

(No Model.)

J. L. LOVELL.
ORE ROASTING FURNACE.

No. 381,629.

Patented Apr. 24, 1888.

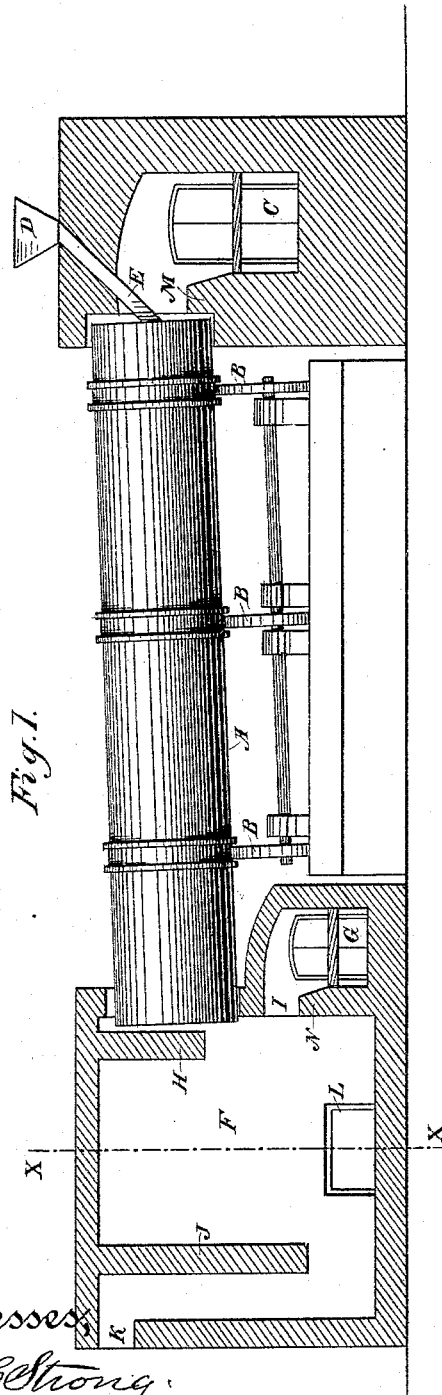


Fig. 1.

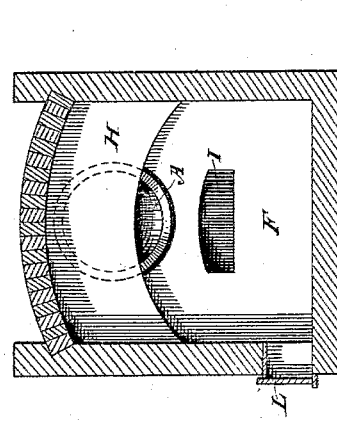


Fig. 2.

Witnesses,
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UNITED STATES PATENT OFFICE.

JAMES LINCOLN LOVELL, OF AUSTIN, NEVADA.

ORE-ROASTING FURNACE.

SPECIFICATION forming part of Letters Patent No. 381,629, dated April 24, 1888.

Application filed June 21, 1887. Serial No. 242,066. (No model.)

To all whom it may concern:

Be it known that I, JAMES LINCOLN LOVELL, of Austin, county of Lander, State of Nevada, have invented an Improvement in Ore-Roasting Furnaces; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved ore-roasting furnace.

It consists of a cylindrical, horizontal, or inclined rotary furnace-body, and in combination therewith of two or more fire-places with hanging walls in the receiving-chamber, and 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 fire-places and chambers, showing the cylinder in its relative position. Fig. 2 is a vertical section taken through X X of Fig. 1.

A is a roasting-cylinder constructed in the usual or well-known form of such cylinders, and in the present case it is mounted upon rollers B, through which a rotary motion is given to the cylinder upon its axis.

C is the main fire-place from which the heat and products of combustion pass into the front end of the cylinder to roast the ore, which is fed into it from the hopper D, passing through the inclined chute E, as shown. The opposite end of the cylinder discharges into the chamber F, and a second fire-place, G, is built so as to open into this chamber F adjacent to the discharge end of the cylinder and just below it, as shown.

Across the chamber F, and close to the discharge end of the cylinder A, is an arched hanging wall, H, which extends downward to very near the bottom of the cylinder A. By this construction the outlet of the cylinder A is made much smaller than the inlet from the main fire-box C, thus concentrating the flame and increasing its intensity within the cylinder and escape-throat.

All the fine dust which is carried out of the cylinder A by the draft, and which naturally floats through the upper part of the cylinder, will be thrown downward by this hanging wall H, and will there meet the flame of the second fire, G, as it passes out through the

passage I, and this dust, passing through this flame, will be thoroughly roasted and caused to slag or become clammy, so that it will stick to the larger particles and fall into the chamber F, instead of floating off and being lost, as in the ordinary construction of these furnaces.

J is another hanging wall extending across the chamber F and nearly to its bottom, so that all the finer dust which may be in the upper part of this chamber will again be brought downward, and the flame from the secondary fire G is also concentrated, so as to pass through this same passage and in close contact with any pulp that may be lying in the discharge-chamber F after it has fallen from the cylinder A.

K is the outlet from the dust or receiving chamber, through which the flame and any dust which may not have been deposited in F will pass to the outer chamber, from whence it is led to the chimney, a draft being thus produced through the whole apparatus, as before described.

L is the door through which the pulp is removed from the chamber F from time to time.

M is the bridge-wall of the fire-place C, and N is the bridge-wall of the secondary fire-place G. By this construction I produce an improved roasting-furnace, and am able to save a very much larger percentage of the ore, and especially that portion usually lost.

By this construction I have been enabled to raise the amount roasted by the furnace from sixty-five per cent., which was done before my improvements were added, to ninety-seven per cent., that the furnaces have done since I have added my improvements.

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

The combination of the horizontal or inclined rotary roasting-chamber having a feed-hopper and main fire-place discharging into one end, and a receiving-chamber at the opposite end, into which both coarse ore and dust and the fumes are received, said chamber having a wall extending downward and close to the end of the cylinder, so as to reduce the discharge-opening, a second wall at the rear of said chamber extending downward, so as to

form a tortuous outlet into the following chambers and stack, and a supplemental fire-place adjacent to or beneath the discharge end of the cylinder, whereby the heat from said fire-place
5 passes out in contact with the ore and dust which is discharged from the cylinder, substantially as herein described.

In witness whereof I have hereunto set my hand.

JAS. LINCOLN LOVELL.

Witnesses:

W. FOSTER,
J. A. WRIGHT.