(No Model.)

S. P. SPEERS.

ORE WASHER.

No. 252,812. Patented Jan. 24, 1882.

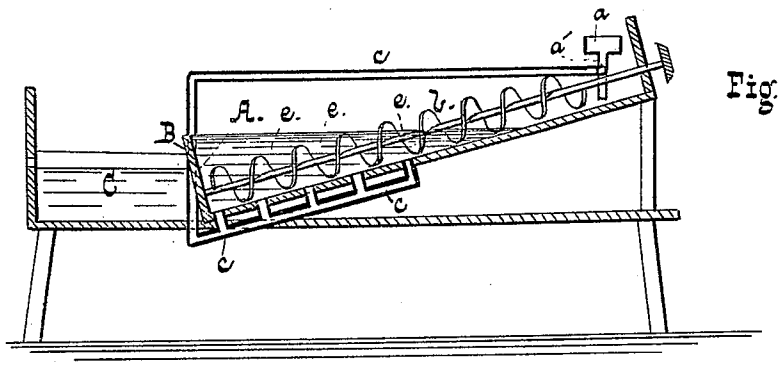


Fig. 1.

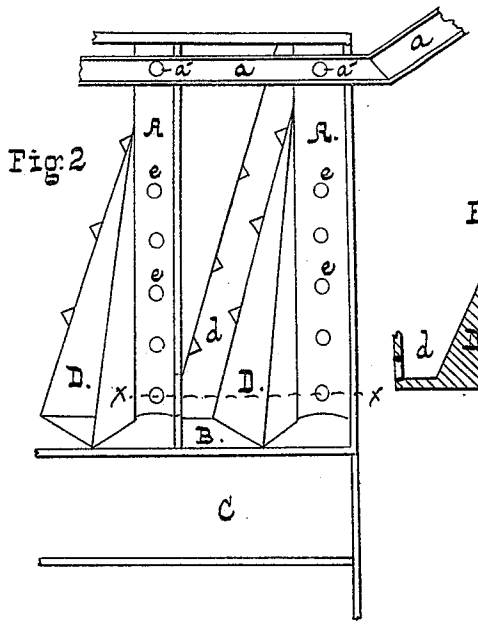
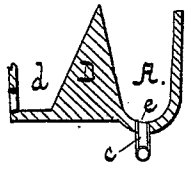


Fig. 2

Fig. 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

SOLOMON P. SPEERS, OF BALTIMORE, MARYLAND.

ORE-WASHER.

SPECIFICATION forming part of Letters Patent No. 252,812, dated January 24, 1882.

Application filed November 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON P. SPEERS, of Baltimore city, State of Maryland, have invented certain new and useful Improvements in Ore-Washers; and I hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical sectional view, and Fig. 2 a plan, of the device. Fig. 3 is a sectional view on the line *x x* of Fig. 2.

My invention relates to devices for the separation of the refuse and lighter portions of ores from the heavier and valuable material; and it consists in certain improvements upon the device for which Letters Patent No. 229,281 were granted me June 29, 1880.

In view of the fact that my present improvement relates to but a single feature of the patented device, I have thought it necessary to show only that part in the drawings. As to the construction and operation of the device as a whole, the reader is referred to the Letters Patent.

In the accompanying drawings, A is a trough pitched at an angle of about eighteen degrees, and in it is mounted a screw-conveyer, *b*. B is a dam or overflow at the lower end of the trough, and C a tank contiguous thereto. A number of these troughs and conveyers are arranged side by side, (two being shown in Fig. 2,) and across the upper ends of the troughs extends a spout, *a*, having depending pipes *a'*. Intermediate the troughs are V-shaped partitions D and channels *d*, the arrangement of the parts so far as described being precisely that shown in the patent above referred to. The operation of the parts named is also the same. The ore is fed into the first trough A, and is carried by the screw up the trough and against a current of water, which flows from the spout *a* and pipe *a'*. The heavier portions of ore remain upon the trough and pass down the channel *d* to the next trough and conveyer, and so on through the machine. The lighter refuse portions are carried away by the water and subside in the tank C. A difficulty was encountered, however, in working certain ores with the machine as described in the patent, and it was due to the fact that the current in the upper portion of the trough would carry down with it some of the valuable portions of the ore too light to resist the stream and too heavy to pass over the dam. Being carried back to the still water at the bottom of the trough, they would settle, only to be carried up the trough and washed back as before.

To obviate this I have devised my present improvement; and it consists in causing a number of jets of water to flow upward through the body of water at the bottom of the trough. To this end I lead a pipe, *c*, from the spout *a* up under the trough A and connect it with the trough by pipes opening at *e e*, as shown. A most important end is thereby attained. The entire body of water is given an upward current, as it were, and any matters light enough to be carried back by the stream are held in suspension until they pass with the water over the dam, where the heavier matters settle close to the trough.

It will be observed that the hydrostatic head is greatest at the bottom of the trough, where the water has its maximum depth and where the greatest head is desirable, the upward currents from the openings *e* being adjusted with reference to the depth of water above them.

The bottoms of the troughs and channels *d* in treating such ores as admit of amalgamation are covered with amalgamated sheet metal.

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

1. In an ore-washer, an inclined trough having a water-supply at its head, a screw-conveyer mounted in the trough and arranged to carry the ore upward against the current, and one or more pipes opening upward near the bottom of the trough and communicating with the water-supply, as and for the purpose set forth.

2. In combination with the trough A and dam B, the conveyer *b*, spout *a*, and pipe *c*, as set forth.

3. In combination with the trough A, dam B, and conveyer, the pipe *c*, having a series of openings, *e e*, in the base of the trough, and the settling-tank C, as set forth.

4. In combination with the conveyer troughs and channels *d*, amalgamated as described, the conveyer B, spout *a*, pipes *c* and *a'*, and settling-tank C, all arranged and operating as set forth.

SOLOMON P. SPEERS.

Witnesses:
R. D. WILLIAMS,
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