W. K. ALDERSLEY.

ORE-ROASTING FURNACE.

No. 185,882. Patented Jan. 2, 1877.

Fig. 1.

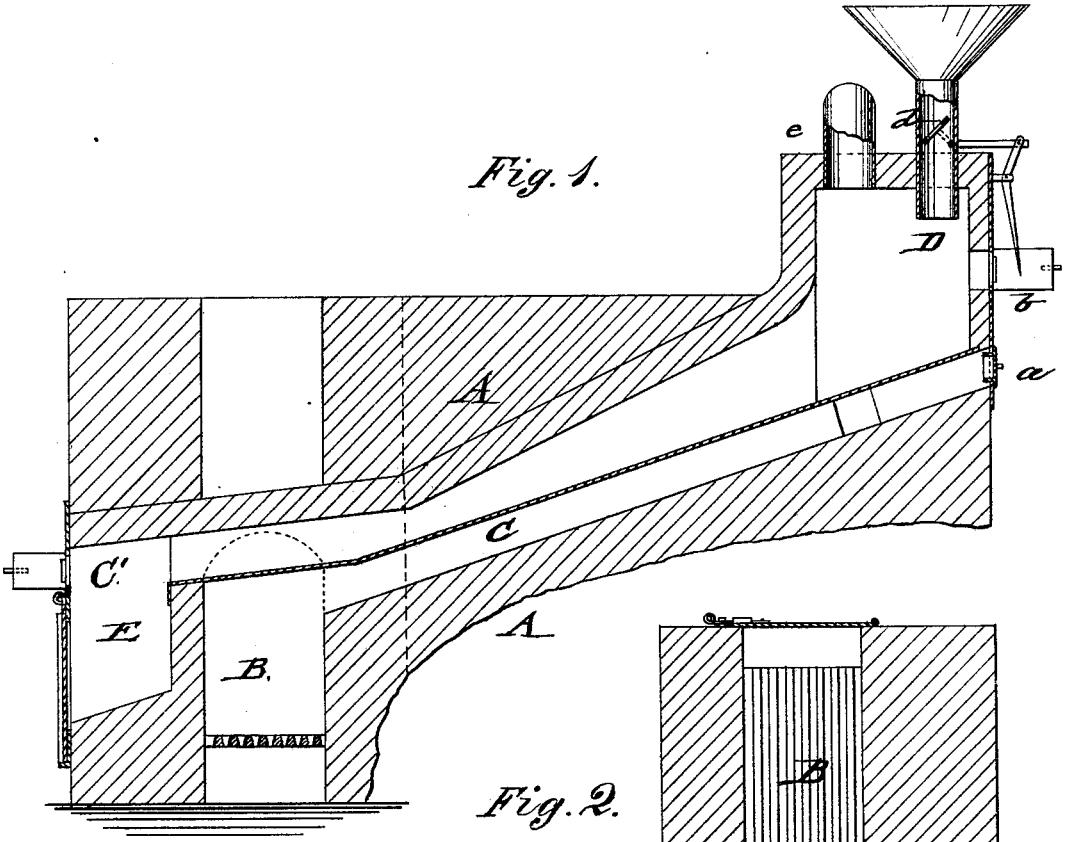
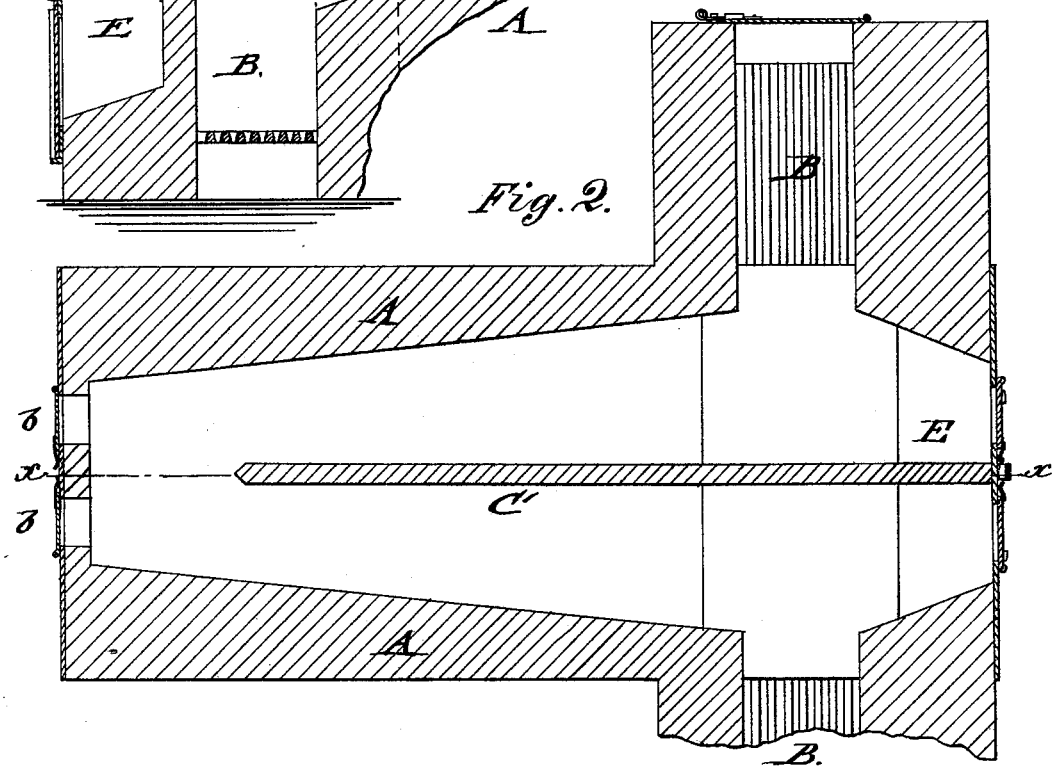


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM K. ALDERSLEY, OF COLUSA, ASSIGNOR TO ABBOTT QUICKSILVER MINING COMPANY, OF COLUSA, CALIFORNIA.

IMPROVEMENT IN ORE-ROASTING FURNACES.

Specification forming part of Letters Patent No. **185,882**, dated January 2, 1877; application filed June 26, 1876.

To all whom it may concern:

Be it known that I, WILLIAM K. ALDERSLEY, of Colusa, in the county of Colusa and State of California, have invented a new and Improved Ore-Roasting Furnace, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section on line *x x*, Fig. 2, of my improved quicksilver-furnace, and Fig. 2 is a horizontal section of the same.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide an improved furnace for the reduction of quicksilver ore, by which the forming of adobes of the fine dirt is dispensed with, and the ore reduced by the application of heat, both to the top and bottom of the ore, during its gradual passage through the furnace.

The invention consists of a furnace provided with double fire-places, and a double-inclined roasting-sole, along which the ore is fed from a feed-hopper, with adjustable check, to the slag-pit.

A longitudinal partition divides the furnace into two sections, through which the fire is drawn, passing over the top of the ore, while a heating-chamber below the furnace-floor heats up the ore from below.

In the drawing, A represents the brick-work of my improved quicksilver-furnace; B, the fire-places, that are arranged at opposite sides of the furnace, symmetrically to the longitudinal axis of the same. The fire-places B communicate with a heating-chamber, C, below the floor of the furnace and with the reducing ore chamber above, so that the fire may heat up the ore from below, on the principle of a retort, and, by acting at the same time on the top of the ore, accelerate the reduction of the same.

The ore-chamber is divided by a central partition, C′, that extends longitudinally through the same, dividing it into two sections or parts, a fire-place being arranged for each section.

The bottom of the furnace is constructed at a suitable inclination or slope, steeper from mouth of ore-receiver to a point at some distance from the slag-pit, and then with less slope from that point to the slag-pit, as shown in Fig. 1. From this latter portion the ore may be drawn down with a long rake inserted through the rake-door above the slag-pit.

The floor between the ore-chamber and heating-chamber may be made of fire-brick or iron plate, while the arch over the ore-chamber is built of fire-brick, and covered with dry ashes, to retain the heat.

An exit flue or flues, *a*, at the upper end of the heating-chamber, produces a draft, regulated by dampers.

Doors *b* at the upper end of the ore-chambers permit the inspection of the interior of the same.

The ore is fed to the inclined floor of the ore-chamber by a hopper, D, which is provided with a check, *d*, to regulate or interrupt the feed of the ore by means of a crank and lever connection. The ore passes along the roasting-sole from the head of the ore-chamber to the slag-pit E, during which time it is thoroughly subjected to the distilling action of the furnace-fires. The fumes pass through exit-pipes *e* at the top part of the receiving-chamber to the condensers.

The action of the heat on the upper and lower parts of the ore reduces the fine dirt in a perfect manner without the necessity of making the same into adobes.

The gradual passing down of the ores exposes the same to a more powerful heat the nearer they come to the fire-places, so as to free the mercury-fumes, and leaves, finally, the reduced slag, which is drawn out at the slag-pit.

The furnace works in an effective manner, at a saving of time and fuel.

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

A quicksilver-furnace consisting, essentially, of an inclined roasting-chamber, divided by longitudinal partition C, oppositely-located fire-places B B, auxiliary flue-passage beneath the roasting-sole, and the slag-pit E, all constructed and arranged substantially as and for the purpose specified.

WILLIAM KEARTON ALDERSLEY.

Witnesses:

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