(No Model.)

H. EARHART.

DRY SEPARATOR AND AMALGAMATOR.

No. 299,211. Patented May 27, 1884.

FIG. 1.

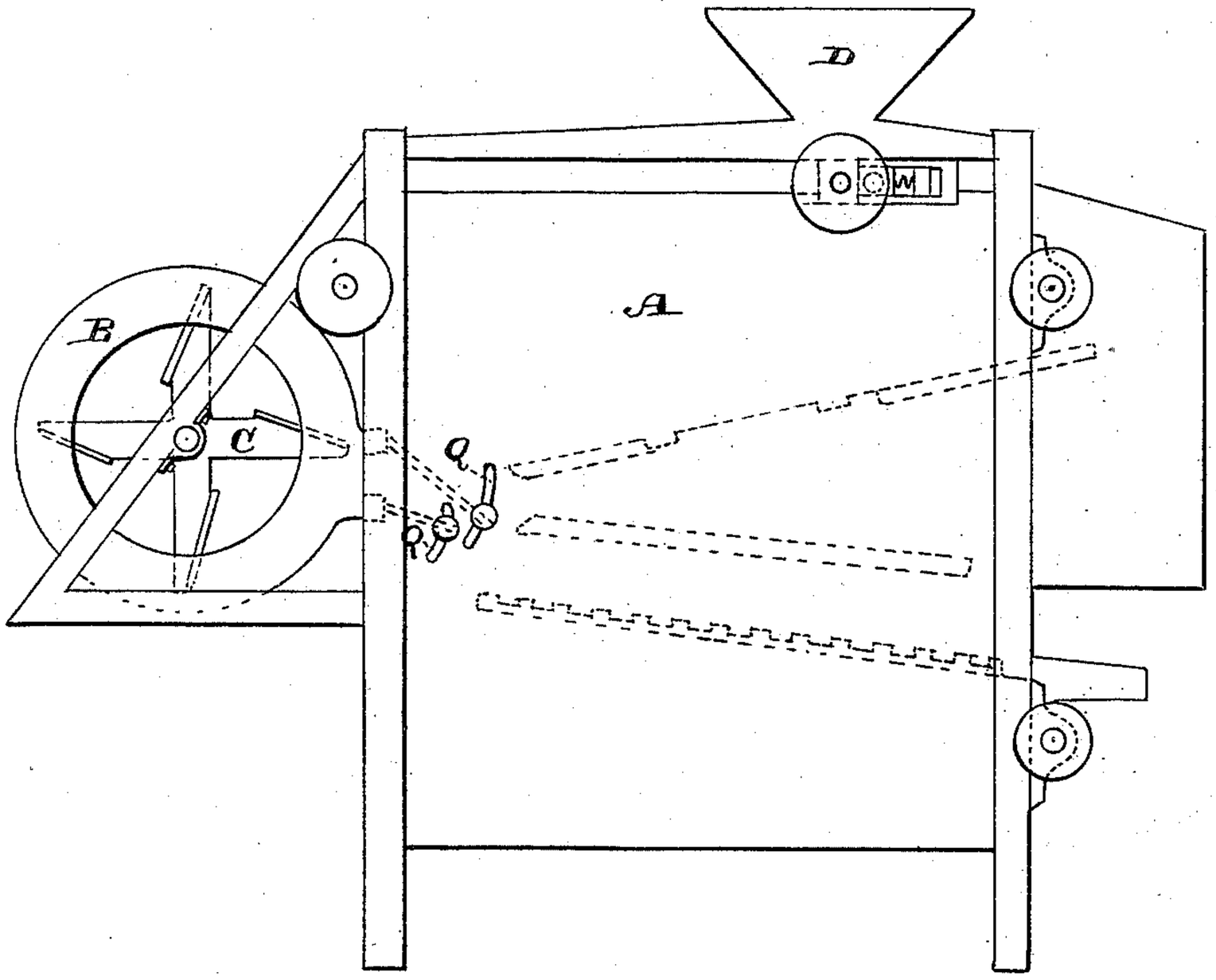

FIG. 3.

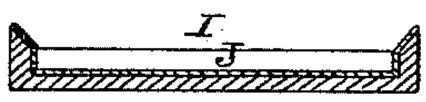

FIG. 2.

Witnesses,
Geo. H. Strong.
J. B. Hawse.

Inventor,
H. Earhart
By Dewey & Co.
attorneys

UNITED STATES PATENT OFFICE.

HERBERT EARHART, OF SANTA MARIA, ASSIGNOR OF TWO-THIRDS TO H. D. LIVINGSTON AND JOSEPH KAISER, BOTH OF SAN FRANCISCO, CAL.

DRY SEPARATOR AND AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 299,211, dated May 27, 1884.

Application filed February 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, HERBERT EARHART, of Santa Maria, county of Santa Barbara, and State of California, have invented an Improvement in Dry Separators and Amalgamators; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an apparatus for the separation of gold and heavy metallic substances from the lighter sands with which they may be mixed by means of a blast of air, and the subsequent amalgamation of the valuable metal thus separated, the whole being accomplished by means of suitable mechanism, the details of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side view of my concentrator. Fig. 2 is a longitudinal vertical section. Fig. 3 is a transverse section of the plate or table.

A is a frame or casing similar in appearance to that used on an ordinary fanning-mill, and B is a fan-case located at one end, with an opening through which a blast of air from the fan C may pass into the body of the machine.

Upon the top of the casing is a V-shaped trough or hopper, D, which extends across the full width of the machine, and has a slot at the bottom, with a sliding gate, E, by which the opening is regulated and the amount of feed controlled. From this feed-opening the sand or gold-bearing material passes between two rollers, F F′, one of which has a driving-pulley upon its outer end, and turns in stationary journal-boxes, while the other has its journal-boxes arranged to slide in horizontal guides, and has springs behind them, so that the roller F′ may move back when large or hard pieces pass between them. These rollers are designed to break up and separate any masses which may be lightly cemented together, so as to liberate particles of gold which may be entangled with them. From these rollers the material is delivered upon a screen or sieve, G, which has a reciprocating and an up-and-down motion given to it by means of eccentrics H. The heavier coarse gravel or material is discharged over the outer or rear end of the sieve, and the finer particles fall through upon an inclined amalgamated plate or table, I, the front end of which is the lowest. This plate has channels J across it to contain mercury, in which the gold will fall and be amalgamated. The remaining material falls over the front of this plate I, and through the air-blast from the fan, which blows the finer dust out through the rear end of the machine. The remaining material falls upon an amalgamated plate, K, which slopes slightly downward toward the rear, and is given a reciprocating shaking motion by means of eccentrics L upon a shaft beneath its rear end. This plate or table has channels M formed across it, and filled with mercury, for the purpose of retaining and amalgamating any gold which may pass, while the waste is discharged over the rear end. Both the plates or tables I and K have flanges inclining upward and outward from their sides, to prevent the overflow of the material in this direction.

N is a wind-board, which lies between the upper and lower amalgamating-tables, and which may be adjusted to give strength and direction to the blast.

Above and below the blast-opening from the fan-case are direction-boards O P. The upper one is the broadest and inclines downward, so that sand falling from the upper amalgamating-table upon it will be directed off upon the lower table. Both these boards are adjustable to alter and control the direction of the air-blast, and are held in place by thumb-screws passing through slots Q in the sides of the case A.

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

1. An apparatus for separating gold from sand or earthy material, consisting of a sieve or screen upon which the material is distributed and agitated, two or more inclined shaking-tables situated one below the other beneath the screen, and so placed that the uppermost one discharges upon the one next below, said tables having mercury-containing troughs or channels extending across their surfaces, in combination with a fan or air-blast apparatus, by which air is supplied to separate the dust from the gold, substantially as herein described.

2. An apparatus for separating gold from sand or earthy material, consisting of a series of inclined superposed tables with transverse troughs for mercury, a screen upon which the material is first delivered, and a fan or blast apparatus, in combination with a feed-hopper with an extended transverse outlet and regulating-gate, and self-adjusting rollers, between which the material may pass before falling upon the screen, substantially as herein described.

3. An apparatus for separating gold from sand or earthy material, consisting of the inclined amalgamating-surfaces, screen, and feed-hopper, arranged with relation to each other as shown, in combination with a fan or blast apparatus, the wind-board N, and the adjustable direction-boards O P, substantially as herein described.

In witness whereof I have hereunto set my hand.

HERBERT EARHART.

Witnesses:
GEO. H. STRONG,
H. C. LEE.