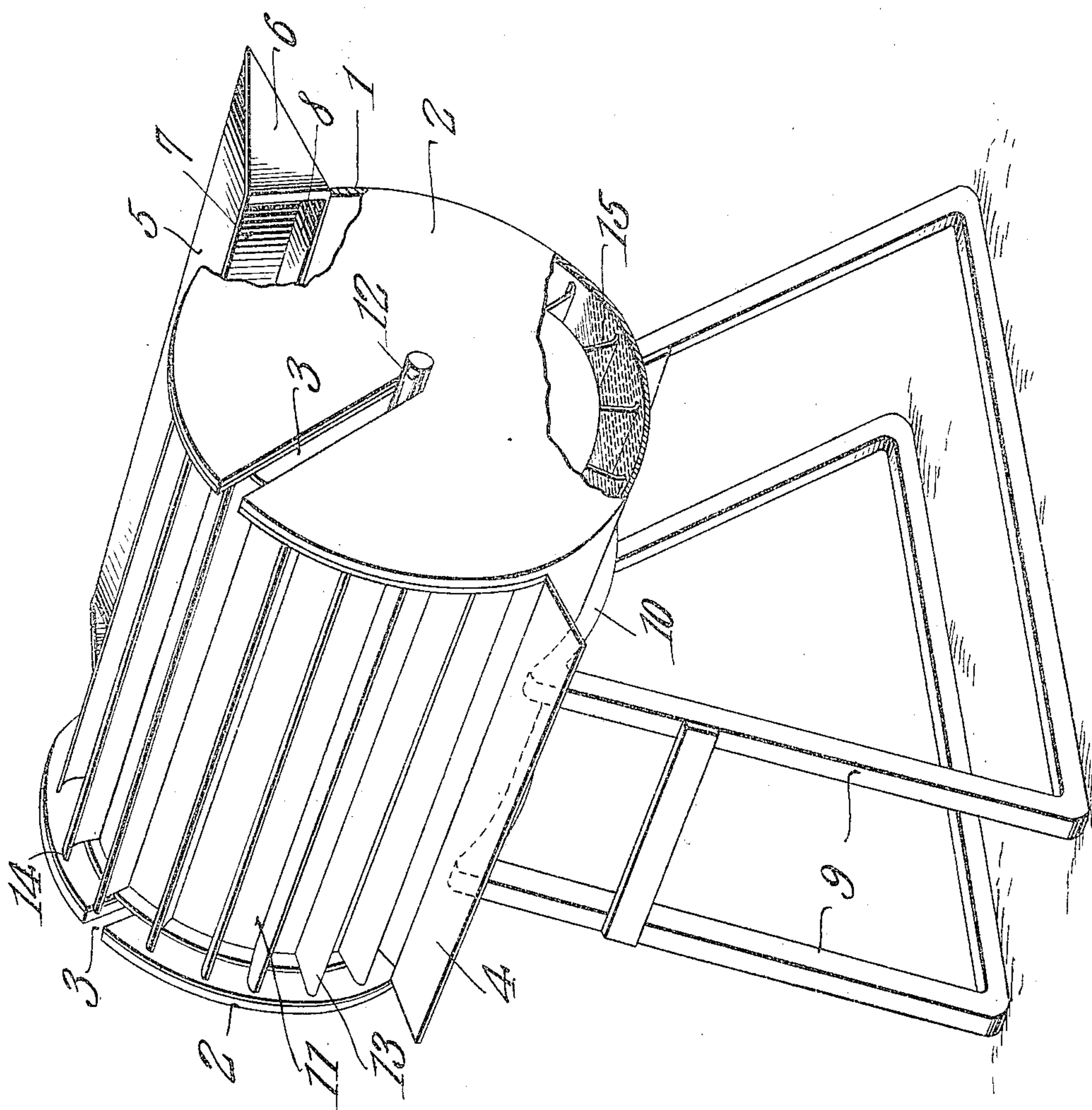


J. S. RAYBURN.  
AMALGAMATING MACHINE.  
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962,466.

Patented June 28, 1910.



Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN S. RAYBURN, OF GRAND JUNCTION, COLORADO.

## AMALGAMATING-MACHINE.

962,466.

Specification of Letters Patent. Patented June 28, 1910.

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*To all whom it may concern:*

Be it known that I, JOHN S. RAYBURN, a citizen of the United States, residing at Grand Junction, in the county of Mesa and State of Colorado, have invented a new and useful Amalgamating-Machine, of which the following is a specification.

This invention has reference to improvements in amalgamating machines and is designed to provide a simple and inexpensively constructed machine for the purpose wherein the gravitating action of the pulp and water flowing through the machine will cause the actuation of an amalgamating and stirring drum thoroughly agitating the pulp and causing the ready extraction of the precious metals.

A machine constructed in accordance with the present invention comprises a tank or receptacle having the inlet at a higher point than the outlet while within the tank there is mounted a rotatable drum nearly filling the interior of the tank and provided with short radial paddles causing the agitation of pulp fed into the tank and the thorough intermixing of the same with a quantity of mercury contained in the tank so that any gold or other such precious metal will unite with the mercury or with the walls of the tank or drum while the waste pulp and water will outflow from the tank.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings, the figure is a perspective view with parts broken away of an amalgamating machine constructed in accordance with the present invention.

Referring to the drawing there is shown a semi-cylindrical tank or receptacle 1 provided at the ends with circular heads 2 in each of which latter there is formed a radial slot 3 extending from the center or axis of the head to the periphery thereof at a point opposite the tank or receptacle 1.

Along one longitudinal edge of the tank 1 there is secured a lip 4 projecting radially outward from the said edge of the tank while projecting radially outward from the opposite edge of the tank and extending longitudinally thereof is another lip 5 having end walls 6 joined by a strip 7 substantially tangential to the tank or receptacle 1 and separated therefrom by a space 8. The lip

5 with its end walls 6 and connecting strip 7 constitute a receiving funnel or run-way for the wet pulp to be treated which flows into the tank by way of the opening 8 which therefore constitutes an inlet for the pulp from the receiving lip 5.

There is provided a support for the tank 1 in the form of a trestle composed of two adjacent members 9 suitably connected together. The upper members of the trestle 9 are curved in conformity with the curvature of the cylindrical receptacle 1 as indicated at 10 so that this receptacle 1 may be supported on the trestle with the lips 4 and 5 at any desired angle to the horizontal. In practice the lip 4 which constitutes the discharge lip is located considerably lower than the lip 5 which constitutes the receiving lip.

Within the receptacle 1 is a rotatable drum 11 of somewhat smaller diameter than the internal diameter of the receptacle and this drum is provided with an arbor or journals 12 adapted to the slots 3 so that when the journals 12 are seated in the slots 3 the drum 11 will rotate on an axis coincident with the central longitudinal axis of the cylindrical receptacle 1. Projecting radially from the surface of the drum 11 are a number of longitudinal radial blades 13 as long as the drum and equally spaced one from the other and with their edges slightly curved as indicated at 14.

The drum 11 and the blades 13 are either made of copper or other like material or the drum and blades are plated with copper or other material, or the drum may be made of some suitable material and be copper plated and the blades be made of sheet copper. The receptacle 1 is either made of copper or is copper plated on the interior and the heads 2 may be made of wood or other suitable material having their inner surfaces copper plated, with the copper surface joined to the receptacle 1 or the copper plated surface thereof.

In operation, the receptacle 1 contains a quantity of mercury indicated at 15. Finely ground ore, say gold ore with sufficient water is deposited on the lip 5 and the parts being in proper position the inclination of the lip 5 downward toward the opening 8 will cause the flow of the pulp and water through the opening 8 into the receptacle 1 whence it will flow down the walls of the receptacle to the bottom thereof engaging the blades 13 in its passage and



thereby causing a rotative movement of the said drum 11. Since the lip 5 is higher than the lip 4 there will be sufficient fall of the water and pulp to cause the rotative movement of the drum 11 and the blades 13 will stir up the mercury and ultimately the tailings will be carried by the blades onto the lip 4 and there discharge from the machine. As the pulp passes through the machine the fine or "flour" gold will rise to the surface when the water is stirred up and in this way will come in contact with the amalgamating blades or the amalgamating plate formed by the surface of the drum 11. The heavier gold will amalgamate with the lining of the receptacle 1 and the coarse or rusty gold as it passes through the body of mercury will sink to the bottom. Thereby all the gold passing through the machine is recovered. It will be observed that the rounded outer edges 14 of the paddles 13 are so disposed as to cause the blades to form shallow pockets for the reception of the pulp and water and these blades passing out of the mercury in the reverse direction, that is with the curved side forward, readily clear themselves of the mercury thus preventing the throwing out of any of the mercury at the lip 4.

30 What is claimed is:—

1. An amalgamating machine for the recovery of precious metals comprising a substantially semi-cylindrical receptacle, a re-

ceiving lip on and projecting from one edge of said receptacle and of substantially the same length as said receptacle, a discharge lip on and extending from the other edge of said receptacle in substantially radial relation thereto and of substantially the same length as said receptacle, a rotatable drum within the receptacle and provided with a circumferential series of substantially radial blades, and a support for the receptacle with relation to which the said receptacle may be moved about its longitudinal axis to different positions of adjustment to be there held frictionally.

2. An amalgamating machine for the recovery of precious metals, comprising a substantially semi-cylindrical receptacle having a lip projecting radially outward from one longitudinal edge and another lip projecting radially outward from the longitudinal edge on the other side of the receptacle, the said last named lip having end walls joined by a strip substantially tangential to the receptacle and spaced therefrom and at its lower edge spaced from the lip.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN S. RAYBURN.

Witnesses:

G. A. LUND,  
HARRY HUDSON.