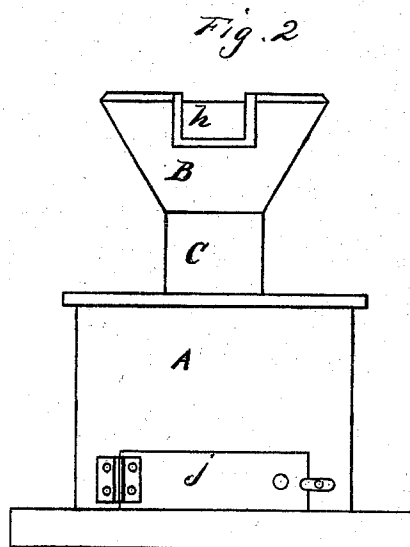
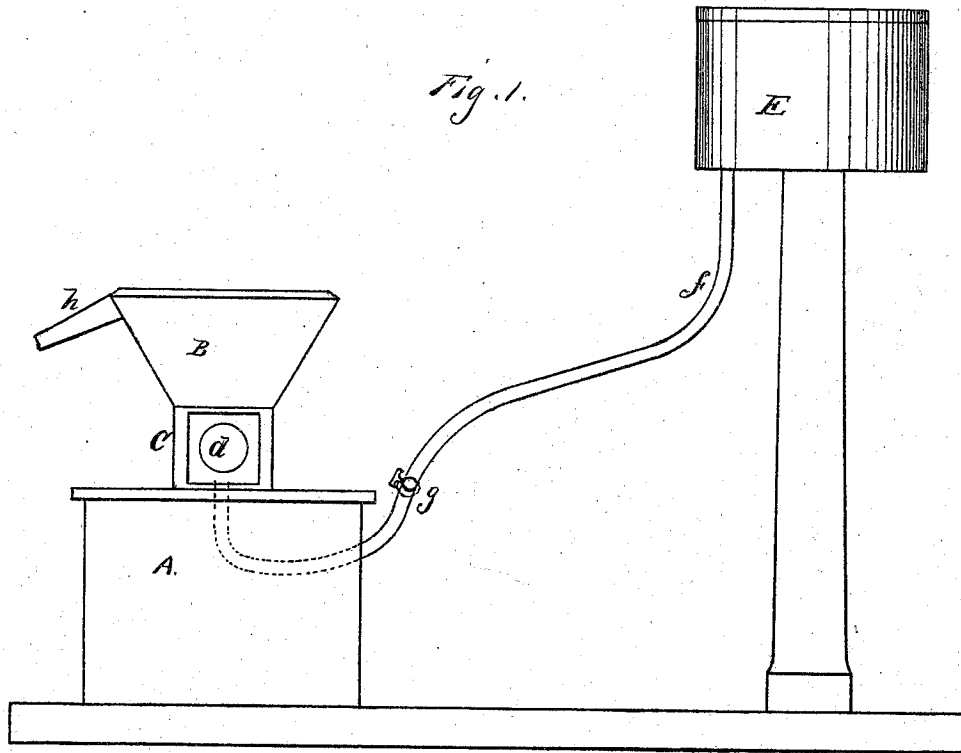


T. WREN.
Ore-Washers.

No. 138,307.

Patented April 29, 1873.



Witnesses

John L. Borne
C. W. Richardson

Thomas Wren
per Dewey & Co
attys

UNITED STATES PATENT OFFICE.

THOMAS WREN, OF HAMILTON, NEVADA.

IMPROVEMENT IN ORE-WASHERS.

Specification forming part of Letters Patent No. **138,307**, dated April 29, 1873; application filed February 24, 1873.

To all whom it may concern:

Be it known that I, THOMAS WREN, of Hamilton, State of Nevada, have invented an Improved Concentrator; and I do hereby declare the following description and accompanying drawing 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 improvement without further invention or experiment.

My invention relates to a novel apparatus and process for concentrating sulphurets and other heavy particles of ore and metals.

The following description will explain my invention, reference being had to the accompanying drawing, in which—

Figure 1 is a side elevation of my machine. Fig. 2 is an end view.

A is a closed tank or chest of any desired form, having the hopper B supported above it by a short tube, C, the lower end of which communicates with the chest A at or near the center of its top, as shown. A small pane of glass, *d*, is secured in two opposite sides of the tube C, so as to serve as windows through which the operation can be examined from the outside, for the purpose hereinafter mentioned. E is a water-tank, which is supported by any suitable means at a sufficient height above the tank A to give the required hydrostatic pressure. A pipe, *f*, leads from the water-tank E into the chest A, as shown, and a cock, *g*, serves to regulate the flow of water through the pipe.

The process of concentration is as follows: The cock *g* is opened so as to allow the water from the tank E to flow through it and fill the chest A, tube C, and hopper B, and flow off through the spout or sluice *h* at one side of the hopper. The pulverized ore or pulp is then emptied into the hopper, when the earthy and light portions will be carried away through the spout *h*, while the heavier portions, such

as sulphurets or heavy particles of ore or metals, will sink to the bottom of the chest A, from which they can be removed through a door, *j*, or by other convenient means. By examining the state of the operation through the window *d* the exact amount of pressure required to properly accomplish the separation of the gangue or tailings from the heavier particles can readily be arrived at, and the proper pressure regulated by means of the cock *g*. By this means I am able to separate the light and worthless portions of the pulp from the valuable parts with but little trouble and in a most satisfactory manner.

I am aware that ores have been washed by passing them through a counter current of water, as in the patents to H. Merrill, August 22, 1871, and I. F. Quimby of July 16, 1867, but in all apparatus hitherto used for that purpose the exit of the water has not been in a line with the descending ore, but has been so arranged as to break into eddies and counter currents before meeting the ore, and no means has been provided whereby the operation can be watched and the force of the current properly regulated.

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

In an apparatus for washing ore by a counter current of water, the combination and arrangement of a short neck, C, containing the glasses *d*, and connecting the hopper B and box A with the pipe *f* so arranged as to give a directly vertical stream of water, as described.

In witness whereof I hereunto set my hand and seal.

THOS. WREN. [L. S.]

Witnesses:

JOHN L. BOONE,
C. M. RICHARDSON.