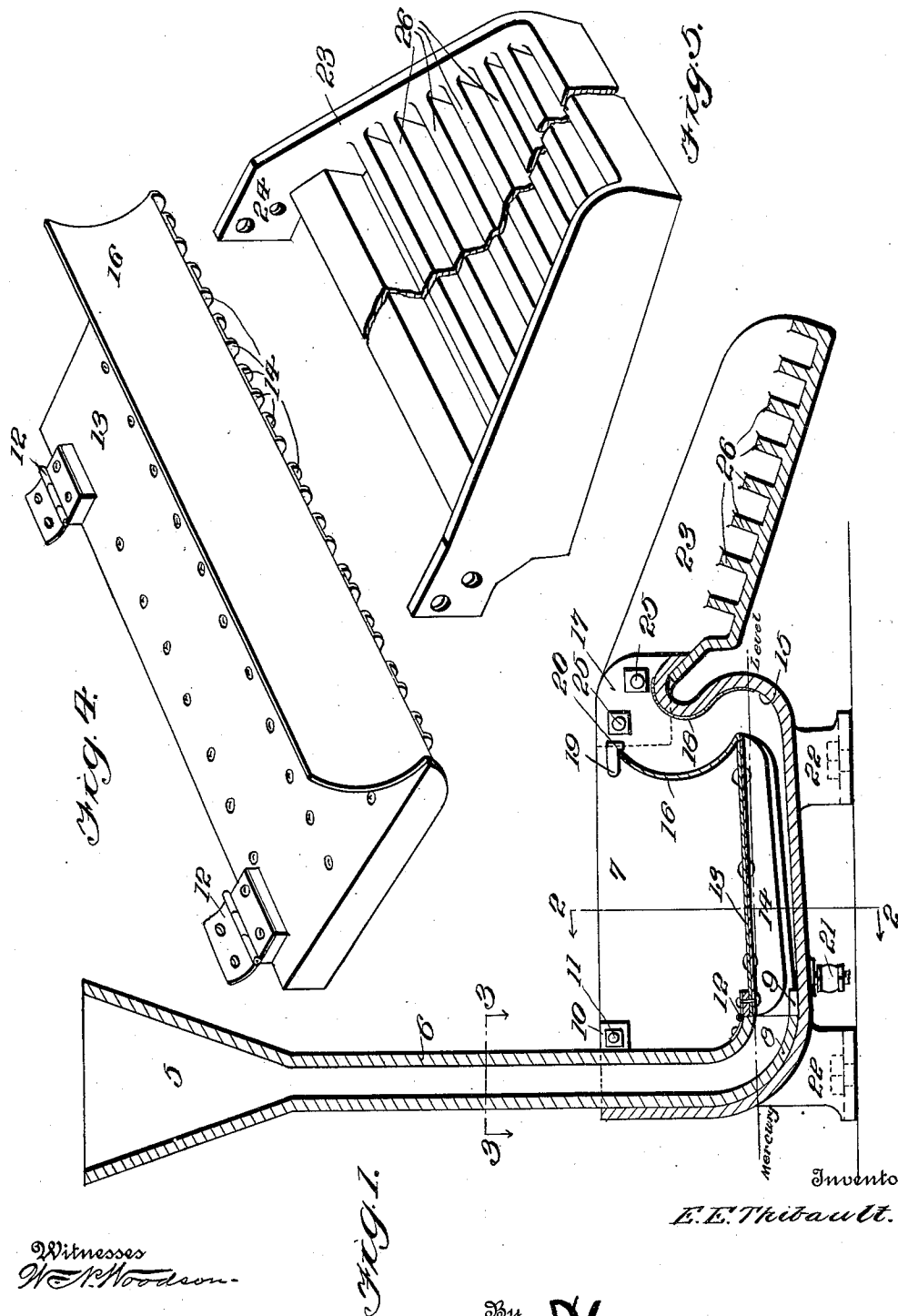


AMALGAMATOR.

Patented June 24, 1913.

2 SHEETS—SHEET 1.

1,065,563.



Witnesses
W. R. Woodson-

Juana M. Fallin-

By

Pharmacy

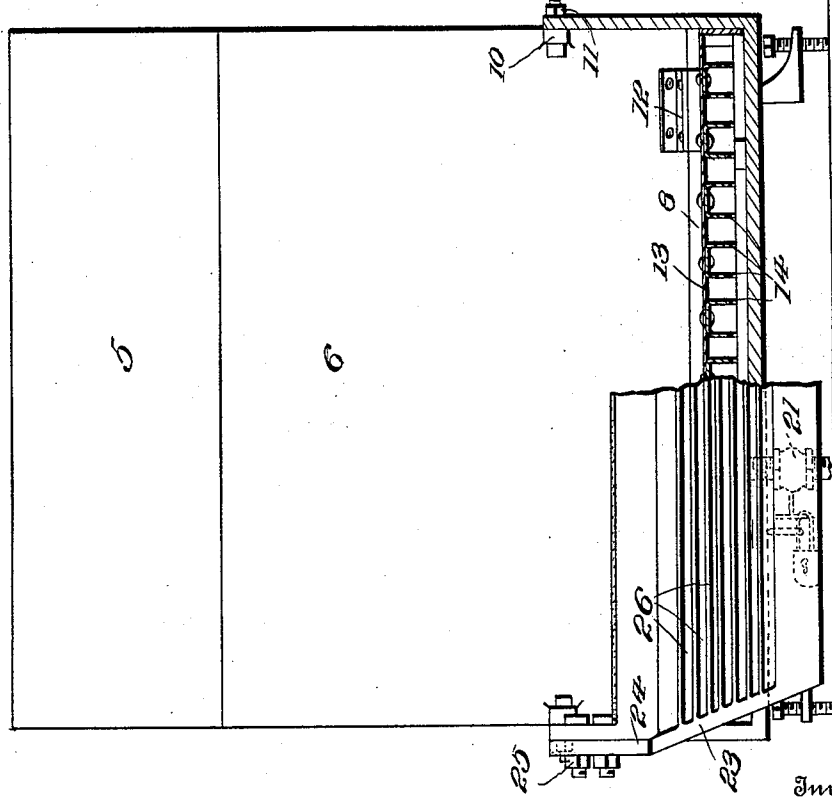
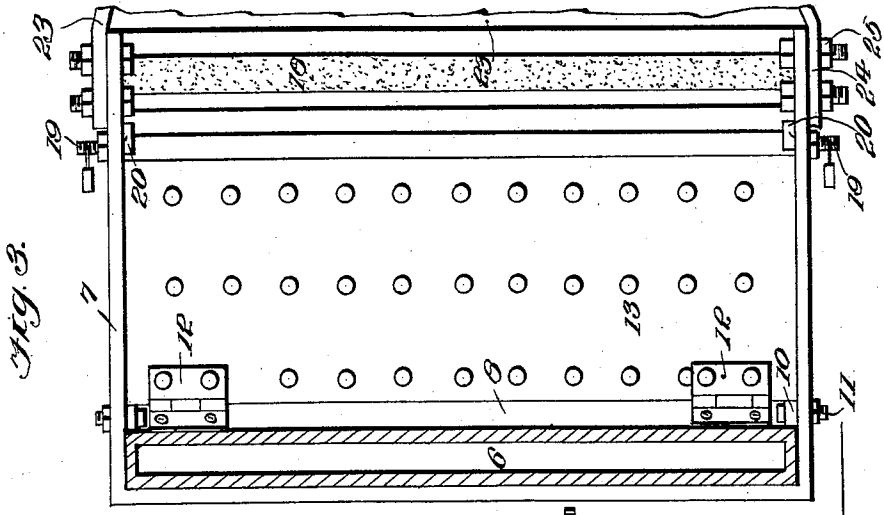
Attorneys.

1,065,563.

E. E. THIBAUT.
AMALGAMATOR.
APPLICATION FILED FEB. 7, 1911.

Patented June 24, 1913.

2 SHEETS-SHEET 2.



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Fig. 2.

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UNITED STATES PATENT OFFICE.

EUGENE E. THIBAUT, OF BUTTE, MONTANA.

AMALGAMATOR.

1,065,563.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed February 7, 1911. Serial No. 607,072.

To all whom it may concern:

Be it known that I, EUGENE E. THIBAUT, a citizen of the United States, residing at Butte, in the county of Silverbow and State of Montana, have invented certain new and useful Improvements in Amalgamators, of which the following is a specification.

This invention relates to amalgamators and more particularly to that class of amalgamators especially designed for separating gold and silver from crushed quartz, ore-bearing sand and other auriferous materials.

The object of the invention is to provide an amalgamator in which the gold bearing sand from a dredge or placer, or the wet pulp from the battery of a mill, is forced through a bed of mercury to extract or separate the precious metals therefrom, the heavy particles of sand being discharged through a suitable spout or spillway at the front of the amalgamator basin.

A further object is to provide an amalgamator having a distributing plate or table disposed in the mercury receiving basin thereof and provided with spaced depending ribs to prevent lateral splashing of the water within the mercury receiving basin, thus to insure an equal flow of sand and water throughout the entire width and length of the distributing table.

A further object is to provide the basin with a transverse plate or partition which serves the dual function of holding the distributing table within the basin and also as a means for directing the stream toward the spillway or spout and to catch and retain such particles of gold or silver that may come in contact therewith.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal sectional view of an amalgamator, embodying the present invention; Fig. 2 is a front elevation thereof, a portion of the riffle in front of the cas-

ing being broken away to show the construction of the distributing table; Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1, and looking in the direction of the arrow; Fig. 4 is a perspective view of the distributing table detached; Fig. 5 is a similar view of the riffle box.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The amalgamator forming the subject matter of the present invention comprises an elongated hopper 5 adapted to receive the flow of a sluice that contains the gold bearing sands from the trommel of a dredge, a placer worked by hydraulic pressure, or the wet pulp from the battery of a mill, said hopper being provided with a depending spout 6, as shown. The spout 6 is preferably of the same width as the hopper 5, while the lower end thereof is disposed within a mercury receiving basin 7, the lower end of the spout being curved to conform to and adapted to bear against the curved wall of the basin to form a discharge nozzle 8. The free end of the discharge nozzle 8 bears against suitable stop lugs 9 formed on the bottom of the basin 7 so as to prevent accidental displacement of said discharge spout.

Extending laterally from the discharge spout, are perforated ears 10 which bear against the interior walls of the basin 7 to permit the passage of bolts 11, which bolts pierce the basin and prevent the spout from being withdrawn vertically therefrom. Disposed within the mercury receiving basin 7 and pivotally connected at 12 with the nozzle 8, is a distributing plate or table 13, preferably formed of copper and provided with a plurality of spaced depending substantially U-shaped ribs 14, which latter prevent side movement or splashing of the water and also insure a uniform flow of sand and water throughout the entire length and width of said distributing table.

The ribs of the distributing plate or table 13 are immersed in a bed of quicksilver or mercury, while the outer or free end of the table terminates short of the curved wall 15 of the basin and is preferably inclined upwardly at a slight angle to the level of the bed of mercury, thus to allow the material being treated to gradually rise out of the mercury while under the distributing table. Such a construction, not only pre-

vents dislodgment of the mercury, but also affords an increased pressure with a correspondingly increased flow.

The curved wall 15 of the basin serves to prevent bubbling of the mercury out of the basin and also positively directs the heavy particles of sand or other material laterally in contact with a transverse plate or partition 16 and thence through the discharge spout or spillway 17 of the basin. The spillway 17 is preferably covered with a strip of amalgamated copper 18 in order to catch and hold any gold that may come in contact therewith as the material is discharged through said spillway.

The transverse plate or partition 16 is preferably riveted or otherwise rigidly secured to the free end of the distributing table 13, said plate being concavo-convex in cross section and serving to hold the distributing table within the basin. The plate or partition 16 is preferably formed of amalgamated copper so as to catch and retain any particles of precious ore that may come in contact therewith, the concave face of the partition being spaced from the spillway, thereby positively to direct the stream toward said spillway or spout.

Extending through suitable perforations in the side walls of the basin 7, are pins 19 having their inner ends provided with hooked terminals 20 which engage the upper edge of the plate or partition 16 and their outer ends formed with slots adapted to receive a padlock or similar fastening device, thus to prevent an unauthorized person from lifting the distributing table with a view to surreptitiously removing the mercury or ores deposited in the basin.

Depending from the bottom of the basin and communicating with the interior thereof, is a drain cock 21 by means of which the mercury in the basin may be drawn off when desired, there being a perforated lug or staple formed on the bottom of the basin and through which extends the shank of a padlock or other fastening device for preventing opening movement of the cock except by an authorized person.

By having the distributing table 13 pivotally mounted for tilting movement within the mercury receiving basin, said table may be swung upwardly so as to expose the amalgam in the bottom of said basin, when desired. Depending from the bottom of the basin, are supporting feet 22 having laterally extending perforated lugs which receive adjusting screws, the function of which is to raise and lower the basin and thus maintain the same at the proper level.

It will here be noted that the lower wall of the basin is inclined upwardly in the direction of the curved front wall 15 thereof so that the gold and silver will settle at the rear of said basin, while the lighter par-

ticles will be forced upwardly and thence deflected laterally by the wall 15 in contact with the amalgamated copper partition 16 and thence through the spillway or spout into a riffle box 23. The riffle box 23 is provided with terminal attaching lugs 24 which embrace the opposite sides of the basin 7 and to which they are secured in any suitable manner as by bolts 25. The bottom of the box 23 is inclined downwardly and provided with transverse ribs or riffles 26 defining a plurality of pockets for the reception of the ore deposits, it being preferred to gradually taper the box 23 from the basin 7 to the free end of said box.

It will here be noted that the lower end of the partition 16 at its junction with the distributing table 13, is smooth and unobstructed so as to prevent sand from finding lodgment thereon and thus insure a clear, smooth surface for contact with the ore during the passage of the material to the spillway or discharge spout. It will also be understood that the basins may be constructed either with or without the riffle.

Having thus described the invention, what is claimed as new is:

1. An amalgamator including a mercury receiving basin having its front wall curved vertically and provided with a discharge spout, a distributing table immersed in the mercury in the basin and terminating short of the front wall of said basin, means for forcing ore bearing materials through the bed of mercury beneath the distributing table and upwardly between the latter and the curved front wall of the basin, and an upstanding partition disposed within the basin and resting on the distributing table, said partition being spaced from the curved front wall of the basin and the discharge spout to form a tortuous passage for directing the materials through said discharge spout.

2. An amalgamator including a mercury receiving basin having its front wall curved vertically and provided with a discharge spout, a pivoted distributing table immersed in the mercury in the basin and having its free end terminating short of the discharge spout, means for forcing ore bearing materials through the bed of mercury beneath the distributing table and upwardly between the free end of the latter and the curved front wall of the basin, and an upstanding partition disposed within said basin and extending transversely of the distributing table at the free end thereof, said partition being spaced from the curved front wall of the basin and the discharge spout to form an intermediate tortuous passage for directing the materials through said discharge spout.

3. An amalgamator including a mercury receiving basin having a discharge spout, a

distributing table immersed in the mercury in the basin, means for forcing ore bearing materials through the bed of mercury and beneath the distributing table, and a concave partition extending transversely of the distributing table and having its concave face spaced from the front wall of the basin to form an intermediate tortuous passage for directing the materials through said discharge spout.

4. An amalgamator including a mercury receiving basin having its front wall of S-shape formation and provided with a discharge spout, a distributing table pivotally mounted within the basin and immersed in the mercury therein, means for forcing ore bearing materials through the bed of mercury and beneath the distributing table, and a concave partition disposed within the basin and extending transversely of the distributing table at the free end thereof, said partition having its concave face spaced from the front wall of the basin to form an intermediate passage for directing the materials through said discharge spout.

5. An amalgamator including a mercury receiving basin having its front wall of S-shape formation and provided with a discharge spout, a distributing table pivotally mounted within the basin and partially immersed in the mercury in said basin, the free end of said distributing table being spaced from the front wall of the basin, means for forcing ore bearing materials through the bed of mercury beneath the table and upwardly between the free end of the distributing table and the front wall of said basin, and a concave partition disposed within the basin and having its lower edge bearing against the upper surface of the table at the free end thereof, said partition being arranged within the basin and having its concave face facing the front wall of the basin and spaced from the latter to form an intermediate tortuous passage for directing the materials through the discharge spout.

6. An amalgamator including a mercury receiving basin having its front wall vertically curved and provided with a discharge spout, a distributing table pivotally mounted within the basin and partially im-

mersed in the mercury in said basin, means for forcing ore bearing materials through the bed of mercury and beneath the table, an upwardly disposed concave partition secured to and forming a continuation of the upper surface of said table at the free end thereof, said partition having its concave face spaced from the front wall of the basin to form an intermediate tortuous passage for directing the materials through the discharge spout, and means engaging the upper edge of the partition for preventing vertical movement thereof.

7. An amalgamator including a mercury receiving basin having its front wall curved outwardly and provided with a discharge spout, a distributing table pivotally mounted within the basin and having its free end spaced from the front wall of the basin and its lower face provided with depending ribs partially immersed in the bed of mercury, means for forcing ore bearing materials beneath the table and upwardly between the free end of said table and the front wall of the basin, and an upstanding inwardly curved partition forming a continuation of the free end of the distributing table and spaced from the discharge spout to form an intermediate tortuous passage for directing the materials through said discharge spout.

8. An amalgamator including a mercury receiving basin having a discharge spout, a feed spout extending within the basin and provided with a nozzle, a distributing table pivotally connected with the nozzle and having its free end spaced from the front wall of the basin, said front wall being curved vertically beneath the spout, an upstanding concave partition bearing against the upper surface of the distributing table at the free end thereof and spaced from the front wall of the basin to form an intermediate passage for directing the materials through the discharge spout, and means bearing against the upper edge of the partition for holding the distributing table within the basin.

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

EUGENE E. THIBAUT. [L. s.]

Witnesses:

CARL J. CHRISTIAN,
ALBERT S. NICHOLS.