Atkins & Govan,

Roasting Ores.

No. 103,409. Patented May. 24. 1870.

Fig. 1.

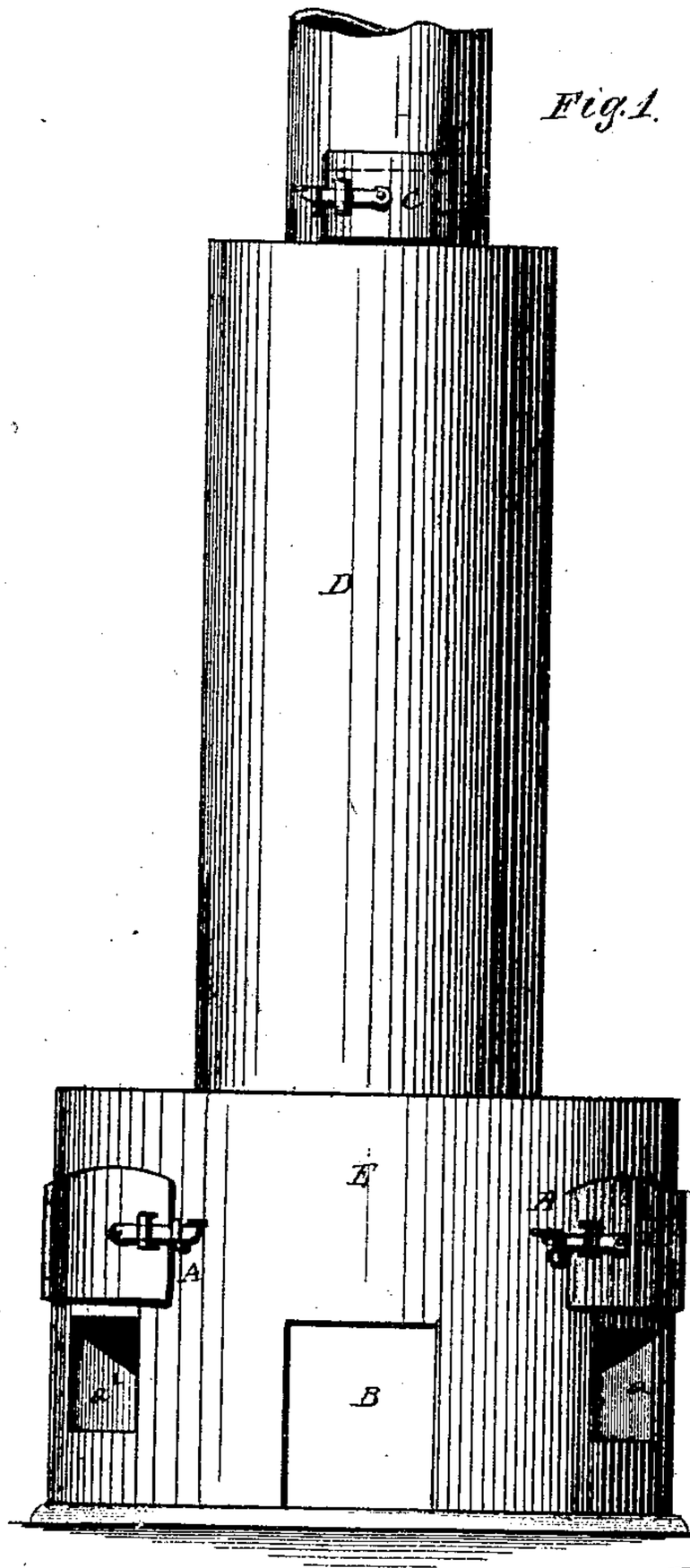


Fig. 2.

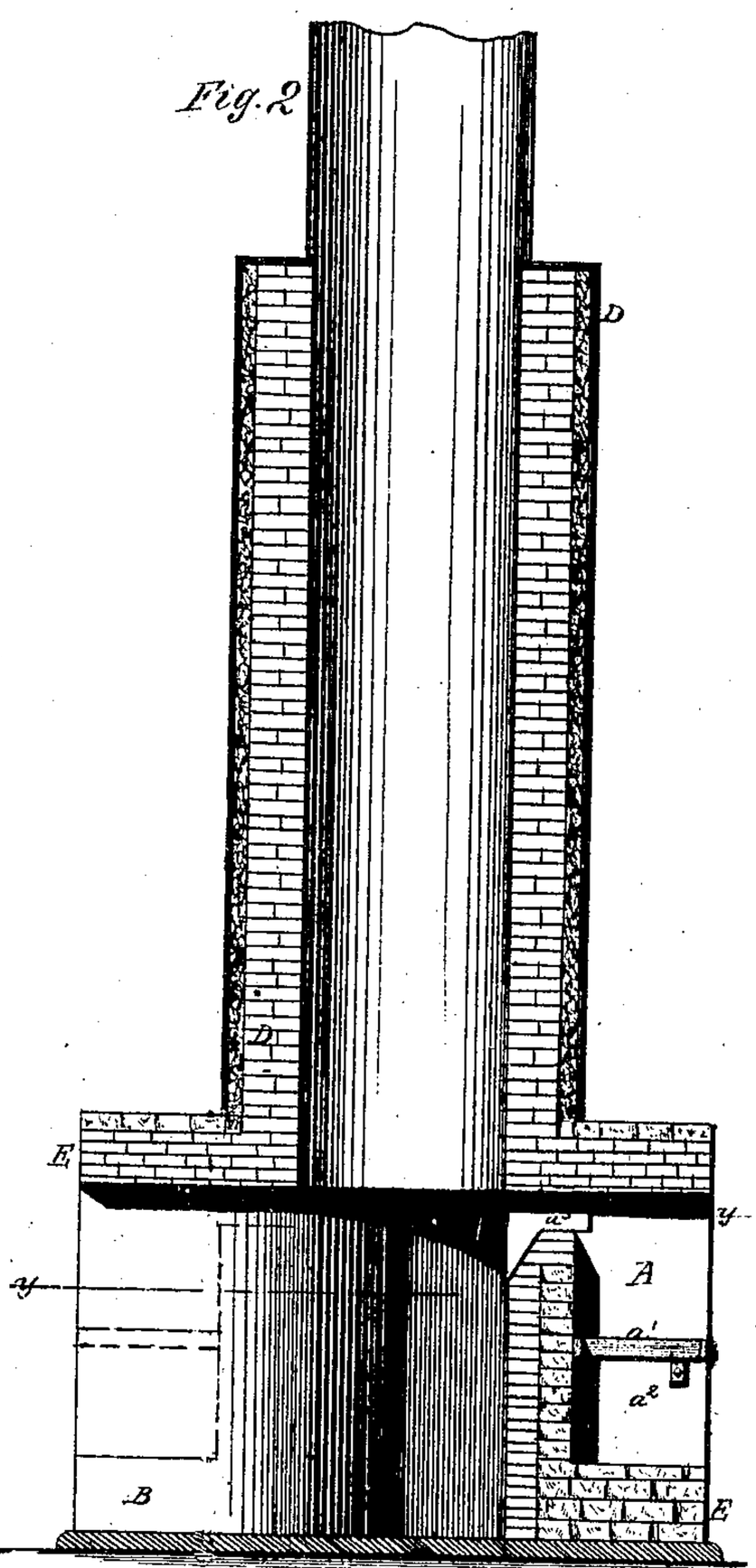
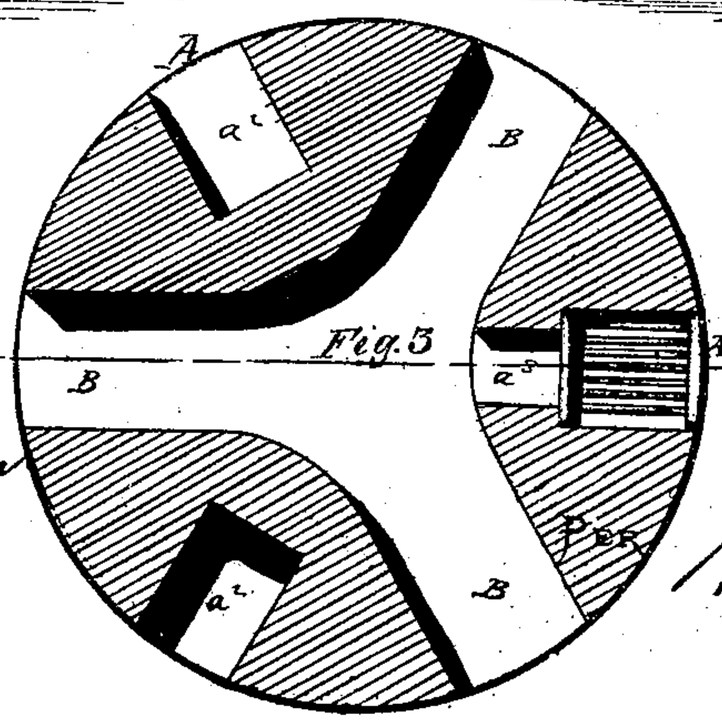


Fig. 3



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UNITED STATES PATENT OFFICE.

CHARLES M. ATKINS AND ALEXANDER GOVAN, OF POTTSVILLE, PA.

IMPROVEMENT IN FURNACES FOR ROASTING ORES.

Specification forming part of Letters Patent No. **103,409**, dated May 24, 1870.

To all whom it may concern:

Be it known that we, CHARLES M. ATKINS and ALEXANDER GOVAN, of Pottsville, in the county of Schuylkill and State of Pennsylvania, have invented a new and useful Improvement in Ore-Furnaces; 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, in which—

Figure 1 is a side view of our improved furnace. Fig. 2 is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 3. Fig. 3 is a horizontal section of the same, taken through the line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts.

Our invention has for its object to furnish an improved air-kiln or furnace for roasting sulphury ores, which shall be so constructed as to roast the ores without any blast for forcing the air through the ores, and which will require but a small amount of fuel; and it consists in the furnace, constructed as hereinafter more fully described.

The furnace is made of brick or stone work, lined with fire-brick, and the upper or smaller part, D, is incased with boiler-iron, a narrow space being left between said casing and the brick-work, to be packed with sand, as shown in Fig. 2.

A are the firing-places, which are furnished with a grate, a^1, an ash-pit, a^2, and a flue, a^3, for the passage of the fire to the ore. B are large openings formed in the lower part, E, of the furnace or kiln. These openings are made large to allow the air to cool more rapidly after passing the fires, to allow the roasted ores to have as much space as possible, and to allow the air to enter the kiln or furnace freely. This air, passing through the ores, becomes heated, and at the same time removes the heat from the roasted ores, causing them to cool more rapidly.

The kiln may be filled or charged through a door, C, in the upper part of the furnace, from a chute or from a platform, as the location of the furnace may render most convenient.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. An improved furnace having a grate, a^1, ash-pit a^2, flue a^3, and bottom openings, B B B, all constructed and relatively arranged as and for the purpose described.

2. An ore-furnace having its bottom open to allow a free current of air independent of any which comes through the fire, as set forth.

The above specification of our invention signed by us this 27th day of December, 1869.

CHAS. M. ATKINS.
ALEXANDER GOVAN.

Witnesses:
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