(No Model.)

R. A. NEVIN.

ORE ROASTING AND CHLORIDIZING FURNACE.

No. 248,199. Patented Oct. 11, 1881.

Fig: 1.

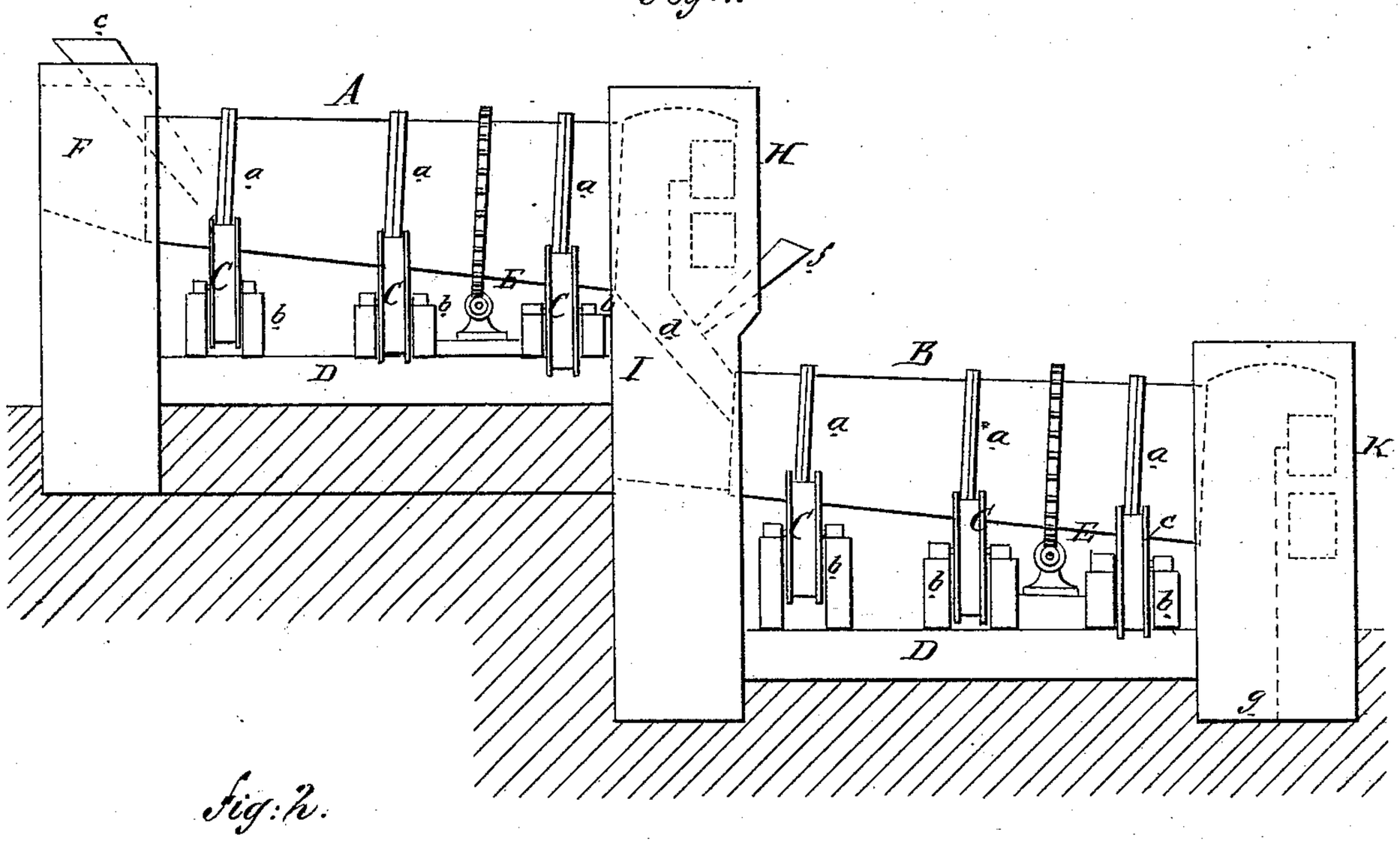
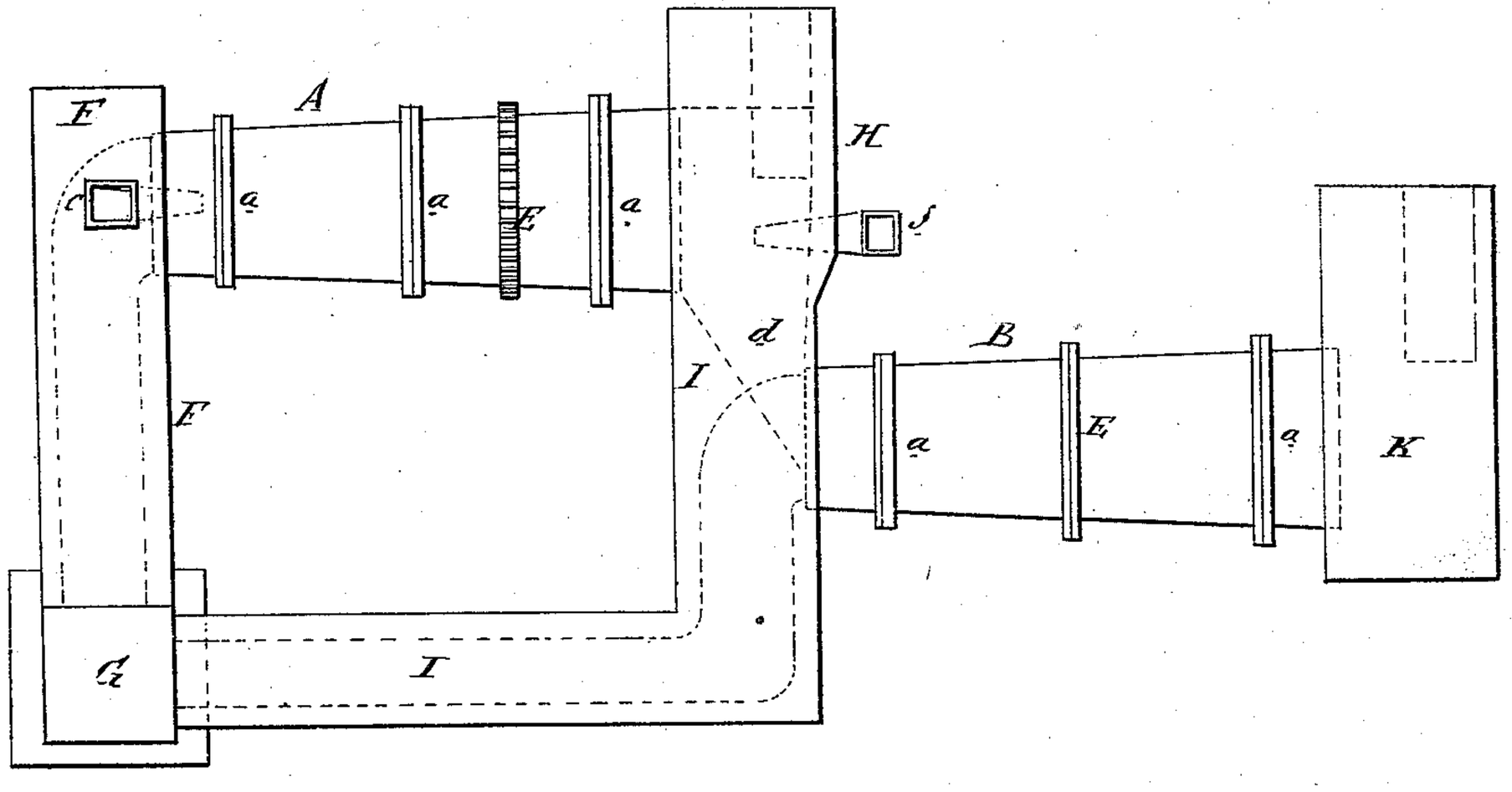


Fig: 2.



WITNESSES:

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ORE ROASTING AND CHLORIDIZING FURNACE.

SPECIFICATION forming part of Letters Patent No. 248,199, dated October 11, 1881.

Application filed March 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. NEVIN, of Silver Cliff, in the county of Custer and State of Colorado, have invented a new and useful Improvement in Ore Roasting and Chloridizing Furnaces, of which the following is a specification.

This invention is especially designed for working the ores of gold and silver; and its object is to chloridize the ores more quickly and with less waste of salt and loss of the precious metals.

Figure 1 is a side elevation of the furnace. Fig. 2 is a plan of the same.

Similar letters of reference indicate corresponding parts.

In the accompanying drawings, A B represent the cylinders encircled by bearing-rings *a*, which rest on friction-rolls C, which are suitably journaled in boxes *b* that are fixed on a bed, D. Said cylinders or furnaces A B are set at an inclination of an inch to the foot, or thereabout, and are designed to be revolved by means of worm and wheels E, or other suitable device. The two furnaces A B are set at different elevations, the furnace A having its higher and receiving end revolving in a flue, F, that is connected directly with the smoke-stack G, while its lower end revolves in the fire-box H.

Extending laterally from the fire-box H is a flue, I, that extends parallel with the flue F for a short distance and then turns at right angles and enters the smoke-stack G.

The higher or receiving end of the furnace or cylinder B revolves in the flue I on a lower plane than is the fire-box H, and the lower end of said furnace B is supported in a fire-box, K, on friction-rolls or other suitable device.

When the device is in operation the ore to be operated upon is fed into the higher end of the furnace A through a hopper, (indicated at *c*,) and passing through said furnace A, is exposed to a gradually-increasing temperature as it approaches the fire-box H, whereby said ore is wholly or partly desulphurized, the sulphurous fumes passing off at the same time through the flue F directly into the smoke-stack G. From the lower end of the furnace A the desulphurized ore falls through an inclined passage or chute, *d*, in the flue I into the higher end of the furnace B, and as said desulphurized ore passes through said passage or chute *d* chloride of sodium or common salt is introduced through the hopper *f* to mix with said ore and fall with it into the furnace B. The mingled ore and salt then gradually descend through the furnace B, exposed to a gradually-increasing temperature as they approach the fire-box K, whereby the metallic portions of the ore are chloridized, until the said ore finally falls into a receptacle, (indicated at *g*,) whence it may be removed for lixiviation or amalgamation. In this operation, the ore being wholly or partially desulphurized or oxidized before the application of the salt, the metallic portions of the ore and the chlorine of the salt more readily and thoroughly combine, thereby effecting a saving of salt and of the metals over the ordinary methods, and the passage of the ore from one furnace into the other being continuous the ore does not become cooled in the operation.

I am aware that the ore has been fed from a hopper into a revolving cylinder, through which it passes to a chamber, then by a conveyer into a chute, and thence into the roasting-furnace; also, that it is not new to first roast the ores by themselves and afterward with common salt.

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

1. In a roasting and chloridizing furnace, the combination of the two revolving cylinders A B, the latter connected with the stack G by flue I, and the two connected by chute *d* with the fire-boxes H K, in which the discharge ends of said cylinders revolve, as and for the purpose specified.

2. In an ore roasting and chloridizing furnace, the combination, with the revolving furnaces A B, and flue I, and chute *d*, of the hopper *f*, connecting with the chute *d*, substantially as herein shown and described, whereby salt is introduced into the ore in the passage of the latter from one furnace to the other, as set forth.

ROBERT A. NEVIN.

Witnesses:
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