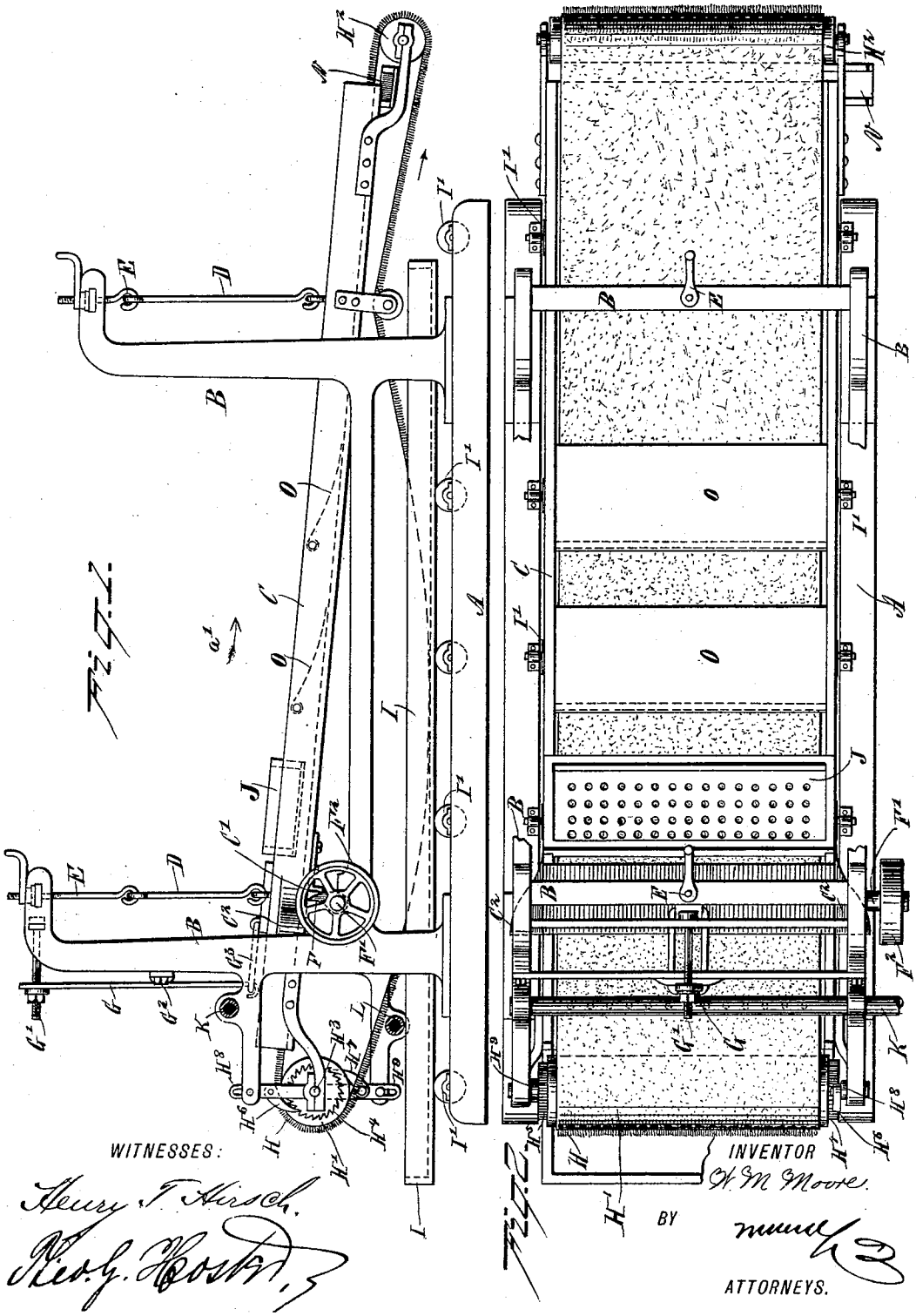
(No Model.)

W. M. MOORE.

CONCENTRATING MACHINE.

No. 588,832. Patented Aug. 24, 1897.



WITNESSES:

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WILLIAM MARQUIS MOORE, OF EMPIRE, COLORADO.

CONCENTRATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 588,832, dated August 24, 1897.

Application filed May 9, 1896. Serial No. 590,872. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MARQUIS MOORE, of Empire, in the county of Clear Creek and State of Colorado, have invented a new and Improved Concentrating-Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved concentrating-machine which is simple and durable in construction, very effective in operation, and arranged for concentrating the precious metal contained in placer-mining or mill material.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a side elevation of the improvement, and Fig. 2 is a plan view of the same with parts broken out.

The improved concentrating-machine is provided with a base A, on which is secured a framework B, in which is hung an inclined table C by links D, extending upwardly and connected with bolts E, held vertically adjustable in the framework. On the under side of the table C and near the upper end thereof is secured a projection C′, adapted to be engaged by a cam F, secured on the transversely-extending shaft F′, journaled in suitable bearings in the framework B and carrying at its outer end a pulley F^2, connected by a belt with suitable machinery for imparting a rotary motion to the said shaft F′. Now it will be seen that when the shaft F′ is rotated the cam F will move in engagement with the projection C′ to push the table in the direction of the arrow *a′*, and as soon as the end of the cam leaves the said projection then the table C swings back in the inverse direction of the arrow *a′*, partly by its own weight, principally, however, by the action of the spring G, secured at its upper end on a bolt G′ and having a loose fulcrum at G^2, secured on the framework B. The lower end of the spring G is connected by a link G^3 with the top of the table C, so that a certain return movement is given to the table C at the time the cam F leaves the projection C′.

The spring G is in the shape of a flat steel bar disposed vertically, and the tension of the spring can be increased or dimished by adjusting the nut on the bolt G′. The return movement of the table C is suddenly interrupted by projections C^2, extending from the sides of the table and adapted to abut against the fixed parts of the framework B.

Over the table C and between the side flanges thereof is adapted to travel intermittently an endless belt H, made of a fabric, such as a carpet, with the cut pile extending on one face of the fabric, while the other face is smooth, as plainly indicated in Fig. 1. The belt H passes over pulleys H′ and H^2, of which the pulley H′ has its shaft H^3 journaled in suitable bearings attached to the upper end of the table C, and the other pulley, H^2, is similarly journaled in bearings on the lower end of the table C. The top surfaces of the rollers H′ and H^2 are in alinement with the top surface of the table C, so that the upper run of the belt H passes readily over the top of the table C. The lower run of the belt passes through a wash-box I, in which the concentrates are deposited, and this wash-box I is removable and is normally supported on the rollers I′, journaled on the base A.

In order to impart an intermittent traveling motion to the belt H, I provide the shaft H^3, at opposite ends of the pulley H′, with ratchet-wheels H^4 and H^5, engaged by pawls H^6 and H^7, respectively, held on arms H^8 and H^9, respectively, fulcrumed on the framework B and loosely connected with the shaft H^3. These pawl-arms H^8 and H^9 are slotted longitudinally where they engage the pins on the stationary framework B, so that the said arms have a longitudinally-sliding and pivotal connection with the said stationary pins. Now it will be seen that when the table C is moved in the direction of the arrow *a′* the pawls H^6 and H^7 will turn the ratchet-wheels H^4 and H^5, so that the shaft H^3 and the pulley H′ are rotated, and a traveling motion is given to the belt H in the inverse direction of the arrow *a′*. When the table C returns to its former position and is bumped against the frame B, as previously described, the pawls H^6 and H^7 glide over the ratchet-wheels, and consequently the belt H remains at a standstill. The material to be treated is fed into a receptacle J, secured to the top of the

table and having a perforated bottom, as plainly indicated in the drawings, so that the material can readily pass through the perforations onto the belt H. A perforated pipe K extends across the table C, at the upper end thereof, the pipe being held in the framework B and connected with a suitable source of supply. Now it will be seen that the material passing through the feed-box J onto the belt receives a washing by the spray issuing at the pipe K, so that the lighter materials and gangue are washed down the belt H, while the valuable particles settle in the cut pile of the belt and are carried by the latter over the pulley H′ down to the wash-box I, the belt H being subjected to a spray of water from the pipe L previous to entering the water contained in the box I. As the spray from the pipe L is directed upwardly against the pile of the belt fabric, it is evident that the particles are readily washed out of the pile and pass into the wash-box I, in which they accumulate to be further treated.

The water and other material which pass through onto the bottom of the table C run into the trough N, extending transversely and leading to a suitable place of discharge, and the gangue and other material washed down the belt will be carried on the roller and dumped over the ground.

In order to prevent the slime and other valuable particles passing down the table C with the gangue and other waste, I provide a pair of aprons O, made of a fabric similar to that of the belt H, with the cut pile extending downwardly toward the cut pile of the said belt H.

The upper ends of the aprons O are attached to the side flanges of the table C, as indicated in the drawings. It will be seen that the cut piles of the two fabrics forming the belt H and the aprons O come in contact with each other, and consequently the material moving downward on the belt H is disturbed and loosened, so that the valuable particles, owing to their gravity, readily settle in the cut pile of the belt H. Now as the latter travels in the inverse direction of the arrow a' these valuable particles are carried by the belt to the box I, as previously explained. The box I is constantly supplied with fresh water to insure a proper cleaning of the belt H.

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

1. In a concentrator, the combination with a stationary frame, of a swinging table carried by said frame and provided with pulleys, means for swinging the frame, a belt passing around said pulleys and over the table, a ratchet-wheel secured to one of the pulleys, a pawl-arm pivoted to the shaft of said pulley and having a longitudinally-sliding and pivotal connection with a pin on the stationary frame and a pawl engaging the ratchet-wheel, substantially as described.

2. In a concentrator, the combination with a stationary frame, of a swinging table carried by said frame and provided with pulleys, means for swinging the frame, a belt passing around said pulleys and over the table, a ratchet-wheel secured to one of the pulleys, two pawl-arms pivoted to the shaft of the said pulley and having a longitudinally-sliding and pivotal connection with the frame at opposite sides of the pulley, and pawls extending in opposite directions from said pawl-arms and engaging the ratchet-wheel, substantially as described.

3. In a concentrator, the combination with a swinging table, of an endless belt having a piled face, said belt having its upper run traveling over the bottom of the table, and aprons having piled surfaces and arranged over the belt with their piled surfaces toward the piled surface of the belt, substantially as described.

4. In a concentrator, the combination with a swinging inclined table, of an endless belt having a piled face, said belt having its upper run traveling over the bottom of the table, aprons secured to the sides of the table over the belt, said aprons having piled faces which are arranged opposite the piled surface of the belt, and means for imparting an intermittent motion to the belt, substantially as described.

5. A concentrator, comprising a swinging inclined table, an endless belt having its upper run traveling over the bottom of the table, said belt having a piled face, means for imparting an intermittent motion to the belt, aprons arranged above the belt and having piled faces, a wash-box through which the lower run of the belt passes, and a spraying device for spraying water on the belt previous to its passage through the wash-box, substantially as herein shown and described.

WILLIAM MARQUIS MOORE.

Witnesses:
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