(No Model.)

J. B. RANDOL.

Ore Roasting Furnace.

No. 243,401. Patented June 28, 1881.

Fig. 1

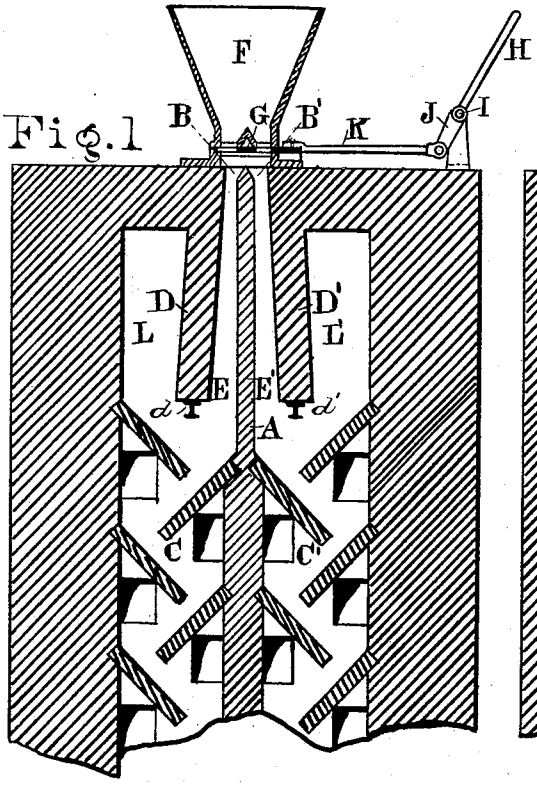


Fig. 2

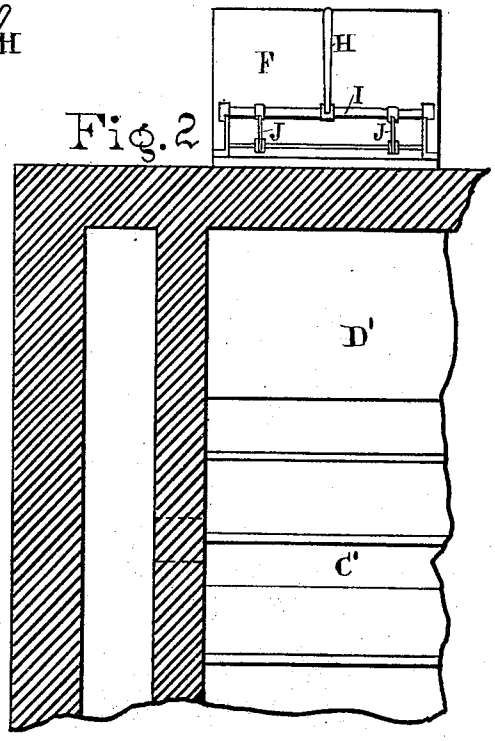
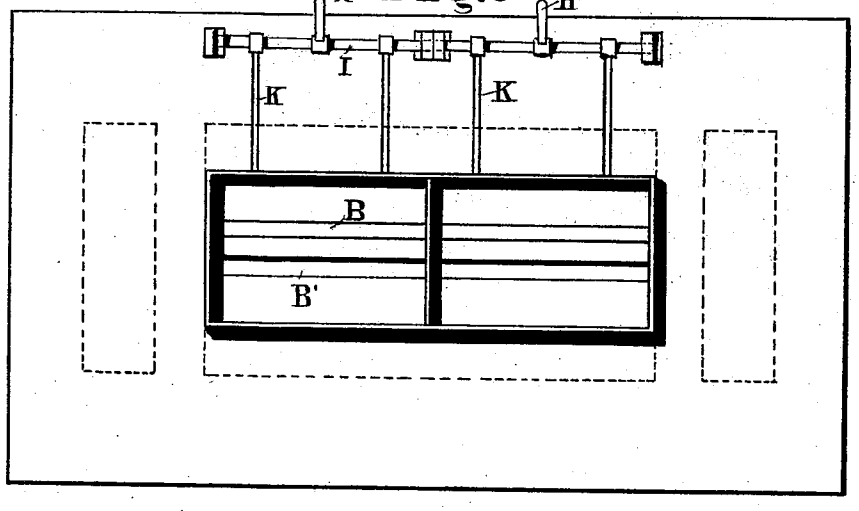


Fig. 3



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES B. RANDOL, OF NEW ALMADEN, CALIFORNIA.

ORE-ROASTING FURNACE.

SPECIFICATION forming part of Letters Patent No. 243,401, dated June 28, 1881.

Application filed August 4, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. RANDOL, of New Almaden, Santa Clara county, State of California, have invented a new and useful Improvement in Ore-Roasting Furnaces, of which the following is a specification.

The invention relates more particularly to that class of furnaces used for reducing quicksilver ores which have two compartments side by side, either compartment being in itself separate and independent, or capable of being made so, with respect to the adjoining compartment; and my invention consists in a novel arrangement of the feeding-hopper, and its combination with a separating-wall, operating to secure a regular and equal supply of ore to each compartment of the furnace.

To make my invention the more clearly understood, I will refer its application, in the present instance, to the furnace patented to Huttner and Scott, October 31, 1876, No. 183,934, which furnace is shown in the accompanying drawings, in which—

Figure 1 is a part of a transverse sectional elevation of a Huttner and Scott furnace with my improvements attached. Fig. 2 is a part of a longitudinal sectional elevation of same; and Fig. 3 is a plan or top view.

Like letters of reference refer to like parts in all the figures of the drawings.

Heretofore both compartments of these furnaces joined in a single chamber above and were supplied from a hopper with but one discharge-opening, the ore being distributed by chance into each chamber by falling upon the apex of the central division-wall, where the slanting shelves join together. This arrangement has been found unsatisfactory, on account of the chance nature of the operation, one compartment frequently receiving a more liberal supply than the other, to the effect that while one side of the furnace became choked with excessive feeding the other would be scantily supplied and the capacity of the furnace thereby materially lessened. To obviate this difficulty I have arranged to extend a thin partition-wall, A, longitudinally through the center of the furnace from the point where the top middle shelves meet edge to edge to the outer surface of the top of the furnace. Upon each side of this wall there will be a longitudinal slot in the top B B′, extending from end to end of the ore-chambers C C′.

D D′ are two hanging walls, supported on the bars *d d′*, set nearly parallel with the wall A, but slightly inclined outward at the bottom, so as to make the channel-ways E E′, which they form in connection with the wall A, freely clear themselves of the ore passing through them dropped from the hopper F. This hopper F is made of iron or other suitable material, and is so constructed as to have two discharge-openings at the bottom corresponding with the openings in Fig. 3 of the furnace-top B B.′ These openings are controlled by a single slide-valve, G, moved in or out to open or close them by the hand-lever H, operating the vibrating shaft I, from which the levers J depend, which form a connection with the slides through the rods K. A double-inclined fixed cross-piece, G′, as shown in section in Fig. 1, is placed in the center of the hopper-bottom, over the partition-wall A, and the openings in the hopper-bottom are upon each side of it. The valve G is provided with an opening, *a*, which, when the valve is closed, is in the position indicated in Fig. 1, under the cross-piece G′, and when the valve is open is coincident with the opening B′, so that the ore may pass down.

L L′ are chambers where the hot air from the roasting ore serves to heat the walls D D′, thereby drying the ore in the passages E E′. These chambers are entirely independent one of the other, and, if need be, may lead into different condensers, so that virtually my new arrangement permits the completely independent action of each compartment.

The hanging walls D D′ are used to secure a thin stream of material being fed upon the first of the sloping shelves, to provide against the possible choking of the furnace by the banking of the ore in any spot if the material falling from an elevation should become unequally distributed.

The construction of the hopper and the valves or slides may be varied, and the slides may be opened simultaneously, consecutively, or independently, as preferred.

Ordinarily the length of the furnace would

be too great to make it convenient to operate a single slide-valve reaching from end to end of the ore-chamber, so that I have illustrated in the drawings two valves and a hopper separated by a partition, which will be found more convenient to apply in most cases.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. In an ore-roasting furnace having two compartments, C C′, the combination of the partition-wall A, dividing the chambers L L′, and the inclined walls D D′, substantially as and for the purposes described.

2. In an ore-roasting furnace having two compartments, C C′, the combination of the hopper provided with two discharge-openings, as described, the slide valve or valves G, and the partition-wall A, substantially as described.

JAMES B. RANDOL.

Witnesses:
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