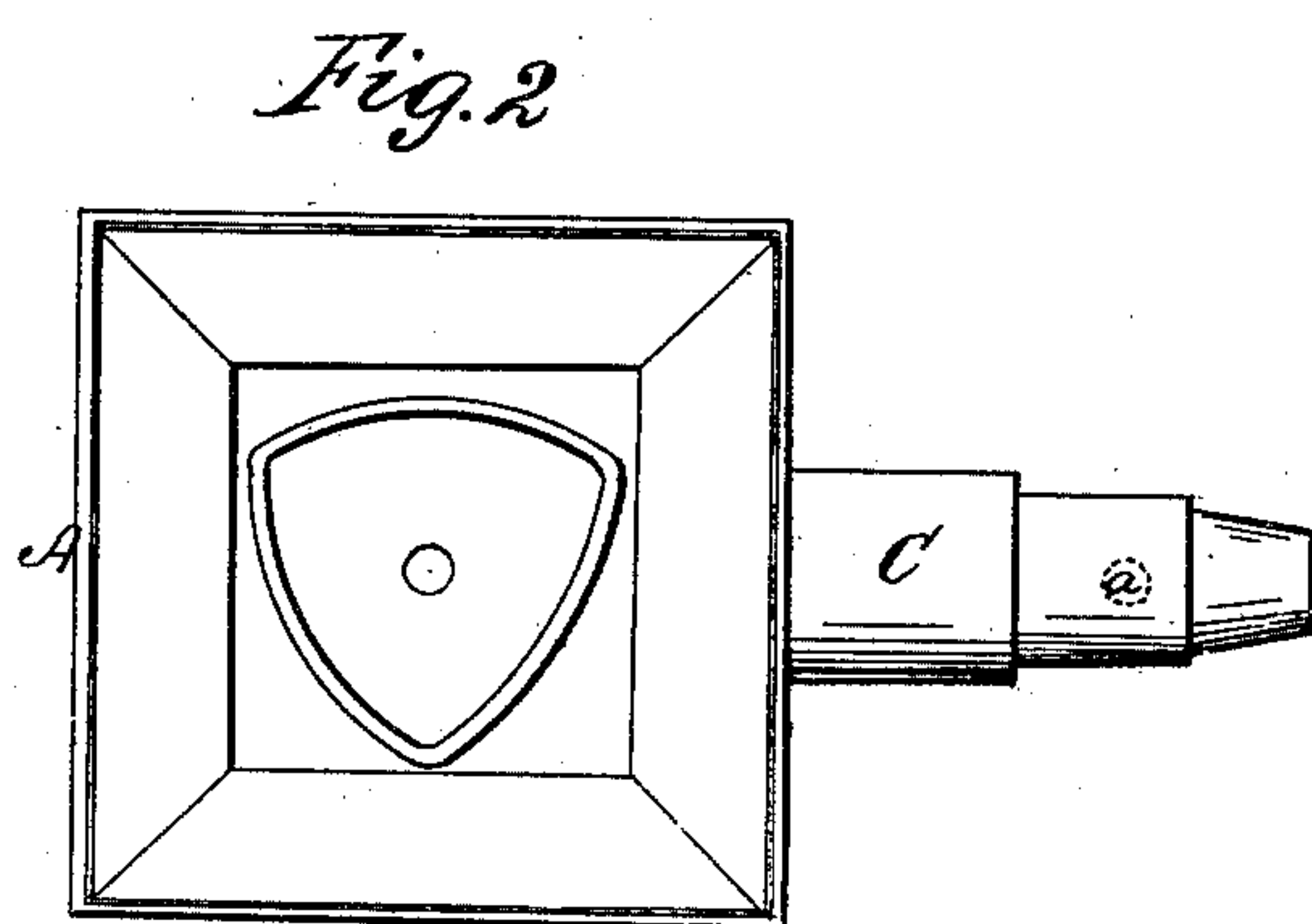
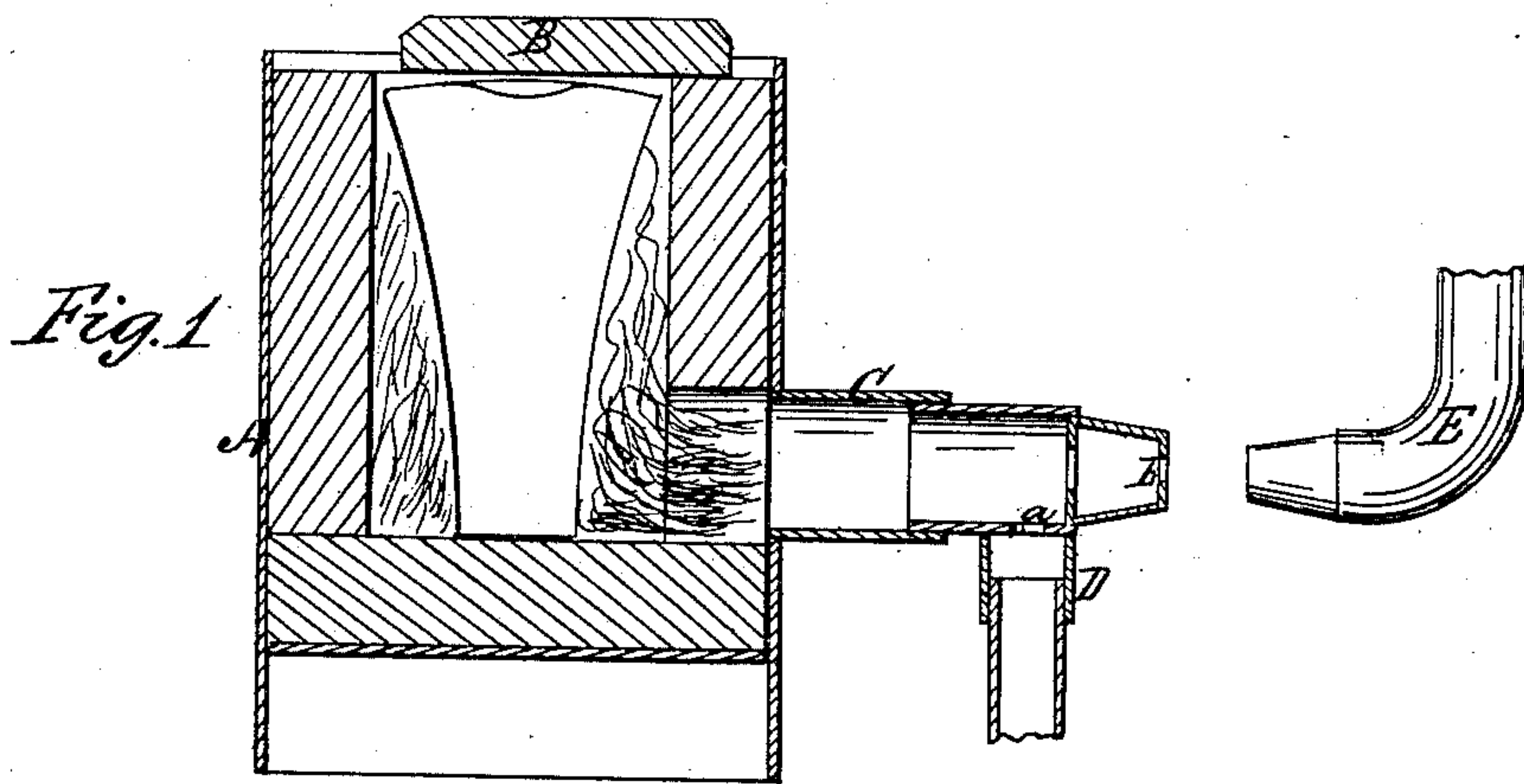


J. B. MARVIN.  
FURNACE.

No. 27,552.

Patented Mar. 20, 1860.



Witnesses;  
Oliver  
Wm Thompson

Inventor;  
John B. Marvin

# UNITED STATES PATENT OFFICE.

JOHN B. MARVIN, OF NEW YORK, N. Y.

## IMPROVED PORTABLE FURNACE.

Specification forming part of Letters Patent No. 27,552, dated March 20, 1860.

*To all whom it may concern:*

Be it known that I, JOHN B. MARVIN, of New York city, in the county and State of New York, have invented a new and Improved Furnace; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention. Fig. 2 is a plan or top view of same with the cover removed.

Similar letters in both views refer to corresponding parts.

To enable those skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A represents a furnace constructed of sheet metal or any other suitable material and lined on the inside with pumice-stone or with some other fire proof substance. It is open on the top and provided with a cover, B. On one side of the furnace and near to its bottom is a pipe, C, which is furnished with two openings, *a* *b*, one at right angles to the other. The opening *a* serves to attach the blaze-pipe D, and the opening *b* admits the blast from the wind-pipe E, the mouth of which is kept a greater or smaller distance from the opening *b*, according to the lower or higher temperature required and according to the force of the blast.

Common illuminating-gas may be conducted through the blaze-pipe D to the furnace, and when lighted as it passes through the opening *a*, and if now a blast is directed from the wind-pipe E through the opening *b* the blaze or flame is forced into the furnace and around the crucible, as clearly shown in Fig. 1 in the drawings. It is only necessary, therefore, to construct a furnace as above described to place the crucible with the metal in it to connect the

opening *a* with a gas-pipe and provide for the required blast in order to be able to melt metal wherever illuminating-gas is used.

It must be remarked that, instead of illuminating-gas, vapor of hydrocarbon liquids—such as benzole or naphtha—may be used with equal advantage; but in this case the vapor has first to be prepared and a certain amount of pressure must be given to it, so as to make it pass into the furnace with the required velocity. In all cases, however, the wind-pipe is indispensable, in order to supply a sufficient quantity of oxygen to obtain the required intensity of heat.

I do not use hot air for my blast, as I am able to obtain the desired temperature by using a cold blast, and it is not necessary, therefore, to go to the expense of a hot-air blast; neither is it necessary to use the blast of some combustible and volatile substance—such as alcohol—whereby, no doubt, a considerable heat is effected, but at a greater expense than with my apparatus. Furthermore, no extra flame is required to produce the gas that passes through the blaze-pipe, and by simply shutting off the gas the furnace ceases to operate, and not a particle of combustible substance or of heat is wasted.

I do not claim, broadly, the employment of gas for smelting metals; but

What I claim as new, and desire to secure by Letters Patent, is—

The combination, with a furnace, A, of a blaze-pipe, D, and a wind-pipe, E, constructed and operating substantially in the manner and for the purpose specified.

JOHN B. MARVIN.

Witnesses:

B. GIROUX,  
WM. THOMPSON.