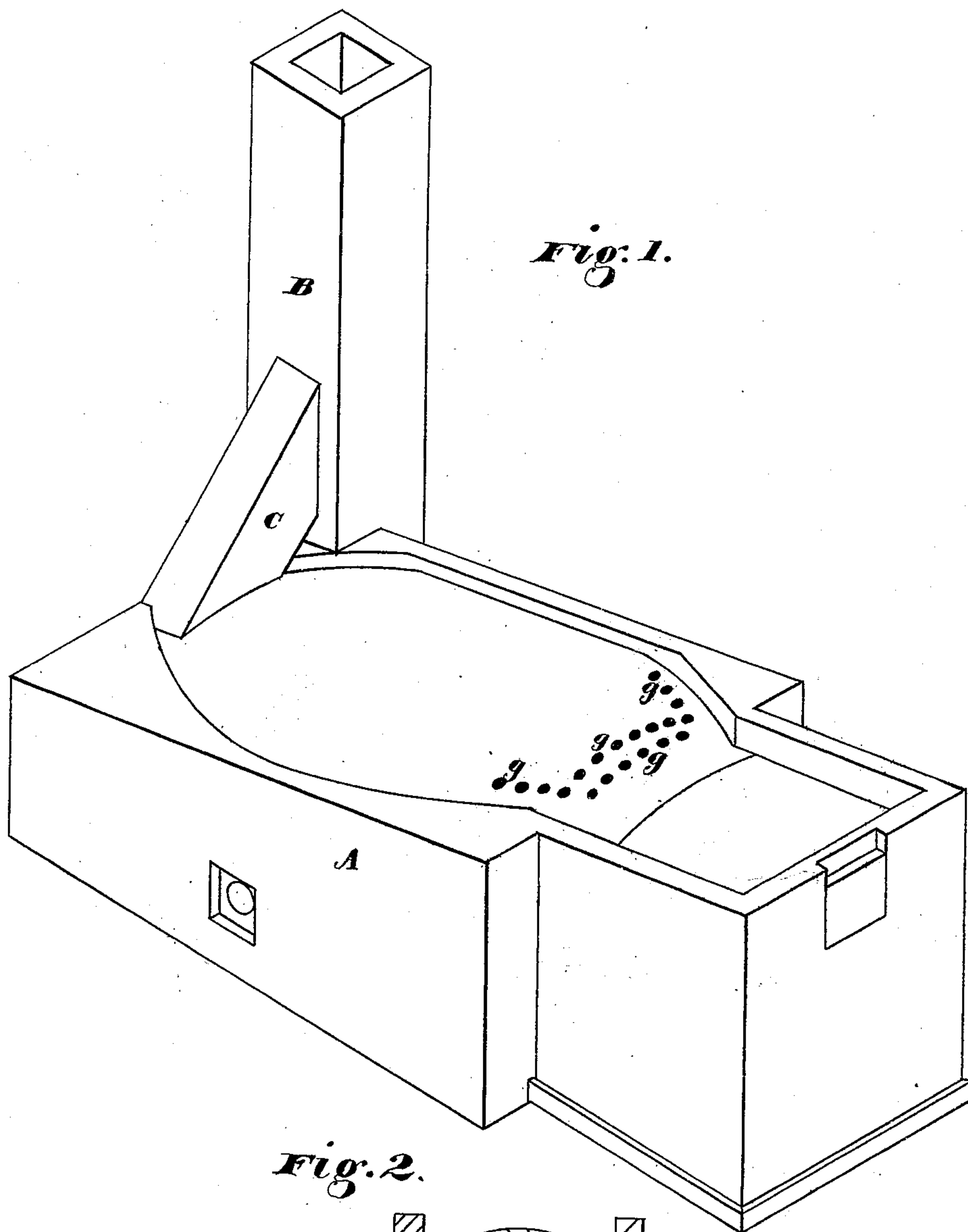


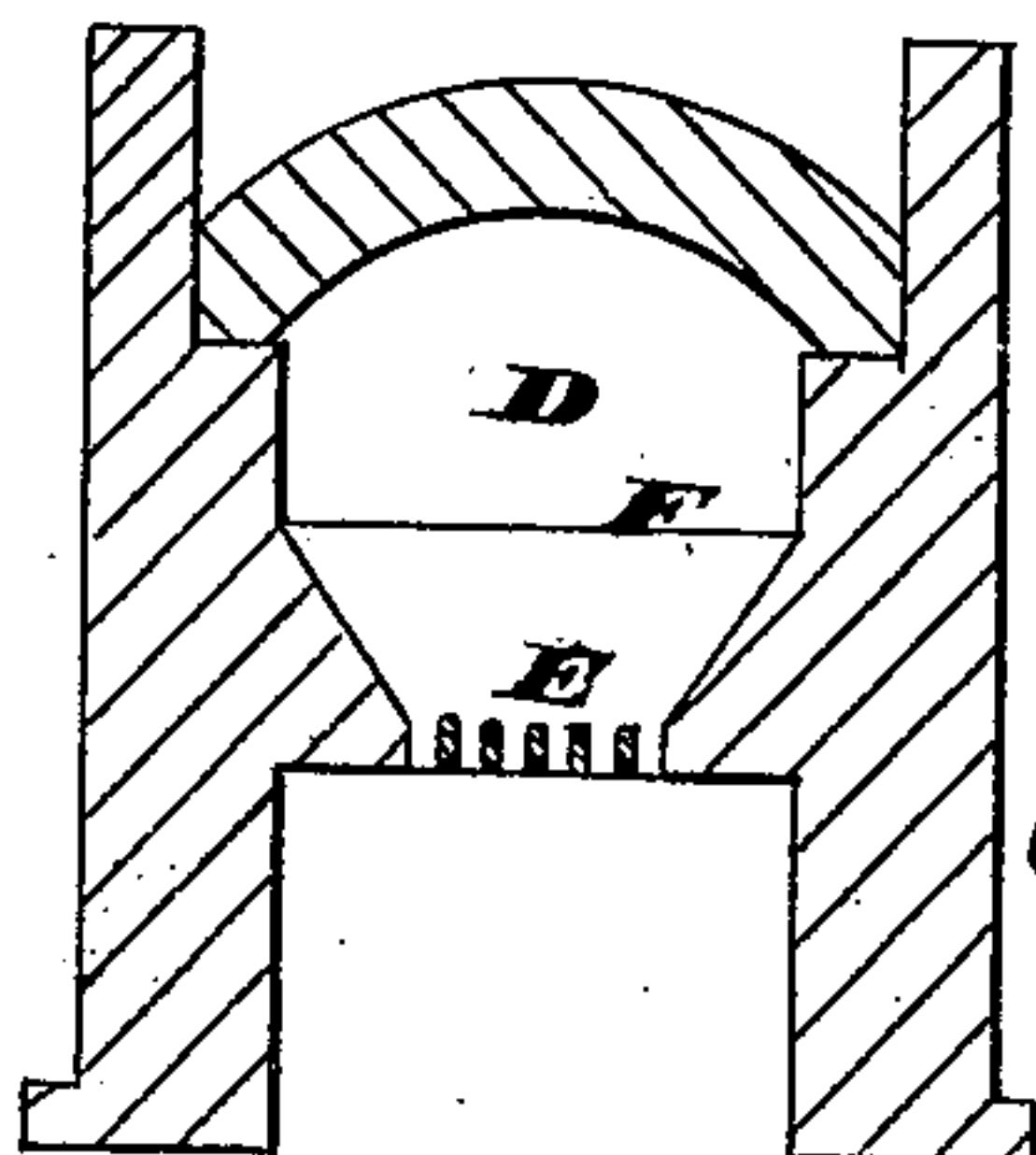
R. PEARCE.  
REVERBERATORY FURNACE.

No. 176,994.

Patented May 2, 1876.



*Fig. 2.*



Witnesses  
*Geo. H. Strong.*  
*Jno. L. Borne*

Inventor  
*Richard Pearce*  
*by Dewey & Co.*  
*Attys.*

# UNITED STATES PATENT OFFICE.

RICHARD PEARCE, OF BLACK HAWK, COLORADO TERRITORY.

## IMPROVEMENT IN REVERBERATORY FURNACES.

Specification forming part of Letters Patent No. **176,994**, dated May 2, 1876; application filed April 15, 1875.

*To all whom it may concern:*

Be it known that I, RICHARD PEARCE, of Black Hawk, Gilpin county, Colorado Territory, have invented an Improvement in Reverberatory Furnaces; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

The object of my invention is to provide certain improvements in reverberatory furnaces, and it is more especially adapted for use in such furnaces as burn wood as a fuel, and as a large grate-surface has been used heretofore, much of the products of the combustion would find its way to the stack or chimney unconsumed, and therefore wasted.

My improvement contemplates a more perfect combustion of the fuel, and a consequent economy of heat; and it consists in a novel construction of the fire-place, together with the employment of openings at certain points, whereby air is admitted, so that sufficient oxygen will be supplied to insure a complete combustion.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my furnace. Fig. 2 is a transverse section taken through the fire-place.

A is the body of a reverberatory furnace. B is the stack or chimney, and C is the flue leading to the stack. D is the fire-place, and E is the grate upon which the wood is placed. In order to reduce the grate-surface without making the body of the fire-place too small, I make the walls of the fire-place inclining from a point a short distance above the grate down to its surface, where, it will be seen, the distance becomes very much narrowed. The fuel

is, consequently, not spread over so large a surface as in other fire-places.

The gases of combustion pass over the bridge-wall F, and are deflected upon the hearth of the furnace and its contents in the usual manner, but an insufficiency of oxygen causes a considerable loss of heat from the incomplete combustion.

In order to supply the necessary amount of oxygen to make the combustion perfect, I perforate the top or roof of the furnace with a series of openings, *g g*, just above and behind the bridge-wall, and also extending a short distance along the sides, as shown. Through these openings the air passes, and, meeting the flame as it passes over the bridge-wall, a sufficient quantity of oxygen will be supplied to completely consume all the gases and make a most intense heat.

I am aware that atmospheric passage-ways have been constructed through the arch over the fire-room and bridge-wall, for the purpose of passing broad thin currents of air heated in passing through the wall, and discharge at a line over, or nearly over, the rear side of the bridge-wall, downwardly and diagonally across the current of the gaseous products of combustion; but this is not my invention.

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

The furnace A, having the roof perforated with openings *g g* over and behind the bridge-wall, and arranged along the sides, substantially as and for the purpose described.

In witness whereof I hereunto set my hand and seal.

RICHARD PEARCE. [L. S.]

Witnesses:

HENRY P. COWENHOVEN,  
HENRY WILLIAMS.