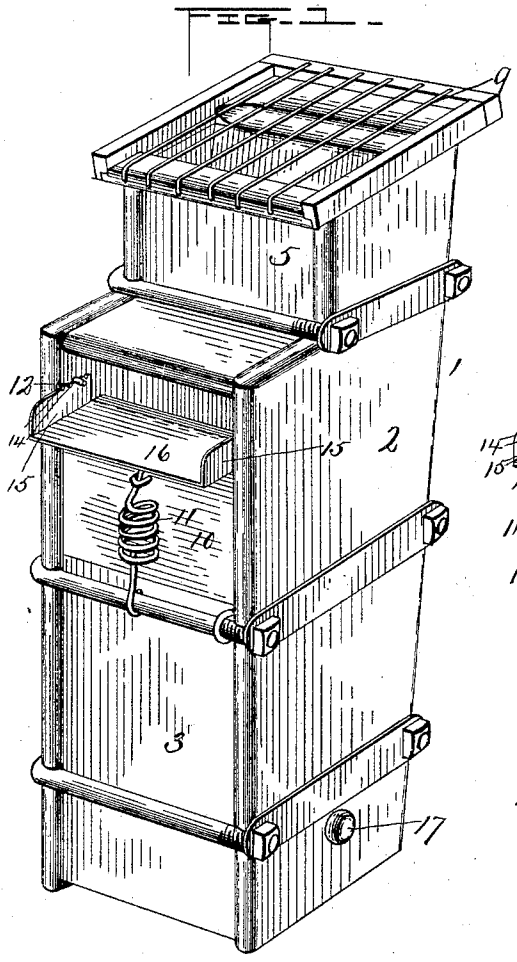
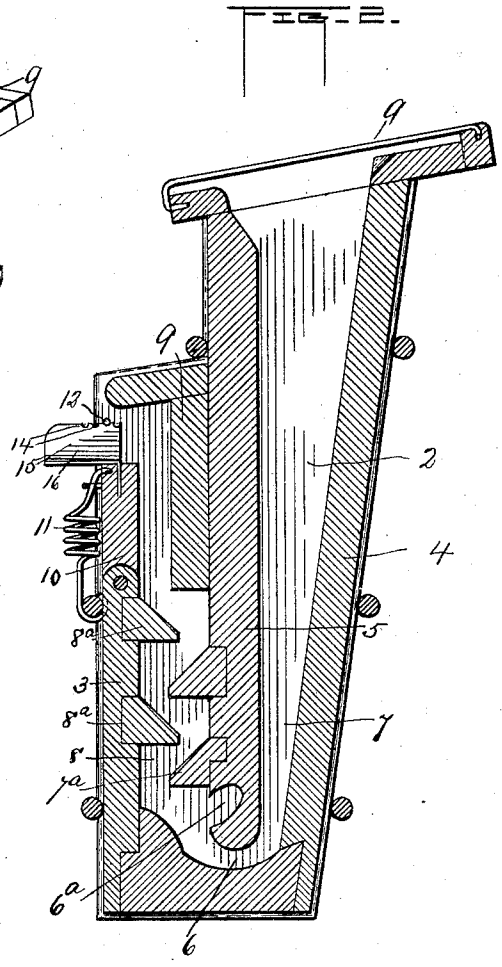
(No Model.)

W. J. GARD, S. S. DALZELL & W. A. SHAFER.

AMALGAMATOR.

No. 476,955. Patented June 14, 1892.





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UNITED STATES PATENT OFFICE.

WILLIAM J. GARD, SAMUEL S. DALZELL, AND WILLIAM A. SHAFER, OF MOAB, UTAH TERRITORY.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 476,955, dated June 14, 1892.

Application filed October 13, 1891. Serial No. 408,574. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM J. GARD, SAMUEL S. DALZELL, and WILLIAM A. SHAFER, citizens of the United States, residing at Moab, in the county of Grand and Territory of Utah, have invented certain new and useful Improvements in Amalgamators; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

Our invention has for its object to provide an amalgamator that can be cheaply operated and that will be thoroughly efficient in separating the "value" from the dirt, &c.; and for this purpose we introduce the pay-dirt, mixed with water, at the bottom of the mercury, through which they will rise, the value being taken up by the mercury as it passes therethrough, and we use hydrostatic pressure to cause this feed of the pay-dirt at the bottom of the mercury, the resistance of which latter must be overcome by the hydrostatic pressure in order that the descending leg or chute remain unobstructed.

Our invention therefore consists in the construction, arrangement, and combination of the parts of which it is composed, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, in which corresponding parts are designated by corresponding numerals, Figure 1 is a perspective view of an amalgamator constructed in accordance with this invention. Fig. 2 is a central longitudinal section thereof.

As shown in the drawings, we construct a box 1, having the side walls 2 2 and the front and rear walls 3 and 4, the latter of which, together with the central partition 5, extends above the front wall, the said partition terminating slightly above the bottom of the box, forming a passage 6, connecting the lower ends of the chute or leg 7, formed by the partition and the rear wall, and of the uptake 8, formed by the partition and the front wall. The upper end of the leg is covered by a grating 9 to prevent the introduction of stones, &c., by the water. A recess 6^a is formed in the lower end of the partition 5, opening into the uptake, while a rib or projection 7^a is secured to the said partition above the said recess, corresponding ribs 8^a being alternately secured to the front wall and to the partition to any desired extent. The upper end of the uptake is restricted in area by means of a block 9, inserted therein and secured to the partition. A board 10 is pivoted upon the upper end of the front wall and is adapted by a pivotal movement thereon to vary the area of the upper end of the uptake, whereby the discharge therefrom can be correspondingly varied. A spring 11, secured to the outer face of the board and the front wall, tends to normally draw the latter to a position to open the uptake to its fullest extent; but the board may be secured in any desired position by causing the lug 12, projecting from one of the side walls, to engage any one of the serrations 14, formed upon the upwardly-turned end 15 of the discharging-lip 16, which latter is secured to the upper end of the board 10. A plug 17 is inserted in a suitable aperture in the base of one of the sides, whereby the amalgam can be withdrawn, if desired.

In the operation of our invention the mercury is poured into the bottom of the box and the water carrying the "pay-dirt" is fed into the leg, which is of a sufficient height to permit the weight of the water contained therein to be greater, inch for inch, than the weight of the mercury, which will thus be forced into the base of the uptake, where it will be traversed by ascending currents of water from the leg, which will by their intimate contact with the mercury, cause most of their value to unite with the latter. The water will, after passing through the mercury, be thrown into an eddy formed by the recess 6, immediately above the mercury, being thus thrown again and again across the surface of the latter. Escaping from the eddy, the upward path of the water will be intercepted by the ribs 7^a and 8^a, thus retarding it sufficiently to cause any particles of value that may have escaped from the mercury to fall back upon

the latter. It is evident that the velocity of the flow of the water through the box may be regulated by the board 10, as may be demanded by the character of the material operated upon, and it is also evident that the leg must be of a sufficient height to provide a hydrostatic pressure greater than the combined weight of the mercury and of the back water contained in the uptake between the upper level of the mercury and the discharge.

Having thus described our invention, what we claim is—

The combination, with side walls, of front and rear walls, a partition contained between the said front and rear walls, the said partition terminating above the bottom of the box thus formed and continuing, together with the rear wall, to above the level of the front wall, the said partition having a recess in the forward face of its lower end, ribs alternately secured to the forward face of the said partition and the rear face of the said front wall, and a board pivoted above the upper end of the said front wall, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM J. GARD.
SAMUEL S. DALZELL.
WILLIAM A. SHAFER.

Witnesses:
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