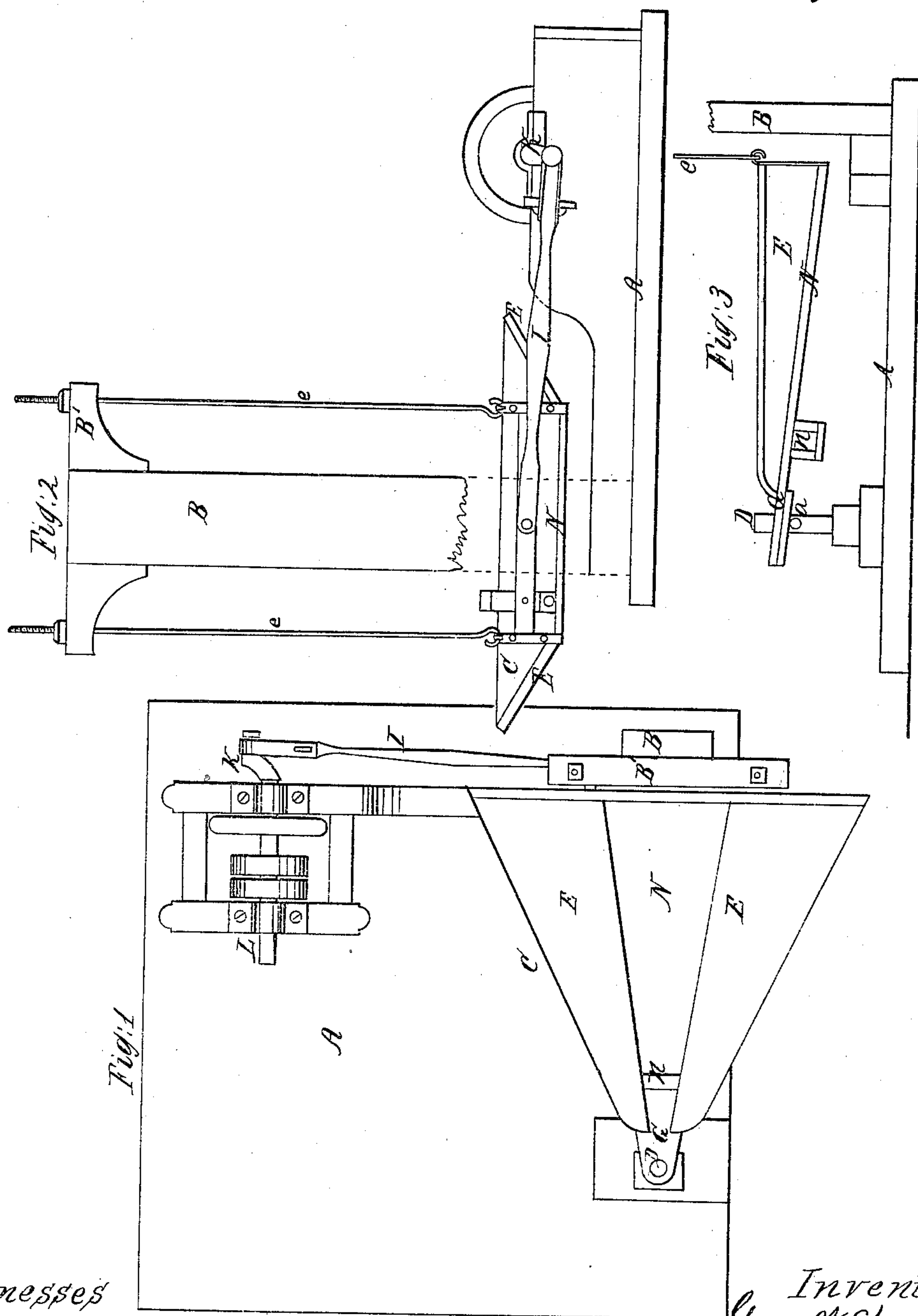


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*Ore Washer.*

*No. 90,205.*

*Patented May 18. 1869.*



*Witnesses*  
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# United States Patent Office.

GEORGE W. STRONG AND WALTER L. STRONG, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 90,205, dated May 18, 1869.

## IMPROVED ORE-CONCENTRATOR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, GEORGE W. STRONG and WALTER L. STRONG, of the city and county of San Francisco, State of California, have invented an Improved Concentrator; and we 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 our said invention or improvement without further invention or experiment.

The object of our invention is to provide an improved concentrator for separating the sulphurets and gold, quicksilver and amalgam, from the lighter and valueless portions of the ore, pulp, or tailings; and

It consists of a trough of peculiar construction, mounted at one end upon a pivot, and swung on perpendicular rods at the opposite end.

A connecting-rod is attached to the swinging end of the trough, the opposite end of which is attached to a driving-shaft, and by means of which a shaking motion is given to the trough.

The connecting-rod is attached loosely to the trough, so that a jarring is also communicated to it at the same time the shaking motion is given, thereby facilitating the settling of the heavy particles.

In order to more particularly describe the construction and operation of our invention, reference is had to the accompanying drawings, forming a part of this specification, of which—

Figure 1 is a plan.

Figure 2 is an end view.

Figure 3 is a side view.

Similar letters of reference in each of the figures indicate like parts.

A is a suitable foundation for supporting the mechanism.

At one corner of this foundation is an upright post, B, having the cross-piece B' at its top.

The trough C is constructed with sloping or divergent sides, E E, and inclined bottom N, which gradually narrow and approach each other toward the end which rests upon the pivot, or standard D, but do not meet, leaving a narrow opening, through which the water and surplus matter pass off.

The narrow end G of the trough is provided with a hole, through which the standard D passes, the end of the trough resting upon a pin, a, which may be moved up or down, as desired, for adjusting the height of this end of the trough.

The opposite end of the trough is suspended from the projecting arms of the cross-piece B', by means of rods e e, which are secured loosely to the trough, one supporting it on each side.

The trough is suspended at an incline, so that the broad end will be lower than the narrow or outer end, and, as before stated, the degree of inclination

desired for concentrating the different qualities of ores is regulated by means of the pin a, or other suitable device, and a shaking motion is imparted to the trough by means of the connecting-rod I and crank K, operated from the driving-shaft L.

The connecting-rod I is attached loosely to the trough, so that a jarring, or concussion will be communicated to it at the same time the vibrating motion is given, thereby facilitating concentration.

The ore, pulp, or tailings are fed to the trough with a sufficient quantity of water at either of the lower corners, from a trough shown in red.

The trough is then set in motion by applying power to the driving-shaft.

This motion is calculated to sift the stuff thus introduced, or, in other words, gives a similar motion to that given to a pan, when panning out by hand.

The heavier particles, by their specific gravity, fall to the lowest part of the trough, while the lighter and valueless portion is discharged through the opening n, near the upper end, and a small opening, i, at the lowest corner, serves to draw off the quicksilver and amalgam that accumulate on the bottom.

The sloping sides serve to direct all of the heavier particles which fall upon them to the narrow bottom, where they become lodged, previous to drawing off through the opening n.

The peculiar shape and motion given to the trough creates a ripple, or wave upon the water, which moves to the upper and narrow part, where it is discharged, carrying off the light portions or tailings.

Thus the trough is constantly kept clear, as long as the feed is regulated correctly, completely separating the heavy from the light particles.

Having thus described our invention,

What we claim, and desire to secure by Letters Patent, is—

1. The vibrating trough C, having the divergent sides E E and inclined bottom N, said sides gradually approaching each other, toward the upper end of the trough, substantially as and for the purpose described.

2. A trough, having divergent sides and an inclined bottom, moving on a pivot, or standard D, adjustable by means of the pin a at one end, and suspended, by means of rods e e, at the opposite end, said trough having communicated to it a shaking or vibrating motion, substantially as and for the purpose above described.

In witness whereof, we have hereunto set our hands and seals.

GEORGE W. STRONG. [L. S.]

WALTER L. STRONG. [L. S.]

Witnesses:

WILLIAM STANFORTH,

GEO. H. STRONG.