

C. Schofield,

Ore Washer.

No. 102870.

Patented May 10, 1870.

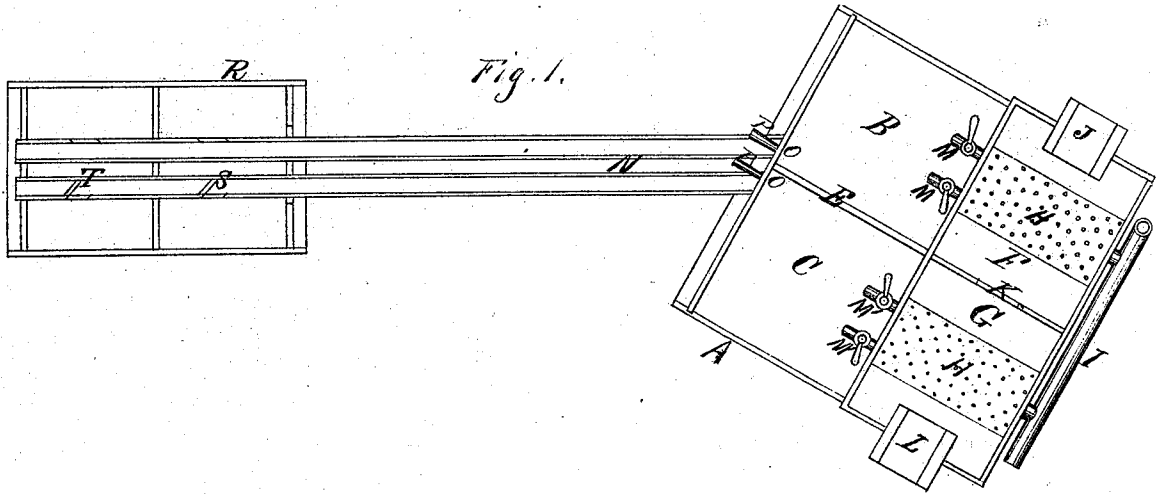
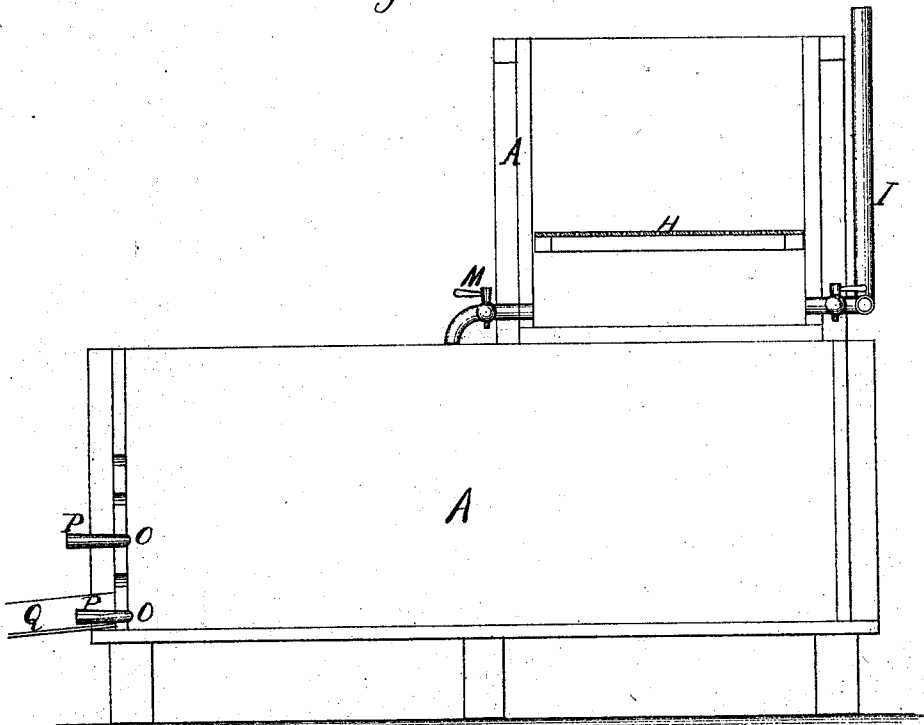


Fig. 2.



Witnesses
John L. Doone
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Charles Schofield
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United States Patent Office.

CHARLES SCHOFIELD, OF KERNVILLE, CALIFORNIA.

Letters Patent No. 102,870, dated May 10, 1870.

IMPROVEMENT IN APPARATUS FOR SAVING GOLD.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES SCHOFIELD, of Kernville, county of Kern, State of California, have invented an Improved Gold-saving Apparatus; 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 improvements without further invention or experiment.

My invention relates to an improved apparatus to be attached to stamp-batteries, and through which the ore pulp is passed in order to separate the valuable portion from the gangue or refuse matter with which it is mixed when it comes from the batteries.

In order to explain my invention, that others can make and use the same, reference is had to the accompanying drawings, forming a part of this specification, in which the same letters indicate identical parts wherever they occur in each of the figures.

A represents a large tank or box, which is divided into two compartments, B and C, by the partition E, the containing capacity of each compartment being regulated according to the number of stamps employed in the battery.

Over one end of the tank A, and placed within or supported by suitable frame-work, are two hopper-shaped boxes, F and G, the one corresponding with the other, and one being placed over each of the compartments B.

Each of these boxes is provided with a false bottom, H, placed a short distance above the usual bottom.

These false bottoms may be made of sheet metal, and are perforated with holes sufficiently large to allow the particles of metal or amalgam to pass through to the space between the two bottoms. The perforations in the bottom of the box into which the pulp is first introduced are made larger than those in the adjoining box, in consequence of the larger and heavier particles being first precipitated to the bottom.

Clear water is first introduced into the boxes F and G through the pipe I, which communicates with them between the real and false bottoms.

The water thus introduced boils up through the perforations in the false bottoms and receives the pulp as it is admitted into the box F through the spout J, the boiling or agitation of the water holding it in suspension until the heavier particles of metal, amalgam, and quicksilver are precipitated through the perforations in the false bottom into the space below.

The finer and lighter particles, whose specific gravity is not sufficient to precipitate them through the upward-moving current of water, are held in the ebullition until the water has risen to the top of the box, where they are carried over into the box G through the communicating channel K, where they are again

subjected to the same process, but in a milder form, owing to the smaller size of the perforations, the ebullition of the water in this box being just sufficient to settle all firm and lighter particles to the bottom.

The waste or remaining debris is carried off by the water through the discharge-spout L, over the end of the box G.

If it is ascertained that valuable matter still remains with the slime, a third or fourth box may be used in the same manner, but two will generally be found to be sufficient to accomplish the work.

The ebullition of the water in the box F stops the amalgam and about three-fourths of the sulphurets, while that in the box G arrests the remainder.

The quicksilver and amalgam remain in the bottom of the box, and need not be cleaned up oftener than once in four weeks.

When the cocks M M are all closed, the pressure is too strong to admit anything except quicksilver or coarse amalgam through the screen, so that it becomes necessary to open them in the box F until the sulphurets and sand begin to appear with the water and drop into the tank below.

The holes O O in the tank A, with the exception of one at the top, must be closed, to prevent the sulphurets and sand from escaping down the sluice N, until the tank is full.

As soon as the compartment B is full, the cocks M' M' of box G are opened, so as to draw off the sand, while the cocks M M in the box F are nearly closed, but still admitting a small stream of water into the tank, which, as the pressure up through the screen becomes strong, causes the water in the tank to become clear and free from sand.

The plugs P are now all removed from the end of the tank, and the sulphurets and sand allowed to pass out into the sluice or troughs Q, but the quantity of water used to force them down is so small that the heaviest portion is lodged along the bottom of the sluice until it is half or two-thirds full, when a little more water is applied, and the matter in the sluice assumes an undulating motion, forming little sand accumulations from one to two feet in length, nearly the whole length of the sluice, which constantly move upward against the current and thoroughly work over the mass of matter in the sluice and that which is still coming in from the tank, throwing the sulphurets, which are twice the weight of the sand, to the bottom, and moving the sand onward down the sluice and out at the lower end.

The tank R is situated at a distance from the tanks A and B, and on a somewhat lower level, the sluice Q serving to convey the tailings from one to the other.

The lower end of the sluice passes directly across the top of the tank R, and is provided with gates S and T,

placed in the side which directs the stream according to their adjustment.

The process above described is continued until the tank A is nearly empty, when the plugs P are replaced to prevent the further egress of sand, the tank is allowed to fill with water, and the same stream of clear water allowed to resume its course down the sluice until the sand is completely worked out, and the mass of clean sulphurets, which have been all this time accumulating on the bottom, follow the retiring sand down the sluice.

As the mass in the sluice approaches the lower tank R some of the foremost and lighter sulphurets are still mingled with some coarse, heavy sand. This, as it approaches, is admitted into the second apartment of the lower tank R through the gate S, the gate T remaining closed until the foremost of the clean sulphurets are opposite to it, when it is also opened and placed across the sluice, and the sulphurets admitted into the lower tank, apartment R.

The gates S and T are so arranged that they can be either turned so as to close the gap in the side of the sluice, or be swung around so as to stand across the sluice and close it, turning the contents of the sluice through the gap so that it will fall into the tanks below. As soon as the sluice is empty, the gates are turned so as to close the gap in the side, and the water has again a free passage through the sluice.

A riffle about one inch in height may be placed in

the sluice just above the lower tank, which should be removed as the sulphurets approach it.

When this is accomplished, the cocks M M in the box F are again opened so as to admit the sand into the tanks beneath it, and the cocks M' M' in the box G are nearly closed, the plugs P withdrawn from the lower tank apartment R, and the sand and sulphurets subjected to the same process, as above described.

The sulphurets in the apartment R may be saved, perfectly free from sand, and can be worked to great advantage by the chlorine process, while those in the apartment U are mixed with coarse sand and should be submitted to some separate process for the extraction of the gold.

What I claim, and desire to secure by Letters Patent, is—

1. The hopper-shaped boxes F and G, communicating, as above described, with their perforated false bottoms H and exit-cocks M M', substantially as and for the purpose described.

2. In combination with the subdivided tank A and lower tanks R, the connecting sluice or sluices Q with their adjustable gates S and T, substantially as and for the purpose described.

In witness whereof I have hereunto set my hand and seal.

Witnesses: CHARLES SCHOFIELD. [L. s.]

A. BROWN,

C. A. POPE.