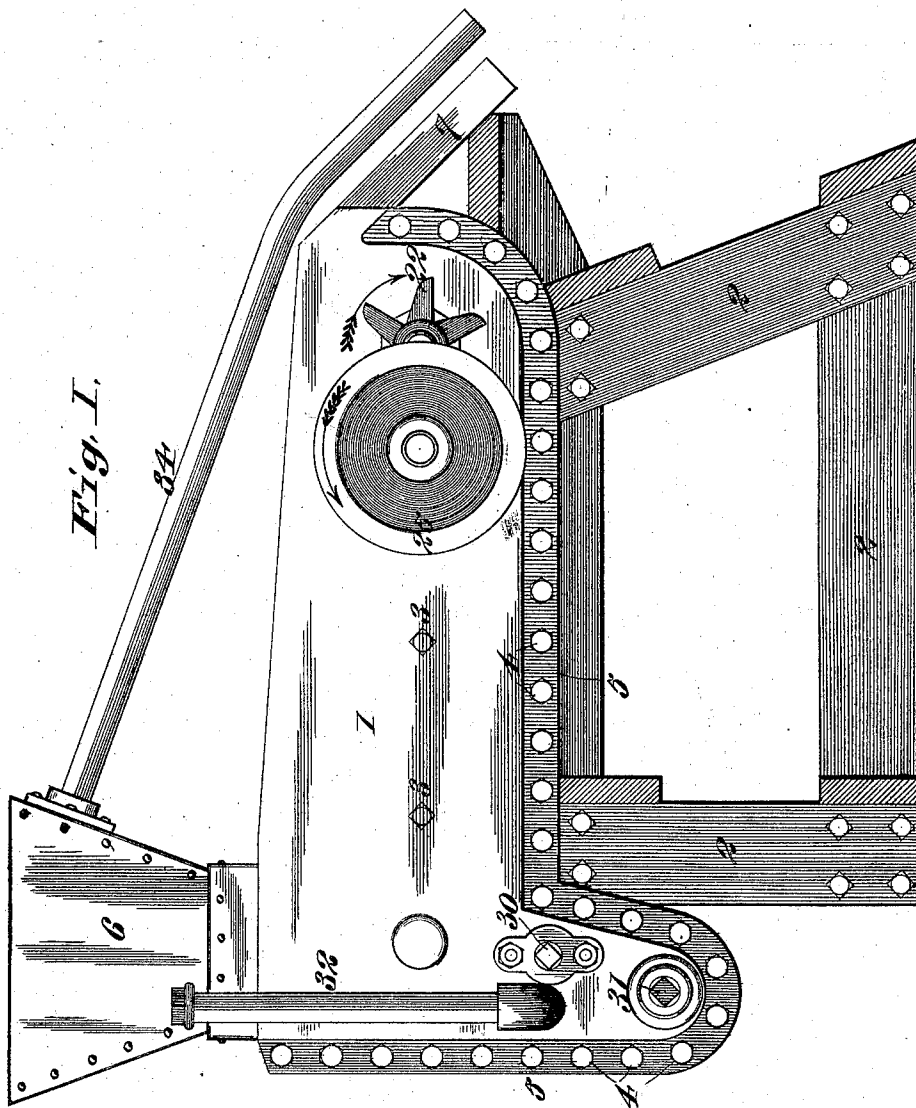


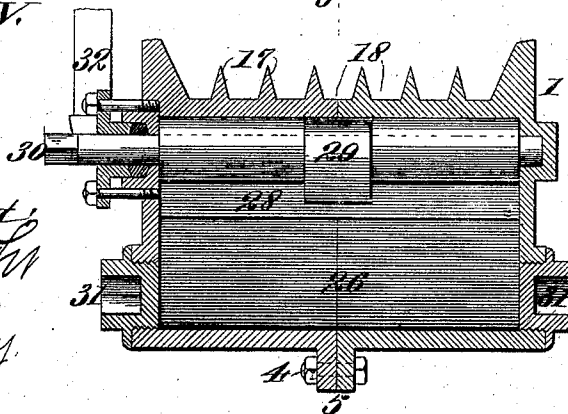
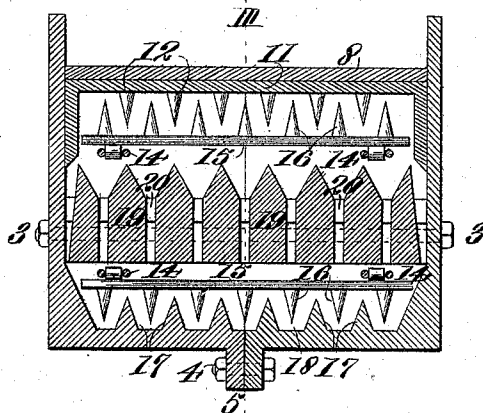
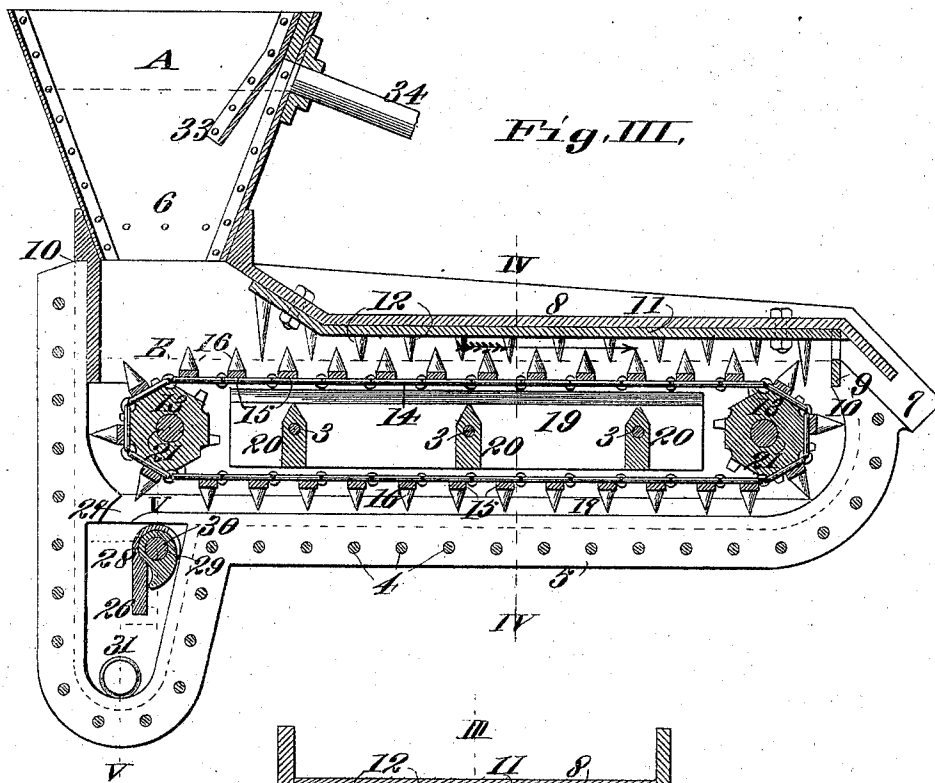
(No Model.)

2 Sheets—Sheet 2.

A. M. ROUSE.
GOLD SEPARATOR.

No. 575,377.

Patented Jan. 19, 1897.



Attest,
E. S. Knicker
J. C. Finley.

Inventor
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attys

UNITED STATES PATENT OFFICE.

ALBION M. ROUSE, OF DENVER, COLORADO, ASSIGNOR TO THE MINERS
RELIEF ASSOCIATION, OF SAME PLACE.

GOLD-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 575,377, dated January 19, 1897.

Application filed March 23, 1896. Serial No. 584,509. (No model.)

To all whom it may concern:

Be it known that I, ALBION M. ROUSE, of the city of Denver, county of Arapahoe, State of Colorado, have invented a certain new and useful Improvement in Gold-Separators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improved apparatus for separating gold from mill-pulp and placer-sands; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a side elevation of my improved machine. Fig. II is a detail view showing the sprocket-arms that transmit the motion from the power-shaft to the agitator within the machine. Fig. III is a vertical longitudinal section of the machine, taken on line III III, Fig. IV. Fig. IV is a vertical transverse section taken on line IV IV, Fig. III. Fig. V is a detail section taken on line V V, Fig. III.

Referring to the drawings, 1 represents a box or tank made preferably of metal and which is mounted on a suitable base or support 2. This box or tank is made in two parts secured together by tie-bolts 3 and by bolts 4, passing through flanges 5.

6 is a feed-hopper located at one end of the box and into which the pulp and water are deposited, the dotted line A, Fig. III, representing the pulp-line when the machine is in operation. The pulp and water pass from the hopper into the box 1, which is kept filled with mercury up to the dotted line B, and the pulp and water travel along on this line B, on top of the mercury, to the discharge spout or chute 7, from where it is conveyed from the machine.

The top 8 of the box has side and end walls 9, that extend into the mercury bed, as shown in Fig. III. The points of support at the top 8 are shown at 10, Fig. III. The under side of the top 8 is formed of a plate 11, preferably of chilled iron, and from which project a number of downwardly-extending prongs or bosses 12, extending down to or approximately to the mercury-line B. Within the box are two shafts 21, one near each end of the box, upon which are mounted

sprocket-wheels 13, around which pass two endless chains 14, connected by strips 15, placed a short distance apart, and from each strip 15 project points or bosses 16, placed staggered with relation to the bosses or projections 12, as shown in Fig. IV, and which project into the spaces between the bosses 12 as the endless chains travel in the direction of the arrow, Fig. III.

At the bottom of the box is a series of ribs 17, forming channels 18, through which the projections or bosses 16 pass. Within the box is a series of strips 19, with pointed upper edges, as shown in Fig. IV, and which are held a short distance apart by distance-blocks 20, placed between them, and through which the bolts 3 pass. These strips 19 occupy space within the box which would otherwise have to be occupied by mercury, while the spaces between the strips provide for the precipitation of the particles of gold, and by pointing the upper edges of the strips the gold is not deposited thereon.

Motion is imparted to the shaft 21 of one of the pair of sprocket-wheels 13, so as to move the endless chains by means of a spider or sprocket-head 22 on the exposed end of the shaft, and which is engaged intermittently by means of an arm 23 on a short shaft 24, journaled to the side of the box and which is provided with a pulley 25, that receives the power. Each time the shaft 24 revolves the arm 23 strikes one of the arms of the sprocket-head and imparts movement to the endless chains, thus giving to the chains a start-and-stop or intermittent movement that produces an agitation of the mercury within the box.

At one end of the box is a chamber 26, communicating with the interior of the box through an opening or passage-way 27. Beneath the opening 27 is arranged a flap-valve 28 on a shaft 29, one end of which extends through one side of the box, as shown at 30, Figs. I and V. The valve 28 is designed to close the opening 27 when it is desired to remove the contents of the chamber 26. To close the valve 28, a suitable key is applied to the exposed end 30 of the shaft 29 and the valve turned up into the position shown by dotted lines, Fig. III, thus cutting off the chamber 26 from the interior of the box, when the con-

tents of the chamber can be removed without stopping the operation of the machine by removing a plug 31 at one end of the chamber 26. After the contents of the chamber are withdrawn by the use of a suitable scraper the plug is replaced and the chamber refilled with retorted mercury through a stand-pipe 22. (See Figs. I and V.) The valve 28 is then opened again, permitting the particles of gold to fall into the chamber 26.

33 represents an apron located within the hopper at the back thereof and extending down beneath the pulp-line.

34 represents a flush-water pipe communicating with the hopper back of the apron 33.

In the operation of the machine the box or tank is filled with mercury up to the dotted line B and then the pulp is introduced through the hopper 6 and the machine is kept filled up approximately to the line A. The machine is set in motion by applying power to the pulley 25, which, as stated, imparts an intermittent movement to the endless chains. As the pulp is carried through the machine on the mercury-line B by the chains and their points or bosses 16, the pulp is thoroughly worked over and mixed up by the points 16 and 12, and the points 12 produce counter eddies in the water, thus effecting a thorough freeing of the particles of gold from the pulp. The gold, owing to its greater specific gravity, descends through the mercury onto the bottom of the box or tank and is conveyed by the points 16 to the opening 27, through which it passes into the chamber 26 and is withdrawn at intervals, as stated.

I claim as my invention—

1. In a gold-separator, the combination of

a tank for containing the separating liquid having a top provided with downwardly-projecting points or bosses and a bottom provided with ribs forming channels, endless chains arranged within the tank and provided with points or bosses arranged to pass between the points or bosses on the top and in the channels on the bottom, and means for moving the chains, a chamber at one end of the tank and communicating through means of an opening with the channels, and a valve for closing said opening, substantially as set forth.

2. In a gold-separator, the combination of a tank containing the separating liquid, having its bottom provided with a series of ribs forming channels, endless chains provided with points working in said tank, said points being adapted to pass through said channels and force the precipitated gold through them, and a chamber in communication with the channels adapted to receive the precipitated gold, and a valve for controlling said communication, substantially as shown and described.

3. In a gold-separator, the combination of a tank having a top with downwardly-projecting points, endless chains located within the tank and provided with points, means for moving the chains, ribs located at the bottom of the tank and providing channels through which said chain-points pass, and strips located within the tank and held a distance apart, substantially as and for the purpose set forth.

ALBION M. ROUSE.

In presence of—

F. KILBOURNS,

FRANK C. SMITH.