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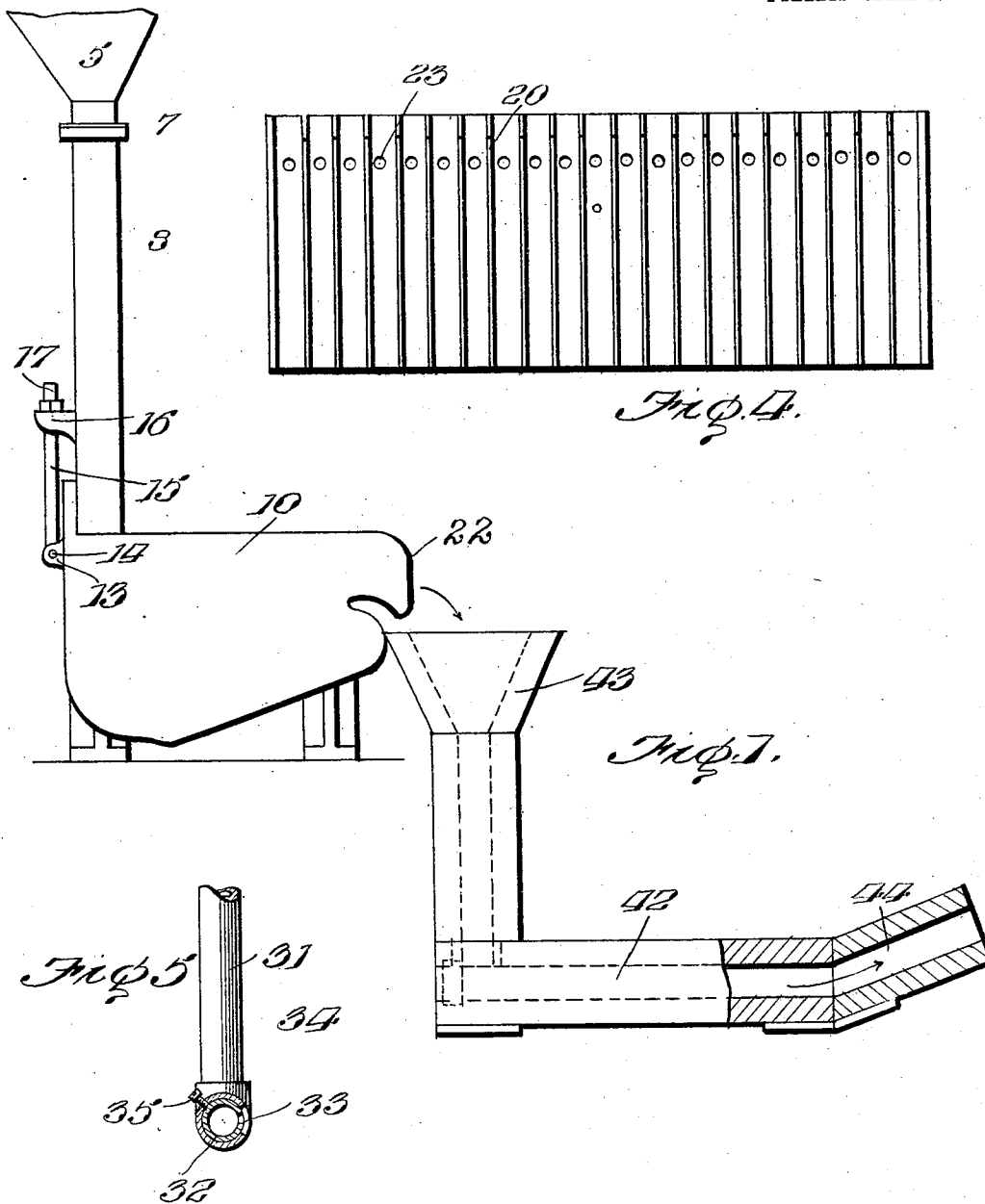
AMALGAMATOR.

APPLICATION FILED AUG. 17, 1909.

Patented Aug. 30, 1910.

2 SHEETS—SHEET 1.

968,888.



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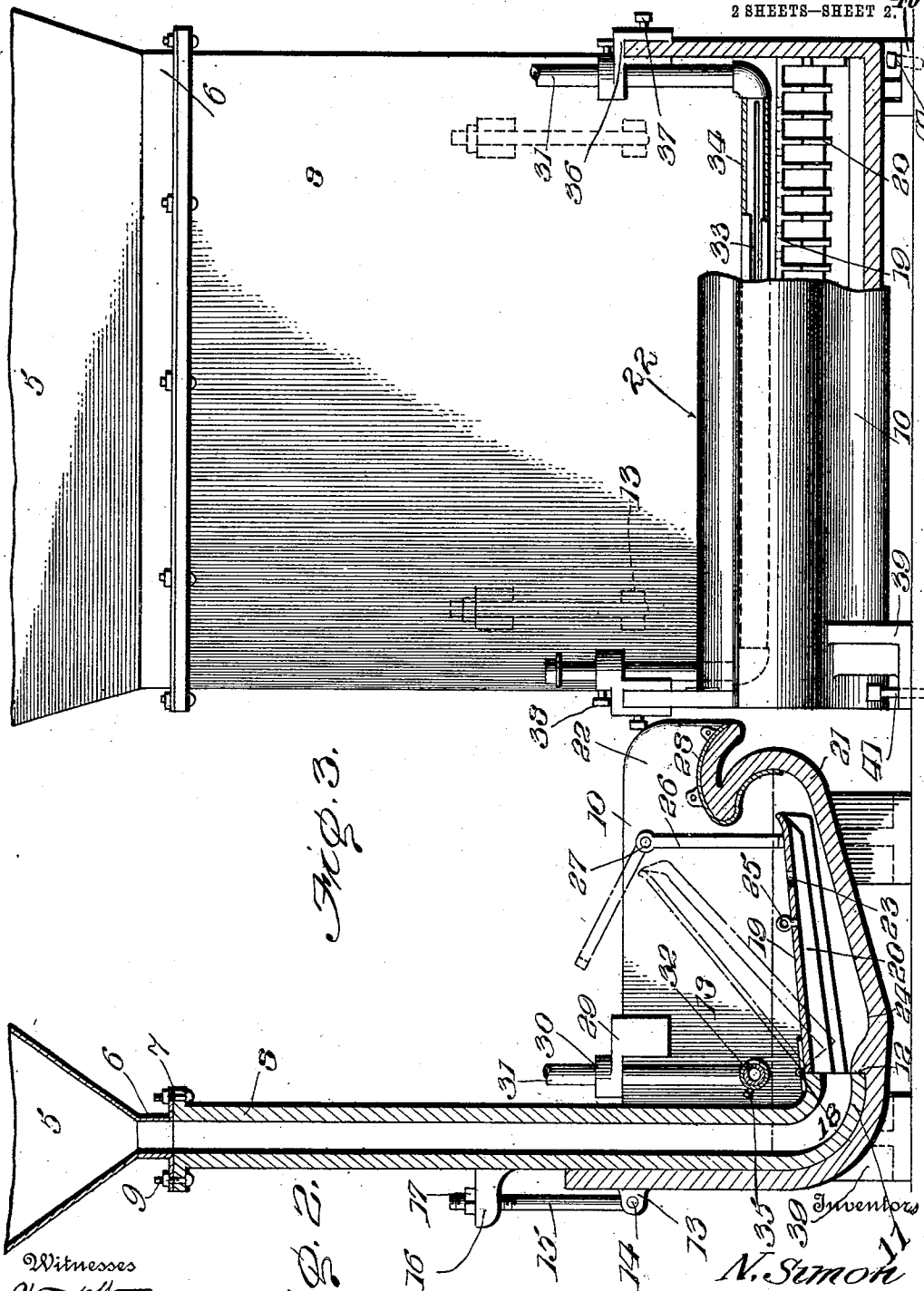


Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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AMALGAMATOR.

968,888.

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To all whom it may concern:

Be it known that we, NATALE SIMON and EUGENE E. THIBAUT, citizens of the United States, both 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 at the front of the amalgamator by the action of a jet of water.

A 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 and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a side elevation of an amalgamator constructed in accordance with our invention; Fig. 2 is a vertical sectional view of the same, the distributing plate or table being shown in dotted lines in elevated position; Fig. 3 is a front elevation partly in section of Fig. 2; Fig. 4 is a bottom plan view of the distributing table detached; Fig. 5 is an enlarged transverse sectional view of the spraying nozzle.

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 device comprises an elongated hopper adapted to receive the flow of a sluice that contains the gold bearing sands from the

trummel 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 reduced neck 6 having a laterally extending flange 7, which latter registers with a corresponding flange on a feed spout 8, the hopper being detachably secured to the feed spout by bolts or similar fastening devices 9, which latter pierce the flanges as shown.

The spout 8 is preferably of the same width as the hopper 5, while the lower end thereof is disposed within a mercury receiving basin 10, the lower end of the spout being curved to conform to and adapted to bear against the curved wall of the basin 10 to form a discharge nozzle 11. The free end of the discharge nozzle 11 bears against a stop shoulder 12 formed in the bottom of the basin 10, the inner wall of the nozzle being disposed flush with the top of the shoulder 12 so as not to offer any obstruction to the passage of the gold bearing sand and water entering the basin through the spout 8.

Extending laterally from the rear face of the basin 10 is a plurality of pairs of spaced lugs 13, between each pair of which is pivotally mounted at 14, a bolt or similar fastening device 15. The upper or threaded ends of the bolts 15 are disposed between spaced lugs 16 extending laterally from the rear face of the spout 8, there being suitable nuts 17 engaging the threaded ends of the bolts and bearing against the lugs 16 for the purpose of detachably connecting the spout to the mercury receiving basin.

Disposed within the mercury receiving basin 10 and pivotally connected at 18 with the nozzle 11, is a distributing plate or table 19, preferably formed of copper and provided with a plurality of spaced depending ribs 20, which latter prevents side movement or splashing of the water and also insures a uniform flow of sand and water throughout its entire length and width.

The distributing plate or table 19 is immersed in a bed of quicksilver or mercury, while the outer or free end of the table is deflected upwardly and terminates short of the curved wall 21 of the basin. The curved wall 21 of the basin serves to prevent bubbling of the mercury out of the basin and also positively directs heavy particles of sand or other material over the upper surface of the distributing plate 19 where they

will be forcibly ejected through the discharge spout 22 of the basin by the action of a jet of water or other liquid.

If desired, suitable openings or perforations 23 may be formed in the deflected end of the distributing plate or table 19 so as to allow some of the sand and water to bubble up to the surface of the mercury, thereby dividing it so that a greater surface 10 will be exposed to the action of said mercury.

The bottom of the basin 10 is formed with a depression or pocket 24 which receives the gold, silver and other precious metals taken up by the mercury during the separating operation. 15

By having the distributing table 19 pivotally mounted for tilting movement within the mercury receiving basin 10, said table may be swung upwardly so as to expose the amalgam in the pocket 24 when desired, there being an eye or finger piece 25 fastened on the upper surface of the table 19 to facilitate raising and lowering the same. 20

As a means for preventing accidental displacement of the table 19 when the latter is moved to lowered position, suitable locking devices or catches 26 are pivotally mounted on the side walls of the basin 10 and adapted to bear against the upper surface of the table 30 19, said catches being retained in operative position by bolts or similar fastening devices 27.

By loosening the bolts 27 and swinging the free ends of the catches upwardly, the distributing table 19 may be swung upwardly to expose the amalgam in the pocket of the basin, as before stated. 25

It is preferred to cover the spout 23 of the basin with a strip of copper 28 in order to catch any gold that may come in contact with it as the material is discharged through said spout. 30

Suspended from the upper longitudinal edges of the side walls of the basin, are brackets 29 having openings 30 formed therein for the reception of liquid conductors or pipes 31 through which water is conducted to the interior of the basin 10. The lower ends of the pipes or conductors 31 50 are connected by a transverse pipe 32 having a longitudinally disposed slot 33 formed therein and through which water is discharged laterally over the surface of the mercury in the basin.

As a means for regulating the discharge of liquid through the slots 33, the transverse pipe 32 is incased in an auxiliary pipe 34 having a similar discharge slot formed therein and adapted to register with the discharge slot 33. Thus it will be seen that by rotating the auxiliary pipe 34 on the pipe 32, the size of the discharge slot 33 may be controlled at will, the auxiliary pipe 34 being held in adjusted position by a screw or 65 similar fastening device 35.

The brackets 29 are provided with spaced depending lugs 36 that span the upper edges of the side walls of the basin 10 and are retained in position thereon by suitable screws 37. 70

The pipes 31 and 32 may be adjusted vertically within the basin 10 and are locked in adjusted position by clamping screws 38 extending through the brackets 29 and engaging the vertical pipes or conductors 31, 75 as shown.

It will of course be understood that the brackets 29 will be removed or detached from the basin prior to moving the distributing table or plate to elevated position. 80

Depending from the bottom of the basin 10, are supporting feet 39 having laterally extended perforated lugs 40 which receive adjusting screws 41, the function of which is to raise or lower the basin and thus maintain the same at the proper level. If desired however, the basin and its associated parts may be suspended from any suitable overhead support. 85

It will here be noted that the lower wall of the basin 10 is inclined upwardly in the direction of the curved front wall 21 of the basin so that the gold and silver will be directed downwardly into the pocket 24, while the lighter particles will be forced upwardly and thence deflected laterally by engagement with the curved wall 21 over the upper surface of the distributing plate 19. 90

The material from the basin 10 is preferably discharged into a trough or trap 42, one end of which is provided with a hopper 43 disposed beneath the discharge spout 22 of the basin, while the other end of the trough is deflected upwardly at 44 so that the particles of gold, quick-silver or other precious metal entering the trough will settle on the bottom of the trap, while the lighter particles will pass off through the deflected end 44 of the trap to a suitable point of discharge. 95

Having thus described the invention, what is claimed as new is: 110

1. An amalgamator including a basin having a discharge spout and provided with a curved front wall, the bottom of the basin being inclined downwardly and provided with a stop shoulder, there being a pocket formed in the bottom of said basin, a feed spout extending within the basin and having a laterally extending nozzle adapted to abut against the shoulder; a pivoted distributing plate having its free end spaced from the curved wall of the basin, and cleats mounted on the basin and adapted to bear against the upper surface of the distributing plate for retaining the latter in normal position. 115

2. An amalgamator including a basin having a discharge spout, the front wall of the basin beneath the spout being concave 130

and the bottom wall of the basin provided with a pocket, a feed spout extending within the basin and provided with a nozzle, a distributing plate pivotally connected with the nozzle and having its free end curved upwardly and spaced from the front wall of the basin, a liquid conductor adjustable within the basin and provided with a discharge orifice, and means for securing the conductor in adjusted position.

3. An amalgamator including a mercury receiving basin having its front wall curved and provided with a discharge spout, a feed spout disposed within the basin and provided with a laterally extending nozzle, a distributing plate pivotally connected with the nozzle and having its free end terminating short of the curved front wall of the basin, and having its lower face provided with spaced longitudinally disposed ribs, brackets carried by the side walls of the basin and having openings formed therein, vertical liquid conductors slidably mounted in the openings in the brackets and having their lower ends connected by a longitudinally slotted pipe, an auxiliary pipe mounted for rotation on the slotted pipe for controlling the flow of liquid through said slotted pipe, and means carried by the brackets and engaging the vertical conductors for securing the latter in adjusted position.

4. An amalgamator including a mercury receiving basin, a feed spout disposed within the basin, a distributing plate spaced

from the bottom of the basin, brackets secured to the side walls of the basin, liquid conductors adjustable vertically of the brackets and connected by a transverse pipe having a longitudinal discharge opening therein, a longitudinally slotted auxiliary pipe mounted for rotation on the transverse pipe for controlling the flow of fluid through the slot in said transverse pipe, means for securing the auxiliary pipe in adjusted position, and means carried by the brackets and engaging the conductors for securing the latter in adjusted position.

5. An amalgamator including a basin having its front wall curved and provided with a discharge spout, and its bottom wall formed with a stop shoulder, a feed spout extending within the basin and provided with a laterally projecting nozzle bearing against said stop shoulder, a distributing plate pivotally connected with the nozzle, lugs extending laterally from the rear face of the feed spout, and bolts pivotally mounted on the basin and adapted to engage the lugs on the feed spout for retaining the nozzle in engagement with said stop shoulder.

In testimony whereof we affix our signatures in presence of two witnesses.

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EUGENE E. THIBAUT. [L. S.]

Witnesses:

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