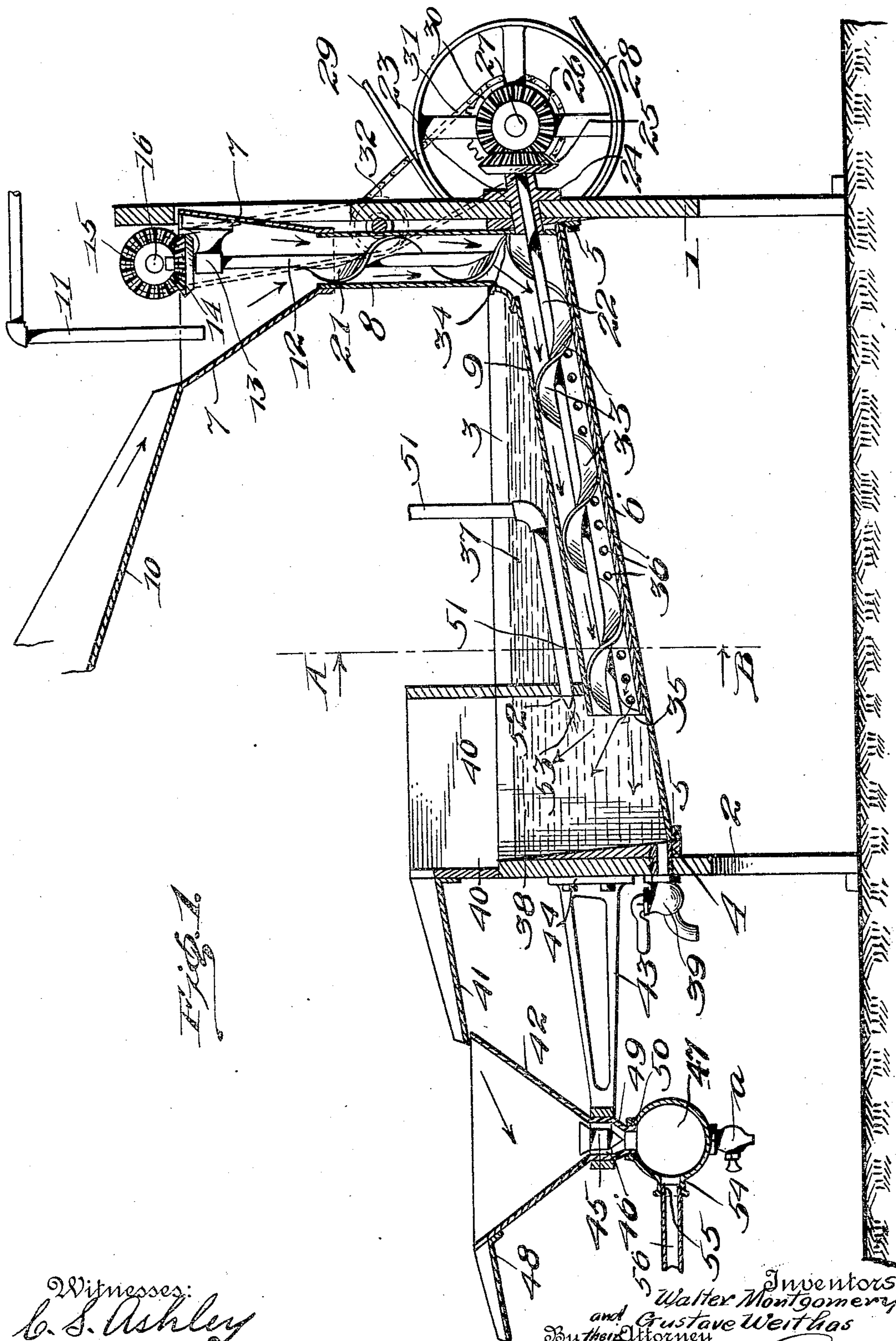


APPLICATION FILED SEPT. 2, 1908.

Patented Apr. 19, 1910.

2 SHEETS--SHEET 1.



Witnesses:  
C. S. Ashley  
George Kilmore

Inventors  
Walter Montgomery  
and Gustave Weithas  
By their Attorney  
Robert W. Tucker

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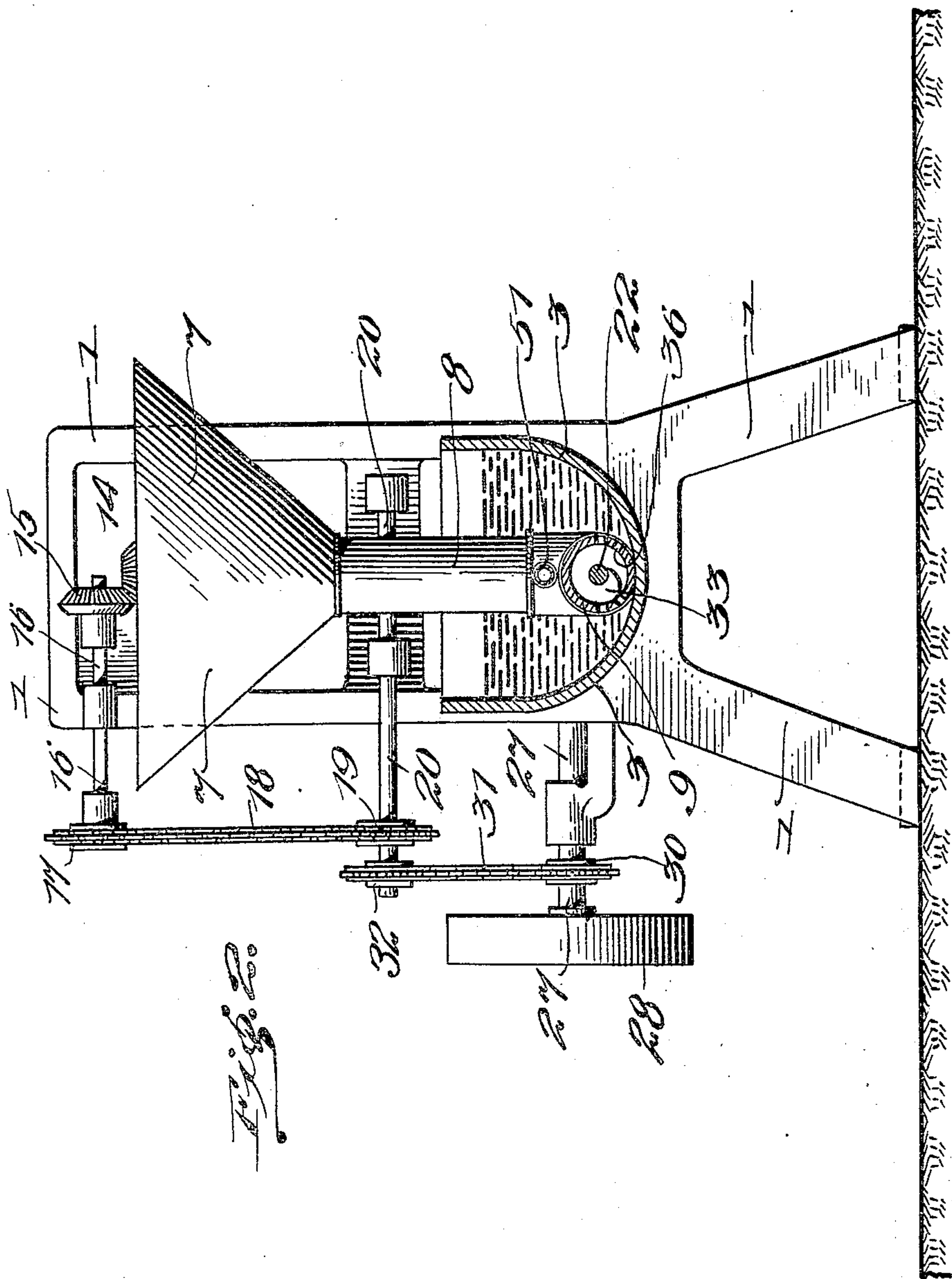
AMALGAMATING APPARATUS.

APPLICATION FILED SEPT. 2, 1908.

955,604.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

WALTER MONTGOMERY AND GUSTAVE WEITHAS, OF BROOKLYN, NEW YORK, ASSIGN-  
ORS OF ONE-THIRD TO EDWARD STAATS LUTHER, OF NEW YORK, N. Y.

## AMALGAMATING APPARATUS.

955,604.

Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed September 2, 1908. Serial No. 451,339.

*To all whom it may concern:*

Be it known that we, WALTER MONTGOMERY and GUSTAVE WEITHAS, citizens of the United States, and residing, respectively, at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Amalgamating Apparatus, of which the following is a specification.

The invention relates to improvements in apparatus for separating precious values from ore slimes and like materials.

In the following is described in connection with the accompanying drawings one embodiment of the invention, the features thereof being more particularly pointed out hereinafter in the claims.

In the drawings Figure 1 is a longitudinal sectional view of the apparatus; and Fig. 2 is a vertical sectional view on the lines A—B of Fig. 1.

Similar characters of reference indicate similar parts throughout the several views.

In the drawings 1 and 2 indicate end frames supporting trough 3. Said trough 3 is mounted upon said end frames 1 and 2 by any suitable means such as by plates 4 bolted to said end frames 1 and 2 as at 5. Said trough 3 is preferably circular in form and the bottom 6 thereof is diagonally inclined, the object of said inclined surface being to provide means for permitting the downward flow of liquids and materials placed therein. End frame or standard 1 supports hopper 7 which in turn communicates with vertically set conveyer pipe 8 which in turn has connected therewith at its lower end a diagonally set conveyer tube 9. Said hopper 7 has associated therewith a feed chute 10 adapted to convey the values and ore containing bodies from a suitable source of supply to said hopper 7.

11 indicates a water pipe feeding into hopper 7, the object of the same being to agitate the values while they are being fed into said hopper 7 and at the same time to render the mass a semi-fluid.

12 indicates a shaft supported in bearing 13 at its upper end which has mounted thereon a miter gear 14 meshing with gear 15 mounted on shaft 16. Said shaft 16 has mounted on its outer end a sprocket 17 carrying chain 18 which in turn engages sprocket 19 on intermediate shaft 20. Said shaft 12 has formed thereon a plurality of

conveyer plates 21 adapted to convey the values in said conveyer tube 9.

22 indicates a shaft mounted in bearing 23 which is in turn bolted to end frame 1 as at 24. Said shaft 22 has mounted on its outer end a gear 25 meshing with gear 26 mounted on drive shaft 27. Said drive shaft 27 has mounted on its outer end a pulley 28 carrying belt 29 which receives its power from any suitable source, such as from a driving pulley or motor, said driving pulley or motor is not shown in the drawings embodied in this application. Shaft 27 has mounted on its outer end a sprocket 30 carrying chain 31 which in turn engages sprocket 32 on intermediate shaft 20. Said drive shaft 22 has formed thereon a plurality of conveyer plates 33 of the same diameter as the interior walls of conveyer tube 9. The conveyer plates 21, described as being mounted on shaft 12, are also of the same diameter as the interior walls of vertically mounted conveyer tube 8, the end of said conveyer plates 21 practically contacting the outer periphery of conveyer plates 33 illustrated in the drawings as at 34, the object of the same being to provide a continuous conveyer from the hopper 7 to the discharge end 35 of the ore feed. Said diagonally set conveyer tube 9 has formed therein a plurality of holes or ports 36 adapted to permit the mercury 37 to pass from trough 3 into said conveyer chute 9, whence it is forced to the discharge end 35 by conveyer plates 33. 38 is a compartment formed at the end of said trough 3 and is adapted to receive the values together with the mercury from conveyer tube 9 and trough 3.

39 indicates a controlling valve, the object of the same being to provide means for drawing off the bulk of the values and mercury after they are separated from the slimes in said compartment 38.

40 is an auxiliary compartment mounted directly above said compartment 38 and has mounted thereon a chute 41 adapted to convey the overflow values and mercury to a trap 42 supported by bracket 43 which is in turn fastened to end frame 2 at 44. Said trap 42 has mounted therein separating head 45 mounted in such a manner as to form passages 46 between the body of said retort 42 and a collector 47. Said trap 42 has in turn mounted on its side thereof a chute 48 adapted to convey the water and



other waste products to any suitable source. Said collector 47 is mounted on nipple 49 formed on the lower end of said trap 42 as at 50. Said collector 47 may be in the form of an auxiliary separator for the purpose of collecting the overflow material from which the values are extracted.

51 is a water pipe receiving a supply from any suitable source and is provided with a jet 52 extending into compartment 38 as at 53, the object of said jet being to provide means for thoroughly agitating the values after they have been thoroughly mixed with the mercury from trough 3. Said collector 47 has cut therein at its upper end, slightly below the separating head 45, a hole 54 communicating with water pipe connection 55 which receives a supply of water through pipe connection 56 from any suitable source of supply, the object of the same being to permit water jets to cleanse the values and mercury, permitting said mercury to pass into the collector 47 and the water to ascend in said trap 42 and go to exhaust over chute 48.

The operation of the device is as follows: Sand and slimes containing the values are fed into hopper 7 from chute 10 and conveyed downwardly through conveyer tube 8 to diagonally inclined conveyer tube 9. While the values are being conveyed through said tube 9, mercury from trough 3 is permitted to enter said tube through ports 36 where it becomes thoroughly mixed with said values and is discharged through discharge end 35 of said tube 9. The overflow material containing water, values and mercury gradually ascends in compartments 38 and 40 and flows over chute 41 into trap 42. As soon as the mercury is fed into conveyer chute 9, the mercury will collect every particle of the values contained in the slimes and carry the same to said compartment 38 where the mercury and values, being heavier than the lighter substances—water and sand—will descend into the bottom thereof, the bulk of the values and mercury being drawn by means of draw off controlling valve 39; the lighter substances, water and sand, overflowing said trap 42 and passing therefrom over chute 48 to any suitable place of deposit, the overflow values and mercury being separated in trap 42 and collected by collector 47. The mercury containing the values, as it is collected by means of collector 47, gradually accumulates until

said collector is practically filled. The values and mercury are retained by said collector 47 and when practically filled are drawn off by means of valve *a*.

It is obvious that the device may be varied in many ways, particularly in form, size and structural features, without departing from the spirit of the invention.

What we claim and desire to secure by Letters Patent of the United States is:—

1. A device of the character described including a supporting frame, a supply hopper mounted on said frame, a trough mounted on said frame provided with a diagonally inclined bottom, a primary conveyer tube associated with said supply hopper, a secondary conveyer tube mounted diagonally in said trough and communicating with said primary tube, conveyer blades mounted in each of said tubes, means for rotating said conveyer blades, a mercury receptacle in said trough partially inclosing said secondary conveyer tube and communicating with the interior thereof, a mixing compartment, a draw-off valve mounted in said compartment, and water jetting means associated with said mixing compartment for the purpose specified.

2. A device of the character described including a supporting frame, a supply hopper mounted thereon, a trough mounted on said frame, provided with a diagonally inclined bottom, a primary conveyer tube associated with said supply hopper, a cylindrical secondary conveyer tube mounted in said trough, a mercury receptacle formed in said trough partially surrounding said secondary conveyer tube and communicating with the interior thereof, a conveyer blade mounted in said primary conveyer tube, a conveyer blade mounted in said secondary tube and mercury receptacle, means for rotating each of said conveyer blades from one or a common point, a mixing compartment, a valve associated with said compartment, and water jetting means mounted in said compartment for the purpose specified.

In testimony whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WALTER MONTGOMERY.  
GUSTAVE WEITHAS.

Witnesses:

ELLEN O. MONTGOMERY,  
ELLA M. WEITHAS.