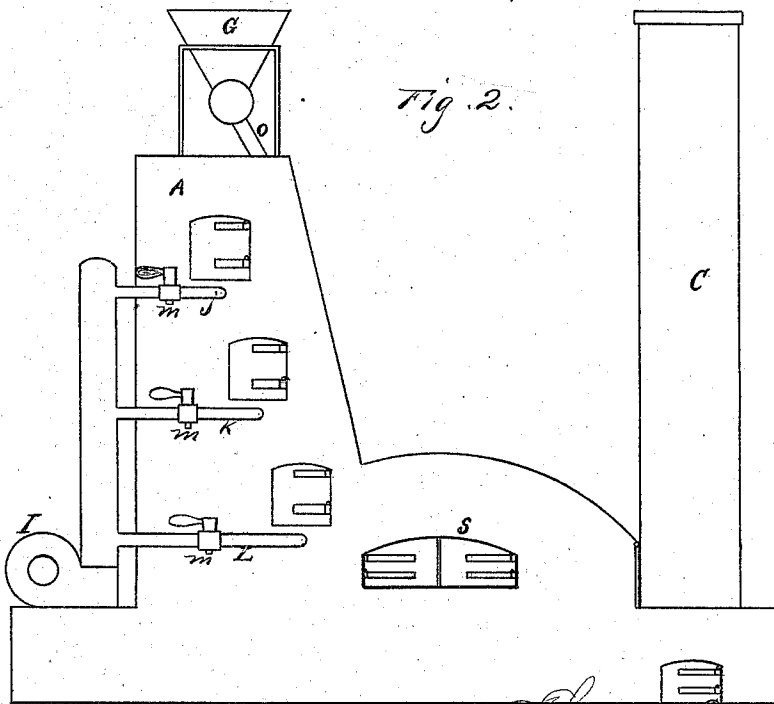
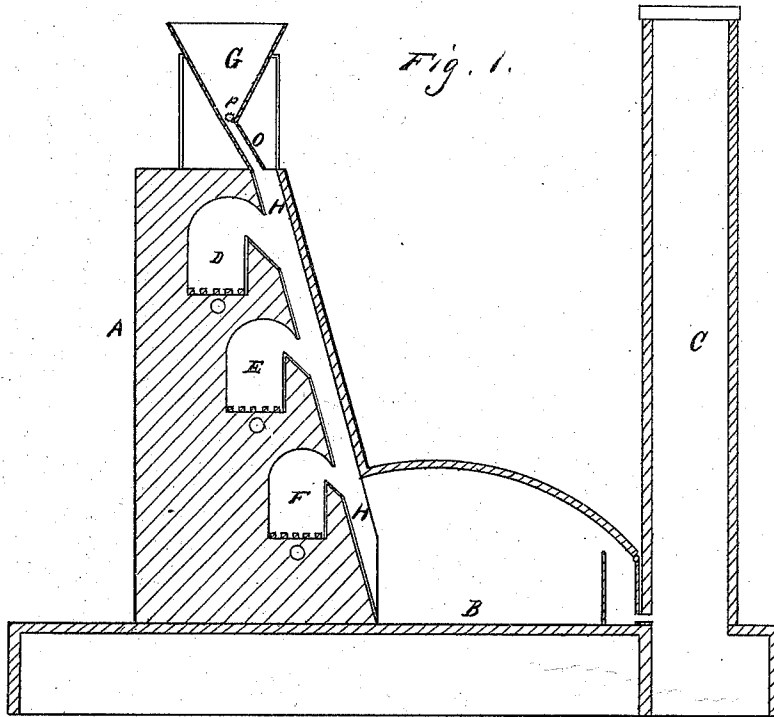


T. MCGLEW.

Shaft-Furnaces for Roasting Ores.

No. 140,837.

Patented July 15, 1873.



Witnesses

John L. Boone
C. H. Richardson

Thomas McGlew
per Dewey &
Atty

UNITED STATES PATENT OFFICE.

THOMAS MCGLEW, OF AUSTIN, NEVADA.

IMPROVEMENT IN SHAFT-FURNACES FOR ROASTING ORES.

Specification forming part of Letters Patent No. **140,837**, dated July 15, 1873; application filed April 9, 1873.

To all whom it may concern:

Be it known that I, THOMAS MCGLEW, of Austin, Lander county, State of Nevada, have invented an Improved Chloridizing-Furnace; and I do hereby declare the following description and accompanying drawings 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 an improved furnace for roasting and chloridizing ores which have been previously pulverized and mixed with a quantity of salt, and is what I call the "Eagle Improved Chloridizing Furnace." My improvements consist in combining in a roasting and chloridizing furnace, the principles of the stack or upright furnace, and of the reverberatory furnace in such a manner that the ore in falling through the upright portion of the furnace will meet, or rather come in contact with, the heat and blast from one or more blast-furnaces, situated at different points along its descent, and will finally fall upon a hearth over which the combined heat and blast from all of the furnaces pass to the chimney or draft-flue.

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

Figure 1 is a side sectional elevation. Fig. 2 is a side elevation.

A represents the main body of the furnace which will be built to a considerable height, as desired. B is the reverberatory hearth, and C the chimney or draft-flue. D E F are fire-places, ranged at different heights in the body of the furnace A. Upon the top of the furnace A is the feed-hopper G, the bottom of which is connected by an inclined spout or chute, O, with the inclined passage H in the front of the furnace A. Each of the fire-places D E F communicates with the inclined passage H, so that the heat from them will be drawn into the passage; thence downward and over the hearth B, and up the chimney C. I is a blower which is connected, by pipes *j k l*, with each of the fire-places D E F, and a cock or valve, *m*, is connected with each of the pipes

j k l, by which the blast of air from the blower into either or all of the fire-places can be regulated.

The ore to be roasted and chloridized having been properly pulverized and mixed with salt, is placed in the hopper G, from which it is fed into the inclined chute O by a revolving fluted roller or cylinder, *p*, which is rotated at the desired speed by a belt connection with the power which drives the blower. The chute O conveys the ore and salt into the inclined passage H, where it comes in contact with the blast from the upper fire-place D, which separates the particles and subjects them to the action of the heat; thence it passes downward encountering the blast from the fire-place E, and an increased degree of heat; thence downward past the blast from the fire-place F, and finally drops upon the hearth C where it remains subjected to the combined heat from all three of the fire-places until it has been thoroughly roasted, and is ready to be drawn for cooling. The roasted ore is drawn from the hearth through the side door S.

By this arrangement the ore can be completely and thoroughly roasted and chloridized. As many fire-places can be used at different altitudes as may be required to complete the process.

I am aware that James D. Whelpley and Jacob J. Storer, in their patents of January 12, 1864, No. 41,250, and of November 13, 1866, No. 59,696, reissued numbers 4,897 and 4,898, used blowers to increase the draft through a vertical or nearly vertical chimney with a fire-place on each side of the chimney near its top; but these parties do not apply a blast directly to the fire as I do, nor do they have a succession of blasts arranged on different horizontal planes. I am also aware of the patent to Chas. Stetefeldt, No. 72,931, December 31, 1867, reissued January 25, 1870, No. 3,807, in which the fire-place is near the end of a vertical or nearly vertical shaft, and from which the flame and gases pass upward; but Stetefeldt shows no succession of blasts, and no hearth for roasting the ores; while Riotti's, in his patent of March 28, 1871, No. 113,208, consists in the dropping of a mixture of pulverized ore and salt through a vertical or nearly vertical shaft; and says it can be done on Whelpley's and Storer's fur-

nace, and heated by fire-places at or near the top.

I disclaim whatever is shown in these several patents, my improvements consisting in combining the principles of the shaft-furnace and reverberatory furnace in such a manner that the ore in fine powder falls through the upright portion of the furnace, comes in contact with the blast at different points, and finally falls upon a hearth, over which the combined heat from all the blasts will pass. My improvement consists in making a furnace that differs from those heretofore used in this method of chloridizing, in placing a series of fire-places with blast apparatus at different heights along the descending shaft and casting the ore upon the hearth where it is subjected to the combined action of the several blasts.

I do not claim the process of forcing or dropping the ore in a fine powder through a shaft, flue, or furnace, and subjecting it to heated gases or the products of combustion; nor do I claim a furnace for roasting ores composed of a shaft or chamber, through which the ore in fine powder may be blown or fall, such be-

ing described and claimed in the patents to Whelpley and Storer, above referred to; nor the process of chloridizing silver ore by dropping a mixture of pulverized ore and salt through a vertical or nearly vertical shaft with the products of combustion, such being claimed in the patent to Eugene N. Riotti, March 28, 1871.

Having thus described my improved roasting and chloridizing furnace, what I claim, and desire to secure by Letters Patent, is—

In an ore roasting and chloridizing furnace, the fire-places D E F on different horizontal planes, and with the draft arranged, as shown, so that it will strike and scatter the falling ore, in combination with the inclined passageway H, blower J, hearth B, and chimney C, all constructed and arranged substantially as and for the purpose set forth.

In witness whereof I hereunto set my hand and seal.

THOMAS MCGLEW. [L. s.]

Witnesses:

BENJAMIN B. STANSBURY,

MILTON R. BOWMAN,

WILLIAM K. LOGAN.