(No Model.) 4 Sheets—Sheet 1.

L. PROMOLI.

FURNACE FOR THE MANUFACTURE OF TERRO-METALLIC PAVING STONES.

No. 345,727. Patented July 20, 1886.

Fig. 1.

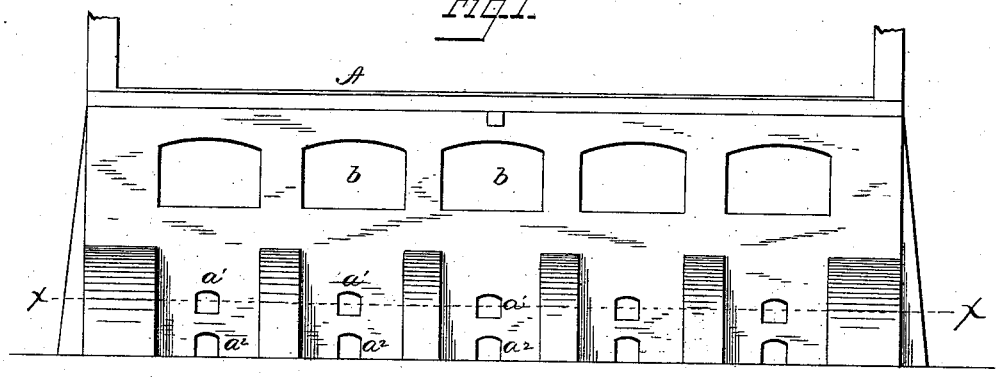
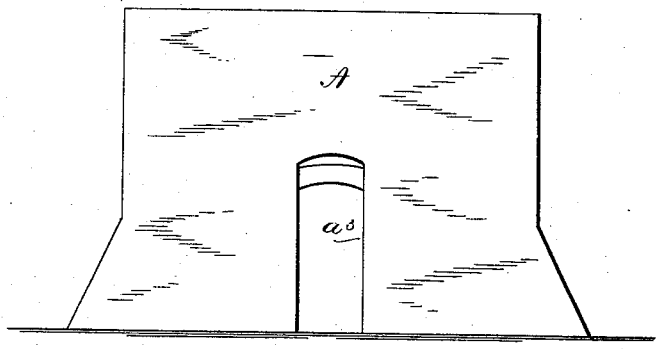


Fig. 2.



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FURNACE FOR THE MANUFACTURE OF TERRO-METALLIC PAVING STONES.

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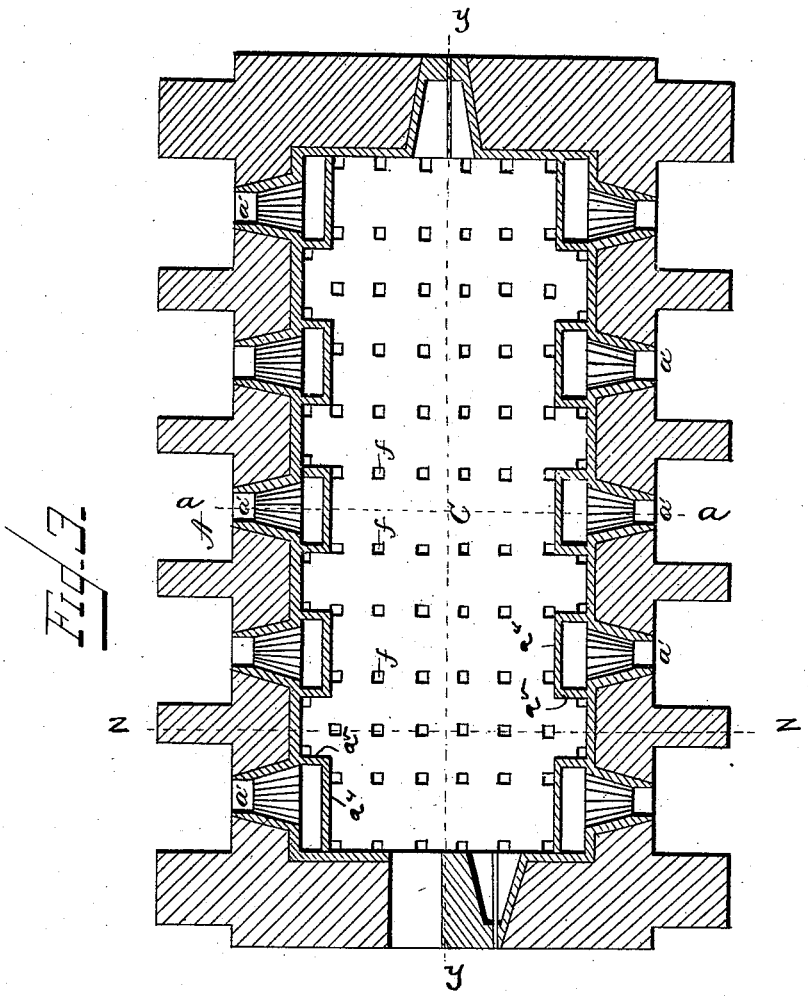

Fig. 2.

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FURNACE FOR THE MANUFACTURE OF TERRO-METALLIC PAVING STONES.

No. 345,727. Patented July 20, 1886.

Fig. 4.

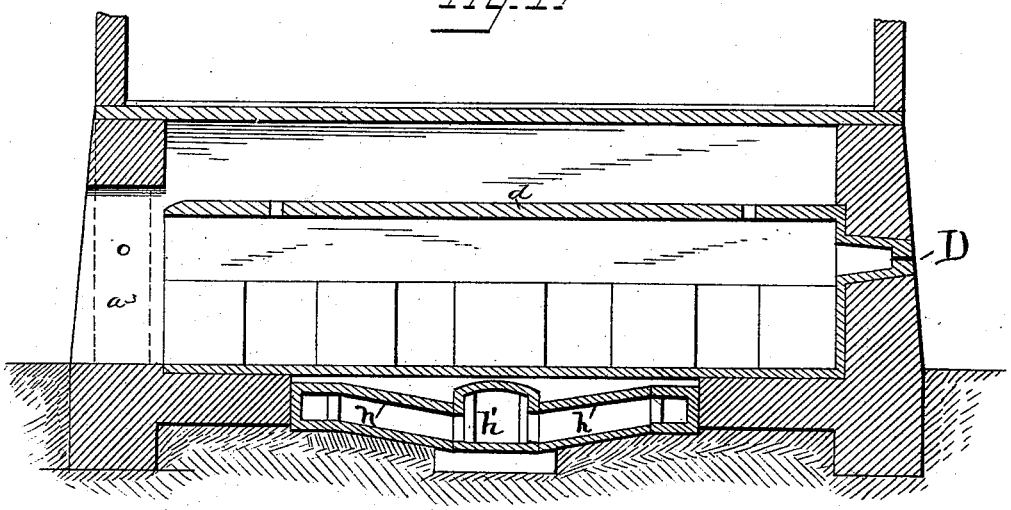
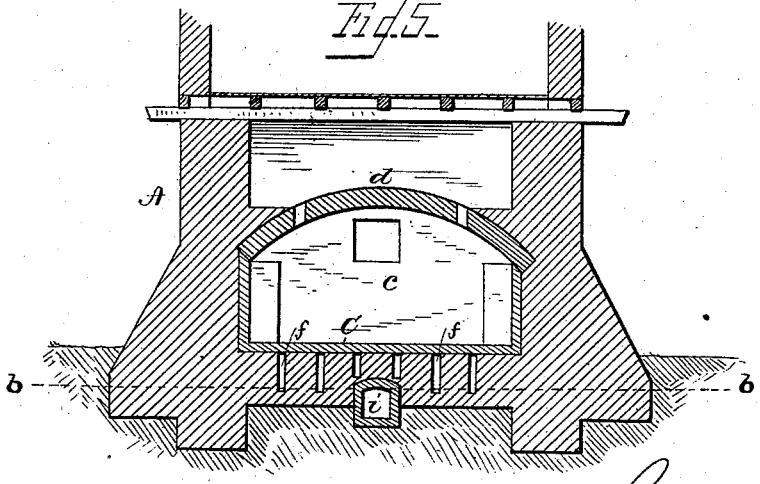


Fig. 5.



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(No Model.) 4 Sheets—Sheet 4.

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FURNACE FOR THE MANUFACTURE OF TERRO-METALLIC PAVING STONES.

No. 345,727. Patented July 20, 1886.

Fig. 6.

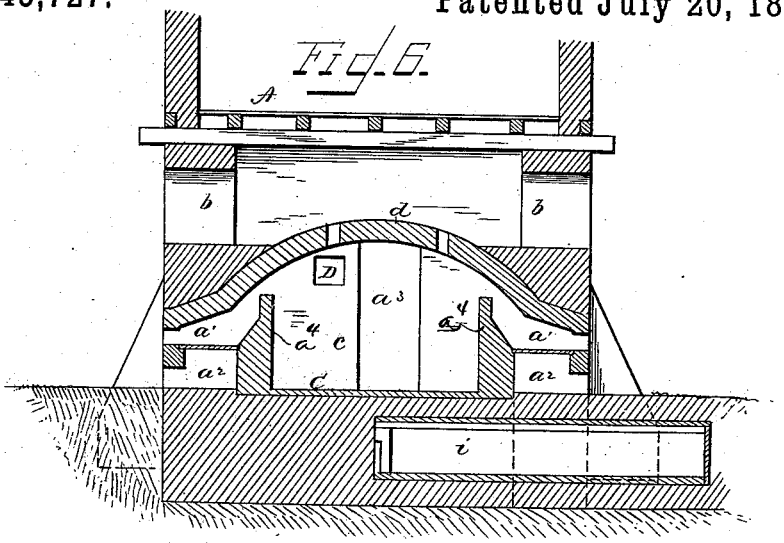
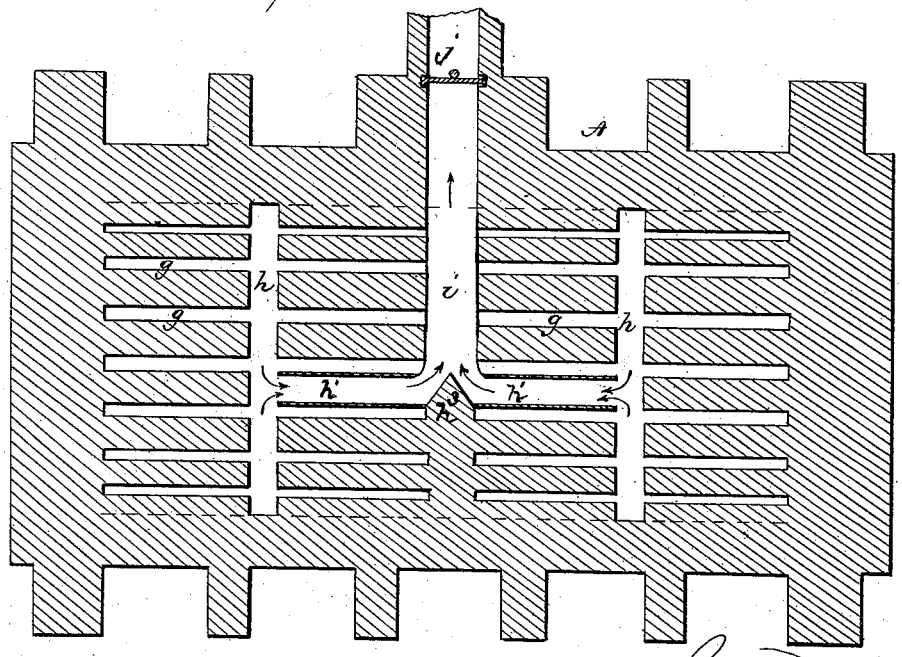


Fig. 7.



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UNITED STATES PATENT OFFICE.

LOUIS PROMOLI, OF TORONTO, ONTARIO, CANADA.

FURNACE FOR THE MANUFACTURE OF TERRO-METALLIC PAVING-STONES.

SPECIFICATION forming part of Letters Patent No. 345,727, dated July 20, 1886.

Application filed May 19, 1885. Serial No. 166,062. (No model.) Patented in Canada February 27, 1882, No. 14,260.

To all whom it may concern:

Be it known that I, LOUIS PROMOLI, a subject of the Emperor of Germany, manufacturer, residing at the city of Toronto, in the county of York, and Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Furnaces for the Manufacture of Terro-Metallic Paving-Stones or the Like; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to furnaces, and more particularly to that class which are used for burning brick, tile, &c.; and it has for its object to provide a furnace which shall be simple in its construction and thoroughly effective for the purpose intended.

With these ends in view, the invention consists in the improved construction and combinations of parts hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a furnace constructed in accordance with my invention. Fig. 2 is an end view. Fig. 3 is a horizontal section on the line *x x* of Fig. 1. Fig. 4 is a section on the line *y y* of Fig. 3. Fig. 5 is a section on the line *z z* of Fig. 3. Fig. 6 is a section on the line *a a* of Fig. 3. Fig. 7 is a section on the line *b b* of Fig. 5.

In the accompanying drawings, in which like letters of reference indicate corresponding parts in all the figures, A represents the furnace, which is provided with a series of fire-places, a', under which are ash-spaces a^2, and is provided at one end with a door-opening, a^3, for placing material to be burned within the furnace. This door or opening may be closed with bricks and double walled, with sand between the walls, and well closed with clay mortar before the fire is started. The opening a^3, communicating with the fire-places a', is made flaring, as shown in Fig. 3.

Each of the fire-places a' consists of the back wall a^4, connected at its sides by the side walls a^5. It will thus be seen that fire-chambers are provided which are separate one from the other, so that fires may be started in as many or as few of the compartments as may be desirable.

Openings *b* are provided in the top of the furnace to permit the heat to escape when the articles are sufficiently fired or baked. The openings *b* are closed in the same manner as the door or opening a^3, in order to avoid the too sudden cooling of the products within the furnace.

The oven *c* of the furnace is provided with an arched top, *d*, which is provided with openings for the passage of the products of combustion.

Within the body of the furnace is provided a flooring, C, of a highly refractory material, and provided with a series of perforations or openings, *f*, and upon said flooring the articles to be burned are placed, the flames and products of combustion passing through said openings *f*, after which they pass through a series of horizontally-disposed flues, *g*, into transverse flues *h*, and from there to a main flue, *i*, communicating with the chimney, which main flue is provided with a damper, *j*, which serves to interrupt the passage of the smoke and products of combustion at will.

The flues G, which communicate with the flues *h*, are closed at the ends opposite said flues, so that the heat after filling the flues *g* passes back into the flues *h*, and is carried from there through longitudinally-disposed pipes *h'* to the flue *i*, a projection, h^3, having inclined opposite faces projecting into the space between the ends of the pipes, so that while the heat is allowed to pass out the flue *i* it cannot pass from one pipe *h'* to the other.

A hole or opening, D, is made in the end of the furnace, and through said hole or opening one or more bricks are passed to the oven, so that their shrinkage can be noticed through the same, and in this manner it can be determined when the bricks or tiles are sufficiently baked.

In operation the brick or tile is placed in the oven through the opening in the end wall of the furnace, and said opening covered and the openings in the top of the furnace closed. The fires in the fire-places are then started and the said fire-places and their ash-pits closed. When the bricks are sufficiently baked, a last charge of fuel (hard coal) is given to all the fire-places, and the same closed as quickly as possible; the ash-pits and spy-hole are also

closed. In order not to injure the furnace by developing gases, an hour afterward, when the obnoxious gases have escaped, the main flue is also closed by means of its damper, and well plastered over with clay, so that there is no draft to the chimney. No more gas can escape, and not the least air can enter the furnace to the products. In this hermetically-closed state the furnace is allowed to remain from thirty-six to forty-eight hours, after which it is allowed to gradually cool by opening the door at the end of the furnace, and after twenty-four hours the openings in the top of the furnace are uncovered; then the ash-pits are on the following day very gradually and carefully opened. The door or the fire-holes should never be opened as long as the products are at a red heat, while the main flue-damper is not uncovered until the products are sufficiently cool to allow them to be removed with uncovered hands.

The furnace before described has the advantage of permitting it to be built of any size with regard to length, say from four to sixteen fire-holes, without impairing the uniformity in burning, from the fact that the flues are constructed in such a manner that the flames are forced to travel from the fire-places first to the top of the oven, thence down to the perforated surface, and from there, after having uniformly surrounded all the products, pass through the openings to the flues, each of which has the same amount of draft, thereby producing brick or tile uniform in hardness, color, and shape.

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

1. The combination, in a furnace, with the flooring thereof, of a series of longitudinally-disposed flues, *g*, located beneath the flooring, the flues *h*, with which they communicate, the flues *g* being closed at their opposite ends, a main flue, *i*, and pipes *h'*, connecting the main flue and the flues *h*, substantially as set forth.

2. The combination, in a furnace, with the flooring, of a series of flues, *g*, arranged beneath the same and closed at one end, the flues *h*, communicating with the other ends of the flues *g*, the main flue *i*, the projection h^3, having its opposite faces inclined, and the pipes *h'*, connecting the flues *h* with flues *i*.

In testimony whereof I affix my signature in presence of witnesses.

LOUIS PROMOLI.

Witnesses:
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Imperial German Consul.
WILLIAM MITCHELL,
W. H. BEATTY.