

(No Model.)

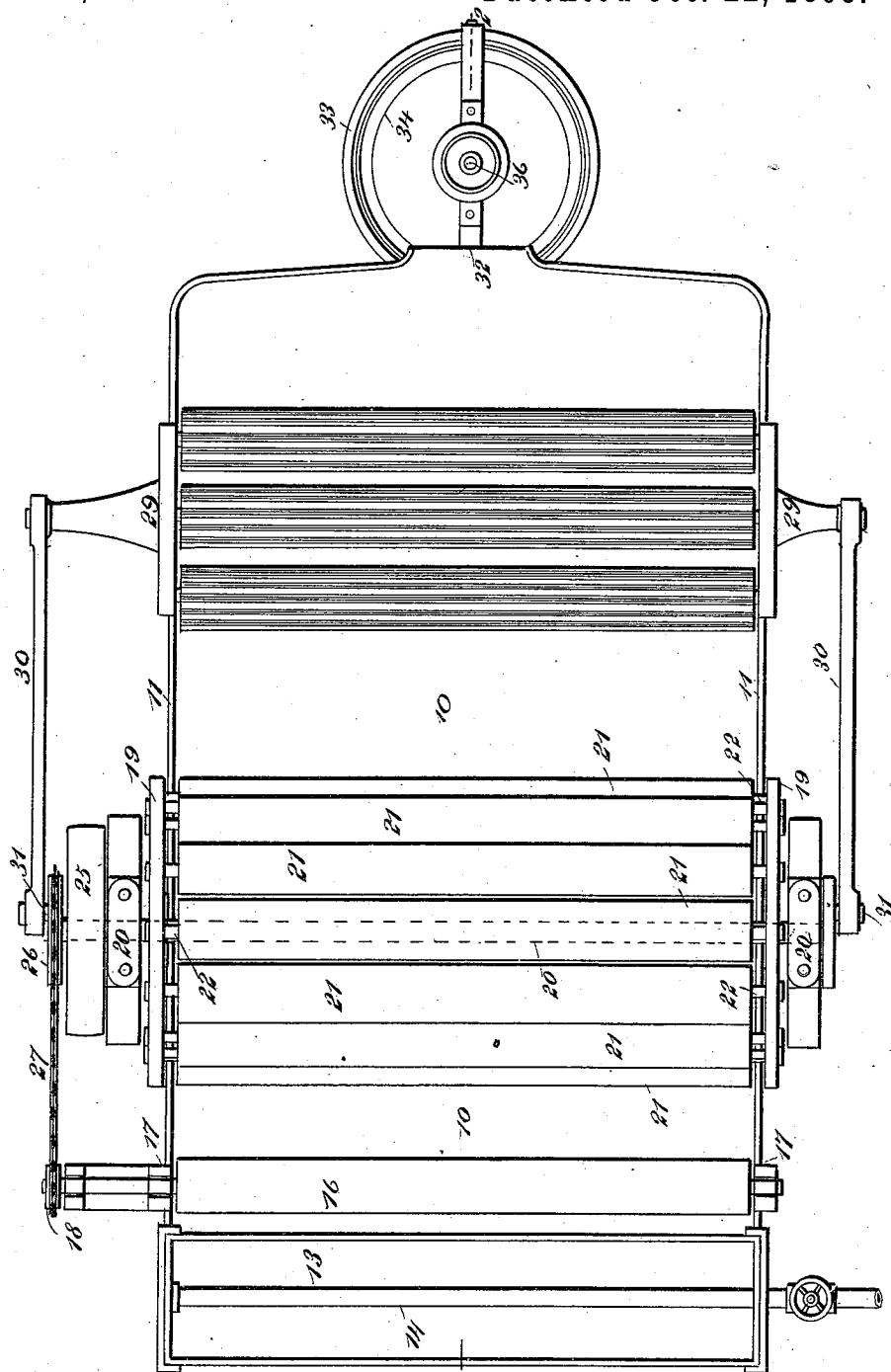
2 Sheets—Sheet 1.

C. SILL & W. WRIGHT.
MACHINE FOR CONCENTRATING GOLD.

No. 548,233.

Patented Oct. 22, 1895.

Fig. 1



WITNESSES:

H. Walker
J. H. Aker

INVENTORS

C. Sill
W. Wright
BY *Munn & Co*

ATTORNEYS.

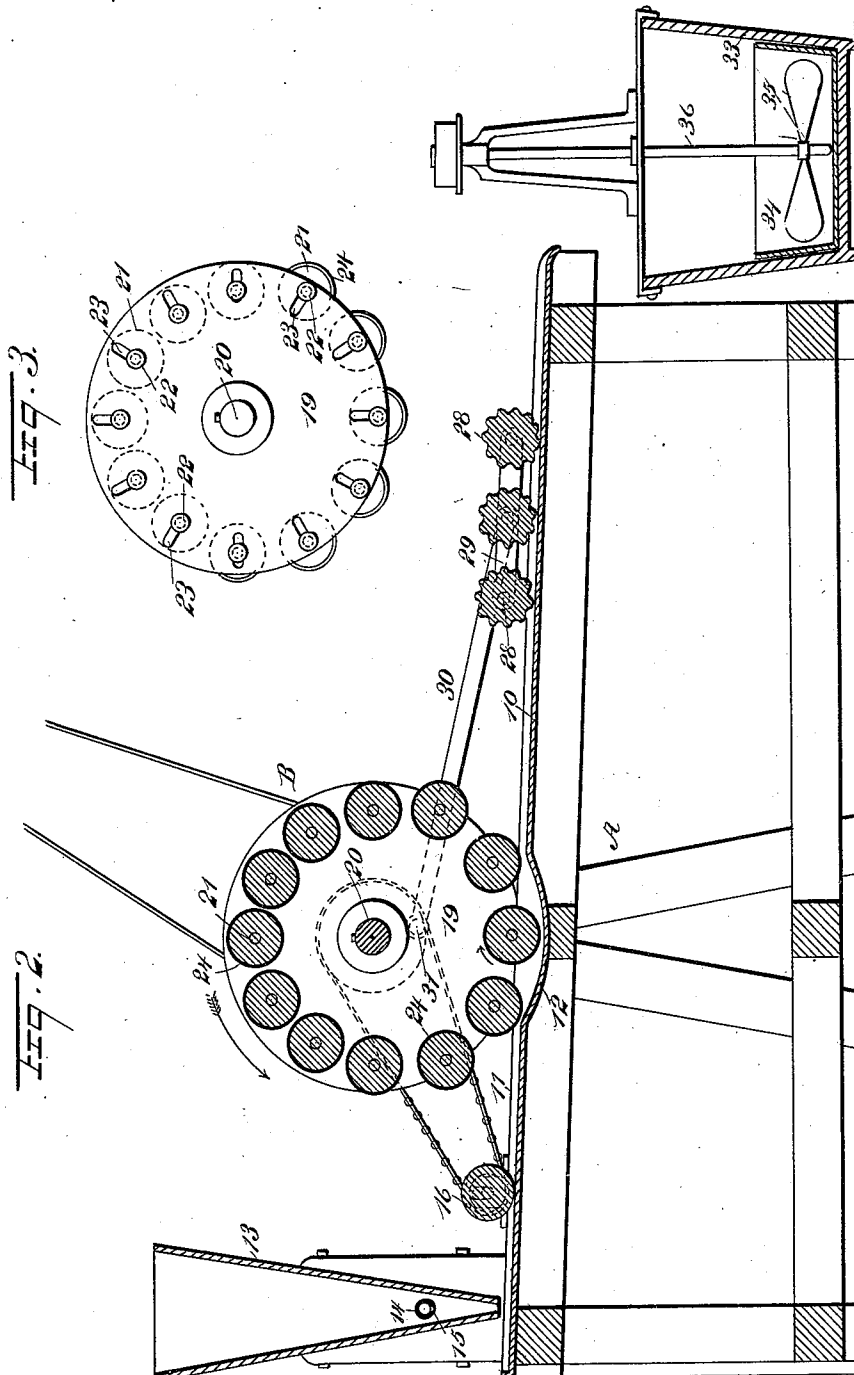
(No Model.)

2 Sheets—Sheet 2.

C. SILL & W. WRIGHT.
MACHINE FOR CONCENTRATING GOLD.

No. 548,233.

Patented Oct. 22, 1895.



WITNESSES:

W. Walker
J. A. Aiken

INVENTORS

C. Sill
W. Wright

BY

Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES SILL AND WILLIAM WRIGHT, OF NEW YORK, N. Y.; SAID SILL ASSIGNOR, BY MESNE ASSIGNMENTS, TO CHARLES COONWELL, OF WOODSIDE, NEW YORK.

MACHINE FOR CONCENTRATING GOLD.

SPECIFICATION forming part of Letters Patent No. 548,233, dated October 22, 1895.

Application filed December 18, 1894. Serial No. 532,160. (No model.)

To all whom it may concern:

Be it known that we, CHARLES SILL and WILLIAM WRIGHT, of New York city, in the county and State of New York, have invented a new and Improved Machine for Concentrating Gold, of which the following is a full, clear, and exact description.

Our invention relates to a machine for concentrating gold.

The object of this invention is to provide a machine whereby the greatest possible amount of gold will be recovered from sand or like material with which it may be mingled; and a further object of the invention is to provide a machine of simple, durable, and economic construction, which will substantially separate the gold from the sand or earth in which it may be contained and compel the scales or particles of gold to adhere in maximum quantities to an amalgamating-surface, and likewise to provide a means for concentrating any gold that may escape from the first concentrating process.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a plan view of the machine. Fig. 2 is a longitudinal vertical section taken substantially on the line 2 2 of Fig. 1, and Fig. 3 is an end view of the concentrating-drum.

In carrying out the invention the machine employed is substantially that shown in the drawings. In this machine an inclined table 10, provided with a side and back marginal flange 11, is mounted upon a suitable bed A, which bed may be in the nature of a trellis-support. At a predetermined point in the length of the inclined bed 10 a concavity 12 is transversely formed, extending from one side flange to the other, and this concavity may be properly denominated a "pocket," since it is adapted to retard and contain for a time the sand or earth from which the gold is to be separated.

At the upper end of the table 10 a chute 13 is erected, of any approved character, and in the said chute a water-pipe 14 is preferably placed, having apertures 15 therein, through which jets of water may escape, so as to properly dampen or wash the sand, earth, and gold introduced into the hopper or chute and render it of such consistency that it will readily travel down the inclined surface of the table.

Between the hopper and the pocket 12, preferably near the former, a spreading or distributing roller 16 is located transversely on said table, the trunnions of the roller being adjustable in bearings 17, located at the sides of the table, and upon one of the trunnions of the said roller a sprocket-wheel 18 or its equivalent is securely fastened. The adjustable movement of the roller is in a vertical direction, in order that it may receive beneath it material of varying depth.

At the rear of the distributing-roller 16 and over the pocket 12 a concentrating-drum B is mounted. This drum consists, preferably, of two heads 19 secured upon a shaft 20, the shaft being journaled in suitable boxes at the sides of the machine, and the heads 19 of the drum are outside of the side flanges 11 of the table, as shown best in Fig. 1. Between the heads of the drum a series of rollers 21 is concentrically arranged around the shaft 20, the trunnions 22 of these rollers being held to turn in radial slots 23, produced in the heads of the drum, as shown in Fig. 3. These rollers are arranged, preferably, quite close together and their compensating or adjusting mounting is necessary in order to provide, as in the case of the distributing-roller, for the various depths of material located in the said pocket 12. The rollers 21 are usually provided with a covering 24 of rubber, leather, or other yielding material, and the rollers are so mounted that when they are over the pocket the major portion of their diameter will be above the flange 11 of the table, and at no time will the axes of the said rollers when over the pocket be lower than the said side flanges of the table, in order that material shall not be spilled over the flanges.

The drum-shaft 20 is revolved by a belt connection, driven from any suitable source

of power, connected with a pulley 25, mounted upon one end of the said shaft, and this shaft is likewise provided with a second pulley or sprocket wheel 26, connected with the wheel 18 on the distributing-roller 16 by means of a chain 27.

The table 10 is provided with an amalgamating upper surface, which may be and preferably is made of mercury and zinc. A series of auxiliary rollers 28 is located between the delivery end of the table and the concentrating-drum B. These rollers are usually corrugated, as illustrated in the drawings, and are journaled in head-blocks 29 or their equivalents, the rollers being adapted to travel upon the upper surface of the table with a reciprocating movement, which movement is imparted to them by connecting their head-blocks by pitmen 30 with cranks 31 or their equivalents formed upon the ends of the drum-shaft 20.

When the drum is set in motion, it will revolve in direction of the outlet end of the table 10 or in direction of the arrow shown in Fig. 2, while the concentrating-rollers carried by the drum will, in engaging with the material to be treated, revolve in an opposite direction upon their own axes or in direction of the feed end of the table, while the lower set of rollers 28 will be given a laterally-reciprocating movement.

The amalgam-table 10 is preferably provided with a spout 32 at about the center of its lower end, adapted to deliver the material that shall pass over the table into a tailings-receptacle 33, and in this receptacle a copper pan 34 is removably placed, and an agitator 35, mounted upon a suitable shaft 36, is held to revolve in the said pan 34, so that the sand and water received by the tailings-receptacle will be kept constantly in agitation, and the gold, if any is contained therein, will settle at the bottom of the copper-pan.

In operation the sand or earth containing the gold is passed through the rollers or is otherwise subjected to friction before delivering the material to the hopper 13, in order that the coating usually found upon the gold will be to a greater or less extent removed, thereby enabling the metal to be more quickly attracted by the amalgamating-surface of the table 10. The earth or sand containing the gold may be moistened to a greater or less extent before being placed in the hopper 13, and when placed in the hopper it will be further moistened by the water from the supply-pipe 14, and therefore the sand and gold at about the consistency of a thick paste will be delivered upon the amalgamating-table 10. The material will be spread out evenly upon the table by the spreading or distributing roller 16, and as it passes down the amalgamating-table it will enter the pocket 12, where it will be subjected to the action of the concentrating-rollers 21, which, in addition to agitating the mass beneath them, will serve to

force the gold through the sand or earth to the amalgamating-surface of the table 10, and will thus provide for the deposit of the gold in the said pocket. In the event there is a surplus of material in the pocket, and therefore should some of the material containing the gold escape, the gold that is not attracted by the amalgamating-surface of the table below the pocket will be spread out and forced to the said surface by the reciprocating auxiliary rollers 28, and the tailings or supposed waste material will pass from the table and enter the receptacle 33, and if any gold still remains in this waste it will, as heretofore stated, settle to the bottom of the pan 34.

With a machine constructed substantially as has been described a maximum quantity of gold may be expeditiously and economically separated from the waste material with which it may have been mingled.

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

1. In an ore concentrator, a table, a concentrating drum journaled above the same, rollers having longitudinal movement over the table in advance of the concentrating drum, and a direct operative connection between the drum and the rollers to cause the latter to reciprocate on the table when the drum is rotated, substantially as shown and described.

2. In an ore concentrator, an inclined table, a distributing roller rotating toward the lower end of the table to spread the material and feed it forward, and a concentrating drum located in advance of the distributing roller and carrying rollers the drum having a direct operative connection to the distributing roller so that when the latter rotates toward the lower end of the table, the rollers on the drum will rotate toward the upper end of the table to retard the material, substantially as described.

3. The combination of the table, the rotatable roller-carrying drum above the table, the movable block, the auxiliary rollers journaled therein and adapted to travel over the table, and an eccentric connection between the drum and the block to impart a reciprocating motion to the latter, substantially as described.

4. The combination of the table, the rotatable roller-carrying drum, the distributing roller in advance of the drum, the reciprocating block on the opposite side of the drum to the distributing roller and the auxiliary rollers journaled in said block, and direct operative connections from the drum to the distributing roller to rotate the same and to the roller-carrying block to impart a reciprocating motion thereto, substantially as described.

5. In an ore concentrator, a table, a distributing roller adjustable toward and from the table, and a concentrating drum compris-

ing radially slotted heads, and rollers journaled in the said slots, substantially as described.

6. In an ore concentrator, a table having
5 lateral flanges, and a concentrating drum comprising heads journaled above the table, and located exteriorly of the said flanges, and rollers journaled on the said heads and mov-

ing between the flanges of the table, substantially as described.

CHARLES SILL.
WILLIAM WRIGHT.

Witnesses:

R. A. WOODRUFF,
HARRY P. POINSETT.