

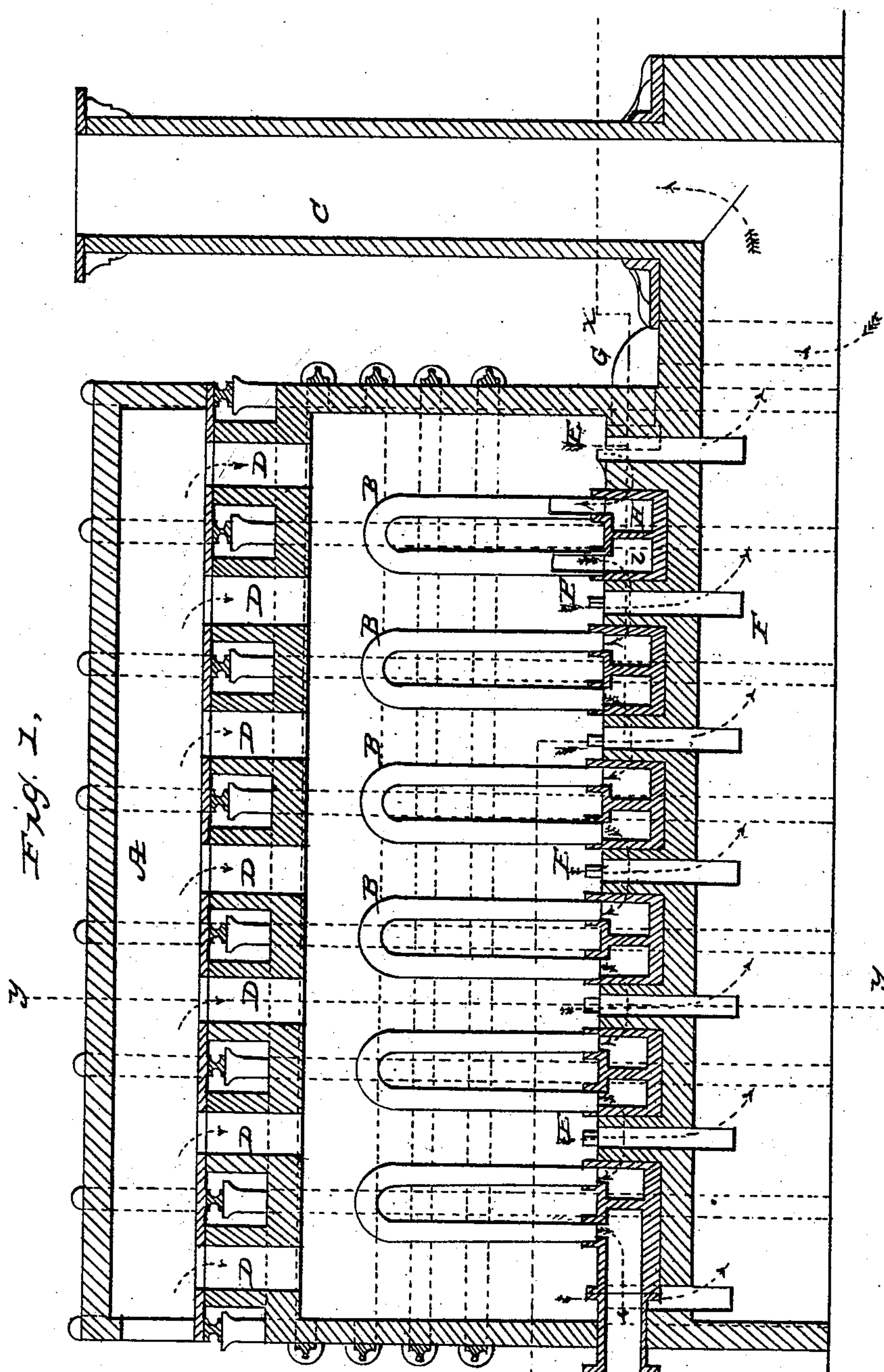
S. & J. THOMAS.

3 Sheets—Sheet 1.

Hot Blast Oven for Iron Furnaces.

No. 90,796.

Patented June 1, 1869,



Witnesses:
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Inventors:
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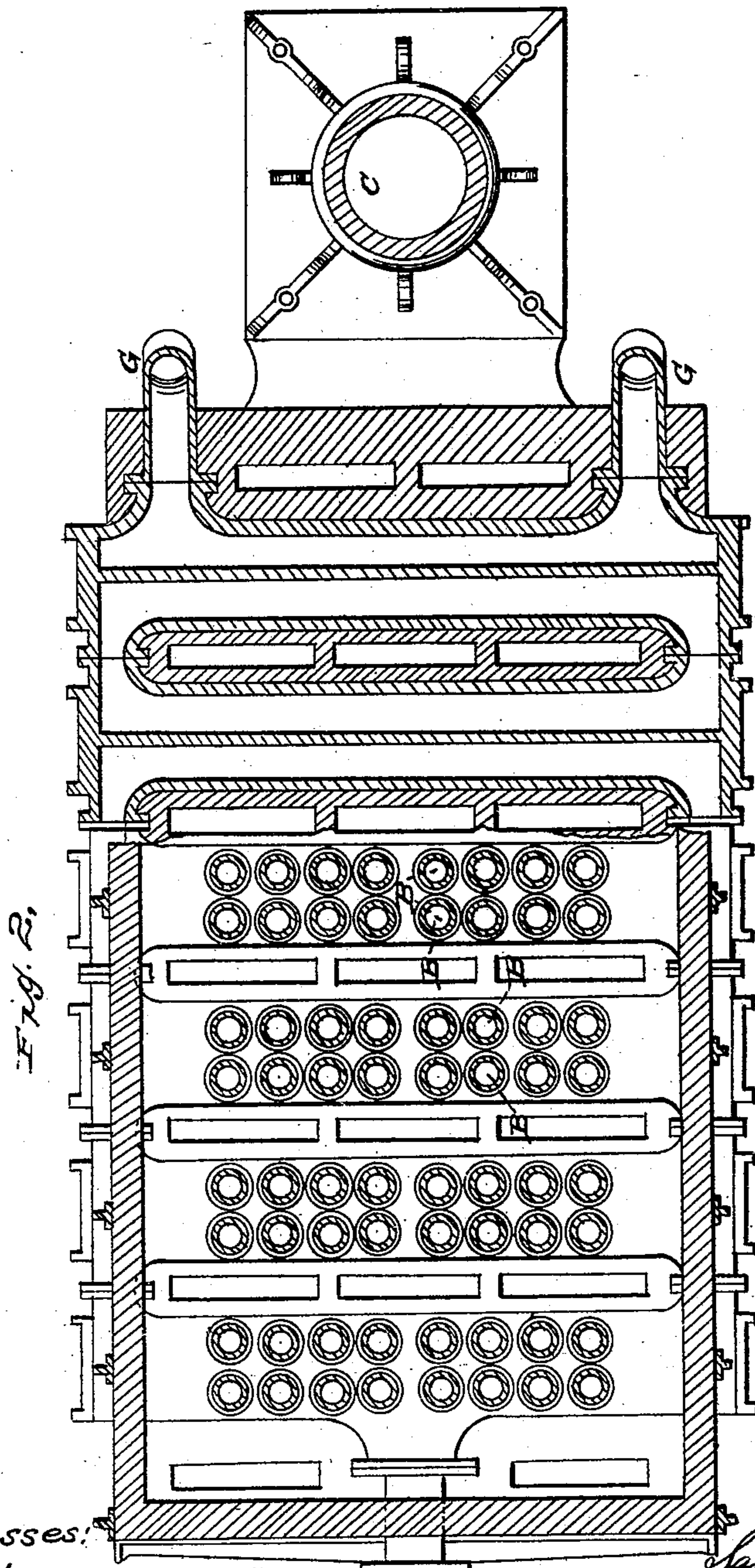
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3 Sheets—Sheet 2.

Hot Blast Oven for Iron Furnaces.

No. 90,796.

Patented June 1, 1869.



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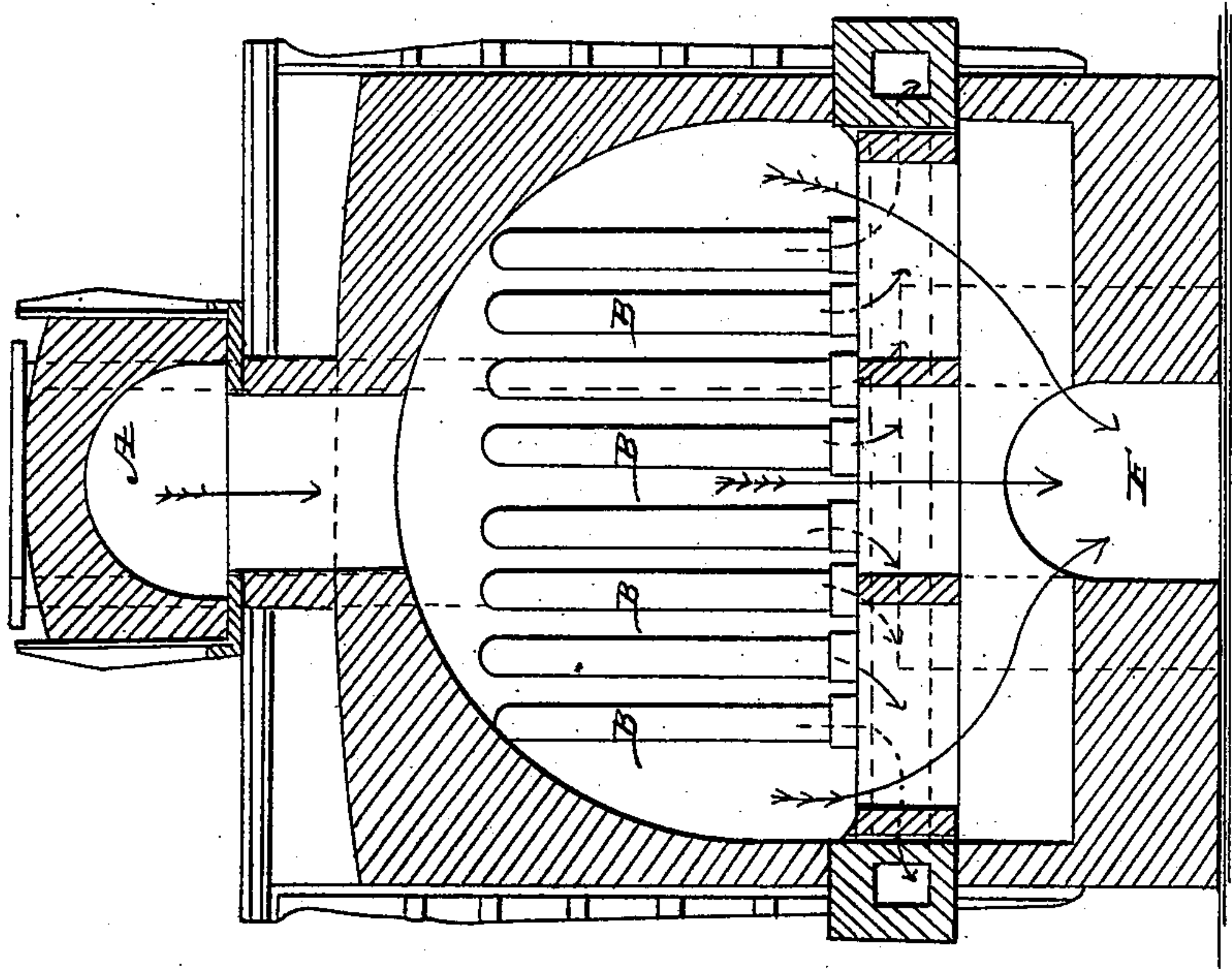
3 Sheets—Sheet 3.

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Fig. 3.



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SAMUEL THOMAS AND JOHN THOMAS, OF HOKENDAUQUA, PENNSYLVANIA.

Letters Patent No. 90,796, dated June 1, 1869.

IMPROVED HOT-BLAST OVEN FOR IRON-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 we, SAMUEL THOMAS and JOHN THOMAS, of Hokendauqua, in the county of Lehigh, and State of Pennsylvania, have invented a new and useful Improvement in Hot-Blast Ovens; and we 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.

This invention relates to a new and useful improvement in ovens, or apparatus for heating air for smelting iron in blast-furnaces; and consists in introducing the heated gases from the stack of the furnace into the top of the oven, or apparatus, and allowing it to pass down around the air-tubes, as hereinafter more fully described.

In the accompanying plates of drawings—

Figure 1, Sheet I, represents a central sectional elevation of the apparatus, showing the course of the heated gases, from its entrance to its exit, into the chimney, by arrows. It also shows the air-tubes, and the course the air travels from its entrance to its discharge, also indicated by arrows.

Figure 2, Sheet II, is a horizontal section, through the line *z z* of fig. 1, showing the position of the air-tubes in one portion of the drawing, and the connection between the sections of air-tubes in the other portion.

Figure 3, Sheet III, is a vertical cross-section of fig. 1, through the line *y y*.

Similar letters of reference indicate corresponding parts.

This improvement applies to that class of furnaces where the heated gases escaping from the stack, in the process of smelting ores, are utilized in heating the air which forms the blast.

Various methods have been adopted for this purpose, many of which are in use, but all of which are more or less objectionable, either in their general features, or in their details.

By introducing the heated gas into the top of the heating-oven, instead of into the bottom, as has been the usual practice, the oven may be placed on a level with, and alongside the furnace, thereby making the cost of erection much less, and rendering it much easier to make repairs.

A is the chamber, on the top of the oven, into which the gas from the furnace is introduced.

B represents the air-pipes, or siphons, which are

placed in the oven in groups or rows, connected with chambers, or flues at their base, as seen in the drawing.

O is the chimney, or stack.

The heated gas from the furnace passes down from the chamber A, through the openings D, and fills the oven, surrounding the air-tubes B, and passes down through the openings E, between the groups of tubes, into the channel F, in the base of the oven, and from them into the chimney O.

The course the gas travels, is indicated by the arrows.

The air which forms the blast enters through the pipes G G, at the end of the oven, just above the flue F, (on each side,) and passes into the space, or chamber H, beneath the first tier of siphon-pipe legs, up through those legs, and down through the other tier, into the chamber, or space I.

From thence the air passes to the next group of pipes, up one tier of legs, and down the other, and so on through the series, until it is discharged at the other end of the oven, through the pipe J, and to the furnace.

The course travelled by the air through the oven and siphon-pipes and chambers, is indicated by arrows, as seen in the drawing.

We do not wish to confine ourselves to any particular method as regards the details in the construction of the oven, arranging the openings, or securing the siphon air-pipes in place.

We are aware that the arrangement in these respects may be varied, without interfering with our invention, which, as before stated, consists in introducing the heated gases from the furnace into the top, instead of into the bottom of the oven, thereby greatly simplifying and increasing the utility and value of the oven.

Having thus described our invention,

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

In an oven, or apparatus for heating an air-blast by the heated gases discharged from a furnace, introducing such heated gases at the top of the oven, or heating-apparatus, substantially as shown and described, and for the purposes set forth.

SAMUEL THOMAS.
JOHN THOMAS.

Witnesses:

THEO. H. GREEN,
R. CLAY HAMMERSLY.