

E. BAYARD & B. A. MASON.  
Glass-Furnaces.

No. 136,957.

Patented March 18, 1873.

Fig. 1

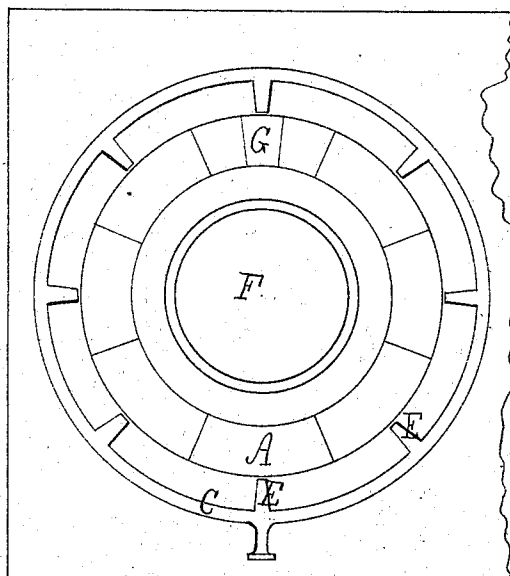


Fig. 2.

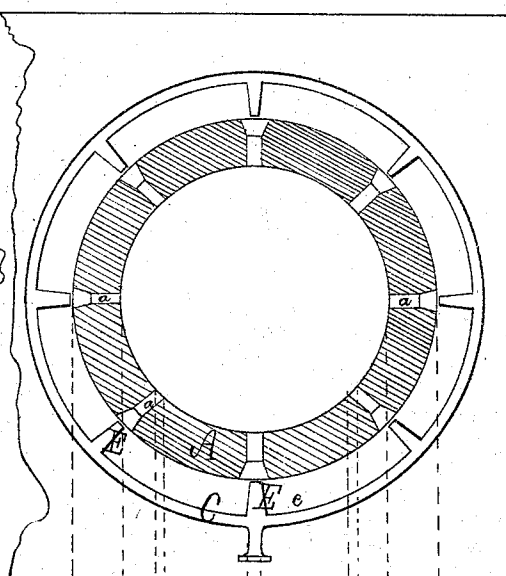


Fig. 3.

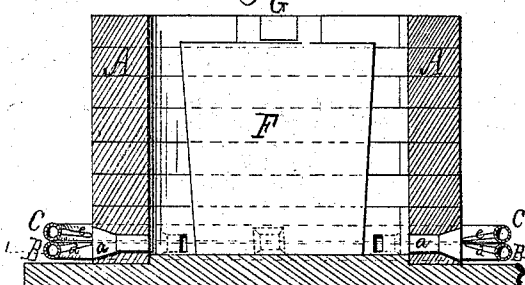
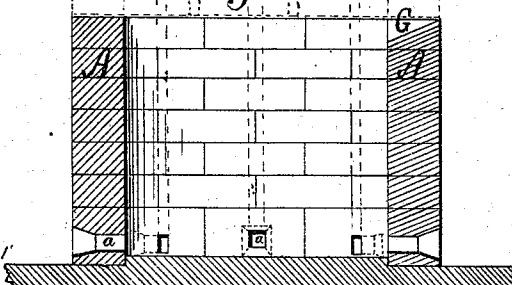


Fig. 4.



Witnesses:

R. D. Smith.  
E. M. Callahan.

Inventors:

2<sup>nd</sup> Benjamin A. Mason  
1<sup>st</sup> Edward Bayard,  
By their atty,  
J. S. Brown.

# UNITED STATES PATENT OFFICE.

EDWARD BAYARD AND BENJAMIN A. MASON, OF NEW YORK, N. Y.

## IMPROVEMENT IN GLASS-FURNACES.

Specification forming part of Letters Patent No. 136,957, dated March 18, 1873.

*To all whom it may concern:*

Be it known that we, EDWARD BAYARD and BENJAMIN A. MASON, of the city, county, and State of New York, have invented a certain new and useful Improvement in Apparatus for and Method of Making and Melting of Glass; and we do hereby declare that the following is a description of the same, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a plan view of the apparatus. Fig. 2 is a plan view of the apparatus taken through the line 1 1' of Fig. 3. Fig. 3 is a sectional elevation of the apparatus, showing the melting-pot within the furnace. Fig. 4 is a sectional elevation of the furnace.

The same letters indicate like parts in the drawing.

Our plan of operation is to construct one or more cylindrical furnaces, connected, or separate from each other, as may be desired. We do not limit ourselves to the construction of cylindrical furnaces, as square or oblong ones will answer; but we think the most economical results will be obtained by the use of the cylindrical-shaped furnace, which is rapidly heated, and kept at a great degree of heat by gas, which we apply and burn in the manner hereinafter described. The great heat attained by this mode of burning gas fuses the ingredients in the melting-pot in a few moments, so that the glass is in proper condition for the various manipulations of the operator. At the base of the furnace A, Fig. 2, are openings *a*, Fig. 2, at or near the surface of the hearth, extending from the exterior of the furnace through the wall toward the center, forming radial lines with the same. These openings may be of any desired number, are angular at the exterior end, being so shaped as to introduce an additional current of oxygen into the furnace. Around and encircling the furnace are two pipes, B and C, Fig. 3.

From the inner edge of each project small pipes, (the pipe *d* projecting from pipe B, and pipe *e* from the pipe C,) so placed that they form, through the openings *a*, Fig. 2, radial lines with the center of the furnace. They all project toward a common center, but are of sufficient length only to reach the entrance of the openings *a*. Through the pipe B gas flows, and from pipe B through pipe *d* until it reaches the mouth or outlet in the inner end of pipe *d*, where it is ignited. The air-pipe C conveys the blast to and through the pipe *e*, to the outlet at its end, where, meeting the burning gas, it mingles with the same and forces it through the ordinary atmosphere into the interior of the furnace, where it is consumed, producing an intense heat, by which the ingredients in the pot F are quickly converted into molten glass.

The top of the furnace may be closed by any suitable covering, leaving openings for ventilation when necessary. In the top of the wall of the furnace are one or more openings, G, through which the operator can reach the molten glass, or recharge the pot F.

What we claim, and desire to secure by Letters Patent, is—

1. In a glass-furnace, the air-pipes C and *e*, in combination with the gas-pipes B and *d*, extending only to the exterior walls of the furnace, as and for the purpose set forth and described.

2. In a glass-furnace, the openings *a*, when placed in its walls and used in combination with air-pipes C and *e*, and gas-pipes B and *d*, or their equivalents, substantially as and for the purpose set forth and described.

EDWARD BAYARD.  
BENJ. A. MASON.

Witnesses:

JONATHAN MARSHALL,  
WILLIAM A. HARDING, Jr.