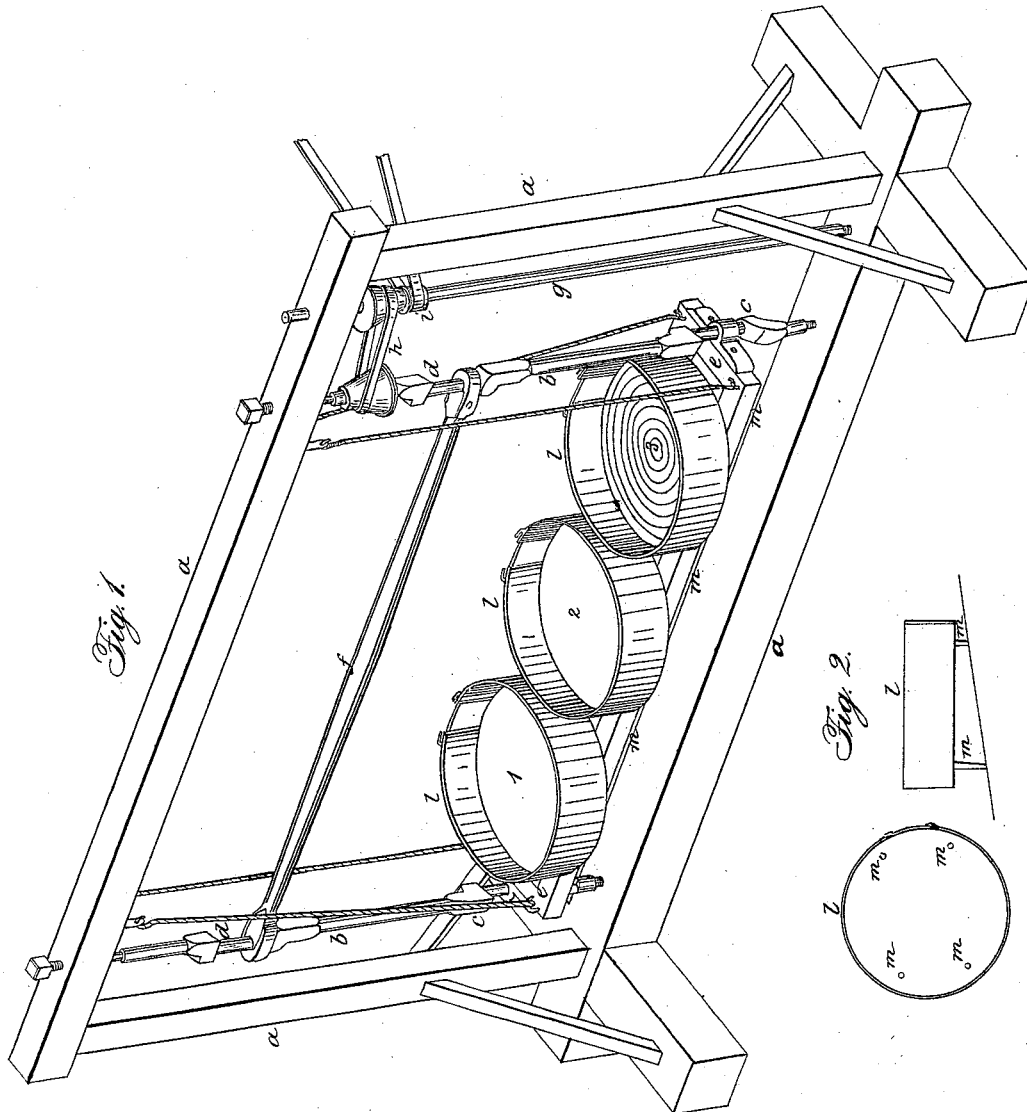


D. ASBURY.

Ore Washer.

No. 4,496.

Patented May 2, 1846.



# UNITED STATES PATENT OFFICE.

DANIEL ASBURY, OF COBURNS P. O., NORTH CAROLINA.

## MACHINERY FOR WASHING GOLD AND SILVER ORES.

Specification of Letters Patent No. 4,496, dated May 2, 1846.

*To all whom it may concern:*

Be it known that I, DANIEL ASBURY, of Coburns P. O., in the county of Union and State of North Carolina, have invented a new and useful apparatus for the washing and amalgamation of gold and silver, whereby the separation of the said metals from their ores and earthy impurities is much facilitated; the said apparatus is also useful for the separation of platinum from the earthy and stony mixtures among which it is found; it is also applicable to the cleansing of the various metallic ores from their earthy or stony mixtures in all the processes which depend upon the specific gravity or weight of the ore to be cleansed, and that the following is a full, clear, and exact description of the principle or character thereof which distinguishes it from all other machines, apparatuses, or things before known or in use and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an isometrical view; Fig. 2, one of the pans separate, showing the underside.

The same letters indicate like parts in all the figures.

By the ordinary and common processes of the separation of gold and silver from their ores by washing with water and amalgamation with mercury, there has always been a loss of both gold and silver as well as of the mercury. In the hand rocker and long semi-circular trough usually worked by hand, the quantity of sand and gravel which these machines can work is small, consequently when that contains but little gold or platinum, it cannot be worked with profit; and in these machines there is a great loss of both gold and platinum as well as quicksilver, (when that is used), because the motion is half the time in one direction, and half the time in another, by which the gold &c. is prevented from subsiding and consequently passes off with the water and sand. In the Burke rocker there is yet a greater waste of quicksilver and the precious metals. In the Tyrolese bowls the sand and gravel subside too soon to the bottom, and prevent the contact of the gold and silver with the quicksilver. My machine I believe will obviate all these practical evils which heretofore have attended the extraction of the precious metals from

their ores and earthy or stony mixtures; these objects I affect in the way and manner following:—

I form a frame (a) of wood or any suitable material, of convenient proportions, as shown in the drawings; near each end of this frame there is a vertical shaft (b); these shafts have each two sunk cranks (c) and (d) formed on them at right angles to each other, and at equal heights on both shafts; to the lower cranks (c) an oblong rectangular horizontal frame (e) is coupled, so as to partake of and describe circles in each and every part of the frame equal to the circles described by the cranks when they are moved; to the cranks above there is a connecting rod (f) which serves to secure the proper rotation of the lower cranks and frame in the same direction. The whole may be put in motion by any convenient and proper motive power, which is in the drawing represented as transmitted through the intervention of an additional shaft (g) also vertical and consequently parallel with those above described, the velocity being regulated by cones connected by a band (h) which is moved up and down at the will of an attendant by a lever or other contrivance, a device well known to mechanics; a band on the additional pulley (i) connects it with the prime mover. The frame (e) is kept in a horizontal position by means of chains or any other convenient mode of suspension attached to its corners and extending up to the stationary frame above. By thus suspending the frame it is evident that however much weight may be placed upon it, the cranks will not support it, and thus leave them at liberty to convert all their reserved power into rotary motion, without much friction. On this frame (e) are placed any convenient number of pans, (l) of circular form with flat bottoms as in (1) and (2), or with bottoms grooved in concentric rings as in (3); to the bottoms of those pans are affixed four (more or less) legs (m) which fit into holes let into the frame (e) to receive them; the legs on one side of the pans are made longer than those on the other, so that the side which has the longer legs can be elevated by inserting a block between it and the frame to enable the operatives to cleanse the pans speedily, the longer legs are opposite the gate, so that when the sides of the pans are elevated, the amalgam &c. will be readily taken out. In each pan

a gate or sliding piece is fitted which can be made to slide down or up so as to permit the water, sand, &c. to escape.

By the above description it will be seen  
5 that the motion effected by my machine in the pans is precisely similar to that of a person panning by hand, which motion all who are in the least acquainted with the operation of extracting gold, etc., known to be the  
10 only one which will save all the precious metals. It will be obvious that eccentrics, cams, &c, can be substituted for the cranks but I prefer them.

In using this machine for extracting gold,  
15 silver and platinum, it is necessary that the metals be disengaged from their matrix and free to obey the law of gravity, therefore ores that contain gold and silver must be ground to powder so that these metals may  
20 be free to descend by their weight to the bottom of the pans.

To separate gold and silver from their impurities I proceed thus, using amalgams alone: Let a stream of water be obtained,  
25 if convenient, so that it can run into the

pans when necessary. If no stream can be found conveniently high, let a pool of water be made near the machine, then fill up each pan about two thirds full of powdered or ground ore, or sand and gravel containing  
30 the gold &c. let the water into the pans and fill them as full as necessary, then start the machinery with such a velocity that it shall be sufficient to keep the ore &c., from subsiding to the bottom in a firm mass; after  
35 washing sufficiently draw off the greater portion of the sand and repeat the process as long as at first.

Having thus fully described my improved apparatus what I claim as my invention and  
40 desire to secure by Letters Patent is—

The moving frame (e) supporting one or more pans and moved by cranks or other analogous device causing them to be shaken  
45 in the manner and for the purpose above set forth.

D. ASBURY.

Witnesses:

J. J. GREENOUGH,  
A. P. BROWNE.