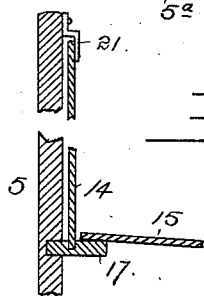
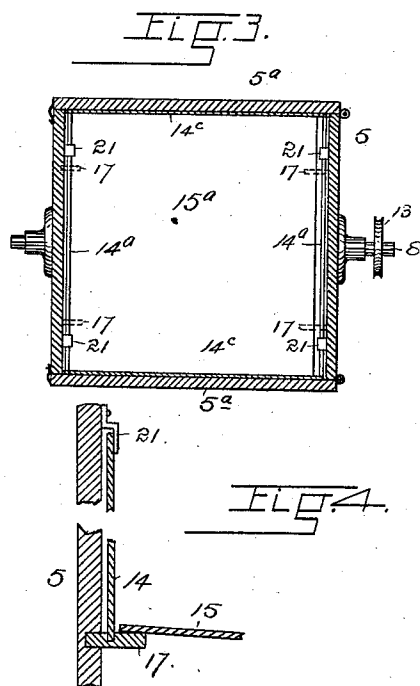
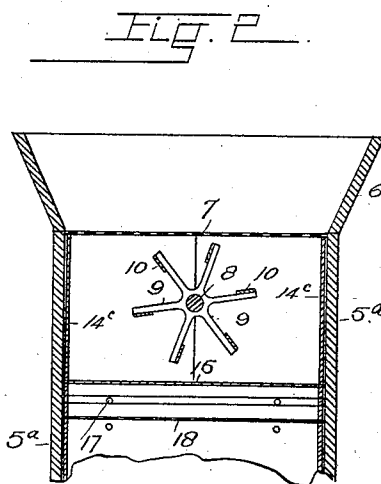
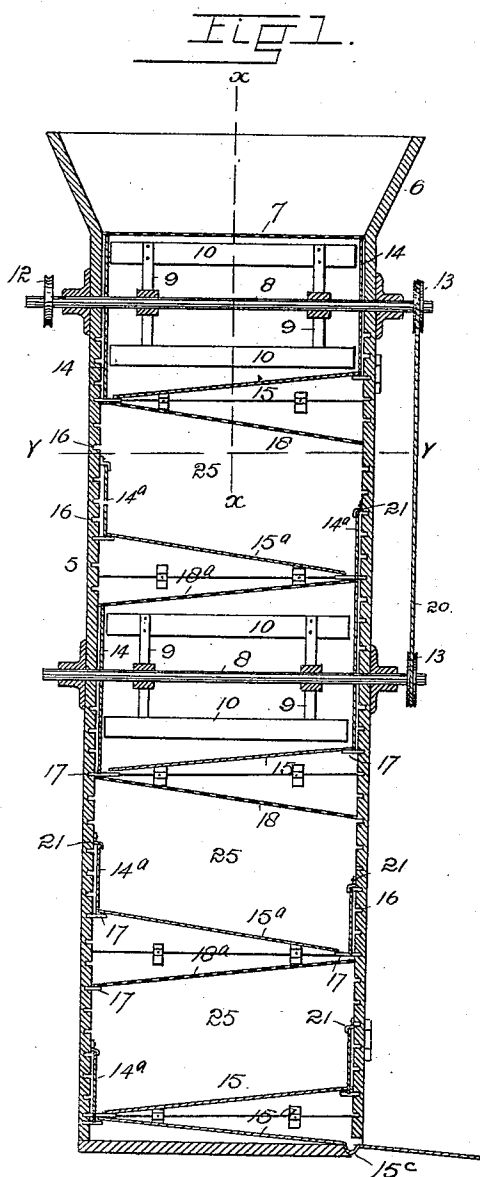


(No Model.)

W. ROBINSON.
AMALGAMATOR.

No. 558,460.

Patented Apr. 14, 1896.



WITNESSES.

G. J. Standish
Chas. E. Dawson

INVENTOR

Wm. Robinson.

BY

A. J. Brien
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM ROBINSON, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO
JOHN E. GREENAWALT, OF SAME PLACE.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 558,460, dated April 14, 1896.

Application filed December 11, 1894. Serial No. 531,508. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ROBINSON, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Amalgamators; and I 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.

My invention relates to improvements in amalgamators; and it consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a vertical longitudinal section taken through the amalgamator. Fig. 2 is a similar section taken on the line *xx*, Fig. 1. Fig. 3 is a horizontal section taken on the line *yy*, Fig. 1. Fig. 4 is a fragmentary view illustrating the manner of supporting the amalgamated plates within the box or casing.

Similar reference-characters indicate corresponding parts in the views.

Let the numeral 5 designate a box or casing provided with the hopper 6 at the top. Across the top of the box and at the bottom of the hopper is a screen or perforated plate 7. Below this plate 7 and journaled in two sides of the box is the rotatable dasher comprising the shaft 8, the radial arms 9, and the amalgamated plates 10, connecting the arms 9. The extremities of the shaft 8 protrude from the box and carry pulleys 12 and 13, respectively.

The sides of the box surrounding the dasher are lined with amalgamated plates 14, while immediately below the dasher is located an inclined amalgamated plate 15. These amalgamating-plates may be supported in the box in any suitable manner, whereby they may be readily removed for cleaning purposes. As shown in the drawings, the sides of the box are provided with recesses 16, adapted to receive pins 17, upon which the plates 14 and 15

rest. The lower edges of the plates 14 are let into notches formed in the pins, while their upper edges are engaged by pivoted buttons 21. The two opposite sides 5^a of the box are hinged, forming, in effect, doors that may be opened for the purpose of removing the plates. These hinged sides or doors are lined with removable amalgamated plates 14^a similar to the plates applied to the stationary sides of the box.

Below the amalgamated plate 15 is located a perforated plate or screen 18, oppositely inclined from the plate 15. Below the plate 18 is located an amalgamating-plate 15^a, oppositely inclined from the amalgamated plate 15 above.

The chamber or compartment 25, located between the plates 18 and 15^a, is surrounded by vertical amalgamated plates 14^a, which, as shown in the drawings, need only be of sufficient height to receive the splash from the pulp which falls upon the plate 15^a. Below the plate 15^a is a perforated plate or screen 18^a, oppositely inclined from the similar plate 18.

Below the plate 18^a the amalgamator is but a repetition of the construction already described. This construction, it is obvious, may be continued to any extent desired or that may be found necessary to save all the values in the ore under treatment. In the lowermost plate 15^a is formed a trap 15^b to prevent the escape of any mercury or amalgam from the box.

The material to be treated is fed in the form of pulp into the hopper 6, and falling upon the screen or perforated distributing-plate 7 is separated or divided into small streams, jets, or sprays, which fall in a shower through the chamber or compartment in which the rotatable dasher is located. This dasher is actuated by connecting the pulley 12 on one extremity of its shaft with any suitable motor. The pulley 13 on the opposite extremity of the shaft is connected by means of a belt 20 with the corresponding pulley 13 of the dasher next below.

As the pulp falls in a shower through the dasher-chamber it is acted on by the amalgamated plates 10 of the rotating dasher and driven with any desired force against the plates 14 and 15 of the surrounding chamber.

The pulp is thus brought in forcible contact with the amalgamating-plates, both by gravity and by the action of the dasher. The resulting impact or striking of the pulp upon or against the amalgamated plates greatly facilitates the work of amalgamation, and is an important feature of my invention.

In the chambers or compartments 25 of the box this impact is obtained by gravity alone, while in the dasher-chambers gravity is supplemented by the action of the dashers, thus increasing the degree of impact and bringing the pulp in contact with a greater amalgamating area or surface.

It will be observed that the dasher-plates 10, as well as the plates of the surrounding chamber, constitute an important agency in the saving of values.

The distance which the pulp falls in the chambers 25 may be regulated at will, since the plates 15 and 15^a may be raised and lowered at will by removing the pins 17 and placing them in other holes or recesses 16 of the box.

The amalgamating-plates 10 are removably connected with the dasher-arms 9, whereby they may be readily detached for the purpose of removing the amalgam.

When it is desired to clean up or remove the amalgam from the plates within the box, the hinged sides or doors 5^a are opened. The plates 14, 14^a, 15, and 15^a may then be removed, cleaned of amalgam, and returned to the box. These doors should be provided with suitable locking devices to prevent the access of evil-disposed or unauthorized persons.

The plates 14 on the stationary sides of the box in the dasher-chambers are divided on account of the shafts 8. Hence the two parts of these plates are removable from opposite sides of the apparatus.

Having thus described my invention, what I claim is—

1. In an amalgamator, the combination with a suitable casing, of an amalgamated plate supported therein, a screen or perforated plate supported above the amalgamated plate, and a rotatable dasher located between the

amalgamated plate and the screen, substantially as described.

2. In an amalgamator, the combination with a casing, of an amalgamated plate, a screen or perforated plate located above the amalgamated plate, a rotatable dasher located between the amalgamated and perforated plates, and other amalgamated plates supported in the casing and surrounding the dasher, substantially as described.

3. In an amalgamator, the combination with a suitable casing, of the amalgamated and perforated plates, or screens alternately arranged therein, substantially as described.

4. In an amalgamator, the combination with a suitable casing, of amalgamated plates and perforated plates or screens, alternately arranged one above another, and an intermediate rotatable dasher, substantially as described.

5. In an amalgamator, the combination with a casing having its vertical sides lined with removable amalgamated plates, another removable amalgamating-plate arranged transversely between the vertical plates, a perforated distributing-plate or screen arranged above the transverse plate, and a rotatable dasher located intermediate the distributing-plate and the transverse amalgamated plate, said dasher being provided with removable amalgamated plates, the casing having a hinged side or door which may be opened to permit the removal of the amalgamated plates, substantially as described.

6. In an amalgamator, the combination with the casing, of the perforated distributing-plates supported therein, the inclined amalgamated plates, the rotatable dasher having removable amalgamated plates, and the hinged sides or doors having removable amalgamated plates, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM ROBINSON.

Witnesses:

ALFRED J. O'BRIEN,
CHAS. E. DAWSON.