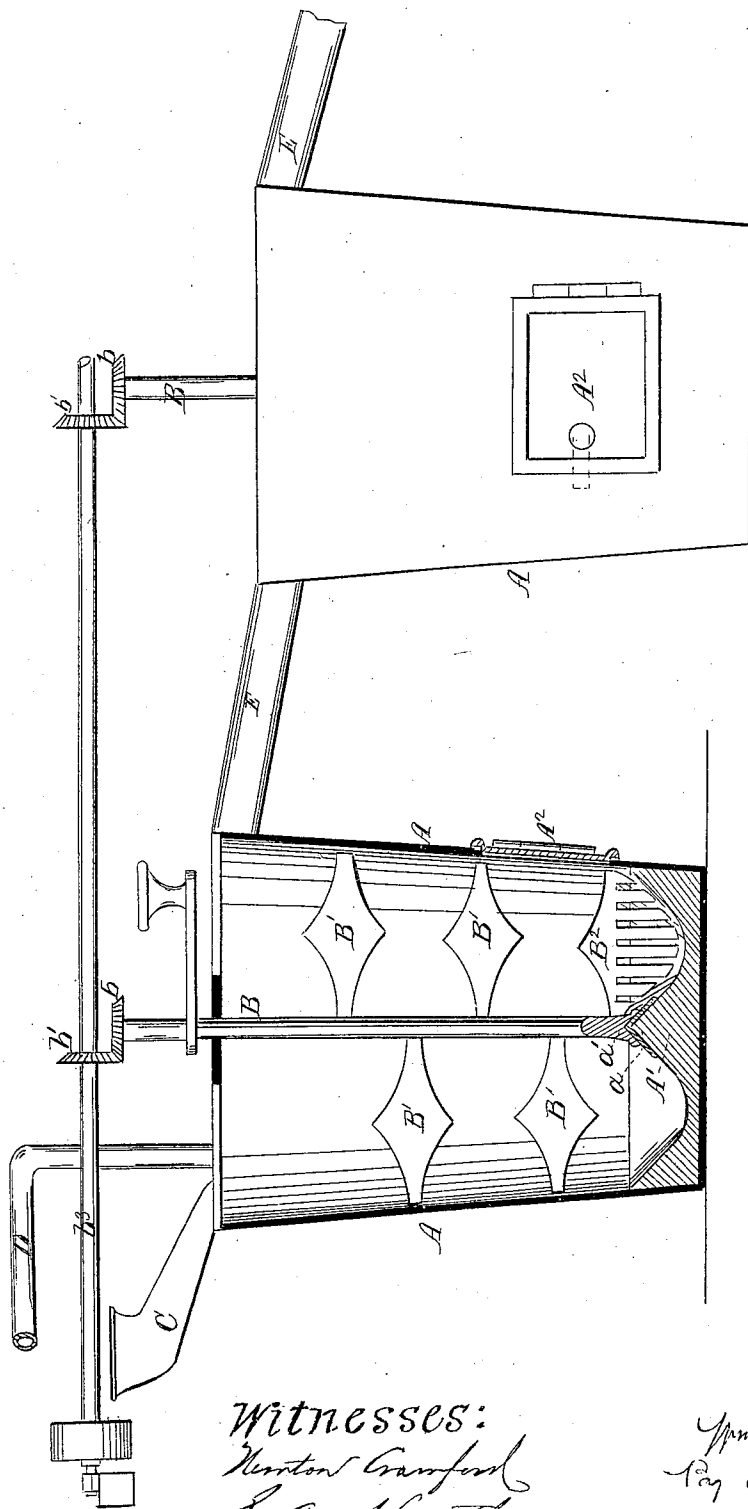


W. B. Eltonhead,
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No. 22534.

Patented July 13, 1889.



Witnesses:
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WILLIAM B. ELTONHEAD, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 92,594, dated July 13, 1869.

IMPROVED GOLD-WASHING MACHINE.

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

To all whom it may concern:

Be it known that I, WILLIAM B. ELTONHEAD, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and improved Machine for Washing Gold; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and letters of reference marked thereon.

The object of this invention is to simplify and cheapen the operation of washing gold of all impurities that can be separated from the gold-dust by the action of water; and

It consists of the use of a vessel or vessels having revolving agitators therein, which cause all particles of less specific gravity than gold, to be passed off with the water at the top of the vessel.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the drawing—

A represents a wooden or metallic vessel or series of vessels, more or less in number, as may be required, of a tapering form, or larger at the top than at the bottom, and has an auxiliary removable bottom, A¹, of the shape represented, and upon the centre or apex of which is a pointed step, *a*, upon which stands shaft B, the lower end of which, at *a*, is made to fit and revolve upon the point *a*.

Upon shaft B is secured a series of agitators or or arms, of any number that may be desired, and may be set vertically or inclined to the shaft, as will be best suited to the kind of matter to be washed away from the gold, and the shape of the blades of the agitators may be varied according to circumstances.

At the top of the vessel are placed braces, which confine the shaft B to a central position, and allow it freely to revolve.

Shaft B is put in motion by any of the known methods of driving upright shafts.

One method of doing so is shown in red lines, *b*³ being a revolving shaft, upon which is gear-wheel *b*¹, gearing into wheel *b* on shaft B; the gear-wheels being proportioned to give the shaft B the necessary number of revolutions to produce the desired result.

Where a series of vessels, A, is to be used, the second must be placed in such a way that the top will be lower than the first, and so on through the series, in order to give the drain or overflow through B the necessary fall to run the water from the first tank or vessel into the second, and so on through the series.

Upon the side of each vessel is to be a door, A², which is to be packed with rubber or other elastic packing, so as to be water-tight.

At the lower end of shaft B, and attached thereto, and of the shape to correspond with the depression in the auxiliary bottom A¹, is the scraper or rake B². This rake is raised a little from the bottom of the vessel, so as not to disturb the gold that has, by its greater specific gravity, settled on the bottom, but revolves near to it, and, by its being slotted or toothed on its lower edge, allows the particles of gold to pass through the slots or between the teeth, and fall to the bottom, while the lighter substances will be made to rise in the water by the inclination which the scraper or rake has with the shaft B.

In using a series of tanks or vessels, the revolutions of shaft B must be greater in the first than in the second, and so on, decreasing the speed to the last of the series.

The pulverized quartz and gold are fed into the tank or vessel A through spout C, or other equivalent device, and the water through pipe D.

Care must be taken not to feed too great a proportion of the pulverized quartz, or other material containing the gold, to the quantity of water, for when that is the case, more of the particles of gold pass off with the water through trough E, into the second vessel or tank, than would be the case if there were an excess of water to the quantity of pulverized quartz, or other substances; but some of the particles of gold will in any event pass over through trough E from the first vessel into the second, and even to the third or fourth; but the same process being repeated in each of the vessels, the gold will be found to have settled to the bottom of each of the vessels used in the series, until all the gold is separated from all the lighter impurities, and deposited on the bottom of the vessels, when it is ready to be amalgamated and completely separated from all foreign substances.

When a sufficient quantity of gold has been collected on the bottom of the vessel, or so much as would be in contact with the scraper or rake, then the feeding in of pulverized quartz and water, as well as the revolutions of the shaft must stop, the door A² opened; or the water in the vessel may be drawn off by drain-cocks, placed at the proper height above the deposit of gold in the bottom, when the remainder can be removed from the bottom through said door A², to be further disposed of.

Heretofore the machines used for washing gold, were expensive in construction, and defective in operation, much of the gold passing off with other substances, and being lost; but by this cheap and simple process, I am enabled to save all, even to the last particle.

I lay no claim to any of the devices, singly, that constitute the machine, as they are admitted to be old; but used in the manner and with the construc-

tion herein described, the result is more cheaply and satisfactorily obtained than by any known process.

Having thus described my invention,

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

The combination of the revolving shaft B, having arms or agitators B¹ and scraper or rake B², with the

vessel A, either singly, or in series, having the auxiliary bottom A¹ and the door A², all constructed to operate in the manner and for the purpose substantially as described.

WM. B. ELTONHEAD.

Witnesses:

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