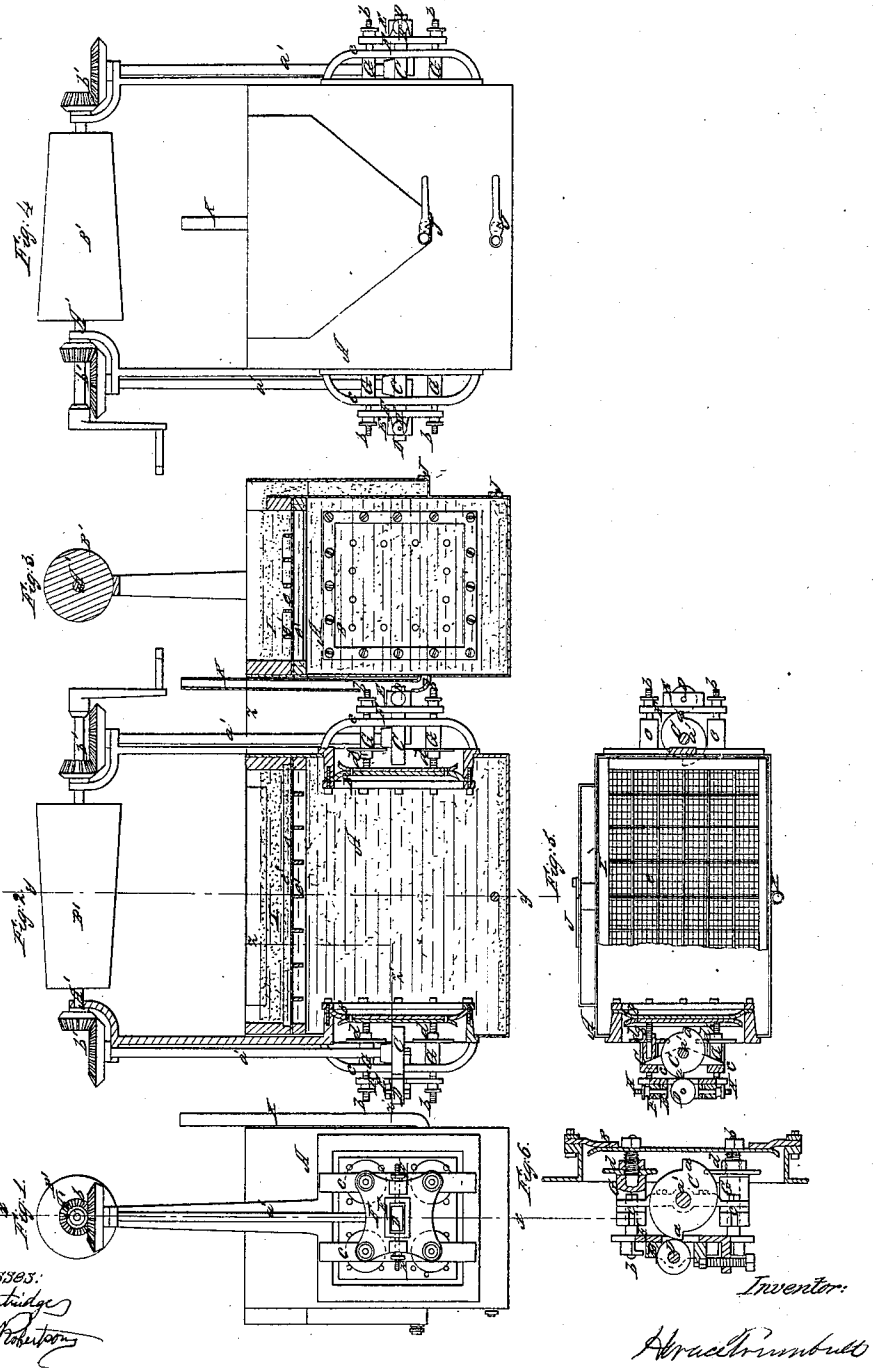
H. Trumbull.

Ore Jigger.

No. 38,773. Patented Jun. 2, 1863.



Witnesses:
W. L. Partridge
Daniel Robertson

Inventor.
Horace Trumbull

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HORACE TRUMBULL, OF JERSEY CITY, NEW JERSEY.

IMPROVED MACHINE FOR SEPARATING AND DRESSING ORES.

Specification forming part of Letters Patent No. **38,773**, dated June 2, 1863.

To all whom it may concern:

Be it known that I, HORACE TRUMBULL, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Machine for Separating and Dressing Metallic Ores and other Minerals; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a side elevation of my invention; Fig. 2, a vertical longitudinal section of the same, taken in the line *x x*, Fig. 1; Fig. 3, a vertical central section of the same, taken in the line *y y*, Fig. 2; Fig. 4, a rear view of the same; Fig. 5, a horizontal section of the same, taken in the line *z z*, Fig. 2; Fig. 6, a horizontal section of a portion of the machine on a larger scale, taken in the line *z' z'*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in constructing a machine for separating or dressing ores in such a manner that a body of water may be suddenly impelled upward at suitable intervals throughout the whole extent of a bed of ground ore resting on a sieve, so as to raise and loosen the mass and allow the heavier particles to settle to the bottom or to pass through the same. The box or sieve containing the ore or other material to be operated upon remains stationary. By this arrangement, as will be hereinafter shown, a more perfect, rapid, and thorough separation is effected.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a box or tank of wood or metal, and of any suitable size or shape. The tank shown in the drawings is of oblong rectangular form. The tank should be perfectly watertight, and at its sides there are placed india-rubber disks B B of considerable area, and so arranged that they may have a motion inward and outward, so as to alternately elevate and depress the water contained in the tank. These disks B B have a sudden or rapid motion when elevating the water, and a slow movement as they return to admit of the water falling. The disks B B may be operated to effect this result by a variety of mechanical contrivances, one of which is described as follows:

C C are cam-wheels, (clearly shown in Fig. 6,) having two projections or prominences, *a a*, which act against a friction-roller, D, turning freely in bearings in a plate, E, which is fitted to slide in another plate, F. This plate F is rigidly connected with the rubber disks B by means of rods *b*, sliding in cross-bars *c*, secured to the sides of the tank A, as shown in Figs. 1 and 2. The rods *b* are provided with rubber or steel springs G. Adjustable nuts *d* are fitted upon the rods *b*, so as to compress the springs G against the cross-bars *c*, and render them capable of adjustment to any required power. The cross-bars *c* serve as stops to prevent the springs G forcing the disks B beyond the required distance inward into the tank A. The plates F are provided with set-screws H, by means of which the plates E, in which the rollers D work, are adjusted relatively to the cam-wheels C. I is a box, which is fitted inside of the tank A, and has its bottom covered with a wire cloth or netting, *e*, of suitable fineness, the said bottom being supported above and below by a strong grating, *e'*, to prevent its being broken by the weight of the material upon it or by jars.

The box I is to contain the ore that is to be operated upon, and it may be so constructed that its depth can be varied according to the nature of the material it is to contain, or the nicety of separation required.

J J are outlets at the bottom of the tank for drawing off the water and dressed ore. The ore may be fed into the box I by a flow of water, carrying the ore with it onto the rear of the bed, or by hand, or by means of a pipe which is made to project below the surface of the water to varying depths, as may be desired.

The operation is as follows: The tank A is filled with water by means of a pipe, K, leading from an elevated reservoir, and the ore, which is a little coarser than the meshes of the netting *e*, is spread over the same in box I to a depth of several inches. The mechanism which operates the disks B B is now set in motion, and by its action on the disks causes a vibrating motion of the water, which, in the manner herein described, is comparatively slow. The projections *a a* on the cam-wheels C C press against the rollers D, and as th

cam-wheels release the disks they are suddenly forced back by the springs G, by which motion the ore within the box I is at frequent intervals raised and lowered to allow the heavier particles to settle to the bottom and pass through the sieve or netting *e*, while the lighter particles rise to the surface and pass off through the outlet L. The feed of ore is now commenced, and continued either at stated intervals or by a constant flow, and water is introduced into the tank A through the pipe K to take the place of that which passes off with the dressed ore through the outlets J J.

When the tank A cannot be supplied with water under static pressure, it may be forced into the tank by means of a pump.

When very nice work is required, or valuable ores are to be operated upon, a series of machines may be used, the second taking the washed ore from the first and the third from the second, and so on until the ore is thoroughly cleansed or separated from impurities. As the work progresses, the heavy portions of ore or material to be operated upon will be found to have settled to the bottom of the tank A or to have passed through, and the lighter or sandy portions will have flowed away from the surface, as described. Either portion can then be conveyed to tanks or cisterns and allowed to settle, and it may be consequently reworked, if considered to be of sufficient value.

I would remark that the cam-wheels C C may be operated by shafts *a'*, the upper ends of which are connected by bevel-gears *b'* with a horizontal shaft, A', having a cone pulley, B', upon it, around which the driving-belt passes. The speed of the cams may be varied as desired by shifting the belt on the cone-pulley.

I do not claim, broadly, the separation of ores by the agitation of the water in which they are washed, nor do I claim anything that exists in the patent granted to A. W. Schell, March 10, 1863; but,

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

1. Giving to the water a sudden rising movement, followed by a slowly-falling motion through the ore, substantially as herein shown and described.

2. The disks B B, arranged and operated by the cam-wheels C and springs G, in combination with the tank A, ore-box I, and sieve or netting *e*, as and for the purpose set forth.

HORACE TRUMBULL.

Witnesses:

M. S. PARTRIDGE,

DANIEL ROBERTSON.