

J. V. POMEROY.
Ore-Concentrator.

No. 163,104.

Patented May 11, 1875.

Fig: 1.

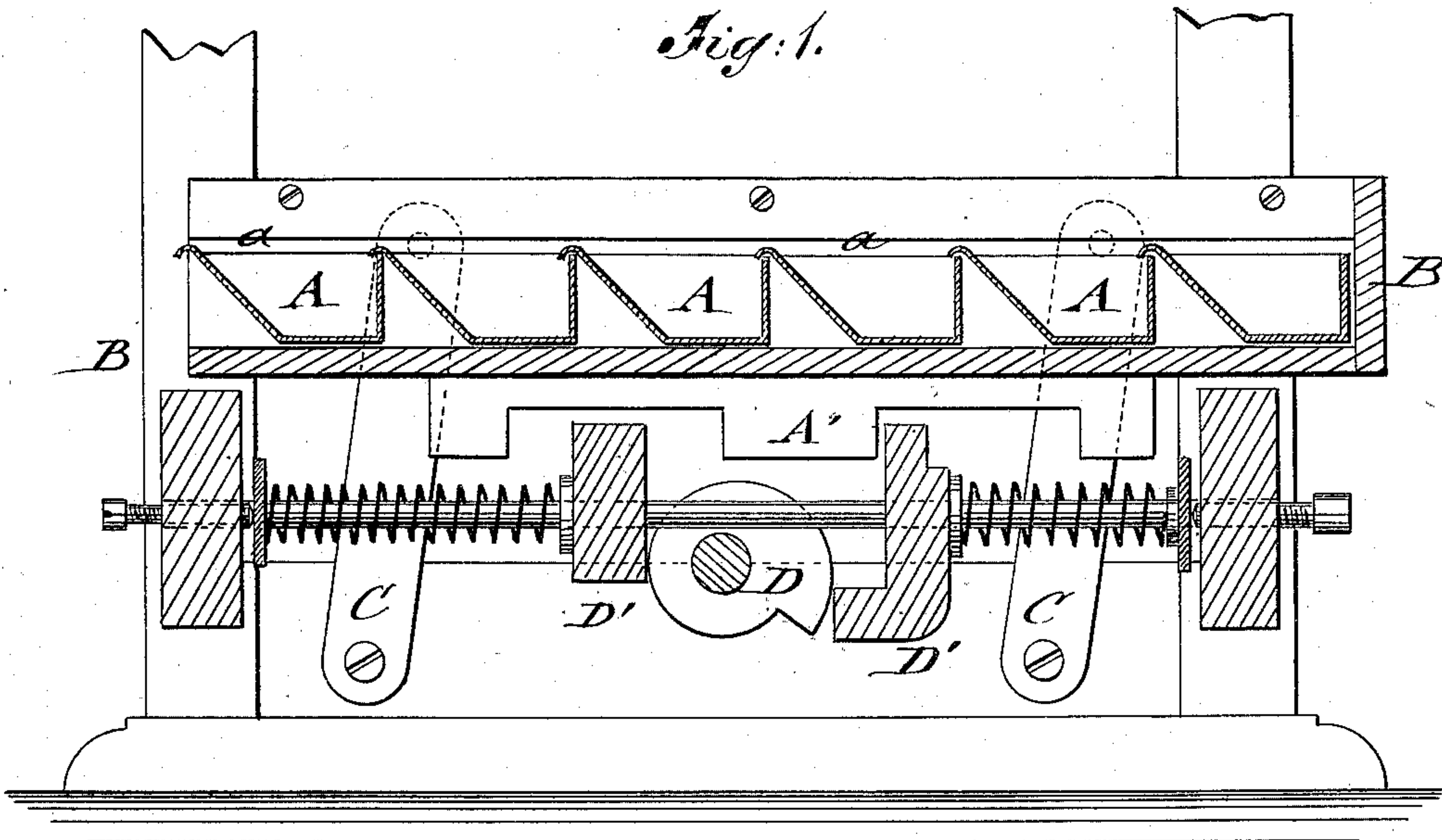
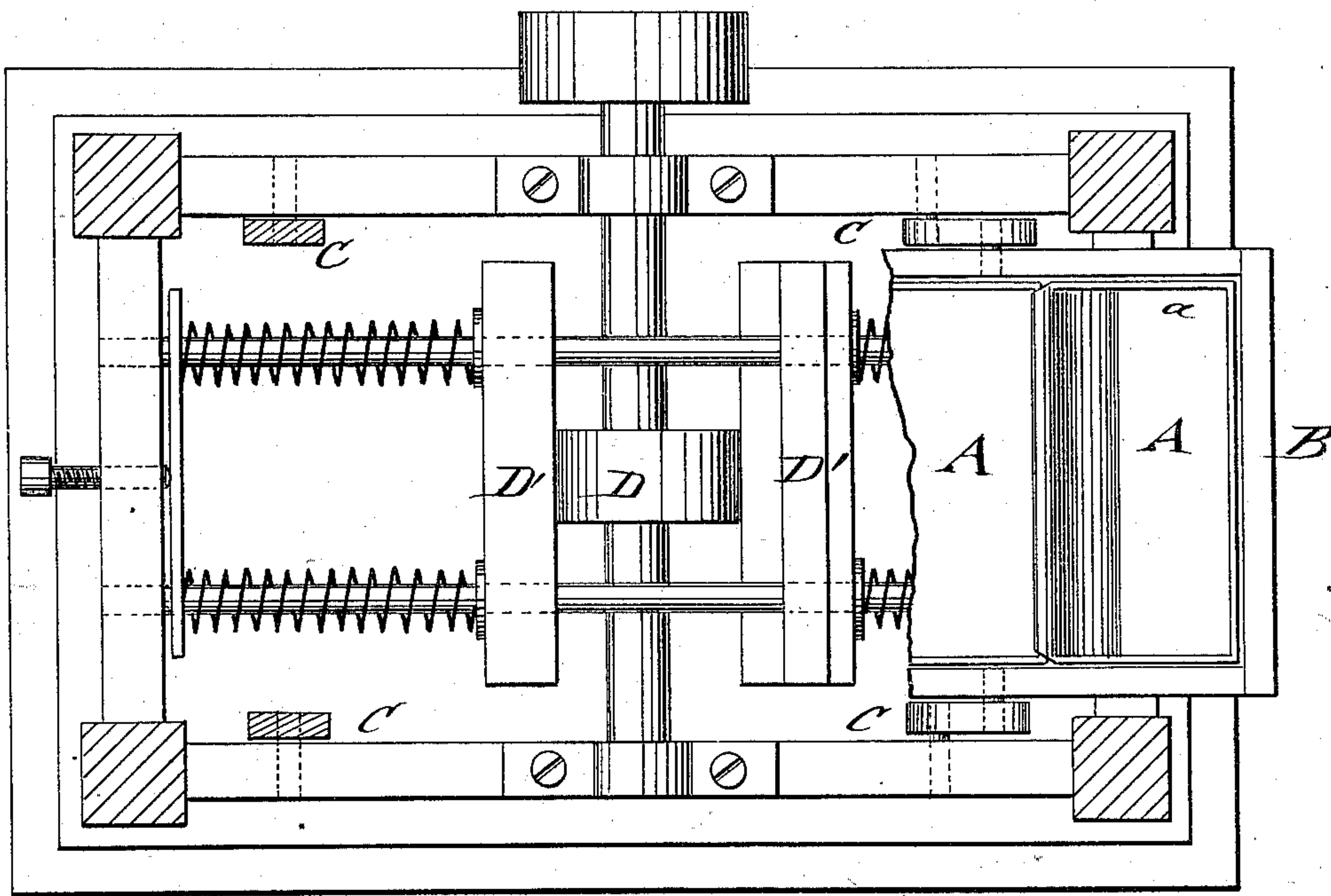


Fig: 2.



WITNESSES:

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JAMES V. POMEROY, OF BOULDER, COLORADO TERRITORY.

IMPROVEMENT IN ORE-CONCENTRATORS.

Specification forming part of Letters Patent No. **163,104**, dated May 11, 1875; application filed March 1, 1875.

To all whom it may concern:

Be it known that I, JAMES V. POMEROY, of Boulder, in the county of Boulder and Territory of Colorado, have invented a new and Improved Ore-Concentrator, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved ore-concentrator, and Fig. 2 a top view of the same with parts broken away to show mechanism below.

Similar letters of reference indicate corresponding parts.

My invention relates to a simple and effective ore-concentrator, by which the heavier metallic parts of the pulp are rapidly separated from the lighter particles.

The invention consists of a series of ore pans or troughs, which are placed in detachable manner in a supporting-frame, to which reciprocating motion is imparted by concussions with suitable actuating mechanism. The pans are connected by one of the sides being of suitable inclination, and overlapping the edge of the adjoining pan, for facilitating the wave motion of the water, and the separation of light particles on the motion of the frame.

In the drawing, A are the concentrating-pans, which are made of suitable sheet metal, and placed into a supporting-frame, B, being held therein by detachable side strips *a*, which bind on the top part of the pans, so that they are firmly retained in position without being detached by the concussions to which frame B is exposed. One of the lateral sides of each pan is produced at a certain angle of inclination, with curved or bent upper edge that overlaps the vertical side of the adjoining pan, and enables thereby the water to pass readily by, the sudden motion of the frame into the adjoining pans carrying the lighter particles along. The supporting-frame is hung on oscillating standards or rods C, by which reciprocating motion is imparted to the same. To accelerate the separation of the lighter particles from the heavier metallic parts, sudden motion is given to the supporting-frame by concussions produced by a revolving eccentric cam, D, acting on spring-acted plates D', that strike lugs A' of the frame, so that by the sudden starting of the frame, and suitable inter-

vals of rest between the strokes, sufficient time is given for the flowing over and receding of the wave of water.

Any other mode of hanging the frame from above or below or on friction-rollers may be employed, and also any mechanism for producing the sudden motion may be used, as I do not confine myself to the special construction shown in the drawing. The detachable pans may also be dispensed with, provided troughs or a continuous pan of the same shape is arranged in the reciprocating frame, the main advantage of the separating-pans consisting in the convenient discharge of the concentrated ore, and the placing of the last pans, containing a quantity of lighter particles intermixed with metallic parts, at the head of the pan, to work them over again for more complete separation.

The pulp is discharged through the screens from a stamp-mill or other crushing machinery onto a level apron extending at suitable length at the head or first pan, being fed in a steady regular flow or supply to the pans. The motion, together with the concussion, causes the mineral to settle, while the light particles form a covering to the heavier mineral on the surface. The lighter particles are propelled forward from the first pan by the concussion and wave action of the water, no mineral accumulating in the second pan until the first pan is filled with mineral and overflows to second pan, and so on through all the pans consecutively. The layer of lighter material on the top of the heavier particles forms a covering against the action of the water.

The old concussion-tables are mostly hung on a suitable inclination, and depend entirely on the flow of water for carrying off the refuse, by which a large amount of fine mineral or "slimes" and coarse ore is also carried along and lost. The concussion of the table, and the wave motion of the water following the same, produce on the level apron already a settling of the heavier minerals, while the coarse rock and lighter material remain on the top and go forward to the pans, which can then be subjected to any amount of wave motion without loss of fine mineral, as it accumulates on the level surface of the pan, forming an inclined plane toward the adjoin-

ing pan. The coarse and lighter material is carried over from pan to pan, while the heavier particles are settled on the apron, and consecutively in the level pans, producing in one machine with the concentrating also the sizing of the minerals.

When the pans are filled with concentrated mineral parts the fastenings are detached, and the pans removed for dumping, the last, with its mixed contents, being then placed at the head. The concussion-table, in connection with wave motion of the water, produces very effective and satisfactory results, and renders the concentrator more advantageous than the more complicated devices hitherto employed for the same purpose.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of level table B, having lugs A', the series of overlapping pans A, supported at both ends by oscillating standards C C, the revolving cam D, and the sliding spring-plates D' D', all arranged substantially as and for the purpose specified.

JAMES V. POMEROY.

Witnesses:

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