L. D. STEPHENS.

Ore-Washer.

No. 167,133. Patented Aug. 24, 1875.

Fig. 1.

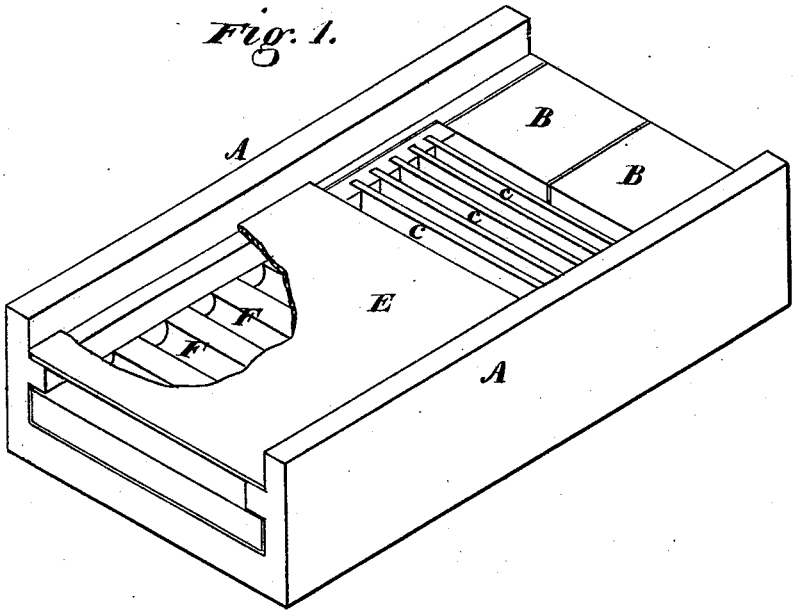


Fig. 2.

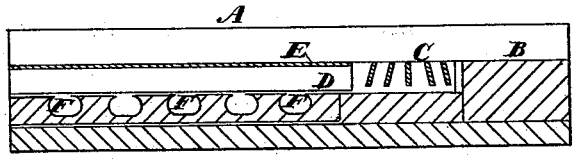
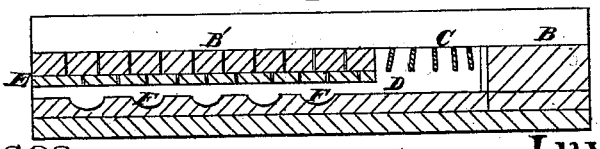


Fig. 3.



Witnesses

Geo. H. Strong.

Jno. L. Boone

Inventor

Lorenzo D. Stephens

by Dewey & Co

Attys

UNITED STATES PATENT OFFICE.

LORENZO DOW STEPHENS, OF GOLD RUN, CALIFORNIA.

IMPROVEMENT IN ORE-WASHERS.

Specification forming part of Letters Patent No. **167,133**, dated August 24, 1875; application filed February 10, 1875.

To all whom it may concern:

Be it known that I, LORENZO D. STEPHENS, of Gold Run, Placer county, State of California, have invented a Direct Under-Current for Hydraulic Mining; 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 without further invention or experiment.

The object of my invention is to provide certain improvements in the sluices which are used for separating and amalgamating the precious metals in hydraulic mining; and it consists mainly in the construction of a direct under-current, whereby the amalgam which may be formed in the long period of time which elapses between the "cleanings up" is protected from depredation by means of the constant and large quantity of water and rocks which are perpetually passing over the chamber within which it is contained.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my device. Fig. 2 is a longitudinal section in elevation. Fig. 3 shows a modification of the device, where blocks take the place of a metal plate.

A A are the sides of a sluice, and B are blocks of wood, which serve to form the bottom of the sluice. These blocks are placed upon end, and thus present the greatest resistance to the wear caused by the passage of rocks and gravel over the surface. At intervals along the sluice I make openings, and place iron bars C C, which extend entirely across the sluice. Beneath these bars is a space, D, which extends a short distance down the sluice, and is covered over, after passing the grating C, by an iron plate, E. Within the space D riffles F are placed along its bottom, and these riffles are filled with mercury. At the lower end of these riffles, and upon the same general plane, the blocks B, which form the next section of the sluice, commence, so that there will be an offset from the plate E on the plane of the upper section to this lower plane. The plate E is employed where there is but a limited "drop-off" or fall; but where the grade will permit, I substitute for the iron plate planks placed crosswise in the sluice, and forming a false bottom sufficiently elevated above the riffles F to leave space for all fine particles to pass through, and upon the false bottom I shall place another series of wooden blocks, B′, the tops of which are on a level with the grate-bars C C. These blocks extend to the lower end of the riffles F, and have a fall at this point upon the next series of blocks B, lower down the flume, in the same manner as when an iron plate is used. The blocks wear less and are more economical than iron when they can be used.

The operation of my sluice will be as follows: Water and the gold-bearing earth are turned into the sluice. The rocks and coarser gravel will pass over the grating C and fall from one level to another, passing down the sluice. The finer sand, gold, some mercury, and some water will pass through the grating and be carried over the riffles F, the mercury and gold being stopped in these riffles, while the sand and water will flow out upon the next section below, and this process is continued throughout the sluice.

I am thus enabled to provide an under-current for sluices which will be effective, and will not need any watching, even if miles of sluice be employed.

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

A sluice having its bottom B at different levels, and provided with the gratings C, and the riffles F, protected by the plate E, substantially as and for the purpose herein described.

In witness whereof I hereunto set my hand and seal.

LORENZO DOW STEPHENS. [L. S.]

Witnesses:
CHAS. E. KIDD,
P. B. WEBER.