

(No Model.)

R. N. CLARK & N. H. CONE.

ORE CONCENTRATOR.

No. 345,114.

Patented July 6, 1886.

Fig. 1.

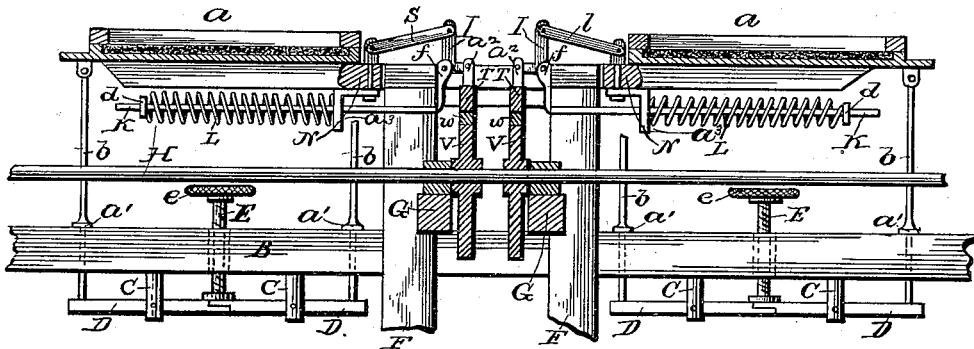


Fig. 2.

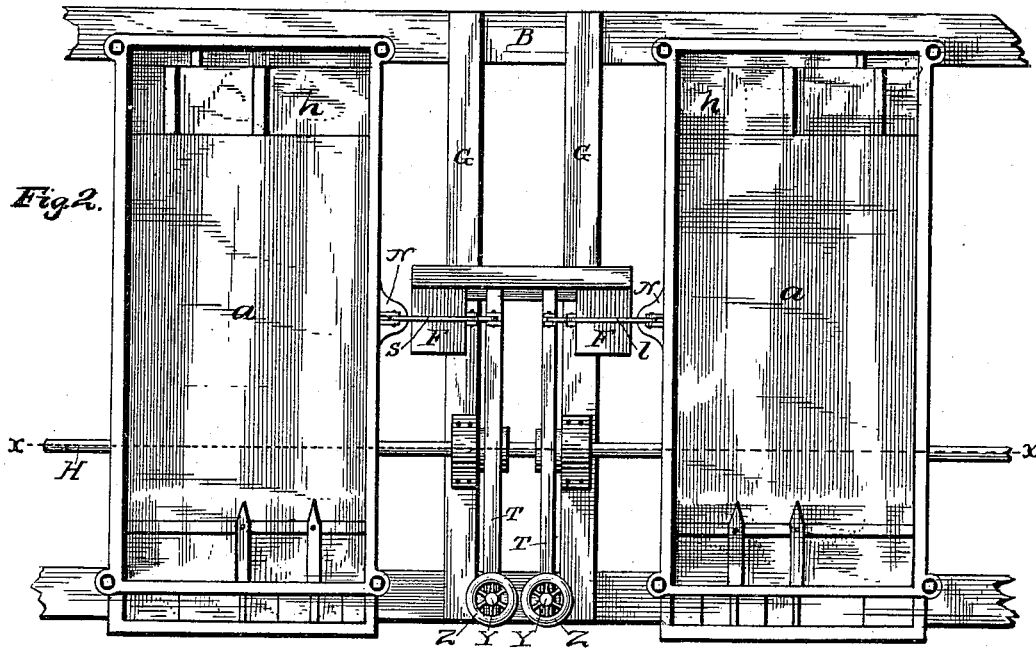
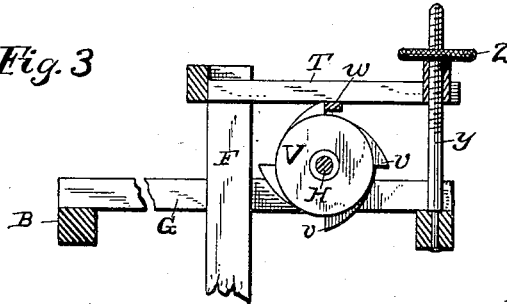


Fig. 3.



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ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 345,114, dated July 6, 1886.

Application filed May 23, 1885. Serial No. 166,523. (No model.)

To all whom it may concern:

Be it known that we, R. NEILSON CLARK and NORRIS H. CONE, citizens of the United States, residents of Leadville, in the county of Lake and State of Colorado, have invented certain new and useful Improvements in Ore-Concentrators; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

15 This invention has relation to improvements in ore-concentrators.

The invention is designed as an improvement upon the invention covered by the patent granted to us October 2, 1883, No. 285,970; and the novelty consists in the construction and combination of devices, as will be hereinafter more fully set forth and claimed.

25 In the accompanying drawings, illustrating our invention, Figure 1 is a transverse sectional view of our machine taken on the lines *x x* of Fig. 2. Fig. 2 is a plan view of the machine, and Fig. 3 is a sectional detail view of the means for adjusting the bar *T* with the cam-wheel *V* in position.

30 Referring by letter to the said drawings, *a a* indicate the tables for receiving the ore. These tables are supported on legs *b* at their heads, and on similar legs at their feet, which are hinged at their upper ends to the under sides 35 of the tables in such a manner as to allow lateral movement of the latter. The legs at the heads of the tables are provided at a suitable distance from their lower ends with shoulders *a'*, and their said lower ends pass through vertical apertures in the beam *B* of the main frame, with the shoulders *a'* normally resting thereon. In practice the legs at the head of the table might be of a little greater length than those at the foot, so as to give the table an incline from head to foot.

40 *C C* indicate brackets or hangers, which are firmly secured to the beam *B* at the head portions of the tables and extend a sufficient distance below the same. To the lower ends of 50 these brackets are pivoted horizontal bars *D D*, which lap each other at their inner meeting

ends and bear upwardly against the head legs *b* at their outer ends.

E E indicate threaded adjusting rods, which work in threaded bearings in the beam *B*. 55 These rods engage the meeting ends of the bars *D*, and are provided at their upper ends with hand-wheels *e*. By this construction it will be seen that by turning the rods *E* down upon the meeting ends of the bars *D* the legs *b* will be 60 raised, and, consequently, the heads of the tables, thereby giving the same the desired inclination.

F F indicate vertical standards of the main frame, and *G G* transverse beams thereof, 65 which furnish supports for the bearings of the knocker-shaft *H*, which may be turned by any suitable means. The standards *F* are provided at their upper ends with brackets *f*, which pivotally support bell-crank levers *I I*. These 70 bell-crank levers are connected by their horizontal branches, by means of links *a''*, with vertically-moving bars *T*, and by their vertical branches, through the medium of the connecting-arms *S* and *l*, with the sides of the tables. 75 The outer ends of the bars *T* are made adjustable by means of threaded rods *y*, which are secured to the main frame at their lower ends. These rods are provided with hand-wheels, *Z*, at their upper ends, which carry sleeves pass- 80 ing through apertures in the said bars *T*, and provided with internal threads to engage the threads of the rods. By this construction it will be seen that the bars *T* being allowed to move on the sleeves of the hand-wheel *Z*, by 85 bringing the said wheels down on the rods *y*, so as to limit the rise of the outer ends of the bars *T*, the throw of the opposite ends of the said bars will be increased, and, consequently, the lateral movement of the tables. When the 90 wheels *Z* are turned in the opposite direction, the throw of the bars *T* and movements of the tables will be lessened.

K K indicate horizontal rods, which are secured at their inner ends to the standards *F* 95 of the main frame, and supported transversely beneath the tables in suitable brackets, *a'''*, so as to move in the said brackets. These rods are secured at their inner ends to the standards *F*, and are provided at or near their outer 100 ends with nuts or collars *d*, which serve as stops for the outer ends of the spiral springs *L*, sur-

rounding the said rods K. The tables are provided with bumping-blocks N, which strike the uprights F, when the tables are returned by the action of the spring L.

5 h indicates the distributing-boards at the heads of the tables, for receiving the pulp and clear water. These distributing-boards are separated into compartments, so that three grades of ore may be distributed or operated
10 on at once, if desired; and an equal number of hoppers or receptacles are at the opposite ends or feet of the tables.

In operation, when the shaft H is rotated, the cam-wheels V strike the bars T and drive the
15 same upwardly at regular intervals. When the bars T are moved up, the bell-crank levers are turned in their bearings, and through the medium of the connecting-arms S and I move the tables laterally in opposite directions. As
20 the points v of the cam-wheels or knockers pass the wear-blocks w on the under sides of the bars T, the springs L will be allowed to expand, and by their action against the brackets a³ will bring the tables to their normal po-
25 sitions, the bell-cranks and connecting-arms acting simultaneously to depress the bars T. By the constant rotation of the shaft and the knockers thereon the tables will be given a jarring and lateral reciprocating movement
30 and the ore divided in its passage down the incline tables.

Having described this invention, what we claim is—

35 1. The combination, with the main frame, of the tables, hinged legs, hangers secured to the

said frame, the hinged bars bearing against the table-legs, and the threaded rods for moving the said bars and adjusting the heads of the tables, substantially as specified.

2. The combination, with the main frame 40 and the laterally-vibrating tables, of the bell-crank levers, the arms connecting the same with the tables, the bumping-blocks, the uprights F, the vertically-moving bars, the knockers, and the springs for returning the tables 45 to their normal positions, substantially as specified.

3. The combination, in an ore-concentrator, of the laterally-vibrating tables, the knockers, the vertically-moving bars, bumping-blocks, 50 the uprights, means for connecting the bars with the tables, and means for adjusting the movement of the said bars, substantially as specified.

4. The combination, with the uprights F and 55 the main frame, of the bars T, the knockers, rods y, and hand-wheels Z, having the sleeves passing through the said bars, the tables, and means, substantially as described, for connecting the bars with the tables, all adapted to 60 serve in a concentrator, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

R. NEILSON CLARK.
NORRIS H. CONE.

Witnesses:

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CHAS. MATER.