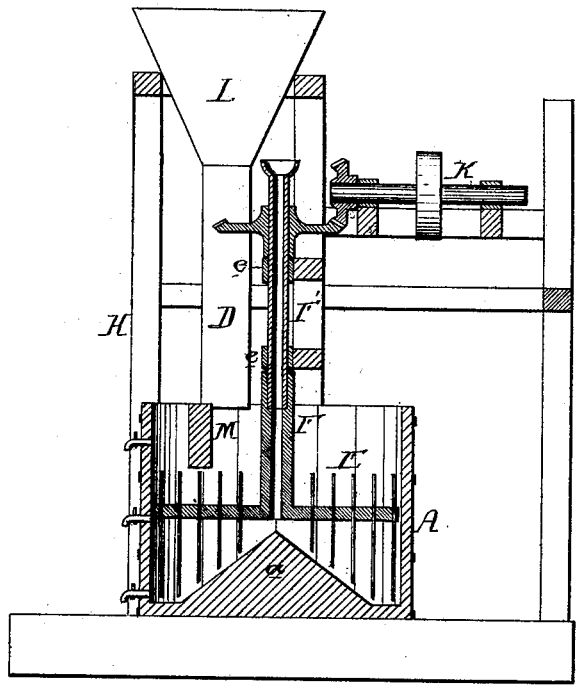
A. B. CROSBY.

Process and Apparatus for Leaching Ores.

No. 197,106. Patented Nov. 13, 1877.



Inventor.
Augustine B. Crosby
by his Attorneys
Howson and Sons

Witnesses.
Harry Crawford.
John K. Rupertus.

UNITED STATES PATENT OFFICE.

AUGUSTINE B. CROSBY, OF GREENE, MAINE, ASSIGNOR TO UNITED STATES GOLD AND SILVER AMALGAMATING COMPANY, OF VIRGINIA.

IMPROVEMENT IN PROCESSES AND APPARATUS FOR LEACHING ORES.

Specification forming part of Letters Patent No. **197,106**, dated November 13, 1877; application filed January 29, 1877.

To all whom it may concern:

Be it known that I, AUGUSTINE B. CROSBY, of Greene, Androscoggin county, Maine, have invented a new and useful Improvement in Process and Apparatus for Leaching Ores, of which the following is a specification:

The object of my invention is to wash roasted ores in such a thorough manner as to rapidly remove all soluble matter deleterious to the extraction of the precious metals.

This object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, which represents a vertical section of apparatus wherewith my invention is carried into effect.

L is a hopper, carried by suitable frame-work H, and having capacity enough to contain a charge of ore for the tank A, with which the hopper communicates through a spout, D.

The tub A has a bottom, *a*, of conical form, to facilitate the cleansing, and in the interior of the tub is a stirring device, E, secured to a central tubular shaft, F, of wood, this shaft being united above the tub to a tubular shaft, F′, of iron, which revolves in, and is supported by, suitable bearings *e e* on the frame-work H, the shaft and stirrer being driven from the counter-shaft K, through the medium of bevel-wheels, as shown; or any other suitable driving appliances may be employed.

A stationary partition, M, extends across the tub above the stirrer E, on the side adjacent to the upper discharge-openings, for the purpose of preventing the water and ore above the stirrer from rotating with the latter.

There is a suitable tank below the tub for receiving the contents of the same, and in the side of the tub are a number of discharge-pipes at different altitudes, through which the contents of the tub may be permitted to pass and escape into the said tank.

In using the above-described apparatus, water is first received into the tub through the hollow shaft of the stirrer, and then the charge of roasted and ground ore is permitted to pass from the hopper L into the tub, the quantity of ore and water being such that the level of the latter will nearly reach the top of the stationary partition M.

Prior to the introduction of the ore into the tub, however, the stirrer should be set in motion, and caused to revolve at the rate of from six to ten revolutions per minute. This slow stirring of the ore and water is continued, and in a short time the ore sinks toward the lower part of the tub when the water containing the soluble deleterious matter near the top is allowed to escape through the upper discharge-pipe, and at the same time fresh water is admitted to the lower part of the tub through the tubular shaft F. This circulation is continued until no reaction of matter in solution in the water in the tub can be obtained by the tests used, when the supply of water is cut off, and the whole contents of the tub discharged into the subsiding tank below, from which the water may be withdrawn, leaving the washed ore in a condition to be subjected to the amalgamating process.

I claim as my invention—

1. The mode herein described of washing roasted ore by first slowly stirring it with water in a tub, until the ore sinks toward the lower part of the tub, leaving the deleterious matter in solution near the top, then introducing fresh water into the lower part of the tub, and permitting the water and soluble matter to escape at the top while the stirring is continued, all substantially as set forth.

2. The combination of the stirrer E and tubular shaft F with the tub A, having discharge-openings and a stationary partition, M, extending above the stirrer across the side adjacent to the upper discharge-opening, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUSTINE B. CROSBY.

Witnesses:

HERMANN MOESSNER,

HARRY SMITH.