(No Model.)

A. W. ROBINSON.

TAILINGS DISCHARGE APPARATUS FOR AMALGAMATING MACHINES.

No. 523,409. Patented July 24, 1894.

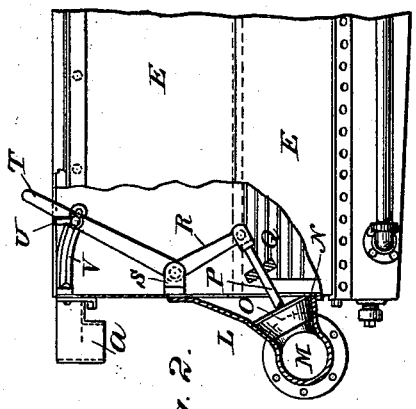
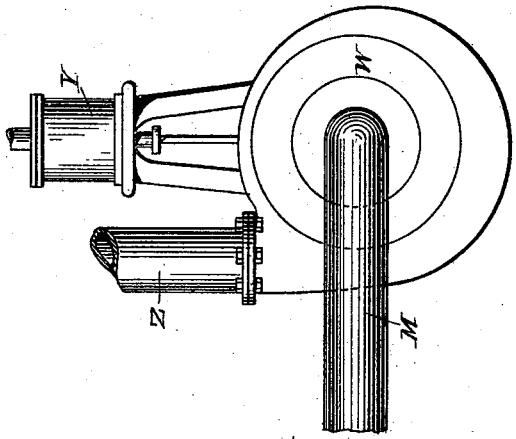


Fig. 2.



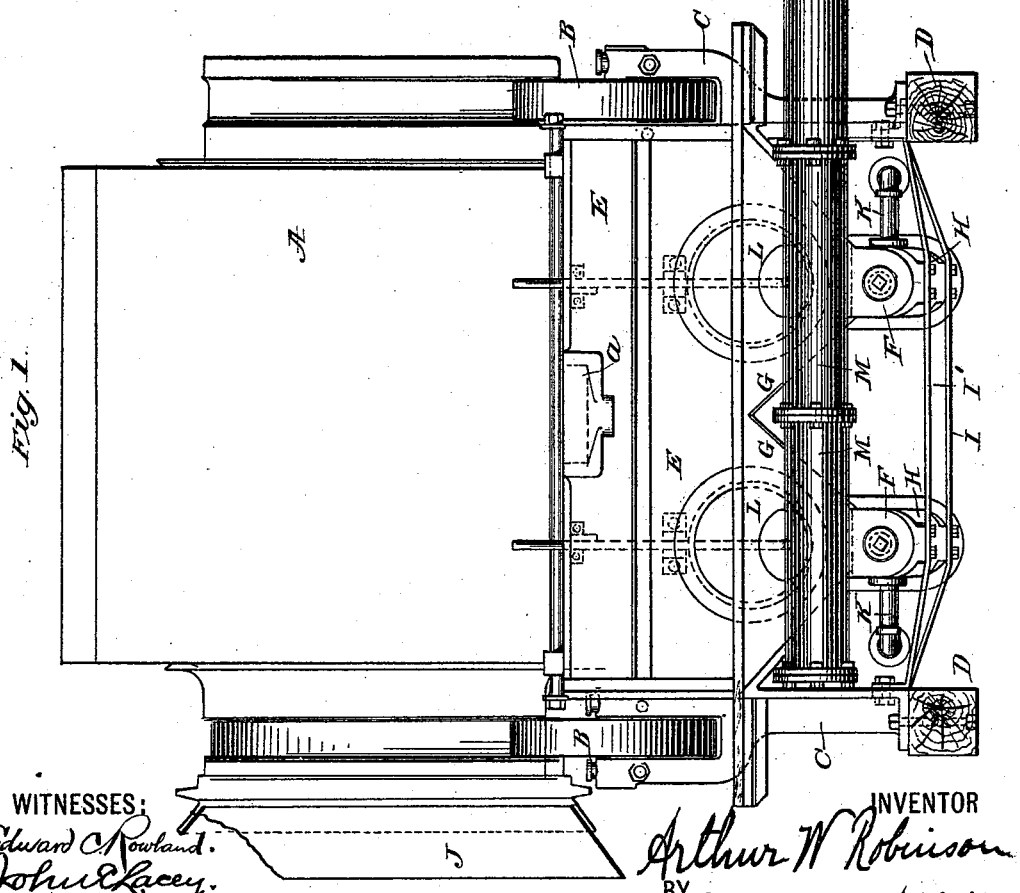


Fig. 1.

WITNESSES:
Edward C. Rowland.
John C. Lacey.

INVENTOR
Arthur W. Robinson
BY
Phillips Abbott
ATTORNEY

UNITED STATES PATENT OFFICE.

ARTHUR W. ROBINSON, OF MILWAUKEE, WISCONSIN.

TAILINGS-DISCHARGE APPARATUS FOR AMALGAMATING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 523,409, dated July 24, 1894.

Application filed November 23, 1893. Serial No. 491,753. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. ROBINSON, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Tailings-Discharge Apparatus for Amalgamating-Machines, of which the following is a specification.

The object of my invention is to provide means whereby the spent sand and other tailings, which have to be drawn off from the tanks of amalgamating machines may be more satisfactorily removed from the tank, and the rapidity of their removal properly regulated, and also to provide means whereby the tailings may be discharged at a distance, so that they will not interfere with the operation of the machine, by their close proximity to it, which is apt to be the case when it is located in depressions, cuts or under similar circumstances.

Referring to the drawings hereof, Figure 1, illustrates an elevation of the rear end of an amalgamating machine, the draw off and discharge pipe being broken away at one point. Fig. 2, illustrates a detail of the plug valve which closes the discharge orifices.

A is the revolving screen of the amalgamator, which revolves upon anti-friction rollers or wheels B, B, which are supported upon pillars C, C, or equivalent devices.

D, D is the base of the machine.

E is the tank.

F, F are the water supply pipes in the bottom of the valleys G, G, of the machine.

H, H are the amalgam troughs.

I, I′ are stay rods.

J is the discharge for the large tailings, which are delivered laterally from the screen as usual.

K, K are the water supply pipes for the pipes F, and for the amalgam trough H.

I show my invention as applied to an amalgamating machine, now manufactured by me, it being a double valley machine. My invention is equally applicable to single valley machines.

Some of the features illustrated in the drawings of this case, are the subject matter of patents already granted to me, or form the subject matter of applications for Letters Patent filed by me, and now pending.

Considering now the features, which are the special subject matter of this application, and having special reference to Fig. 2: L is a funnel-shaped discharge opening, connecting with the interior of the tank. It opens into a large pipe or conduit M, which extends transversely across the end of the amalgamator. The funnel-shaped discharge openings L are placed, one in each valley of the machine, if it is a double valley machine, and its lower edge, as at N, is located slightly above the water jets in the bottom of the valleys.

O is a tapering plug valve, which fits the funnel-shaped discharge opening L. The plug valve is mounted upon a stem P, which is supported in a guide block Q, and engages at its outer end with a bell-crank lever R, which is pivoted at S to the end of the amalgamator, and its upper end T forms a handle, which being moved in one direction or the other, will open or close the plug valve O. This lever is provided with an adjusting clamp U, which acts in conjunction with a rack V, as usual in such structures.

The draw-off pipe or duct M, extends laterally or in such other direction, as the necessities of the mechanism may require, and connects with the eye of a centrifugal or other suitable pump W, which is preferably actuated by a little steam cylinder Y. This pump delivers into a discharge pipe or duct Z, which is extended indefinitely, and may be provided with flexible sections, as usual in delivery pipes or ducts of this character. It may be even carried several hundred feet to a depressed place or other suitable point of delivery for the fine tailings.

The operation is as follows: After the charge in the tank has been acted upon a sufficient length of time to exhaust or practically exhaust the gold from it, then while the water jets in the bottoms of the valleys or the equivalent agitating devices are still in operation, the plug valve O is opened by means of the lever T, R and stem P. Thereupon the contents of the tank, sand or other tailings and water combined, passes through the open valve O, into the pipe M. As soon as the valve is opened, the pump W is put into operation, and thereupon the tailings are drawn from the pipe or duct M into the pump, and by it discharged through the delivery pipe Z.

It will be seen, that by my construction, I secure certain advantages not before obtained, in addition to the economical, speedy and distant deposition of the tailings. That is to say; the discharge orifices, as heretofore made in the end of amalgamator tanks, for the delivery of the tailings, have proven unsatisfactory for the reason that they have been small in area and made in the form of round or square holes in the wall of the tank; therefore, the tailings were drawn from it only in the immediate vicinity of the opening, and a considerable amount remained, not withdrawn. But by my arrangement, a large funnel-shaped opening is made in the end of the tank, and immediately upon opening the valve, the contents, through a large area, in fact throughout practically the entire end of the valley, sets toward the opening; so that the agitation of the charge being continued by the water jets, as I have stated, the entire tailings are delivered in a very complete and speedy manner. Also the plug valve employed by me, having the means shown, whereby it may be set more or less open, and the valve maintained in a central position, by reason of the bearing or guide block Q, enables the discharge to be regulated with greater or less rapidity; the outward passage of the tailings being from substantially the entire area of the end of the valley, consequently I am enabled to regulate the rapidity of the discharge, and the discharge is substantially uniform from all parts of the tank.

It will be seen that I am enabled to regulate the delivery of the tailings in two ways. First: by the speed of the pump, and second: by the adjustment of the plug valve.

In case the exhaust through the pump is not sufficient to carry off all the water that enters the tank for the purposes of agitation, or to maintain it at its proper level, I provide an over-flow *a*, at the upper part of the tank, through which any excess may escape.

I do not limit myself to the details of construction shown and described, because it will be evident to those who are familiar with this art, that modifications may be made therein and still the essentials of my invention be employed.

Having described my invention, I claim—

1. The combination in an amalgamating machine of an amalgamating tank having a valley at its lower part, a screen at one end, a funnel shaped opening in the upright wall of the tank farthest removed from the screen, a pipe or duct connecting with said funnel shaped opening, a pump connected with said duct, a discharge pipe from the pump, and an adjustable valve to adjustably open and close said funnel shaped opening, substantially as set forth.

2. In an amalgamating machine, the combination of a tank, a screening device at one end thereof, a funnel shaped opening in the upright wall of the tank opposite the screen, a circular plug valve, adapted to close the funnel shaped opening, means to guide the valve when withdrawn from its seat, so that it is centered relative to the opening, irrespective of the degree to which the valve is opened, a duct connecting with the funnel shaped opening, a pump connected with the duct, and a discharge from the pump, substantially as set forth.

Signed at Milwaukee, in the county of Milwaukee and State of Wisconsin, this 8th day of November, A. D. 1893.

ARTHUR W. ROBINSON.

Witnesses:
JOHN C. WILLIAMS,
J. G. DAVIES.