(No Model.)

A. M. G. SÉBILLOT.

ORE CONCENTRATOR.

No. 253,771. Patented Feb. 14, 1882.

Fig. 1

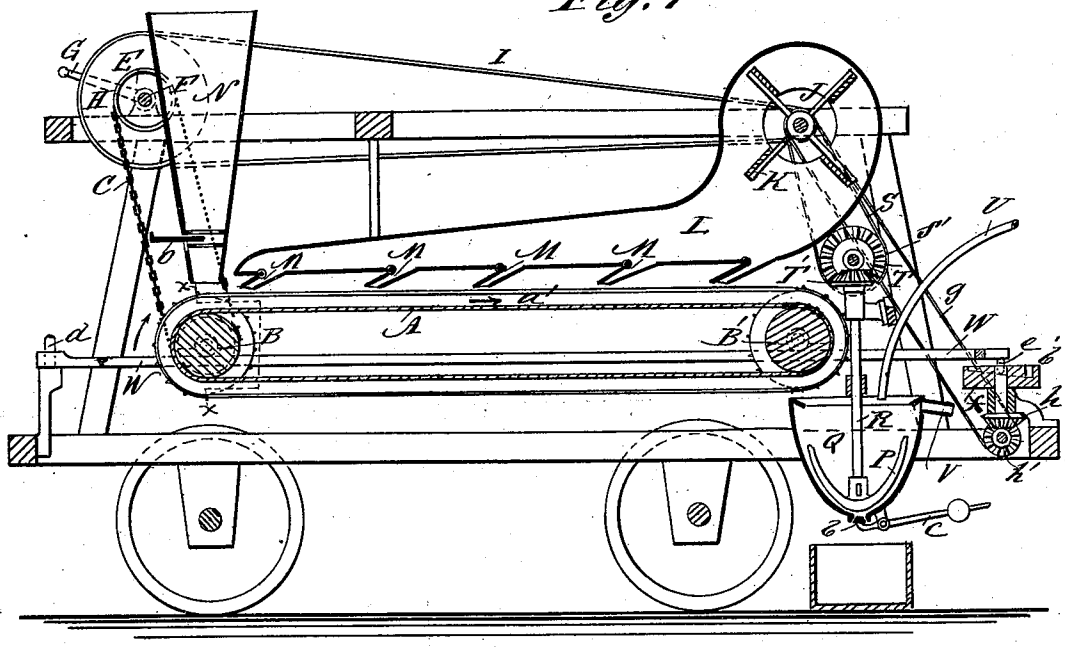


Fig. 2

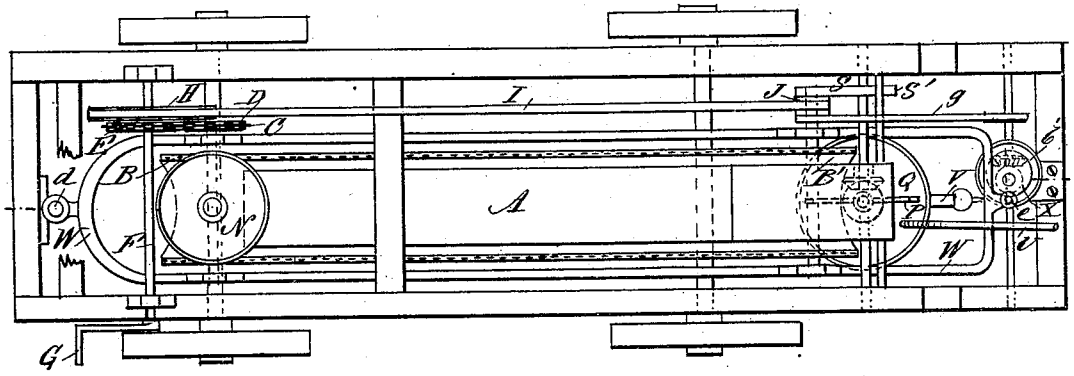
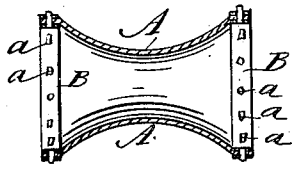


Fig. 3



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AMÉDÉE M. G. SÉBILLOT, OF DENVER, COLORADO.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 253,771, dated February 14, 1882.

Application filed April 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, AMÉDÉE M. G. SÉBILLOT, of Denver, Arapahoe county, Colorado, have invented a new and Improved Ore-Concentrator, of which the following is a specification.

The object of my invention is to facilitate the concentration of crushed or pulverized ore where but small quantities of water are available.

In the accompanying drawings, Figure 1 is a longitudinal elevation of my improved ore-concentrator. Fig. 2 is a plan view of the same; and Fig. 3 is a cross-sectional elevation of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

A trough-shaped or like belt, A, passes over the concaved pulleys B B′, which are provided with spikes *a a* at the ends, which catch in the end bands of the belt, the pulleys B B′ being so arranged that the belt is almost or entirely horizontal. The pulleys are rotated by means of a chain or belt, C, passing over a pulley, D, on the shaft of the front pulley, B, and over a pulley, E, on the shaft F, which is rotated by means of a crank, G, or by means of any other power suitably applied. A large pulley, H, is also mounted on the shaft F, and from this pulley H a belt, I, passes to a small pulley at the opposite end of the apparatus, upon the shaft of which pulley J the fan K of a blower, L, is mounted. The body of this blower is extended to pass directly over the top of the belt A, and a series of nozzles, M, project from the under side of this blower and are inclined toward the front of the apparatus—that is, project in the direction opposite to that in which the belt A moves.

A hopper, N, with a slide, O, is arranged above the front pulley, B, and a parabolic or like settler, Q, with the opening upward, is arranged below the rear pulley, B′.

An agitator, P, having about the same curvature as the sides of the settler Q, is attached to the lower end of a vertical shaft, R, which is rotated from the blower-shaft by means of the belt S and pulley S′ and the bevel-geared wheels T T′. A pipe, U, leads water into the settler Q, and this water flows off through an overflow-pipe, V. The lowest part of the settler is provided with an aperture closed by a valve, *b*, on a weighted pivoted arm, C.

The shafts of the pulleys B B′ are journaled on a frame, W, which rests on a pin, *d*, at the front end, whereas the rear end rests on a pin, *e*, which passes into the groove *b′* of an eccentric wheel, X, the bottom of which groove is beveled. The eccentric X is rotated from the blower-shaft by means of belt *g* and the beveled geared wheels *h h′*, so that the belt A will be vibrated vertically and horizontally, swinging on the pivot or pin *d*.

The entire apparatus is provided with wheels, so that it can be transported conveniently from place to place.

The operation is as follows: The pulverized ore is placed in the hopper, and the slide O is opened more or less, according to the quantity of ore that is to drop upon the belt A. If the crank G is turned, the belt A will move in the direction of the arrow *a′*. The fan of the blower is rotated, the agitator P is rotated, and the frame W is vibrated. The air issuing from the nozzles M blows off the dust from the belt A; but as the frame W is vibrated continually the lighter particles will rise and be blown away as rapidly as they appear. Finally, the remaining part of the ore drops into the settler Q, and the heavy parts fall to the bottom, and the light parts flow off with the water through the spout or overflow-pipe V. If a sufficient quantity of ore has collected in the settler Q, the valve *b* is opened.

The special advantages of the settler Q and the agitator P, both of which are parabolic, are that the heavy particles of ore which are on the bottom of the vessel Q are not agitated, as they should not be; but toward the top the movements of the agitator-wings are more rapid, and they agitate the water very thoroughly, which is desired. But a very small quantity of water is used, and this makes this apparatus very advantageous in countries where water is scarce.

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

1. In an ore-concentrator, the combination, with a superposed blower, of an endless carrier-belt, A, having a deep concavity arranged

longitudinally therein in the shape of a trough, as shown and described, for the purpose specified.

2. The combination, with an ore-carrying belt, of a blower provided with a series of nozzles and arranged over said belt, as shown and described.

3. In an ore-concentrator, the combination, with the trough-shaped ore-conveying belt A, of the vibrating frame W, the pins *d e*, and the eccentric wheel X, with an inclined groove, *b'*, substantially as herein shown and described, and for the purpose set forth.

4. In an ore-concentrator, the combination, with the ore-conveying belt A, of the pulleys B B', the blower L, the hopper N, the vibrating frame W, the settler Q, and the agitator P, substantially as herein shown and described, and for the purpose set forth.

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Witnesses:
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