(No Model.) 3 Sheets—Sheet 1.

J. ASHCROFT.

GLASS FURNACE.

No. 327,984. Patented Oct. 13, 1885.

Fig. 1.

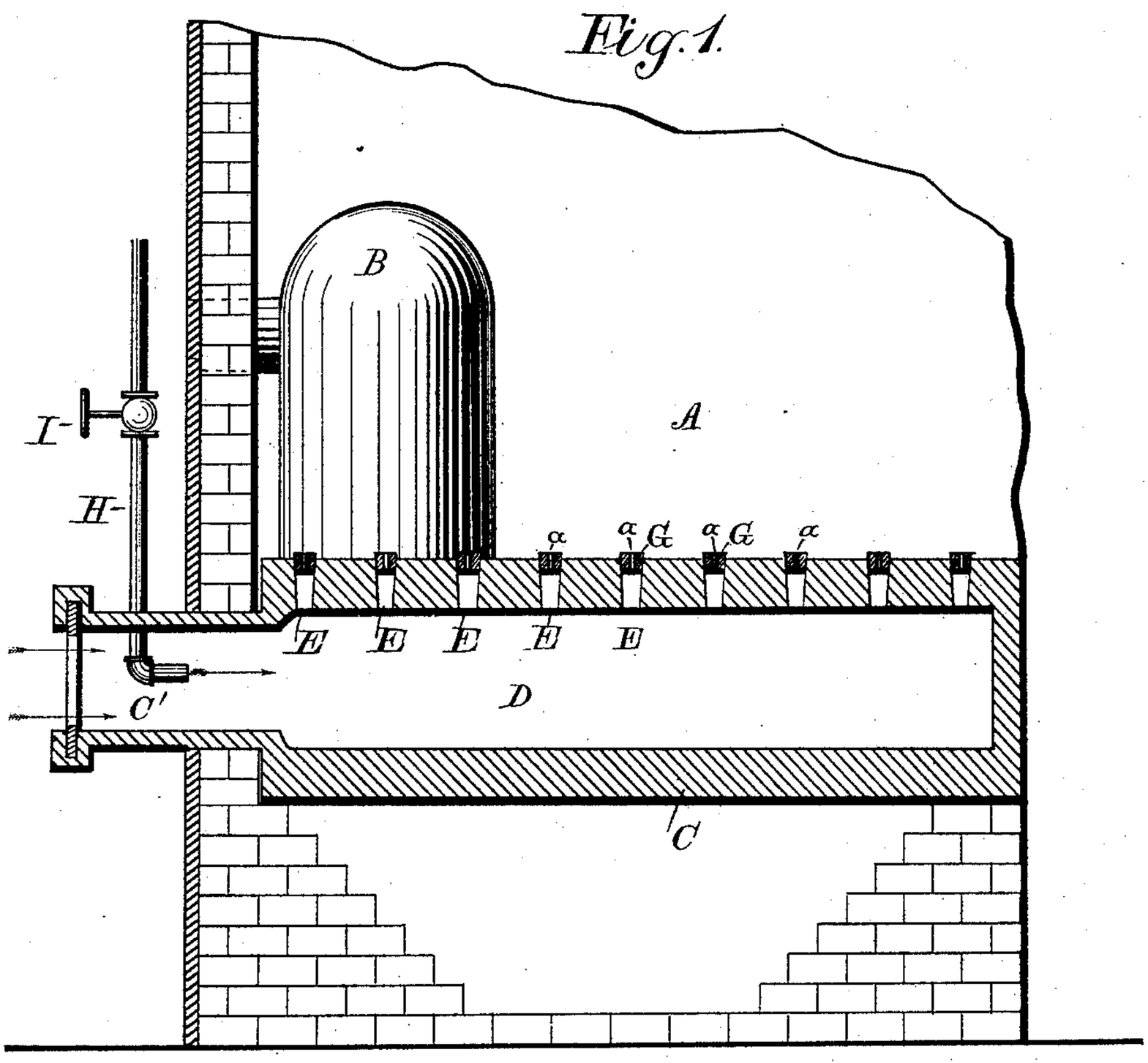


Fig. 5.

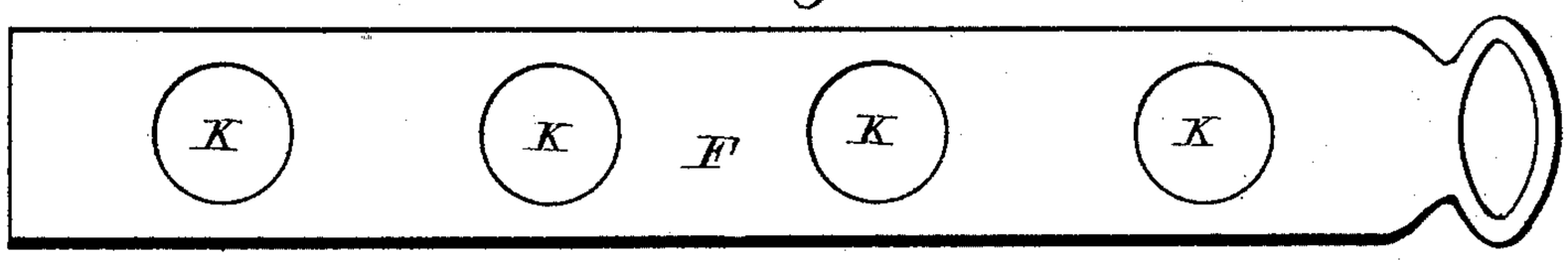
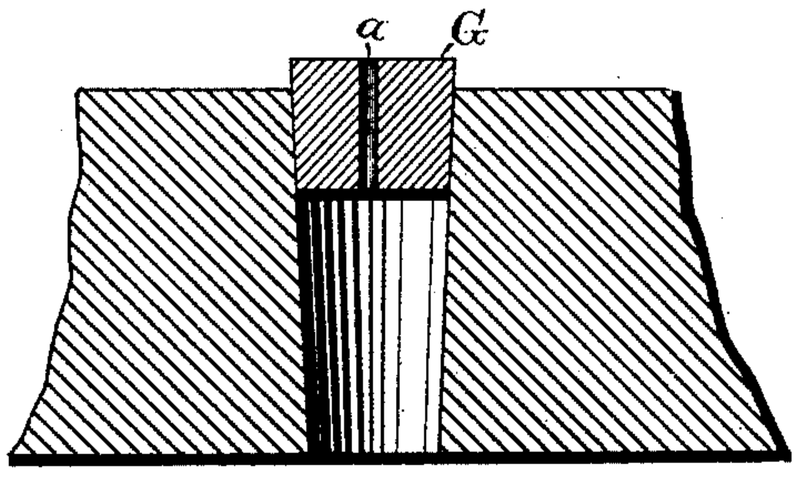


Fig. 6.



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(No Model.) 3 Sheets—Sheet 2.

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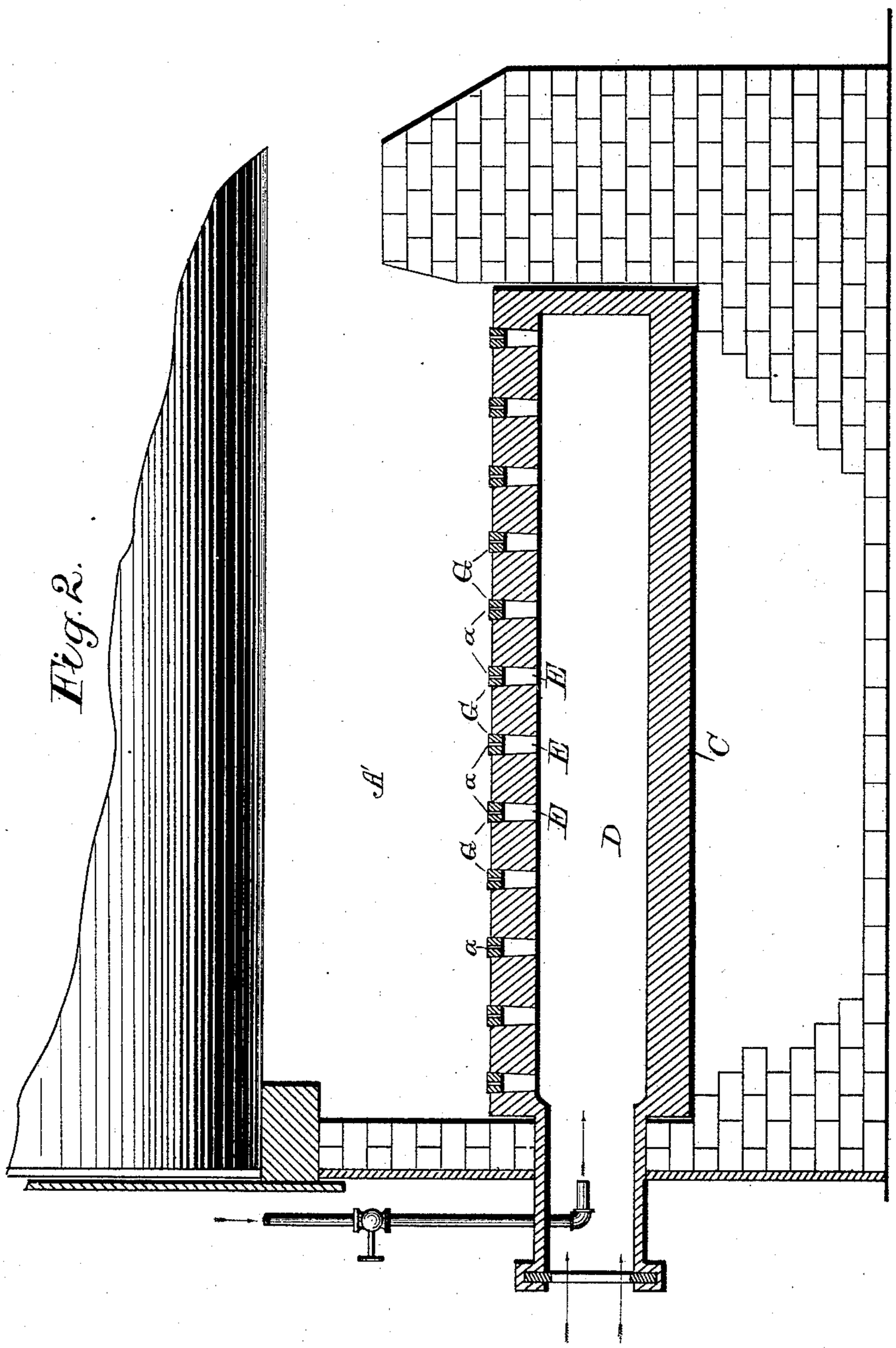
Fig. 2.



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GLASS FURNACE.

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Fig. 3.

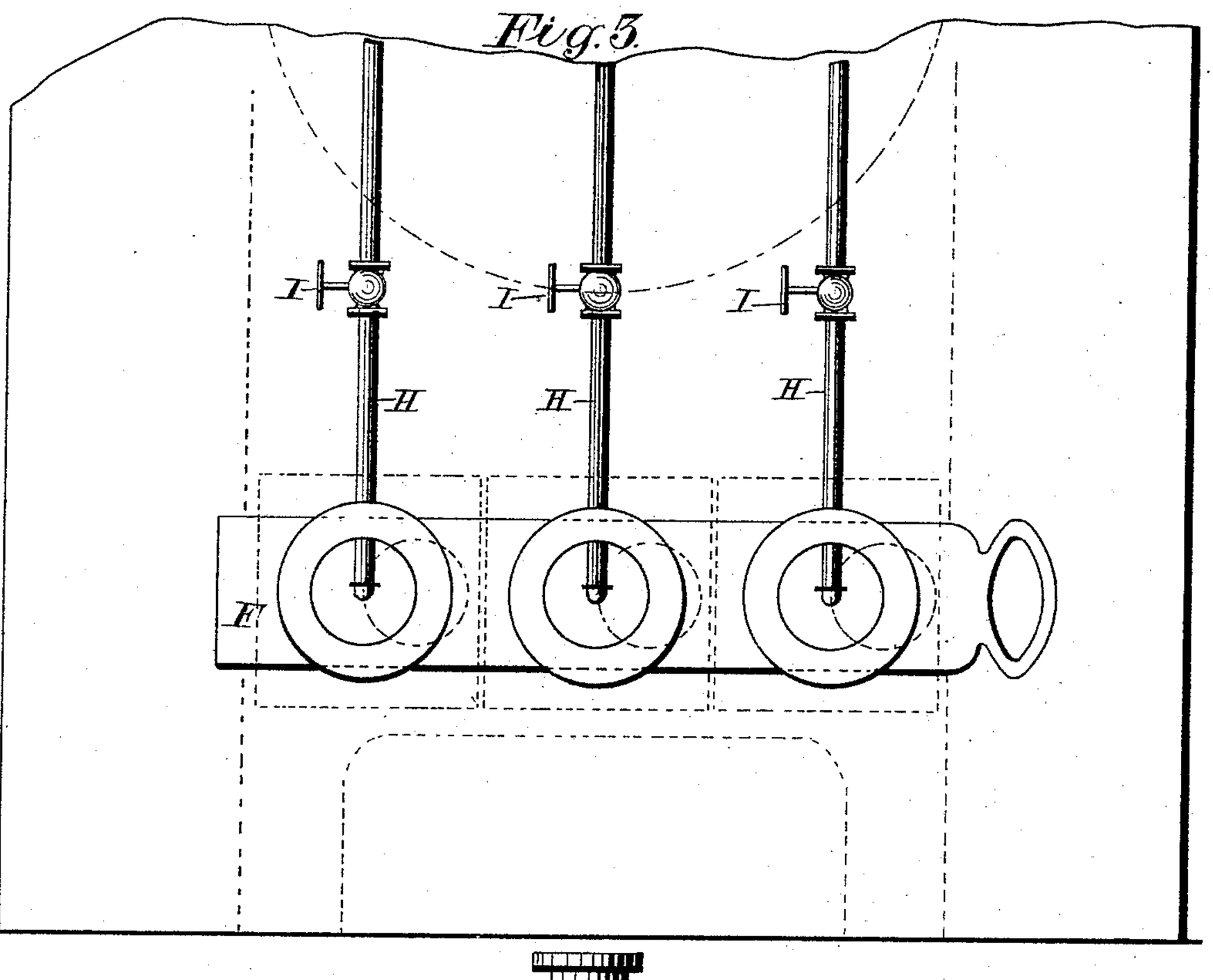
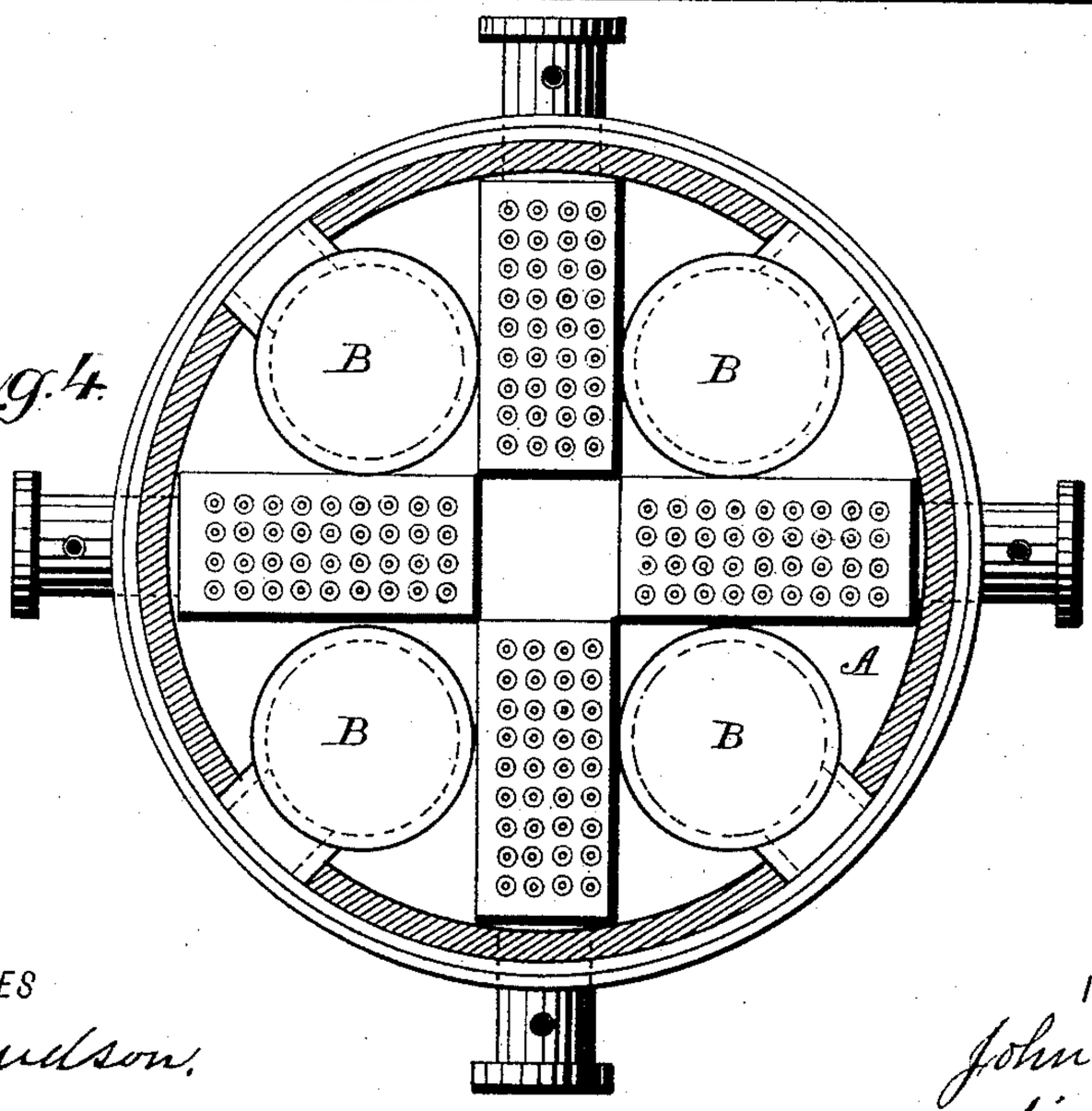


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN ASHCROFT, OF NEW YORK, N. Y.

GLASS-FURNACE.

SPECIFICATION forming part of Letters Patent No. 327,984, dated October 13, 1885.

Application filed February 9, 1885. Serial No. 155,292. (No model.)

To all whom it may concern:

Be it known that I, JOHN ASHCROFT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Glass-Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in furnaces for melting and annealing glass, and for other purposes in which natural or other gas is used as a heating medium.

The object of my invention is to construct the floor, roof, or sides of the furnace with perforated tiles, whereby the gas and air are distributed uniformly and in the proper proportions over the entire surface of the furnace, thus producing a more intense and uniform heat in the furnace than has heretofore been attained; and to this end my invention consists in making the floor, roof, or sides of the furnace of hollow tile, having a single chamber in which the gas and air are mixed, and provided with numerous apertures in the side which open into the combustion-chamber.

My invention consists, further, in providing the apertures of the tile with ferrules adapted to be removed from the apertures when worn out or clogged up.

My invention consists in certain other details of construction, which will be described hereinafter, and pointed out in the claims.

Figure 1 is a sectional view of a glass-melting furnace with my improvement therein. Fig. 2 is a sectional view showing my invention as applied to a boiler-furnace. Fig. 3 is an end view of the boiler-furnace. Fig. 4 is a top or plan view of a glass-melting furnace with pots in position. Fig. 5 is a side view of the air-regulating slide. Fig. 6 is a detached sectional view of the tile, showing the ferrule in the perforation.

A indicates the combustion-chamber of a glass-melting furnace, in which are arranged the usual pots, B. The floor of the combustion-chamber is provided with any desired number of tiles C, said tiles being provided with a chamber, D, and perforations E. The tiles C are by preference made of heavy cast-iron of the form shown; but may be made of fire-clay or any suitable material of any form best adapted for the purpose. The inner end of the tile is closed, while the outer end is provided with a contracted opening or pipe, C′, which communicates with the external air, and is adapted to be closed by a perforated sliding bar, F.

As before indicated, the tile C is provided with numerous perforations E through the upper surface, which slightly taper from the exterior of the tile toward the chamber D, into which are driven the ferrules or tips G, said ferrules or tips being provided with small apertures *a*, through which the gas and air are admitted to the combustion-chamber.

The ferrules or tips, as before stated, are driven into the apertures G and can be readily removed when worn or burned out, or when clogged or choked up can be readily cleaned out by a suitable tool.

H is a gas-supply pipe, provided with a suitable valve or cock, I, through which natural or other gas is admitted to the chamber D, the quantity admitted being governed or regulated by the valve I.

F is a slide, provided with suitable perforations, K, which register with the open ends of the tile C, and by which means the requisite amount of air for the complete combustion of the gas is admitted to the chamber D, where it is mingled with gas and passes into the combustion-chamber through the apertures *a*.

In Fig. 2 A′ indicates the combustion-chamber of an ordinary boiler-furnace, the other parts being the same as those already described in relation to Fig. 1.

The operation of my device is as follows: The gas having been turned on and the slide adjusted to admit the requisite amount of air, the air is drawn in by the force of the gas-jet and mingled with the gas in the chamber D, from whence it enters the combustion-chamber and is consumed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In furnaces for melting glass and for other purposes, a tile having an air and gas mixing chamber, the top of which is provided with numerous perforations to admit the mixed air and gas to the combustion-chamber.

2. In furnaces for melting glass and other materials, an air and gas mixing chamber, the

top of which is provided with numerous perforations, in which are placed the removable ferrules or tips *a*, as set forth.

3. In furnaces for burning natural or other gas, the gas-mixing chamber D, having perforations, as described, for admitting numerous jets of gas and air into the combustion-chamber, in combination with the gas-pipe H and perforated slide F, as set forth.

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

JOHN ASHCROFT.

Witnesses:
ARTHUR C. FRISBIE,
SAMUEL P. BELL.