No. 744,021. PATENTED NOV. 17, 1903.

F. L. BARTLETT.

CONCENTRATOR FOR FINE ORES.

APPLICATION FILED JUNE 5, 1902.

NO MODEL.

Fig. 1.

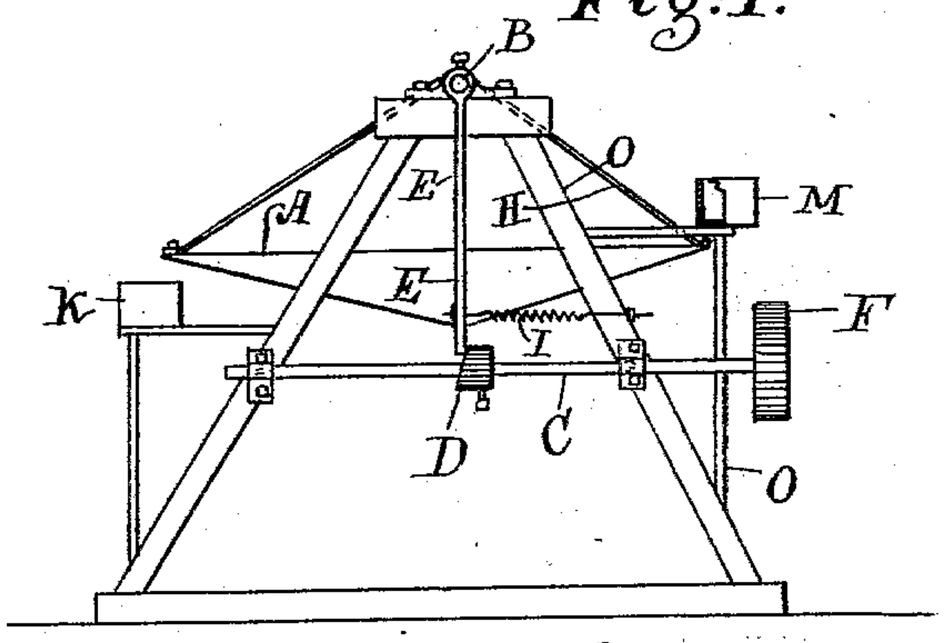

Fig. 2.

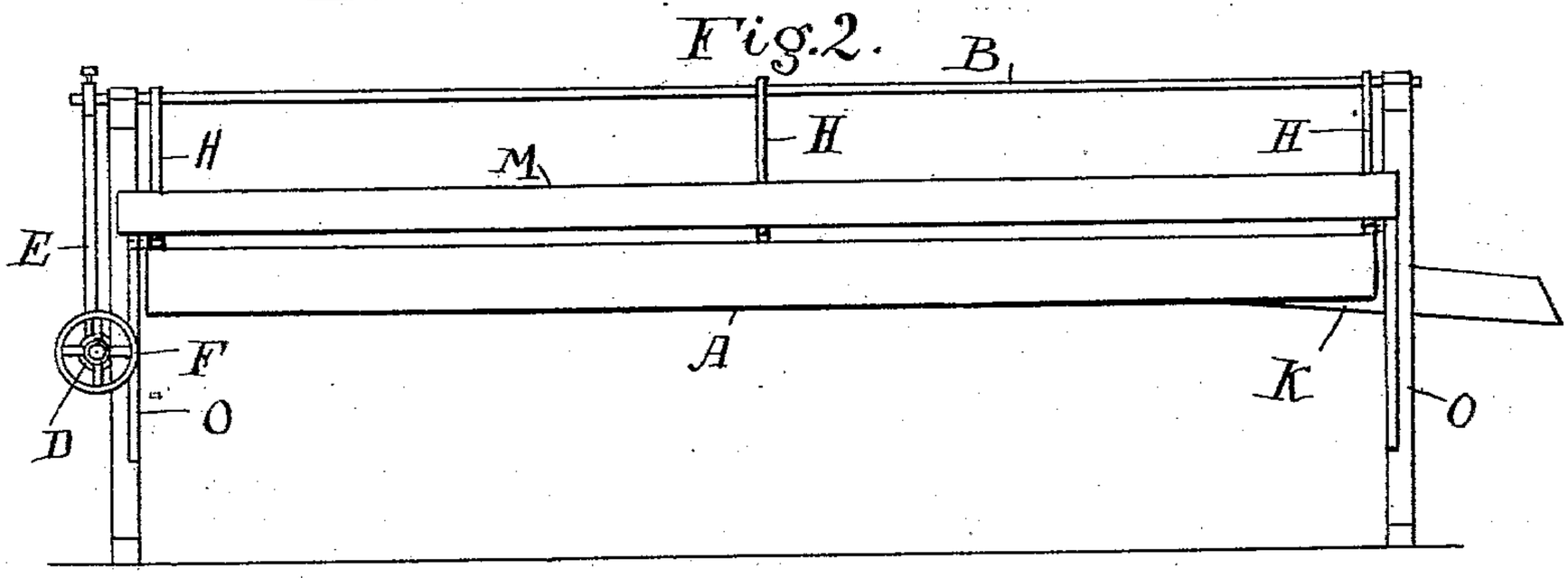

Fig. 3.

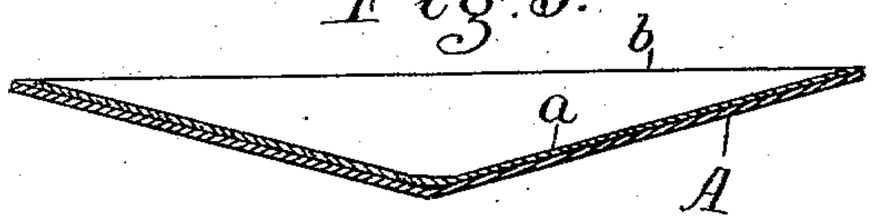

Fig. 4.

Witnesses:
Benj. Chard
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No. 744,021. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

FRANK L. BARTLETT, OF DENVER, COLORADO.

CONCENTRATOR FOR FINE ORES.

SPECIFICATION forming part of Letters Patent No. 744,021, dated November 17, 1903.

Application filed June 5, 1902. Serial No. 110,254. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. BARTLETT, a citizen of the United States of America, and a resident of Denver, Arapahoe county, State of Colorado, have invented certain new and useful Improvements in Concentrators for Fine Ores, of which the following is a specification.

My invention relates to an ore-concentrator adapted to concentrate very fine material, such as is commonly known as "slimes" or "sludge."

As is well known to those skilled in the art of concentrating ores, there is in all concentration-mills a certain loss of fine ore in the wash-water from the mills. This material is most difficult to save and is collected mainly by means of canvas belts, tables, and stationary canvas frames. These are difficult to clean and not very effective.

The object of the present invention is to provide means for collecting slimes in a more effective manner and to provide an easy and quick method of cleaning the pans.

To this end my invention in the form in which I prefer to use it consists of a swinging pan or tray suspended in such a manner as to allow of its being tipped to remove the canvas or other fabric which loosely lines it on the inside and being provided with means for imparting a wave motion to the material in the pan.

I illustrate my invention by means of the accompanying drawings, in which—

Figure 1 is an end elevation of my machine. Fig. 2 is a side elevation. Fig. 3 is an enlarged section through the pan; and Fig. 4 is a perspective view of the pan, showing modification.

The pan A is made relatively wide and shallow, and, as here shown, it has two sloping sides coming to an angle at the bottom. It is divided into several compartments by means of cross-partitions *b*. In practice these are placed every three feet. In each division I lay a piece of canvas or other suitable fabric *a* the full length and width of the division, and this fabric lies smoothly on the bottom of the compartment and forms the bed or surface for the ore to pass over.

The pan A is suspended to a suitable frame O by means of hangers H, depending from a shaft B. A rocking motion is given to the pan by suitable mechanism. As here shown, an arm E is secured to the end of the shaft B, and it extends downward, its lower end being in contact with the cam D on the driving-shaft C.

F represents the driving-pulley, and I is a spring by which the arm E is held normally against the face of the cam. By the motion of the cam and the action of the spring a gentle swinging motion is given to the tray.

The pulp or ore is fed through the feed-box M into each division. The pan is slightly inclined laterally, and the wash and water is discharged over the opposite edge into the launder or discharge-box K.

The operation of my concentrator is as follows: The ore, pulp, and water discharging into each of the compartments of the pan is subjected to the gentle swaying movement of the cam, which causes a wave motion to be imparted to the water and pulp in the pan. The material is alternately washed back and forth over the canvas bottom. The ore clings to the canvas and gradually works to the bottom of the pan, while the waste washes over the side opposite to the feed-box. The concentrates gradually accumulate in the bottom of the pan, and when in sufficient quantity the pan is tilted up and the canvas rolled out, bringing the concentrates with it. After the concentrates have been removed from the canvas the latter is placed back in the pan and the operation is resumed.

By the process above described a very large percentage of the fine ores are removed. The machine is cheaply and easily constructed and easily manipulated.

While I have here shown the feed as being taken in at the side, I may in some cases prefer to take it in at the end, letting the water flow from one compartment to the other, holes being provided to allow the water to pass from one compartment to the other, as illustrated in dotted lines in Fig. 4.

I claim—

1. A concentrator comprising a shallow pan, means for supporting said pan and permitting it to swing laterally without jar, a removable lining of fabric covering the bottom and lateral sides of the pan, and means for feeding ore or pulp to one side of the pan, whereby

the gangue is caused to move across the pan and discharged over the other side of the pan, as set forth.

2. A concentrator comprising a shallow pan having inclined lateral sides, means for supporting said pan and permitting it to swing laterally without jar, a removable lining of fabric covering the bottom and sides of the pan, and means for feeding ore or pulp to one side of the pan, whereby the gangue is caused to move across the pan and discharged over the other side of the pan, as set forth.

3. A concentrator comprising a shallow pan, means for supporting said pan and permitting it to swing laterally without jar, a removable lining of fabric covering the bottom and lateral sides of the pan, a trough arranged to feed material to one side of the pan, and a receptacle in position to receive the tailings from the other side of the pan, as set forth.

4. A concentrator comprising a shallow pan having inclined lateral sides, means for supporting said pan and permitting it to swing laterally without jar, a removable lining of fabric covering the bottom and sides of the pan, a trough arranged to feed material to one side of the pan, and a receptacle in position to receive the tailings from the other side of the pan, as set forth.

Signed at Denver, Colorado, this 31st day of May, 1902.

FRANK L. BARTLETT.

Witnesses:
FRANK W. HOPKINS,
HENRY EARLE.