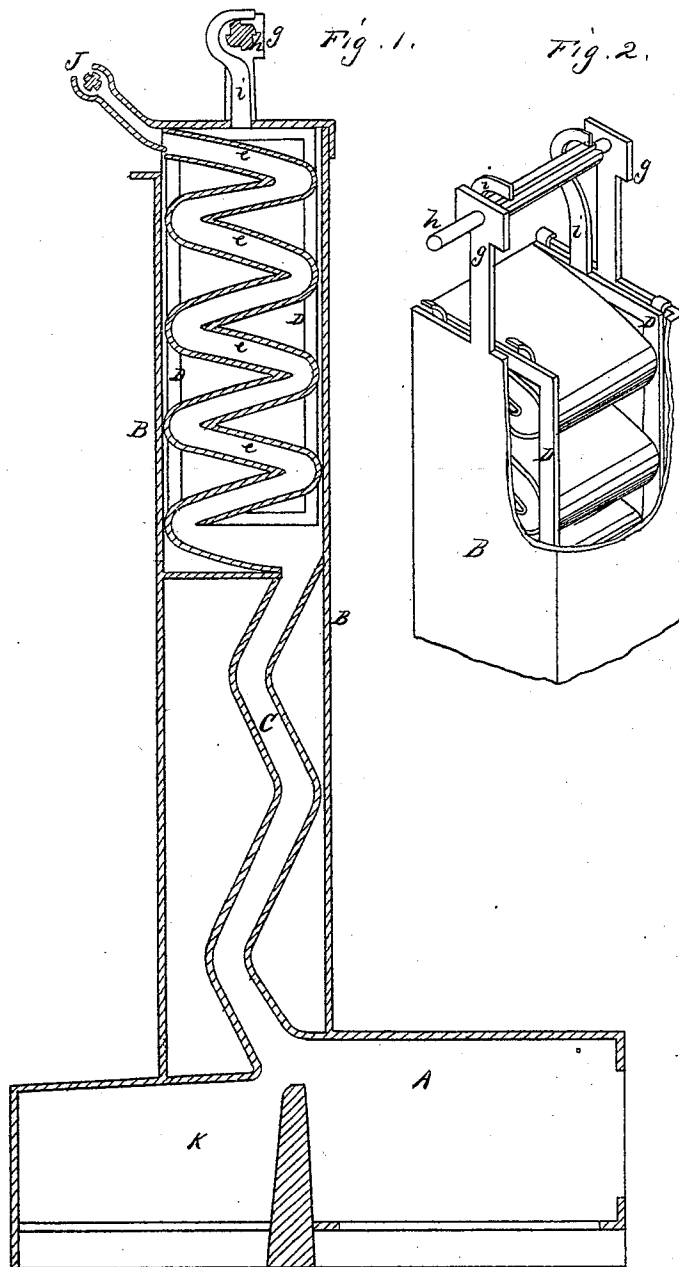


M. P. BOSS.

Improvement in Furnaces for Roasting Ore.

No. 132,892.

Patented Nov. 12, 1872.



Witnesses

John L. Doane
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Inventor:

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UNITED STATES PATENT OFFICE.

MARTIN P. BOSS, OF EUREKA, NEVADA.

IMPROVEMENT IN FURNACES FOR ROASTING ORE.

Specification forming part of Letters Patent No. 132,892, dated November 12, 1872.

To all whom it may concern:

Be it known that I, MARTIN P. BOSS, of Eureka, Lander county, State of Nevada, have invented an Improved Roasting-Furnace; 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 improvement without further invention or experiment.

My invention relates to a novel interior arrangement of that class of roasting-furnaces which are known as upright or stack furnaces, in which the pulverized ore is fed into the top of the stack, so as to fall to the bottom through the flame and products of combustion from the furnace. My improvement consists of a suspended frame in the upper half and inside of the stack. This frame is also provided with a zigzag opening or flue which passes down through it. The frame is suspended from a shaft, which passes across above the stack, and from which it receives a jarring or shaking motion, by which the ore is caused to fall from one incline to the other.

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 vertical section. Fig. 2 is a perspective view of a part of the furnace.

A represents the furnace, and B the upright chimney or stack. The lower portion of the stack is built in solid masonry, with a zigzag flue or opening, C, leading from the furnace upward to the desired height. In the upper part of the furnace, above the flue C, I place a strong metal frame, D, shown more clearly at Fig. 2, which is of sufficient length to extend from the upper end of the flue C to the upper end of the stack. Inside of this frame I construct a zigzag flue or passage, *ee*, of two plates of boiler-iron. These plates are bent so as to form continuous zigzags, and are then secured in the frame parallel to each other and at a short distance apart, so that the projection of one will extend into the de-

pression of the other, thus forming a zigzag passage of uniform width, extending the entire length of the frames, and from side to side of the stack. Standards *g g* extend upward upon opposite sides of the upper end of the stack, in the upper ends of which a transverse shaft, *h*, bears. Arms *ii* also extend upward from opposite sides of the upper end of the frame D parallel with the standards *g g*, and clasp the shaft *h*. The shaft *h* is provided with corrugations or irregularities, so that when it is revolved the frame D will be jarred or otherwise agitated, so as to cause the powdered ore to descend along the flue. J is the opening at the upper end of the zigzag flue into which the ore is fed; thence it is moved down the zigzag flue in the frame D by the jarring of the frame, and falls into the lower zigzag flue; thence it descends and falls into the ore-chamber at K. By this means the ore is delayed and caused to travel a long distance in intimate contact with the heat of the furnace, the contracted flue serving to concentrate the flame and heat in a small space, and thus give better results in roasting the ore. The ore is prevented from stopping in its course and clogging the flue by the shaking or jarring of the upper frame.

I am aware that inclined planes have been used in furnaces of this character for delaying the ore in its passage, but not in the manner above described.

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

1. The frame D, with its contracted zigzag flue *ee*, to which is imparted a jarring motion, in combination with the stack B of a furnace, as described.

2. The frame D, with its contracted zigzag flue *ee*, to which is imparted a shaking, jarring, or irregular motion, substantially as and for the purpose above described.

In witness whereof I hereunto set my hand and seal.

MARTIN P. BOSS. [L. S.]

Witnesses:

G. W. BIRDSALL,
ROBERT MEIRKE.