W. POUNTNEY.

GLASS-FURNACE.

No. 180,923. Patented Aug. 8, 1876.

Fig. 1.

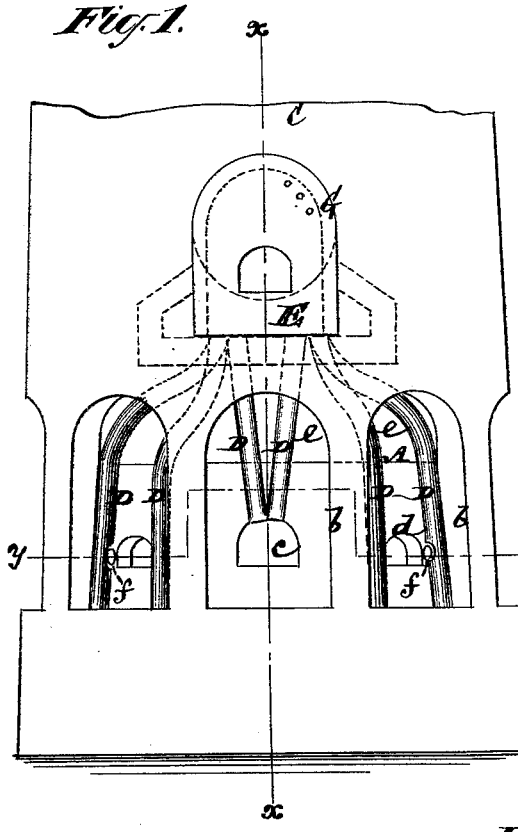


Fig. 2.

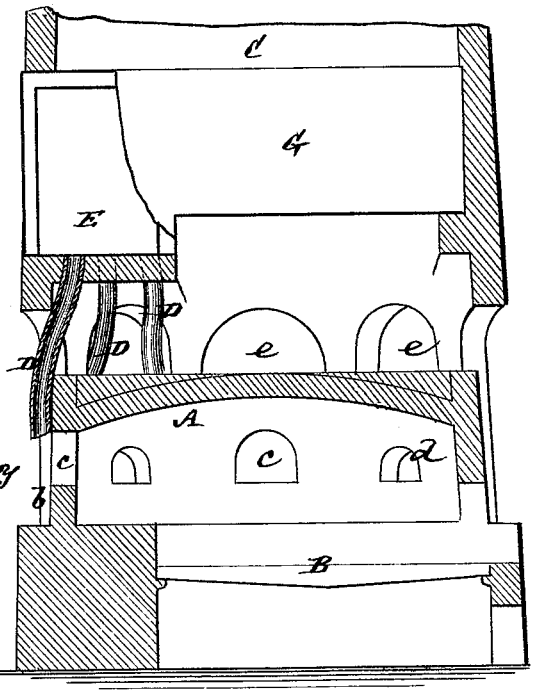
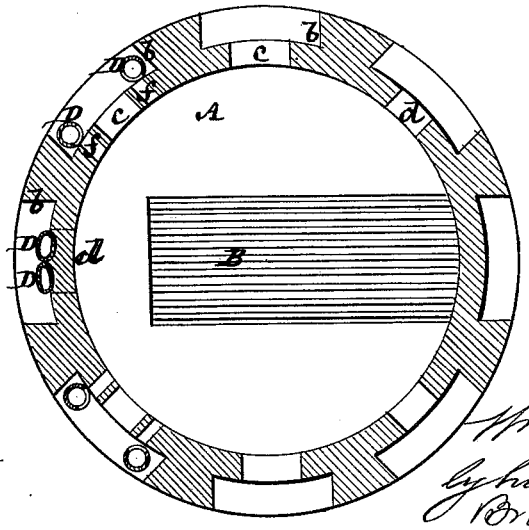


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM POUNTNEY, OF PORT JERVIS, NEW YORK.

IMPROVEMENT IN GLASS-FURNACES.

Specification forming part of Letters Patent No. **180,923**, dated August 8, 1876; application filed June 28, 1876.

To all whom it may concern:

Be it known that I, WILLIAM POUNTNEY, of Port Jervis, in the county of Orange and State of New York, have invented certain new and useful Improvements in Glass-Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

This invention relates to the utilization of the heated gases of combustion escaping from glass-furnaces. Ordinarily said heated gases, after they have performed their duty on the glass in the pots placed within the furnace, are permitted to escape to the outside atmosphere through a stack or chimney, either directly by the work-holes in the side walls of the furnace, or by close ducts or flues whereby the fumes and gases are prevented from entering the work-room, and the temperature of the latter is kept low, to the great advantage of the workmen. It has been proposed, however, to combine with a glass-furnace a vacuum-chamber, having suitable openings and flues, and provided with a mechanical exhaust device to produce an artificial draft to more effectually protect the workmen from exposure to the flame and heated products of combustion, and, if desirable, for returning the combustible gases back to the furnace.

My invention, however, does not depend upon any mechanical exhaust device for producing an artificial draft, but is designed to be applied to glass-furnaces in which the draft is a natural one—that is, by stack or chimney—and the escaping combustible gases are differently utilized.

The invention consists in a combination, with a glass-furnace, and the fire-box or chamber of a steam-boiler, of the ducts or flues which are over, or at the side of, or in proximity to, the work-holes, constructed and arranged to connect or concentrate themselves within said fire-box or chamber, whereby the escaping heated gases are advantageously employed in generating steam within the boiler.

The invention also consists in a combination, with the ducts or flues which provide for the escape of the heated gases from over or at the sides of the work-holes of the furnace, of a steam-boiler arranged within the main stack or chimney of the furnace, and with the fire-box or chamber of which said ducts or flues connect, whereby the boiler is heated not only by the gaseous products of combustion passing up said ducts or flues, but also by the heated gases or air escaping up the main stack or chimney.

In the accompanying drawing, Figure 1 represents an exterior elevation of glass-furnace having my invention applied; Fig. 2, a vertical section of the same on the line *x x;* and Fig. 3, a horizontal section thereof on the line *y y.*

A is the reverberatory fire-chamber of a glass-furnace, and B its grate. Said furnace may be constructed to accommodate any number of pots arranged around it within the fire-chamber A, through the side walls of which, within recesses or depressions *b* in the surrounding or inclosing outer walls of the furnace, are the usual work-holes *c d*, whereby access is obtained to the pots for working the glass contained in them. The larger work-holes *c* are designed for pots containing green glass, and the smaller holes *d* for pots holding white glass. The recesses *b* have the usual openings *e* in them above the crown of the fire-chamber A for escape of the heated gases of combustion to the main or general stack C, either directly from the work-holes or by means of flues in communication with the fire-chamber on either side of the work-holes. Instead of thus allowing the heated gases to escape, however, I utilize the same, or a portion thereof, by means of ducts, D, arranged either over the work-holes *c*, or by the side of the work-holes *d*, and in communication by apertures *f* with the interior of the fire-chamber, or said ducts may be otherwise suitably arranged. These ducts are directed so as to concentrate at their outlets in a fire-box or chamber, E, of a steam-boiler, G, and are thereby caused to apply the escaping heated gases or combustion to the generation of steam for any purpose that may be required. It is not necessary that said ducts should be applied to all the work-holes of the furnace; nor that they should convey all the escaping heated gases, the remaining portion of the

latter passing off in the usual way to the main stack or chimney C. The boiler G, which may be of any suitable construction, may either be arranged inside or outside of the stack C, but it is here shown as arranged within said stack or chimney, whereby it is not only heated by the gases escaping up the ducts D to the fire-box E, but also directly by the heated gases passing up the stack or chimney C, and acting on the exterior of the boiler.

I claim—

1. The combination, with a glass-furnace and the fire-box or chamber of a steam-boiler, of the ducts or flues D, constructed and arranged in relation with the work-holes *c d*, and with said fire-box or chamber, substantially as described, whereby the ducts D of or from a series of the work-holes are concentrated at their outlets in the fire-box or chamber of the steam-boiler.

2. The combination, with a glass-furnace and its stack or chimney, C, of the boiler G, arranged within the latter, and the ducts or flues D of said furnace, made to concentrate at their outlets within the fire-box E of the boiler, essentially as described.

W. POUNTNEY.

Witnesses:

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