

(No Model.)

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AMALGAM TROUGH AND WATER SUPPLY PIPE FOR AMALGAMATING
MACHINES.

Patented July 24, 1894.



BY

ATTORNEY

UNITED STATES PATENT OFFICE.

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AMALGAM-TROUGH AND WATER-SUPPLY PIPE FOR AMALGAMATING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 523,411, dated July 24, 1894.

Application filed November 23, 1893. Serial No. 491,756. (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 certain new and useful Improvements in Amalgam-Troughs and Water-Supply Pipes of Amalgamating-Machines, of which the following is a specification.

The object of my invention is to simplify the construction of the amalgam collecting trough, the force water supply pipe and the adjacent parts of the lower portion of the valleys of the amalgamating machines, and also to reduce the cost of the same and provide means whereby repairs may be easily, quickly and inexpensively made and the water properly and effectively supplied to both the amalgam trough and to the force water supply pipe. Also I construct the parts and combine them together in such manner that they can be very easily and quickly cleaned and the gold bearing amalgam very easily and quickly removed from the collecting trough.

In the drawings hereof: Figure 1, illustrates an elevation of the side of an amalgamator embodying my invention. Fig. 2, illustrates an enlarged sectional view of the parts embraced in my invention, parts being broken away. Fig. 3, illustrates a plan view of the piping for water supply. Fig. 4, illustrates a transverse sectional view on the line X, X of Fig. 2, looking in the direction of the arrow.

In the drawings hereof, I illustrate the invention as applied to a form of amalgamator now made by me, but I wish it to be understood that the invention is applicable to practically all forms of amalgamators of this general class.

A is the revolving screen.

B, B are the rollers, on which the screen revolves. (The construction of these parts forms the subject matter of another application for Letters Patent, filed by me, but has nothing to do with the invention set forth herein.)

C is the tank of the amalgamator.

D is the delivery device for the tailings.

E is a bed on which the whole structure is supported.

Referring now to the parts which directly appertain to the invention.

F, F (see Fig. 4) are lines which indicate the

lower part of the sides of one of the valleys of the machine.

G is the collecting trough for the amalgam, and H is the force water pipe placed within the trough. These two elements are preferably, but not necessarily, made of a single casting, and are bolted together at I and J, which respectively pass through a flange K at one end of the pipe, which fits against and closes the front end of the trough G, and through a flange or lug K' at the other end of the pipe.

Both the trough and the force water pipe H are cast on a taper as shown, in order first to reduce weight, size and cost of the parts and second, to afford an inclined surface on the bottom of the amalgam trough, so that it, (the amalgam) may be more easily and quickly removed through the screw plug hole L. The force water pipe is made tapering also for the additional reason that thereby the pressure of the water in it is uniform at all the water jets, J', J', because, as those near the supply end of the pipe partially relieve the pressure, those beyond will have reduced pressure unless the capacity of the pipe be reduced corresponding to the amount drawn off by the jets as they are successively reached.

At their rear ends both the amalgam trough and the force water pipe are closed by a single screw plug a', which engages with the threads K on the trough, and also with the threads K' on the pipe—(two separate plugs may be employed if preferred) and when they are removed cleaning of these parts is very easily and quickly done, because then access from end to end can be obtained.

M is the main water supply pipe, which connects with a yoke section N (see Fig. 3) and from it, branch pipes O, O' extend, which connect with the ends of the force water pipes H, H, and there are also two other branch supply pipes, P, P' on the outside of the amalgamator, which extend down the length of the trough and are parallel with it. They gradually reduce in size, to coincide with the reduced capacity of the trough (see Fig. 1), and from it branch pipes Q, Q, connect with the interior of the trough and supply water to it. Each of these water supply connections is provided with valves R, R', R², R³, respectively to regulate the flow as desired.

It will be seen that the above described sys-

tem of water supply pipes is designed for an amalgamator which has two valleys. Of course, if the machine has but one valley, one half only of the system will be employed.

5 S, S' are the sand guard plates which may be made as usual. They are separated by a slit-like space from the lower edge of the valley plates or flange U made on the trough, as the case may be; they are supported at intervals by supports T, T, which rest on the flange or valley plates. The amalgam passes down through these slit-like openings as usual.

The operation is as follows. The water entering at M passes to the force water pipes 15 H, through the branch pipes O, O', and also to the interior of the amalgam trough through the branch pipes P, P', and the connections Q, Q, &c., the flow to all these parts being regulated as required by the valves R, R', R², R³, 20 and by the gradual reduction of the pipes in size, as above stated. The water that passes to the interior of the amalgam trough is relatively small in amount because only sufficient is required to cause an upward current 25 through the slit-like opening between the sand guard plates S, S' and the sides of the valley, to prevent the sand or other tailings from passing downwardly into the amalgam trough but not enough to prevent the mercury from 30 passing through. The amount which enters the force water pipe is, however, much greater and is forcibly ejected through the water jets J' into the valleys of the machine and agitates the charge in the usual and well-known 35 manner.

When the amalgam is to be removed from the trough, the screw plug I' at L is removed and it is taken out there. It will be seen that if any part requires repairs or cleaning, the 40 force water pipe can be pulled out endwise by simply unscrewing the bolts I and J and that removing the plug or plugs at K and disconnecting the supply pipe will give free access to all the parts.

45 I do not limit myself to the details of construction given, since it will be evident to those who are familiar with this art that modifications or substitutions in the details of construction may be employed and still 50 the essentials of my invention be present.

I claim—

1. In an amalgamator, the combination of a tapering trough and a tapering force water

pipe inside of the trough provided with water jets, substantially as set forth.

2. In an amalgamator the combination of a trough and a tapering force water pipe, inside the trough provided with water jets, substantially as set forth.

3. The combination in an amalgamator of 60 a force water pipe having a flange at one end, and a lateral projection at the other end, whereby it may be bolted to the machine, substantially as set forth.

4. In an amalgamator, the combination of 65 an amalgam trough, a force water trough inside of it, and water supply pipes, connecting with the said pipe at one end and with the amalgam trough at different points in its length, substantially as set forth.

5. In an amalgamator the combination of a 70 tapering amalgam trough, a tapering force water trough inside of it, water supply pipes connecting with one end of the force pipe and at different points longitudinally of the 75 trough, substantially as set forth.

6. In an amalgamator, the combination of a tapering amalgam trough, a tapering force water pipe inside of it, a screw plug at the 80 lower side of the lowest end of the trough and another screw plug at the other end of the trough, substantially as set forth.

7. In an amalgamator the combination of a tapering amalgam trough and a pipe which 85 supplies water to the trough, the capacity of which varies substantially coincident with that of the trough, substantially as set forth.

8. In an amalgamator, the combination of a tapering amalgam trough, a tapering force 90 water trough, and a water supply pipe, the size of which is gradually reduced, substantially coincident with the area or capacity of the trough, substantially as set forth.

9. In an amalgamator, the combination of a tapering amalgam trough, a tapering force 95 water pipe placed inside of the trough and held in place by bolts, whereby it may be removed endwise from the trough, 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.