

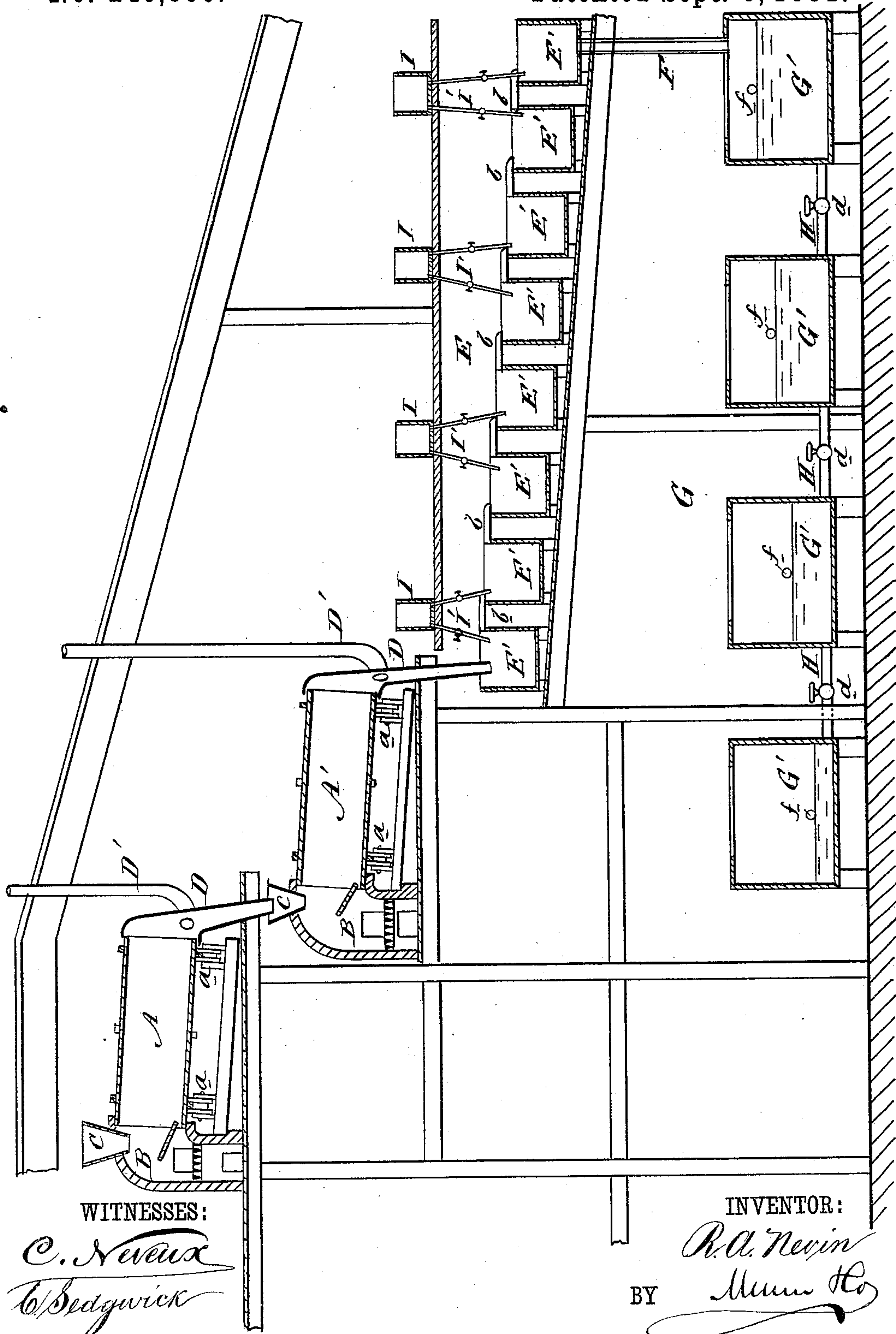
(No Model.)

R. A. NEVIN.

APPARATUS FOR AMALGAMATING GOLD AND SILVER ORES.

No. 246,806.

Patented Sept. 6, 1881.



WITNESSES:

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ROBERT A. NEVIN, OF SILVER CLIFF, COLORADO.

APPARATUS FOR AMALGAMATING GOLD AND SILVER ORES.

SPECIFICATION forming part of Letters Patent No. 246,806, dated September 6, 1881.

Application filed May 16, 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 Improved Apparatus for Amalgamating Gold and Silver Ores, of which the following is a specification.

The object of this invention is to make an improved combination of known devices, whereby the ores of the precious metals may be amalgamated at less cost and with greater saving of the metals.

Great inconvenience has been experienced in passing the ore from one settler to another, because their connecting-pipes are so high above their bottoms that the heavier portions or tailings of the ore are with difficulty or at excessive cost of power lifted to a level with the said connecting-pipes.

My invention consists in certain peculiarities of construction and arrangement, as hereinafter described.

The drawing represents a sectional side elevation of the roasting-cylinders, amalgamating-pans, and settlers, connected and arranged according to my improved method.

In the accompanying drawings, A A' represent the roasting-cylinders, of the usual kind, supported at different elevations on friction-rolls *a a*, and having their respective fire-chambers B and hoppers C. Each cylinder A A' is provided at its discharging end with a hooded spout, D, from which a smoke-flue, D', extends upward for carrying off the fumes from the roasting ores. The spout D of the upper cylinder, A, discharges the ore into the hopper C of the cylinder A', and the spout D of the cylinder A' discharges the ore into the highest amalgamating-pan E' of the series E. These pans E' are set on a sloping platform, so that each one shall be higher than the next succeeding one, and are connected with each other by spouts *b* extending from the mouth of one pan E' to another in regular order. From the bottom of the last pan E' a discharge-pipe, F, extends downward into the top of the first settler G' of the settler series G. These settlers G' are all arranged on a level with each other, and are connected with each other by pipes H at or near their bottoms, as shown, which pipes H are provided with cocks *d* for regulating the flow from one settler G' to another. Each

settler G' has also an overflow-orifice, *f*, for the outflow of the water and tailings, the orifice *f* in the first settler G being near its top, and the orifice *f* in each succeeding settler G being lower than in the preceding one, so that the water and tailings shall discharge only when the amalgam, quicksilver, and precious metals have time for subsiding to the bottoms of the settlers G', or below their discharge-orifices *f*.

Above the amalgamating-pans E' are arranged vessels I for containing quicksilver, which vessels I communicate with the pans E' by means of valved pipes I', by which the flow of the quicksilver into the pans E is regulated.

The operation is as follows: The pulverized ore being fed into the hopper C of the revolving cylinder A, where it is designed to be subjected to a suitable temperature, discharges through said cylinder-spout D into the cylinder A', which is also designed to be heated, and thence through its spout D into the first amalgamating-pan of the series E, where it is subjected in the usual manner to the action of the quicksilver introduced through pipes I' from vessels I, it being designed that the amalgamating-pans E' shall be of ordinary construction, in which mullers are operated to effect the combination between the precious metals and the mercury. Water being introduced in the usual manner into the first pan E', the pulp is carried over from said pan E' through its mouth-spout *b* into the next lower pan of the series E, and so on throughout the entire series of amalgamating-pans the ore or pulp is subjected in each pan E' to the action of the mullers and mercury, while the pulp is constantly discharging into the next lower pan E', until from the lowest pan E' it discharges through pipe F into the first settler G' of the series G, and thence into the other settlers G' in succession, the cocks *d* in the connecting-pipes H being opened sufficiently to regulate the flow of the pulp from one settler G' to the other. The pipes H, connecting the settlers G' at or near their bottoms, render the flow of the pulp from one settler G' to the other easy and unobstructed, and prevent accumulation of the said pulp in any but the first settler of the series.

By this arrangement and combination of

roasting-cylinders, amalgamating-pans, and settlers, the process of the amalgamation of the precious metals is made automatic and comparatively inexpensive, and the loss of the
5 metal during the process is reduced to a minimum.

I do not confine myself to any specified number of amalgamating-pans or settlers in a series, designing to have as many as will be required to effect satisfactory amalgamation of
10 the metals and reduce the usual percentage of loss of metal, amalgam, and mercury.

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

In an apparatus for amalgamating gold and silver ores, the series of settlers G', having overflow-orifices *f*, constructed nearer the bottom in each succeeding settler of the series, said settlers being connected with each other
20 by pipes H, having cocks *d*, and with pans E' by pipe F, substantially as shown and described.

R. A. NEVIN.

Witnesses:

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