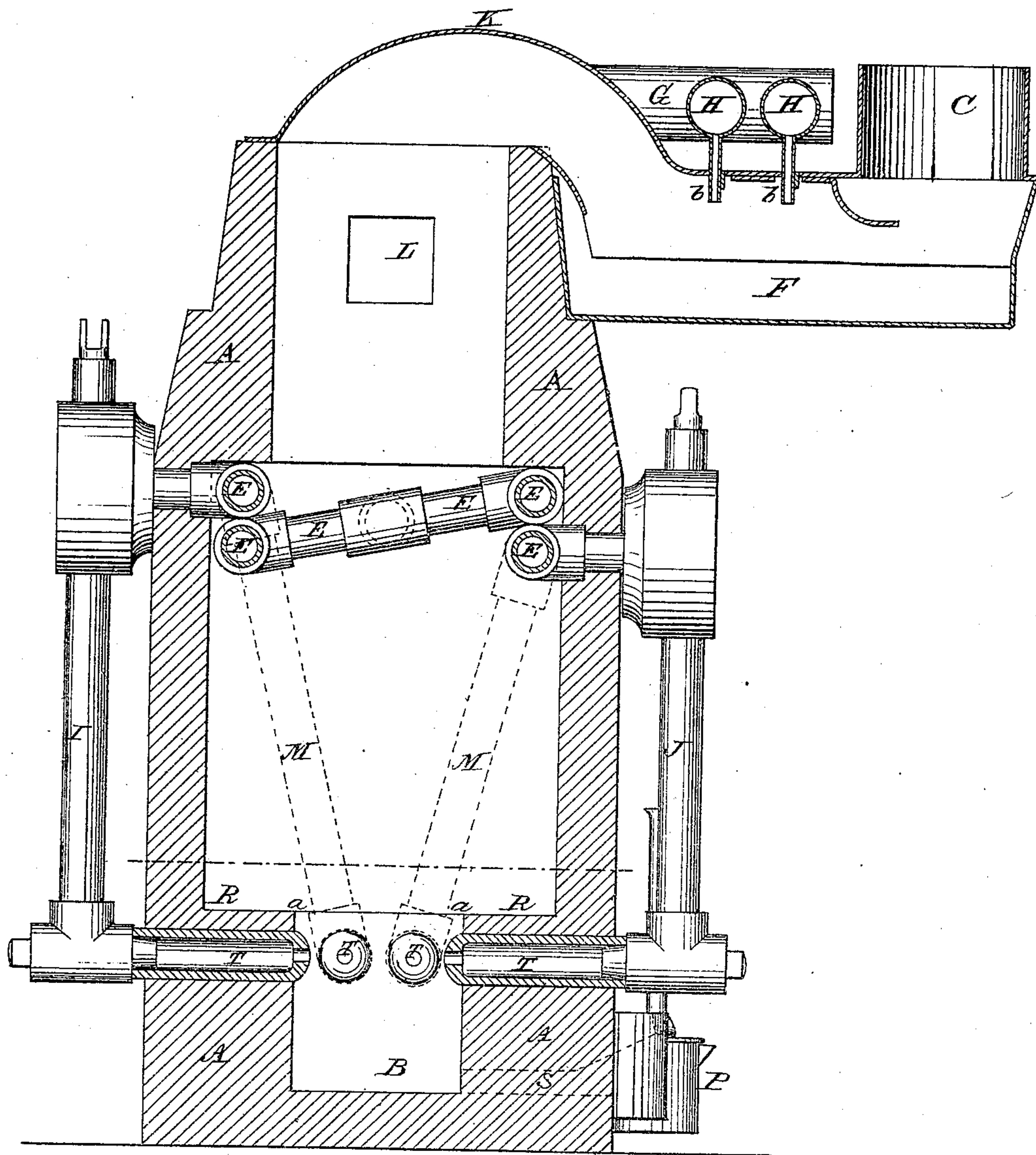


E. BASSETT.
Furnaces for Reducing Lead Ores.
 No. 151,677.

Patented June 9, 1874.

Fig. 1.



Witnesses.

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Fig. 2.

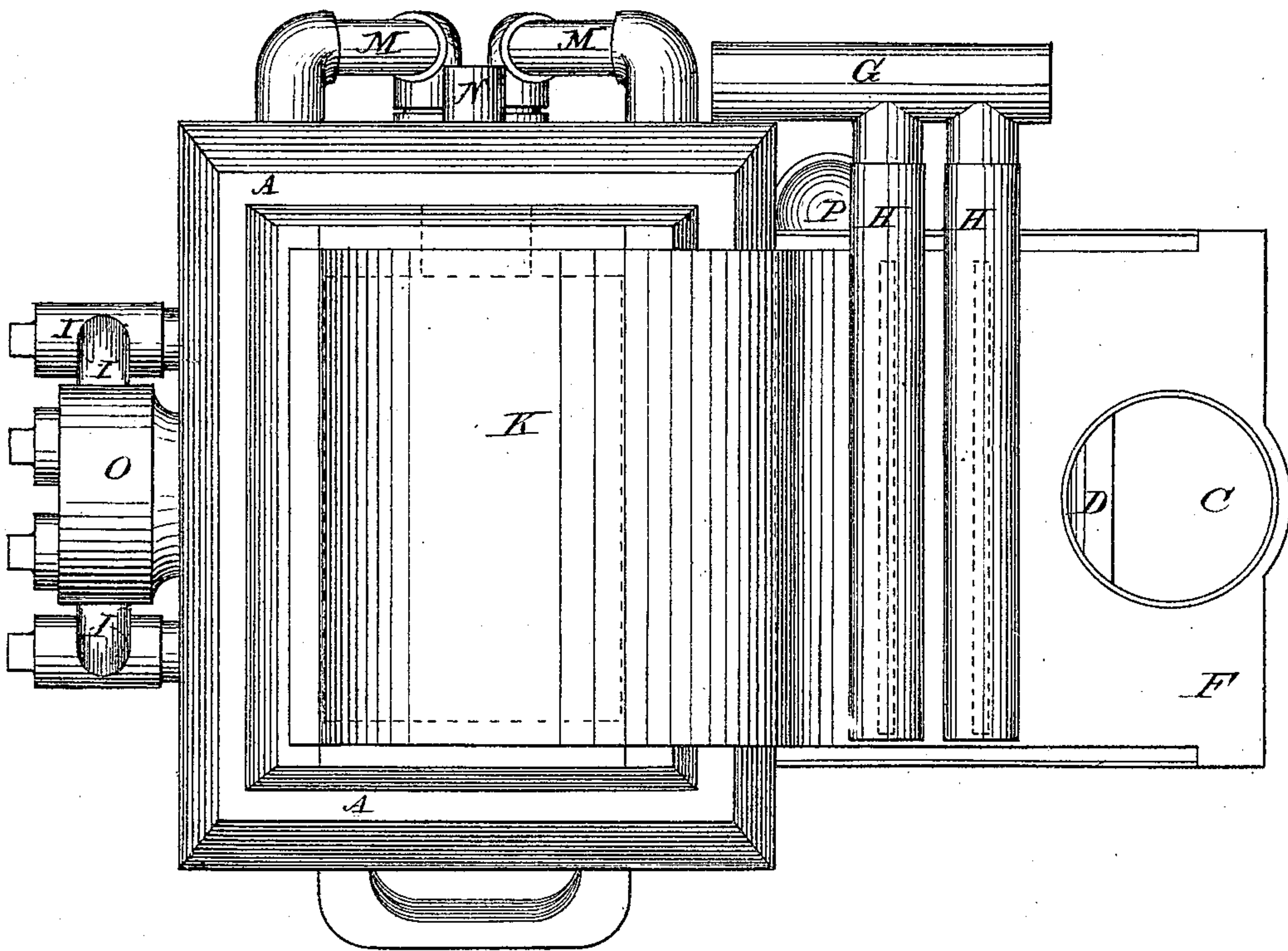
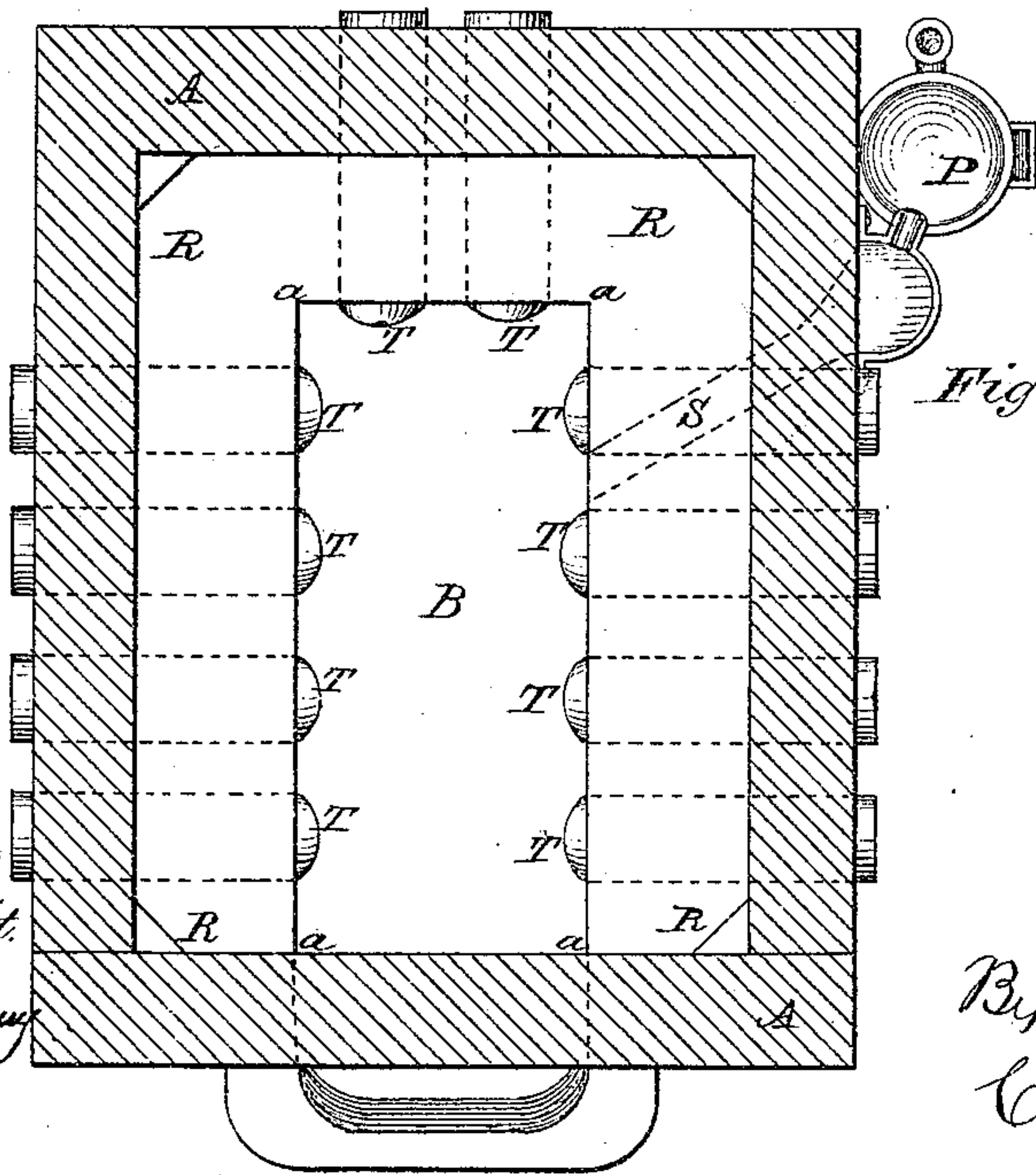


Fig. 3.



Witnesses.

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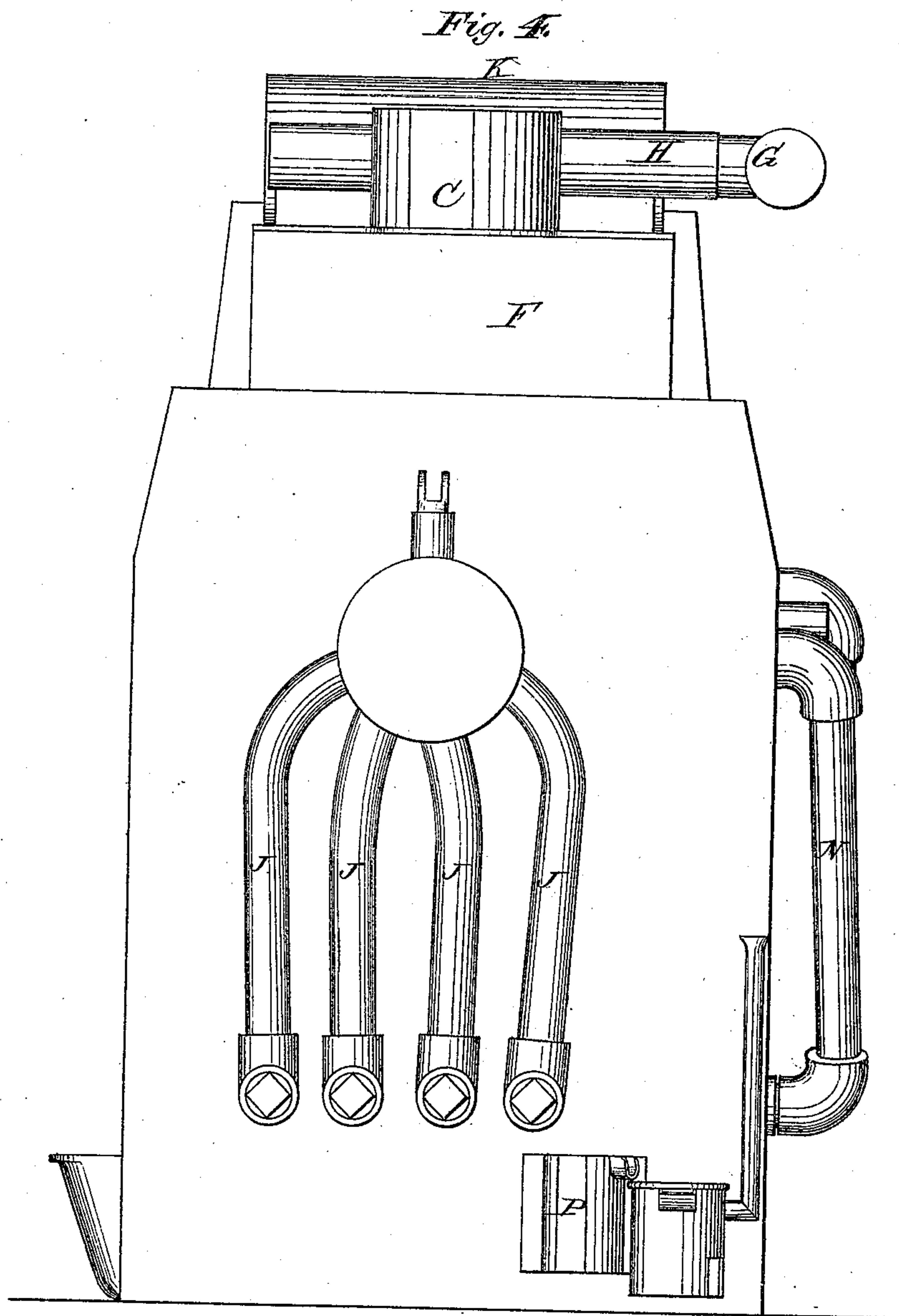
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UNITED STATES PATENT OFFICE.

EBENEZER BASSETT, OF HAMILTON, NEVADA.

IMPROVEMENT IN FURNACES FOR REDUCING LEAD ORES.

Specification forming part of Letters Patent No. **151,677**, dated June 9, 1874; application filed March 1, 1872.

To all whom it may concern:

Be it known that I, EBENEZER BASSETT, of the city of Hamilton, in the county of White Pine and State of Nevada, have invented certain new and useful Improvements in Furnaces for Reducing Lead Ores; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of the furnace on line *xx* of Fig. 4. Fig. 2 is a top view. Fig. 3 is a horizontal section on line *yy* of Fig. 1. Fig. 4 is a side elevation.

The same letter marks the same part wherever it occurs.

The nature of my invention consists in the peculiar construction and arrangement of the parts of a furnace for reducing lead ores, by which, first, the lining of the furnace is protected from the excessive action of heat; second, the volatilized metals are collected and saved; and, third, the blast is conveniently and efficiently heated, all as hereinafter more fully set forth.

To enable others to make and use my improved furnace, I will proceed to describe its construction and operation, referring to the three accompanying sheets of drawings, whereon—

A marks the walls of the furnace; B, the bottom, the shape of which is shown in Figs. 1 and 3. This bottom communicates, by means of an inverted siphon, S, with the first pot or settler P on the outside of the furnace. Into the bottom B the tuyeres T lead to supply the blast to the furnace. The tuyeres communicate with the outside pipes I, J, and M. The air to supply the blast enters through the inlet-pipe N, passes into a system of pipes, E, running around the top of the interior of the furnace, and, after being highly heated, is conducted to the tuyeres T through the series of outside pipes I, J, and M. There is an offset or recess, R, in the lining of the furnace, commencing a few inches above the tuyeres, at the angle *a*, and running back about twenty inches around the inside of the furnace, as shown in Figs. 1 and 3. The object of this recess is to place the lining of the furnace out

of the reach of smelting heat by making the ores and coal take the place of the lining as placed in an ordinary smelting-furnace. The blast, after leaving the tuyeres, being forced toward the outer walls, will operate upon the ores and coal, replacing the old style of walls, and thus the working capacity of the furnace be greatly increased. L marks the opening through which the charge is introduced. Above it is the arch K, through which the gaseous products of combustion pass through the tank or condenser F to the chimney C. The tank F is filled with salt-water, and the smoke and fumes passing over the water are driven into it by a blast entering through pipes G H H, and passing down through the tuyeres *b b*. The volatilized metal, ores, and dust are deposited in the tank and saved.

The operation is obvious from the construction.

The furnace is never tapped to allow of the escape of the metal; but, when in operation, the bottom B is constantly full of molten metal, which continuously flows through the inverted siphon S into the settling-pot on the outside.

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

1. The offset R, arranged above the furnace-bottom, in the manner and for the purpose set forth.

2. The combination of the water-tank F, located as described, with the tuyeres *b* and a blast, for the purpose of condensing and saving the volatilized metals, as specified.

3. The arrangement, on the inside of the furnace near its top, of a series of air-heating pipes, which receive air from the supply-pipe, and, after heating it, deliver it to the tuyeres, substantially as described and shown.

The above specification of my said invention signed and witnessed at Eureka, Nevada, this 21st day of October, A. D. 1871.

EBENEZER BASSETT.

Witnesses:

R. L. GARDNER,
GEO. W. KINNEY.