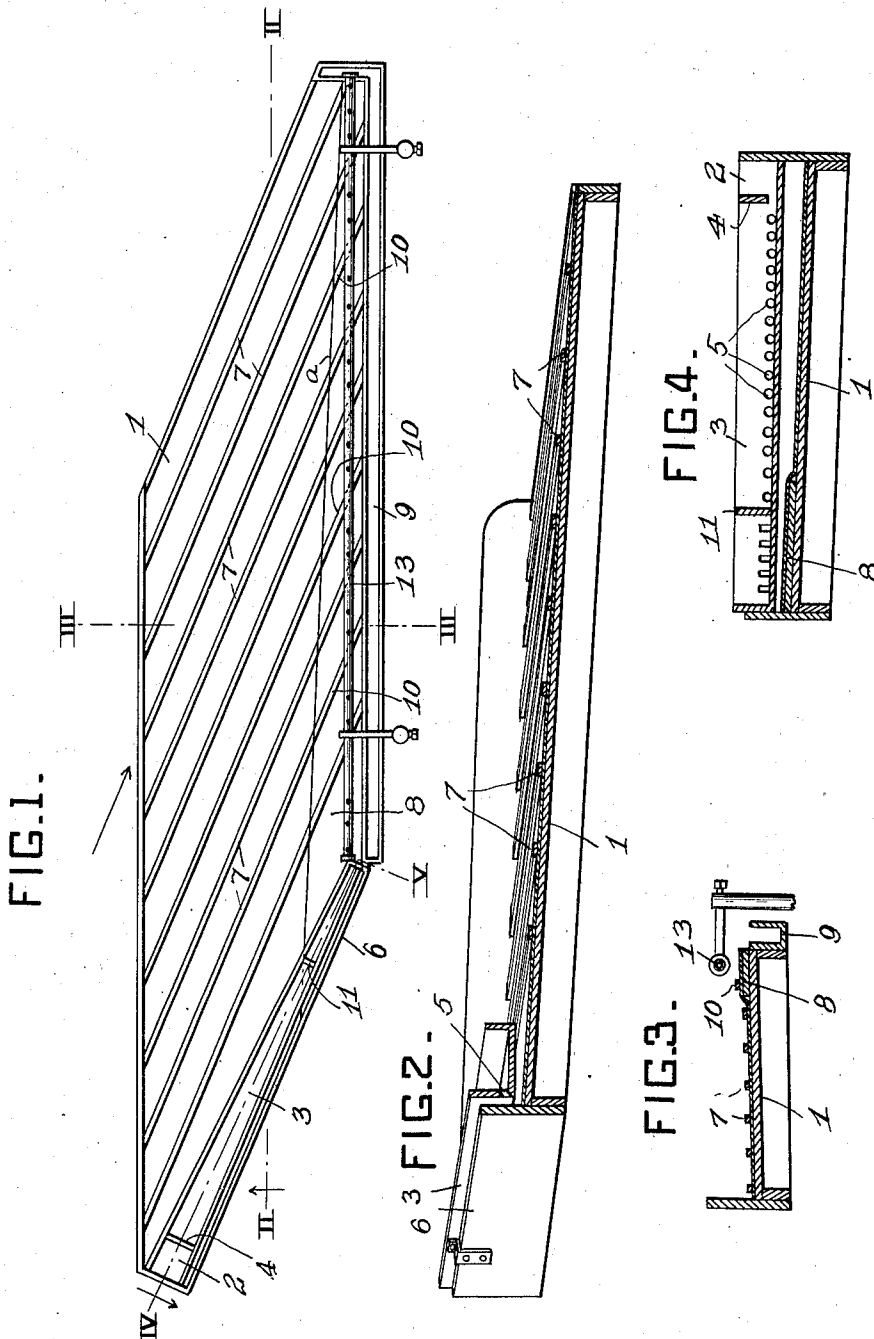


E. & W. F. DEISTER.
CONCENTRATING TABLE.
APPLICATION FILED JUNE 14, 1912.

1,040,164.

Patented Oct. 1, 1912.



WITNESSES:

J. Herbert Bradley
Thomas Joyce

INVENTORS

Emil Deister
William F. Deister
by Danvers S. Wolcott Atty

UNITED STATES PATENT OFFICE.

EMIL DEISTER AND WILLIAM F. DEISTER, OF FORT WAYNE, INDIANA.

CONCENTRATING-TABLE.

1,040,164.

Specification of Letters Patent.

Patented Oct. 1, 1912.

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To all whom it may concern:

Be it known that we, EMIL DEISTER and WILLIAM F. DEISTER, residing at Fort Wayne, in the county of Allen and State of Indiana, citizens of the United States, have invented or discovered certain new and useful Improvements in Concentrating-Tables, of which improvements the following is a specification.

Materials as they come from the stamps are graded before concentration, so that they may be distributed to tables suitable for treating the various grades, experience having shown that a table adapted to treat coarse material as "sand" will not be equally efficient in treating finer material and slime and vice versa.

The invention described herein has for its object a table adapted to operate efficiently in treating "sand."

The invention is hereinafter more fully described and claimed.

In the accompanying drawing forming a part of this specification, Figure 1 is a top plan view of a table embodying the improvements claimed herein; Figs. 2, 3 and 4 are sectional views made on planes indicated respectively by the lines II—II, III—III, and IV—IV, Fig. 1.

In the practice of our invention the table 1 is given a downward inclination from its upper end and an upward inclination from its rear side to its front or mineral discharge edge. The sand is fed into the box 2 at one end of the trough 3 which is suitably supported at the upper end of the table and extends along the same, as shown in Figs. 1, 2 and 4. The sand flows from the box under the partition 4, along the trough and passes out through openings 5 in the upper wall of the trough and down between the latter and the rim 6 along the head of the table. On account of the downward inclination of the table the sand will tend to flow toward its lower end and toward its rear edge. The flow toward the lower end is in part diverted and the tendency toward the rear edge is overcome at least as regards the heavier material, by the vibrations and jerks imparted to the table.

In its downward flow along the table, the inclination thereof being such that the rate of flow will be slow and will not materially retard the settling down of the heavier elements or minerals, the material encounters a series of riffles 7 arranged transverse of the

table and at an angle greater than ninety degrees to the direction of flow of the material. The heavy elements settling down are caught by these riffles, while the lighter portions pass over the riffles to the lower end of the table. By reason of the vibration of the table the minerals caught by the riffles are caused to move transverse of the table, but as the lighter material or gangue is not affected to the same extent by the vibrations the tendency to move transversely toward the mineral discharge edge due to the motion of the table is checked to a great extent by the inclination of the table upward from its rear side.

Adjacent to the mineral discharge edge the table is provided with a raised portion or plateau 8 intersecting the direction of movement of the heavier elements due to the vibration of the table. This plateau is so proportioned and arranged that its inner edge (indicated by the line *a*) which is made comparatively abrupt, coincides approximately with the line of separation of the gangue and values. As the materials in their movement due to the vibrations encounter this edge of the plateau any overlying lighter material or gangue will be thrown back, while the values although their movement may be momentarily checked or retarded, will move up onto and across the plateau over the discharge edge into the launder 9. In order to prevent the heavy material moving down along the plateau and thereby preventing similar material farther down the table moving up onto the plateau, riffles 10, preferably in alinement with the riffles 7 are arranged across the plateau.

In order to supply water for cleaning up the plateau, the trough 3 is extended across the plateau and a partition 11 is arranged across the same in line or approximately in line with the inner edge of the plateau. The water fed into the box thus formed is evenly distributed across the upper end of the plateau by the discharge openings in the upper wall of the box. In order to provide water to effect a final cleaning up of the plateau, a perforated pipe 13 extends along the plateau adjacent to the discharge edge, as shown in Figs. 1 and 3.

It is characteristic of our improved table, that the two surfaces, *i. e.*, the separating and cleansing surfaces lie in two planes which are substantially parallel with each other, and that the movement of the mate-

rials from one surface to the other is due entirely to the movement of the table. And further in the operation of concentrating both the values and gangue will by reason of the inclination of the table move toward the lower end, and by reason of the movement of the table both materials are diverted from such primary direction of flow, but as the values are directly in contact with the table and have greater specific gravity, the amount and rate of diversion of the values will be the greater. Consequently the values slip as it were from under the gangue, which as it moves in the same direction as the values although a slower rate, will present a minimum resistance to the movement of the values. In this respect the separation effected on our improved table differs from that effected on other tables, on which the direction of flow of the gangue is directly opposed to the movement of the values. In their movements toward the front or mineral discharge edge, the materials encounter the shoulder or dam forming the rear edge of the plateau or cleaning up surface. At this point or line the proportion of gangue is comparatively small, and forms the upper stratum or layer. When the materials strike the shoulder or dam, the values being relatively heavy will have sufficient momentum to move over the shoulder onto the plateau. But the gangue being light will not climb the dam or shoulder, but will be thrown back. As the gangue forms the upper stratum the check or backward movement will not cause them to intermingle with the values approaching the shoulder or dam.

We claim herein as our invention:

1. A concentrating table having its main surface in a single plane and inclined downwardly from its head and upwardly from its rear side in combination with means for uniformly distributing material across the upper end, a plateau having its surface above but substantially parallel with the table and arranged along the discharge edge, riffles arranged transverse of the main sur-

face of the table, and riffles arranged across the plateau.

2. A concentrating table having its main surface in a single plane and suitably inclined in combination with means for distributing material across the head of the table, riffles arranged on the table at an angle greater than ninety degrees to the direction of the flow of the material, a plateau having its surface above but substantially parallel with the general surface of the table and arranged with its inner edge at an angle less than ninety degrees to said riffles, and riffles extending across the plateau.

3. A concentrating table having its main surface in a single plane and downwardly inclined from its head and upwardly inclined from its rear side, in combination with means for uniformly distributing material across the upper end of the table, a plateau having its surface above but substantially parallel with the general surface of the table and arranged intermediate the mineral discharge of the table and the normal line of separation of the gangue and minerals, and riffles arranged across the plateau.

4. A concentrating table having its main surface in a single plane and suitably inclined in combination with means for distributing material across the head of the table, riffles arranged at such an angle to the flow of material from the head as to divert the minerals toward the mineral discharge edge, a plateau having its surface above but substantially parallel with the general surface of the table and arranged with its inner edge at an angle less than ninety degrees to said riffle, and riffles extending across the plateau.

In testimony whereof, we have hereunto set our hands.

EMIL DEISTER.

WILLIAM F. DEISTER.

Witnesses:

ALICE A. TRILL,

THOMAS B. JOYCE.