June 5, 1877; application filed January 2, 1877.

*To all whom it may concern:*

Be it known that I, PARSHALL D. NICOLS, of Pittsburg, Pennsylvania, have invented a Furnace-Bottom, of which the following is a specification:

The object of my invention is to furnish to the gases of combustion, in an ordinary reverberatory furnace, a supply of heated air by economic means.

My invention relates to any reverberatory furnace used for the melting or heating of pig-iron or any metals, and especially to puddling-furnaces.

The improvements I have made therein consist in certain peculiarities of furnace construction, the nature of which will more fully appear from the following description, reference being had to the accompanying drawings, in which—

Figure 1 shows a vertical section of a furnace containing my improvements. Fig. 2 is a horizontal section of the same, showing the auxiliary bottom A, the bottom B being removed, the ribs *c c c* shown. Fig. 3 is a perspective view of the box D. Fig. 4 shows a broken corner of the auxiliary bottom A and damper *a*.

I construct the top plate B of the furnace-bottom in the ordinary manner. Upon the upper surface of auxiliary bottom A, I construct a series of ribs, opening upon alternate ends, as shown by *c c c* in Fig. 2. These ribs, when the bottom B is placed upon A, form a continuous passage from the inflow-opening S to the outflow-slot *f* within the box D. I provide the auxiliary bottom A, at any approved point, with one or more openings, having movable covers, so that the inflow of air may be controlled by the operative. Within the fire-bridge wall I place the box D, the air-passage from the bottom opening into it by the slot *f*. The upper portion of the box D, I provide with openings *e e e*, which I connect with corresponding slots or openings in the masonry of the bridge.

The flue-wall I supply with the box O, which may either be an air or water bosh. The admission of the air to the gases at this point of contact, through the slots over the fire-bridge wall, will greatly aid in their combustion within the distance where heat is most needed, and save time and fuel.

I claim as my invention—

1. The herein-described furnace-bottom, consisting of the top B and bottom A, with the ribs *c c c* and openings S and *f*, as described, and for the purpose set forth.

2. The combination of the bottoms A and B, having the air passage and openings, as shown and described, with the box D, provided with the slotted opening *f* for the admission of air, and the openings *e e e* for its distribution, as shown and described, and for the purpose set forth.

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