

S. F. Ambler 117360 Furnace for Roasting Ores.

PATENTED JUL 25 1871

Fig. 1.

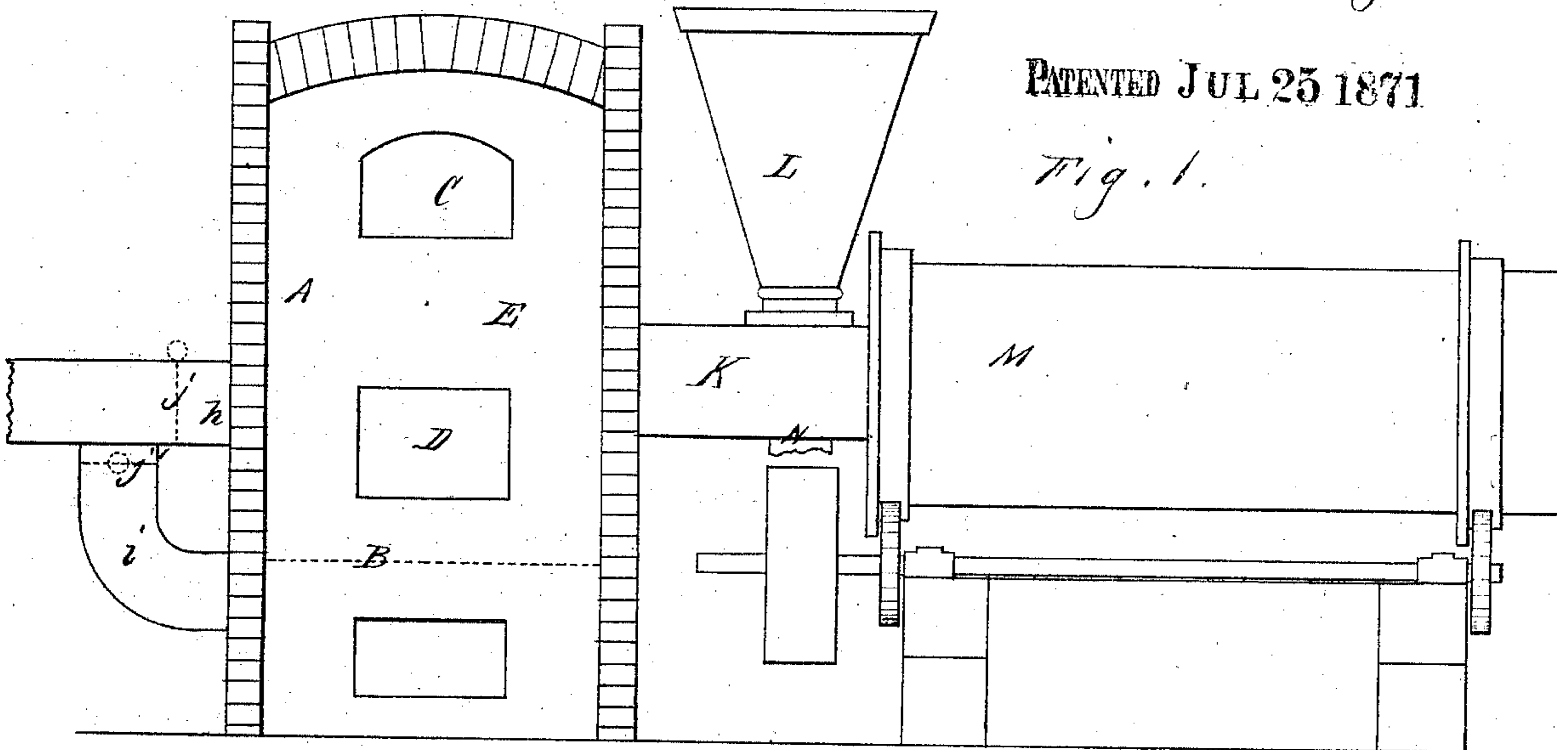


Fig. 2.

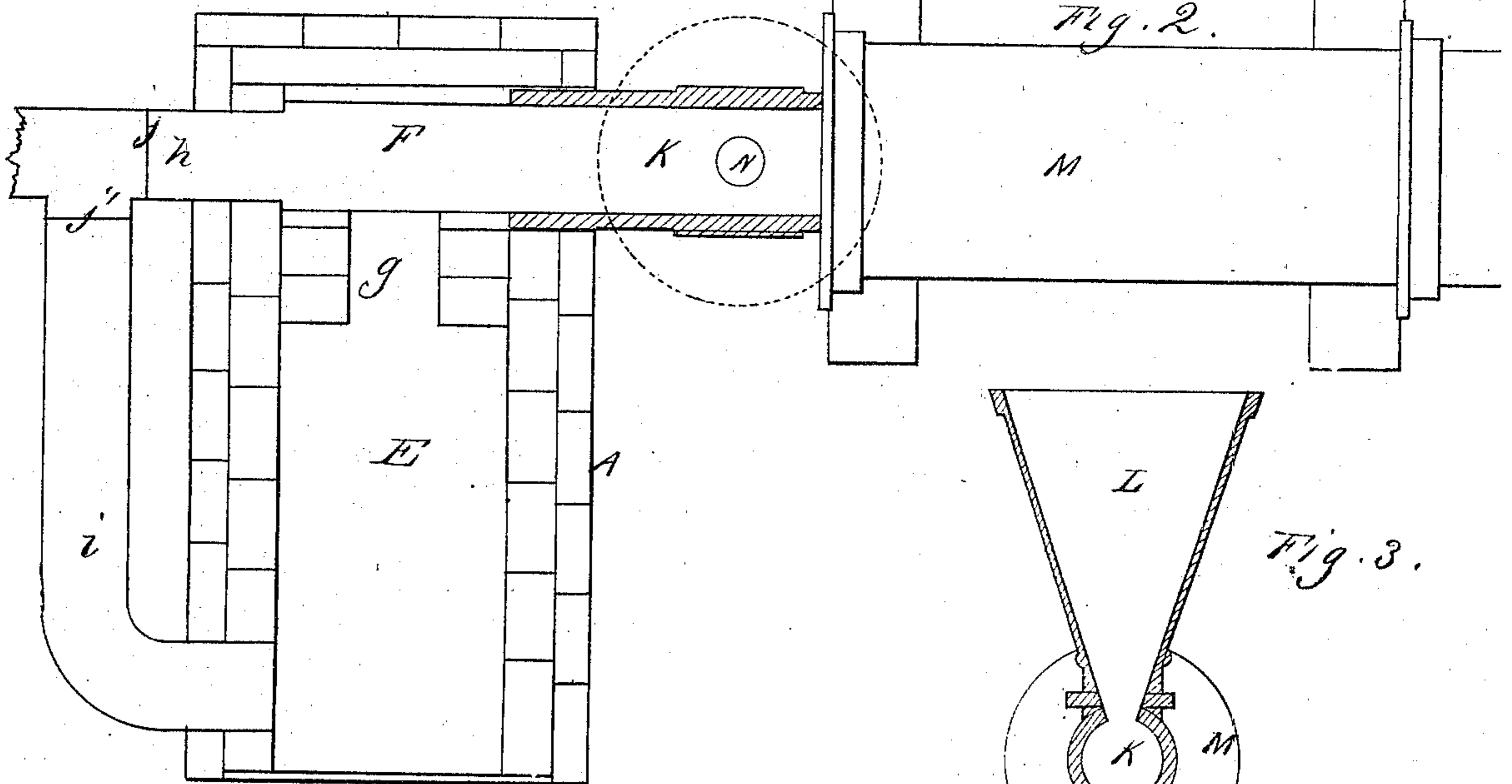
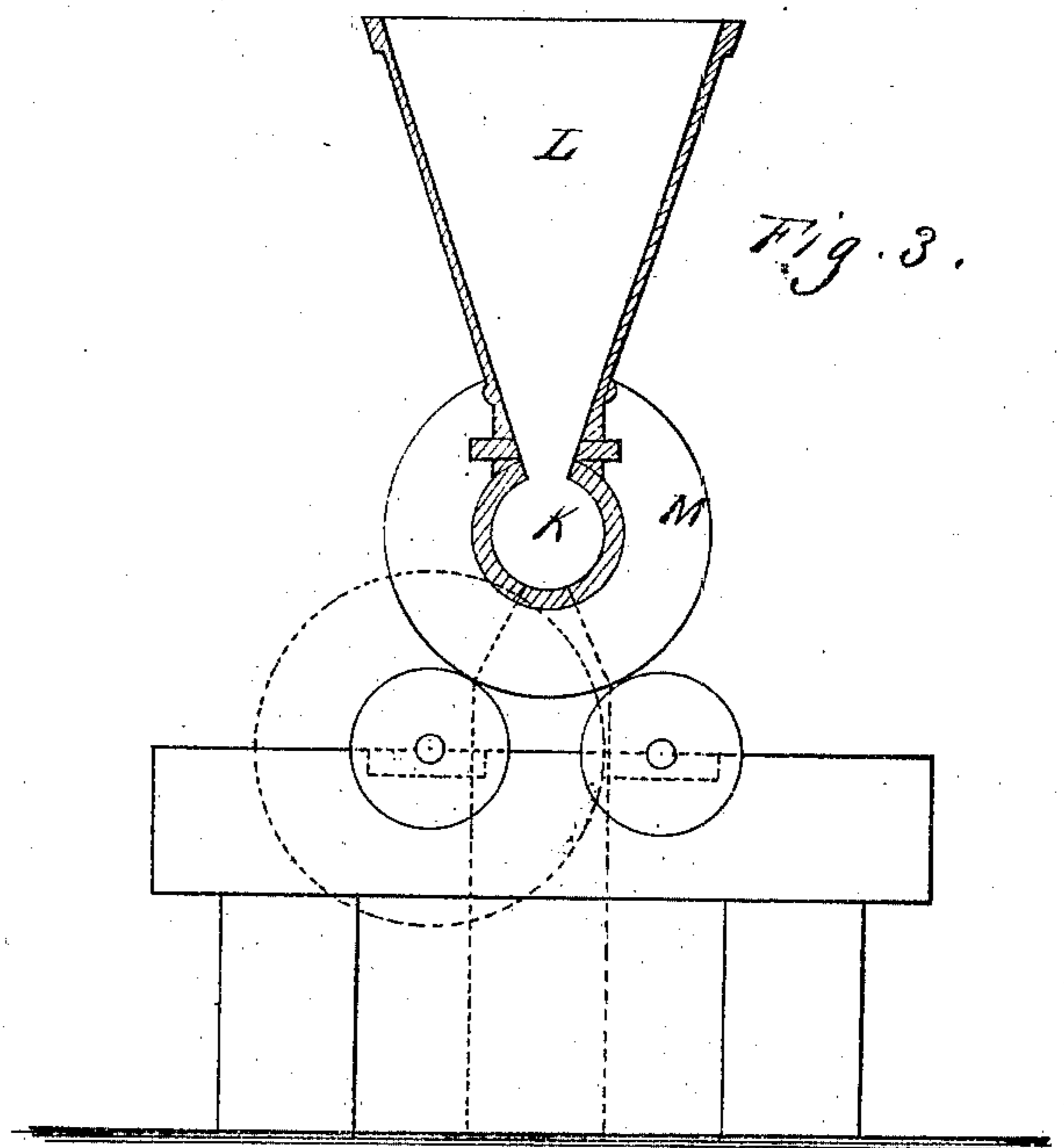


Fig. 3.



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UNITED STATES PATENT OFFICE.

STEPHEN F. AMBLER, OF MONITOR, CALIFORNIA

IMPROVEMENT IN FURNACES FOR ROASTING ORES.

Specification forming part of Letters Patent No. 117,360, dated July 25, 1871.

To all whom it may concern:

Be it known that I, STEPHEN F. AMBLER, of Monitor, county of Alpine, State of California, have invented an Improved Furnace for Roasting Ores; and I do hereby declare the following description and accompanying drawing 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 improvements without further invention or experiment.

My invention relates to what I call a compound blow-pipe furnace to be used for smelting and roasting ores; and it consists, first, of a carbonizing-chamber, in which the wood is placed and converted into charcoal before it reaches the fires to be used as fuel. Two pipes lead into this furnace, through which a blast of air is driven, one of them being so arranged as to give an oxidizing heat while the other gives a reducing heat. Connected with this chamber is the reducing-tube, into which the ore is fed, and through which the heat from the carbonizing-chamber passes, carrying the ore with it into a revolving cylinder, which is connected with the opposite end of the tube.

In order to more fully illustrate and explain my invention, reference is had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation of my furnace. Fig. 2 is a plan. Fig. 3 is an end view.

A represents the furnace, which is constructed of brick, in the usual manner of constructing furnaces, and is provided with the grate B. The space E above this grate is what I call a carbonizing-chamber. This chamber is kept constantly filled with wood, which is fed through the doors C and D. When the doors are closed the wood in the upper part of the furnace will be carbonized or converted into charcoal, and, as the fire below burns out, the charred or carbonized wood will settle down and continually feed the fire. At the back of the chamber E is a hot-air chamber, F, into which the heat and flame from the chamber E pass, through the flue g. A blast-pipe, h, enters the chamber F at about an equal height with the flue g, while a branch pipe, i, passes to the front and enters the cham-

ber E, so as to deliver its blast directly upon the fire on the grate. The blasts from these pipes are regulated by dampers j j'. When the damper j of the pipe h is closed and the damper j' opened, the blast will be delivered upon the grate and a reducing flame will be produced, which will pass through the flue g into the chamber F, and when the damper j is opened oxygen will be supplied to the chamber F and an oxidizing heat produced. Communication with the chamber F, directly opposite the blast-pipe h, is a reducing-tube, K, into which the ore is fed through a hopper, L. This tube is made of cast-iron and lined with fire-brick, so as to resist the action of the heat. The opposite end of the reducing-tube communicates with a revolving roasting-cylinder, M, so that as the ore meets the blast and heat from the chamber F it will be carried into the revolving cylinder, and there subjected to heat and roasted in passing through the cylinder. Directly below the hopper L is an opening or tube, N, through which any lead which may become separated or smelted by the heat can be drawn off. By this means I provide a blow-pipe action upon the ores which will effectually calcine them.

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

1. In combination with the furnace A having the carbonizing-chamber E and hot-air chamber F, the blast-pipes h and i, substantially as and for the purpose above described.

2. The reducing-tube K, connecting the hot-air chamber F and revolving roasting-cylinder M, substantially as and for the purpose above described.

3. The above-described process of feeding the wood into a closed chamber, where it will be subjected to heat without air, and fed to the fire in the manner and for the purpose above described.

In witness whereof I have hereunto set my hand and seal.

STEPHEN F. AMBLER. [L. S.]

Witnesses:

SYLVESTER SAWYER,
O. F. THORNTON,