

(No Model.)

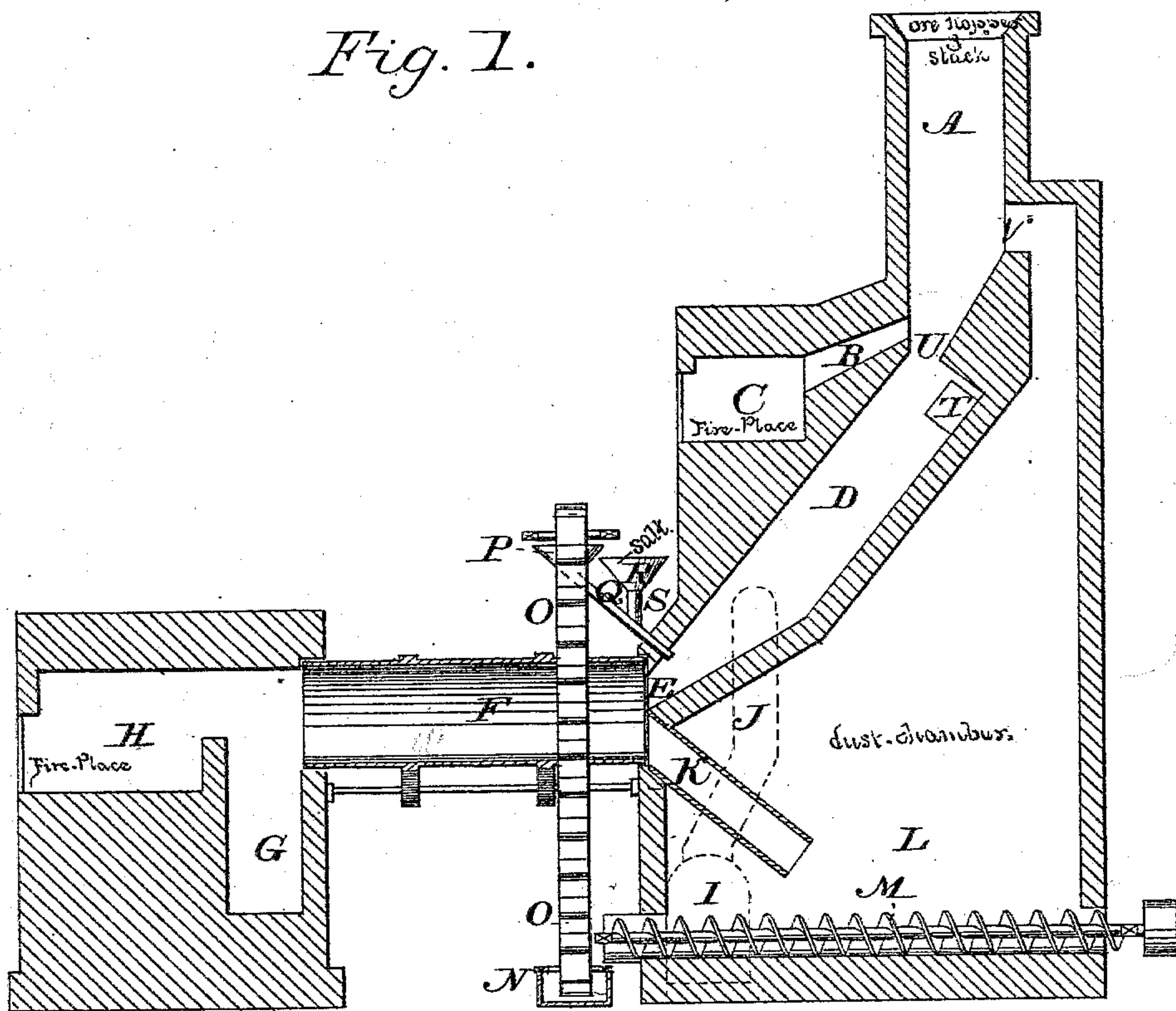
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OXIDIZING AND CHLORIDIZING FURNACE.

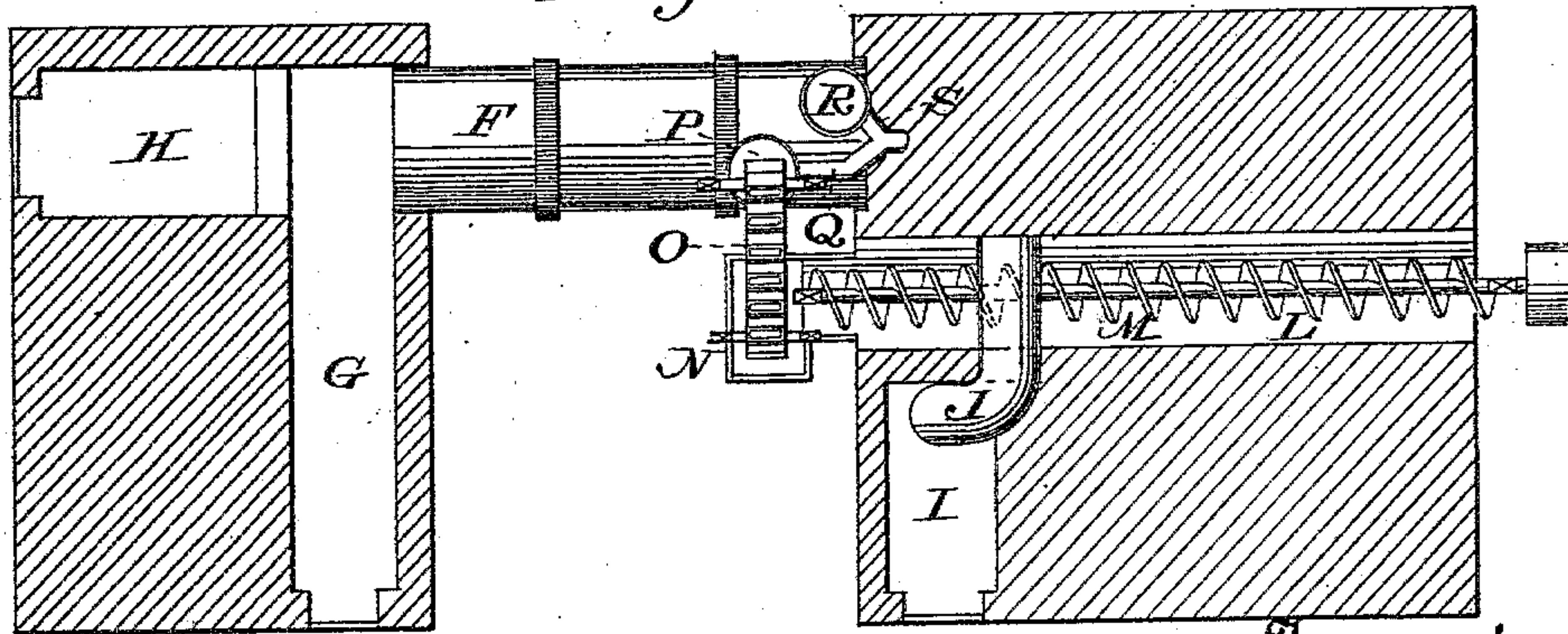
No. 305,788.

Patented Sept. 30, 1884.

*Fig. 1.*



*Fig. 2.*



Witnesses,

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# UNITED STATES PATENT OFFICE.

JOHN R. BRETT, OF OAKLAND, CALIFORNIA.

## OXIDIZING AND CHLORIDIZING FURNACE.

SPECIFICATION forming part of Letters Patent No. 305,788, dated September 30, 1884.

Application filed February 15, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN R. BRETT, of the city of Oakland, county of Alameda, and State of California, have invented an Improvement in Oxidizing and Chloridizing Furnaces; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a furnace in which the operations of oxidizing, desulphurizing, and chloridizing ores of precious metals may be carried on; and it consists of a connected vertical and an inclined roasting-flue, a nearly-horizontal rotating cylinder, into which the ore discharges from the flue, a dust-chamber, and means for conveying the dust into it, a screw and return-elevator therefrom, together with certain details of construction, all of which will be more fully explained by reference to the accompanying drawings, in which—  
Figure 1 is a longitudinal vertical section of the apparatus. Fig. 2 is a horizontal section taken through the dust-chamber and fire-places.

This apparatus is designed for the continuous operation of oxidizing, desulphurizing, and chloridizing ores; and it consists of a vertical flue or stack, A, into which the ore in a pulverized condition is fed by any suitable means, and falls downward through the heat and flame, which enter the stack through a passage, B, from the fire-place C. From the foot of the vertical flue an inclined flue, D, extends downward at a sufficient angle to insure the flow of the ore down to the discharge-opening E, which is narrowed, so as to only allow the ore to flow through, the space not being large enough for a current or draft which would carry off the dust. The cylinder F is supported in the usual way upon wheels or rollers, so as to be rotated by suitable machinery, and it stands at a slight angle with a horizontal line, so that as it rotates the ore moves slowly through it and discharges from the end farthest from the inclined flue into a chamber or pit, G. The fire-place H, at the same end, communicates with the cylinder, and supplies the requisite heat to assist in chloridizing. A fire-place, I, connects by a flue, J, with the lower part of the inclined flue D to supply heat at that point. From the end of the cylinder nearest to the flue D an inclined passage, K, leads downward into the

dust-chamber L, the bottom of which inclines sharply to a spout or trough within which a screw-conveyer, M, revolves, and carries the dust into a receptacle, N, from which it is lifted by a bucket or other elevator, O, and discharged into a hopper, P. A pipe or passage, Q, reconveys the dust from this hopper P into the lower end of the flue D, in case it has not been completely chloridized. If it is desired to settle the dust more completely within the chamber L, transverse partitions may be fixed therein, having an open passage around their alternate ends, through which the dust must travel from side to side as it passes toward the rear of the chamber.

R is a hopper with a passage, S, leading from it into the flue D, close to the discharge passage E, and the ore is supplied with salt or chlorine at this point, so that the two enter the cylinder together and are thoroughly mixed by its rotation.

In order to save fine dust from the upper part of the stack, a passage, T, opens from it into the upper part of the dust-chamber, which extends up nearly to the top of the stack at each side. The lower end of the vertical portion of the stack is narrowed at U in the same manner as the inclined portion is narrowed at its discharge E. The dust-chamber, which may extend up on both sides of the stack A, has an opening, V, from its upper end into the stack, and as the passages K and T are open while the stack is narrowed and obstructed at E and U, it will be manifest that the draft through the cylinder from the fire H will pass through the passage K and carry the dust from this part of the apparatus into the dust-chamber, while the draft from the fire at I enters the inclined portion D and escapes through the opening T, carrying the dust from this portion of the apparatus. The dust will settle to the bottom of the chamber, and the heated air and gases of combustion will pass back into the stack through the opening V, and thus keep up a sufficient draft.

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

1. An ore-furnace consisting of the inclined and vertical stack, a horizontal rotary cylinder into which it discharges through a contracted opening, fire-places connecting with the cylin-



der and stack, and a salt or chlorine supply-opening, in combination with a dust-chamber, with an inclined passage leading into it from the receiving end of the cylinder, substantially as herein described.

2. An ore-furnace consisting of the inclined and vertical stack, rotary cylinder, and fire-places, and salt or chlorine supply passage, as shown, in combination with the dust-chamber, with a passage leading from the cylinder to it, and a screw-conveyer in the lower part of the chamber, substantially as herein described.

3. An ore-furnace consisting of an inclined and vertical stack, an inclined rotary cylinder into which the ore passes from the stack, fire-places from which the cylinder and stack are heated, and a means for introducing chlorine or salt, in combination with a chamber into which the dust passes from the cylinder, a screw-conveyer within the chamber, a receiver for the discharge of the conveyer, and an elevator and return-passage opening into the stack, substantially as herein described.

4. An ore-furnace consisting of an inclined and vertical stack, an inclined rotary cylinder into which the ore passes from the stack, in combination with a dust-chamber having flues or passages opening into it from the stack and from the cylinder, substantially as herein described.

5. An ore-furnace consisting of an inclined and vertical stack with narrow or obstructed openings at the lower end, and an inclined rotary cylinder into which the ore passes from the stack, in combination with a dust-chamber having flues or passages opening into it from the stack and from the cylinder, and a return-opening from the dust-chamber to the stack, near the top, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN R. BRETT.

Witnesses:

S. H. NOURSE,  
H. C. LEE.