E. H. & A. M. McGUIRE.

AMALGAMATOR.

APPLICATION FILED FEB. 13, 1911.

994,476. Patented June 6, 1911.

Fig. 1.

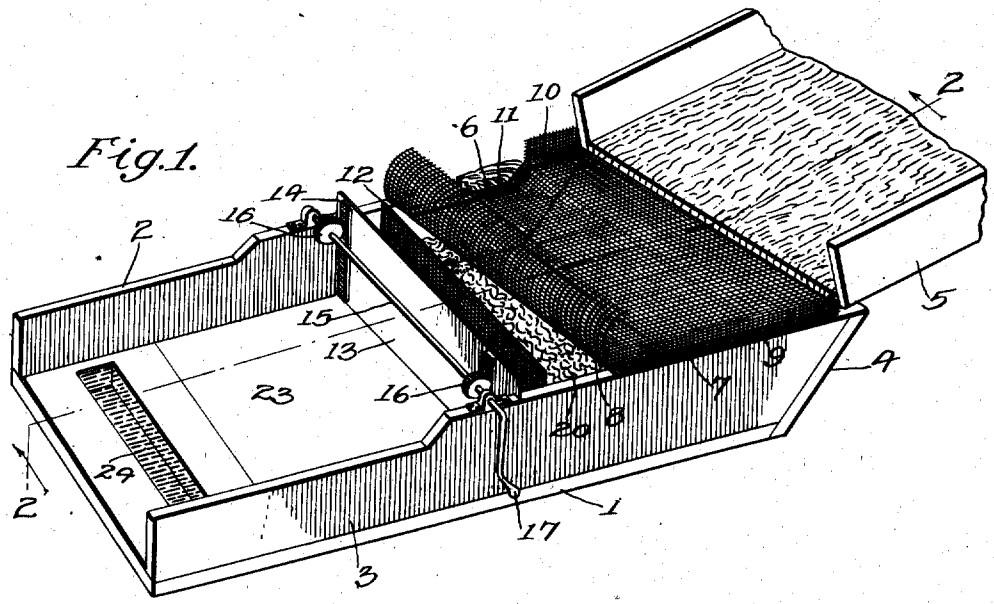


Fig. 2.

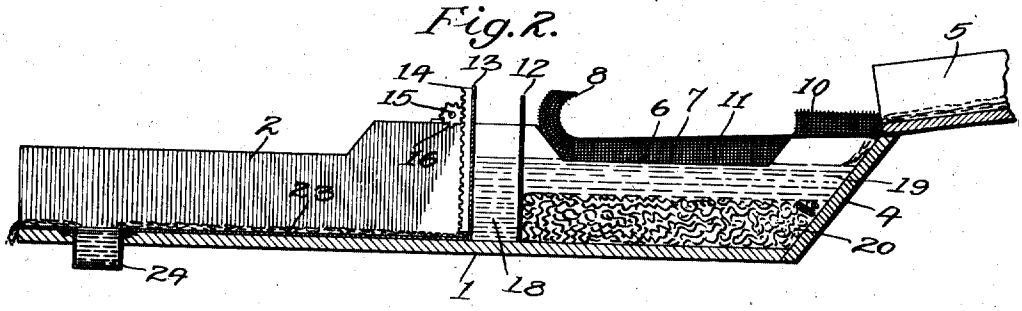


Fig. 3.

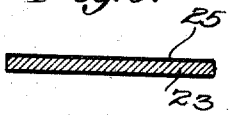


Fig. 4.

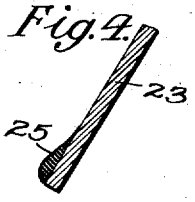
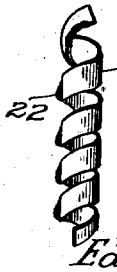


Fig. 5.



Witnesses:
Clarence J. Williams.
Olive Diffenderfer

Inventors,
Edward H. McGuire.
Amanda M. McGuire
by Semer G. Wells.
Attorney.

UNITED STATES PATENT OFFICE.

EDWARD H. McGUIRE AND AMANDA M. McGUIRE, OF LOS ANGELES, CALIFORNIA.

AMALGAMATOR.

994,476. Specification of Letters Patent. **Patented June 6, 1911.**

Application filed February 13, 1911. Serial No. 608,273.

To all whom it may concern:

Be it known that we, EDWARD H. McGUIRE and AMANDA M. McGUIRE, citizens of the United States, residing at Los Angeles, county of Los Angeles, State of California, have invented a new and useful Amalgamator, of which the following is a specification.

Our object is to make an improved apparatus for extracting and collecting gold, and our invention consists of the novel features herein shown, described and claimed.

In the drawings:—Figure 1 is a perspective of an amalgamator embodying the principles of our invention. Fig. 2 is a vertical longitudinal section on line 2—2, Fig. 1. Fig. 3 is an exaggerated sectional detail of one of the flat amalgamator elements in a horizontal position. Fig. 4 is a view analogous to Fig. 3 and showing the plate in an inclined position for the purpose of illustrating the mercury coating on a flat plate. Fig. 5 is a perspective illustrating the fluid mercury coating applied to tangled strips of sheet copper used in forming the amalgamating element.

Referring to the drawing in detail the main frame is in the form of a trough and comprises the flat bottom 1, the sideboards 2 and 3 extending upwardly from the edges of the flat bottom and the head-board 4 extending upwardly from one end of the flat bottom and connecting the corresponding ends of the side-boards 2 and 3. The sluice 5 discharges into the trough over the head-board 4. The upper edge of the side-board 2 is cut away near the head-board 4 to form the overflow passage 6.

The grizzly screen 7 is attached to the upper edges of the side-boards 2 and 3 and the head-board 4 and has up-turned edges 8, 9, and 10 to hold the dirt, and has a down-turned edge 11 fitting in the passage 6 so that water and dirt going through the sluice 5 will pass upon the body of the screen 7 and the overflow will pass out through the passage 6.

The retaining screen 12 is mounted crosswise of the trough near its center and just below the screen 7; said retaining screen being attached to the upper face of the bottom 1 and to the inner faces of the side-boards 2 and 3. The regulating gate 13 is mounted transversely of the trough. The ends of the gate slide vertically in bearings formed in the inner faces of the side-boards 2 and 3 and the lower edge of the gate normally fits against the upper face of the bottom 1 so as to close the passage downwardly through the trough.

Gear racks 14 are mounted one upon each end of the gate 13. The shaft 15 is mounted in bearings crosswise of the trough. Pins 16 are fixed upon the shaft 15 in mesh with the racks 14. An operating handle 17 is provided for the shaft 15 so that by manipulating the handle 17 the gate 13 may be accurately adjusted to regulate the passage under the gate. The gate 13 is mounted parallel with the retaining screen 12 and a short distance from the screen, thereby forming a settling basin 18 between the retaining screen and the regulating gate.

The amalgamating chamber 19, which is below the grizzly screen 7 communicates with the settling basin 18 through the retaining screen 12. The tangled amalgamating mass 20 is placed in the amalgamating chamber 19. The tangled amalgamating mass 20 is made up of a large quantity of copper scraps 21 having a coating of mercury 22. The scraps 21 may be strips of sheet copper, or they may be shavings planed from a block of copper, or they may be of any suitable form of copper, the object being to present the largest possible amalgamating surface in the tangled mass sufficiently porous to allow dirt and water to run freely, and sufficiently dense to thoroughly break up the slimes, etc.

An amalgamating plate 23 is placed upon the floor 1 below the gate 13. The opening is made in the lower end of the floor extending nearly from the side-board 2 to the side-board 3 and a mercury trap 24 is mounted in this opening. The amalgamating plate 23 is provided with a coating of mercury 25. Thus it will be seen that we have provided two forms of amalgamating elements; one form being the tangled mass 20 provided with a coating of mercury; and the other form being the flat plate 23 provided with a coating of mercury.

The sludge, slimes, or the like, pass through the sluice 5 onto the grizzly screen 7 and the finer and heavier particles pass through the screen 7 and through the amalgamating element 20, and the coarser and lighter material passes through the overflow passage 6. The retaining screen 12 holds the amalgamating element 20 in place and the gold bearing solution passes through

the screen into the settling chamber 18 and then under the gate 13 over the amalgamating element 23 and to the mercury trap 24.

The amalgamating element presents very large surfaces of mercury to contact with the gold bearing solutions and the mercury readily holds the gold until it is loaded, then the amalgamating element is removed and cleaned in the usual way.

We claim:—

1. In an amalgamator, a bottom, sides extending upwardly from the bottom, a head extending upwardly from the bottom and connecting the sides, a retaining screen mounted crosswise of the bottom and connecting the sides, a porous amalgamating element between the head and the retaining screen, a regulating gate mounted crosswise of the bottom and connected to the sides for vertical adjustment, and means for adjusting the regulating gate.

2. In an amalgamator, a bottom, sides extending upwardly from the bottom, a head extending upwardly from the bottom and connecting the sides, an upstanding retaining screen mounted crosswise of the bottom and connecting the sides near their center, a porous amalgamating element between the head and the retaining screen, a regulating gate mounted below the retaining screen and means for adjusting the gate relatively to the bottom.

EDWARD H. McGUIRE.
AMANDA M. McGUIRE.

Witnesses:
OLIVE DIFFENDERFER,
CLARENCE J. WILLIAMS.