E. PIERCE & W. PINKERTON.

CONCENTRATOR.

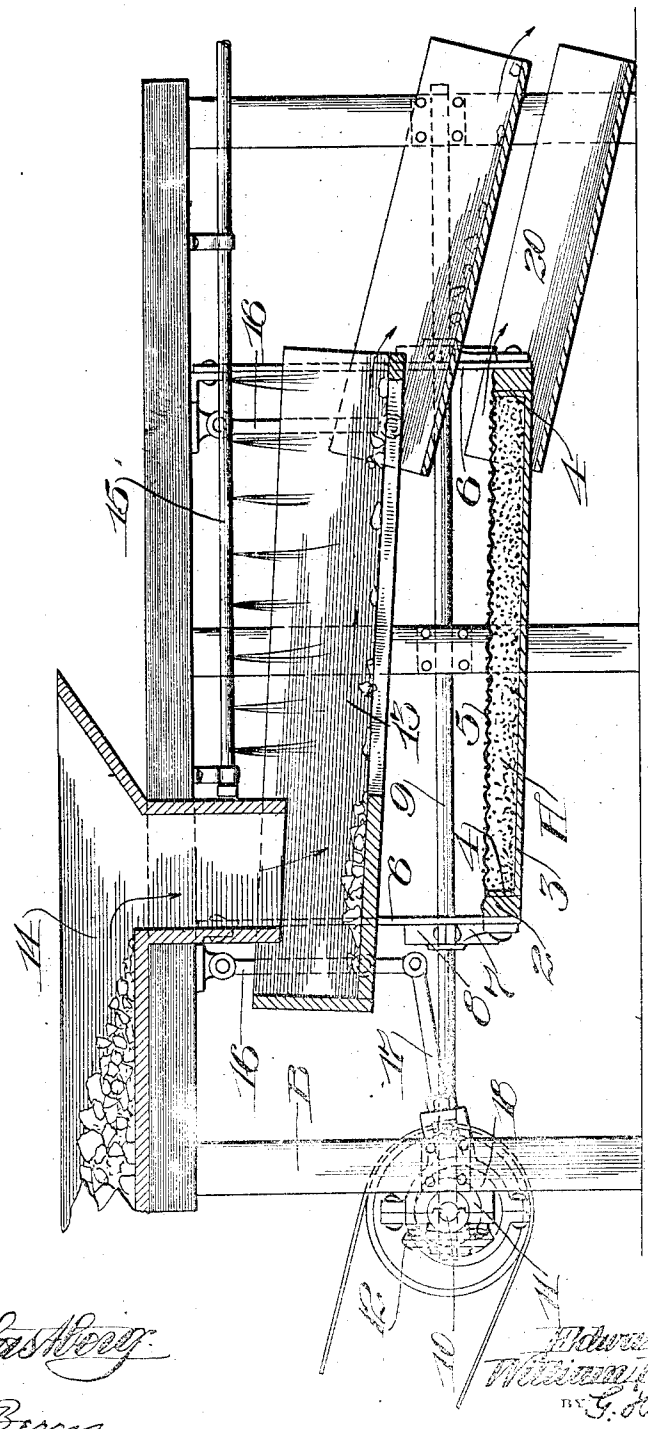
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1,091,440.

Patented Mar. 24, 1914

2 SHEETS—SHEET 1.

Fig. 1



WITNESSES:

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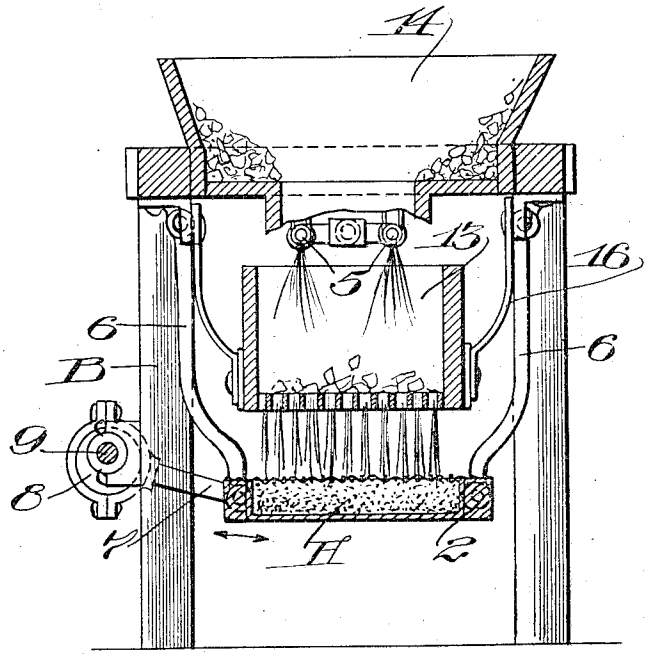


Fig. 2.

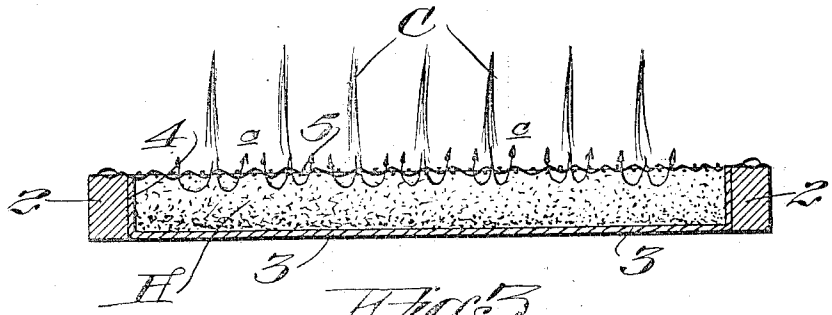


Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWARD PIERCE AND WILLIAM PINKERTON, OF PLEYTO, CALIFORNIA.

CONCENTRATOR.

1,091,440. Specification of Letters Patent. Patented Mar. 24, 1914.

Application filed November 16, 1912. Serial No. 731,736.

To all whom it may concern:

Be it known that we, EDWARD PIERCE and WILLIAM PINKERTON, citizens of the United States, residing at Pleyto, in the county of Monterey and State of California, have invented new and useful Improvements in Concentrators, of which the following is a specification.

This invention relates to a concentrator.

The invention consists in the construction of the concentrating table and in the means employed in feeding the material to be concentrated to the table.

It also comprises details of construction which will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a longitudinal section showing the application of the invention. Fig. 2 is a cross section. Fig. 3 is a diagrammatic sectional view of the concentrating table.

Referring to the drawings, A indicates a concentrating table, which consists of a suitably shaped frame 2 provided with a bottom 3 and upturned sides 4. The top portion of the table is entirely covered by a metal screen material 5, of suitable mesh, which is secured to the outer framework 2 in any suitable manner. The table is hung or mounted in hanger arms 6 and is given a shaking motion by any suitable means, as by the connecting-rod 7 and eccentric 8, which is mounted on a shaft 9, suitably journaled on the side of the main frame B, and which is driven from the main drive shaft 10, suitably journaled at 11 upon one end of the frame, through the bevel gears 12.

By referring to the diagrammatic view shown in Fig. 3, the method of feeding the material to the table is shown. This method consists in projecting, forcing or discharging the material to be treated, together with sufficient wash water for wash purposes, with considerable force directly against the screen surface of the table from a vertical elevation of sufficient height. This may be accomplished in several different ways and by different means, one of which is shown in Fig. 1. Here the gold bearing gravel or like material is fed to a grizzly, indicated at 13, through a feed hopper or like device 14. Directly above the grizzly is mounted a series of perforated pipes 15, through whose perforations water is discharged with considerable force against the gravel, sand and boulders fed into the grizzly. The grizzly is hung or mounted in hanger arms 16 and is given a shaking motion by the rod 17 and eccentric 18 mounted upon the main drive shaft 10. The gravel and boulders are thus constantly subjected to the spray discharging from the perforations in pipe 15 and will be thoroughly washed of adhering sand and values before being discharged from the grizzly, while the sands, values and water discharge through the bottom of the grizzly directly against the screen face of the concentrating table.

The theory of operation of the device is this: When water, together with sand and values, the specific gravity of which values is considerably greater than the material in which they are contained, is projected with sufficient force against the surface of the material under the action of concentration on the table surface, the values will be projected, due to their specific gravity and the force of momentum, directly into the body of the material being concentrated or through the upper agitated surfaces of same. The values having once passed through the upper surface of the material being treated or under the action of concentration will gradually settle to the bottom of the table, or in other words, seek their own strata. The values having settled in the pan will be retained by the upturned side walls of the table and may be removed when making a clean-up. The wash water projected with considerable force, as described, together with the vibration of the table, will keep the upper layer in a boiling or highly agitated condition, thus giving the overflowing water an opportunity to carry away all waste materials and subsequently eliminates all danger of the table becoming clogged.

By referring to the diagrammatic view of Fig. 3, it can be seen that the water, together with the sand and values, indicated at C, is projected directly against the screen surface of the table. The water reacting against the material on the concentrator will be diverted, as indicated by the arrows *c*, and will be discharged from the table surface through the inclination of same, as shown in Fig. 1. The values having been forced below the upper and most agitated surface will settle to the bottom of the table or pan A, while the lighter sands will be forced out through the meshes of the screen by the

action of the water and will be discharged with the water into any suitable receptacle or discharge flume 20. From this it can be seen that the screen surface of the table is constantly kept open, and is thus prevented from clogging by the reaction or outward flow of the water.

The apparatus here shown is simple and substantial in construction and very efficient in operation, being able to save the finer values, such as floured or flaky gold. The materials and finish of the several parts of the apparatus are such as judgment and experience of the manufacturer may dictate.

We wish it understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims, and that we do not wish to limit ourselves to the specific design here shown.

Having thus described our invention, what we claim and desire to secure by Letters Patent is—

1. A concentrating machine comprising a frame, a grizzly pivotally mounted in the frame, means for shaking the grizzly, means for delivering material to the grizzly, a concentrating pan pivotally mounted in the frame below the grizzly, a screen surface covering the pan, means for shaking the pan, and a series of perforated pipes so positioned with relation to the grizzly and concentrating pan as to project water, together with the fine sands and values contained in the grizzly directly through the grizzly, the screen surface of the pan, and into the body of pulp on the pan.

2. The combination with a concentrating machine having a rocking grizzly mounted therein, of an inclined concentrating pan pivotally mounted below the grizzly, a screen covering the pan, means for rocking the pan transverse of the line of discharge, and a series of perforated pipes so positioned with relation to the grizzly and concentrating pan as to project water, together with fine sands and values contained in the grizzly directly through the grizzly, the screen surface of the pan, and into the body of pulp on the pan.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

EDWARD PIERCE.
WILLIAM PINKERTON.

Witnesses:
JOSEPH B. SOYLER,
ELIJAH E. WILLS.