(No Model.)

J. MAIT.

APPARATUS FOR SEPARATING AND SAVING GOLD.

No. 563,046. Patented June 30, 1896.

Fig. 1.

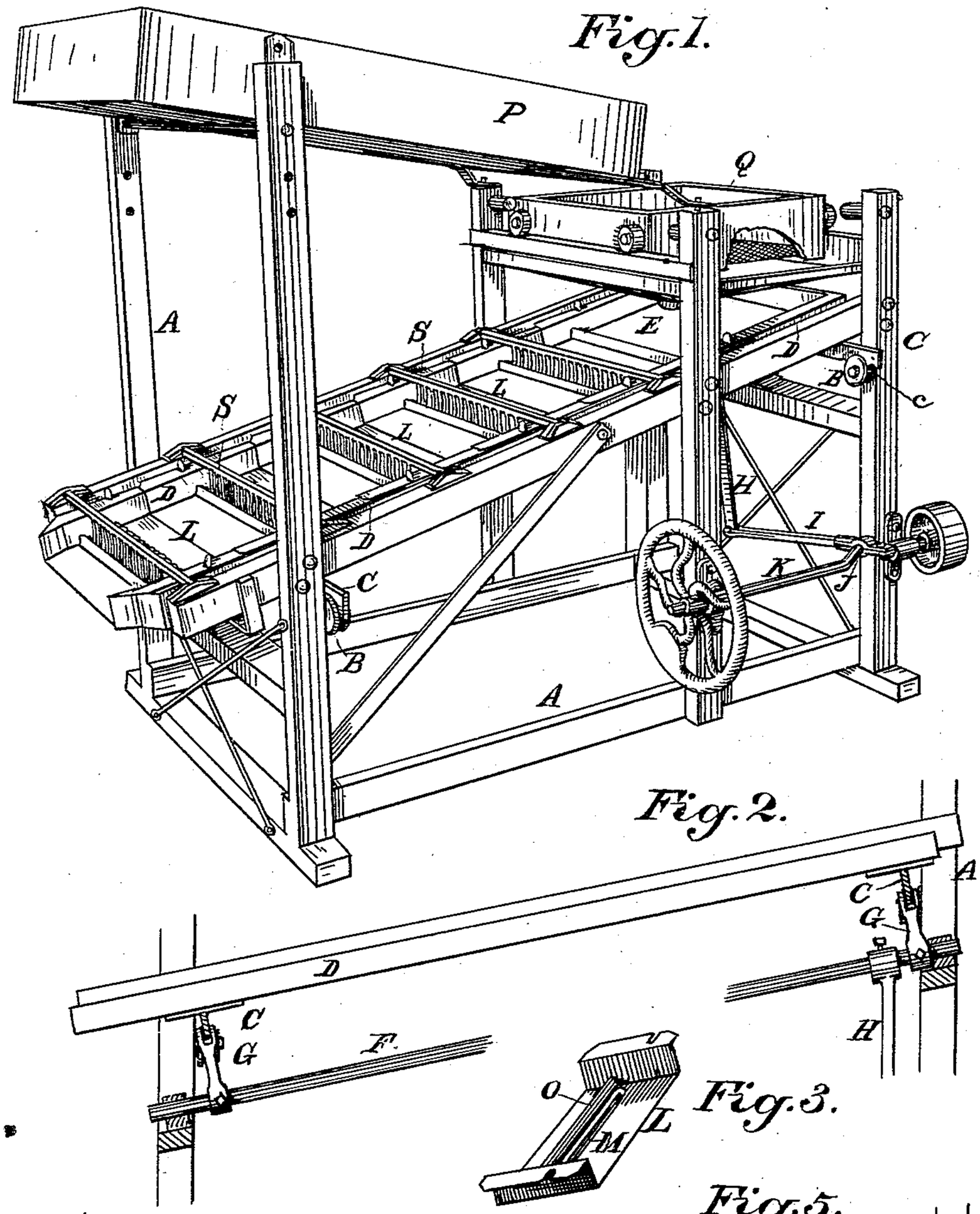
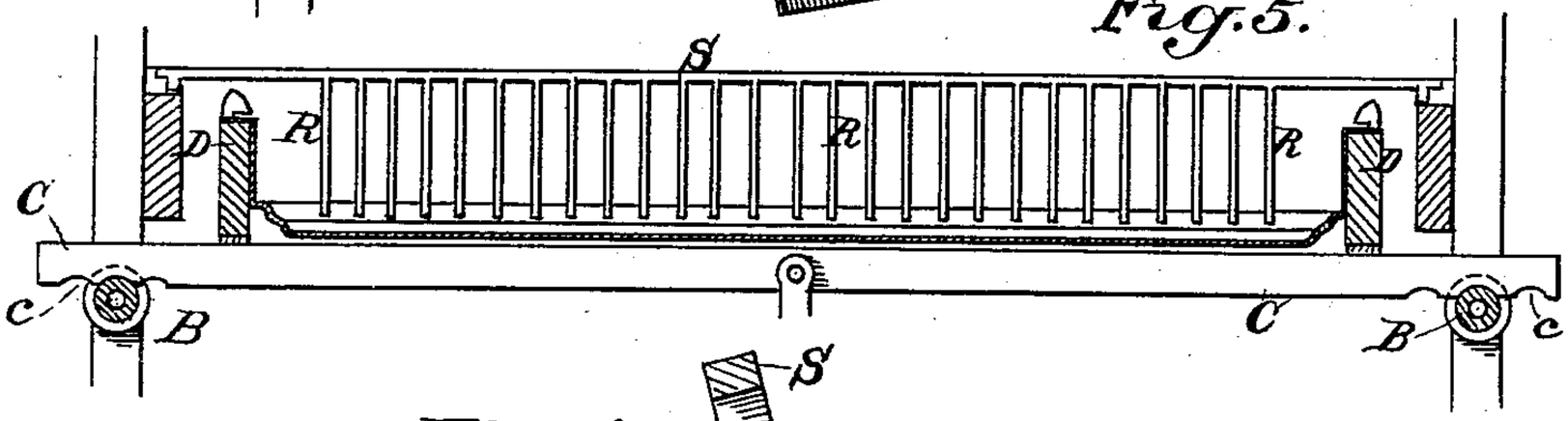


Fig. 2.

Fig. 3.

Fig. 5.



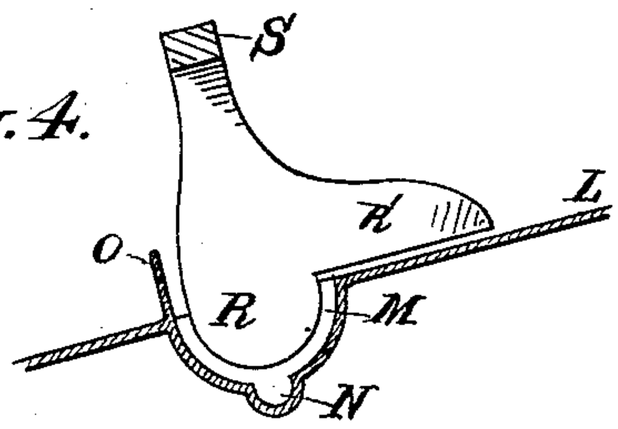


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOSEPH MAIT, OF OAKLAND, CALIFORNIA.

APPARATUS FOR SEPARATING AND SAVING GOLD.

SPECIFICATION forming part of Letters Patent No. 563,046, dated June 30, 1896.

Application filed March 23, 1896. Serial No. 584,370. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH MAIT, a citizen of the United States, residing at Oakland, county of Alameda, State of California, have invented an Improvement in Apparatus for Separating and Saving Gold; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus which is especially designed for separating gold from lighter worthless particles and gangue, and arresting and obtaining the gold, while allowing the waste particles to pass away.

The invention consists of an inclined table having peculiarly-shaped grooves or channels made transversely in it at intervals, stationary spoons or stirrers supported from above the table, so that the blades dip transversely into the depressions, and supports upon which the table is carried, with mechanism by which it is given an oscillating motion from side to side, and at the same time a tossing or bumping vertical motion, so that the pulp, sand, or gravel flowing down over the table is spread and agitated, and as it passes into the depressions in the table the movement of the table produces a constant agitation of the pulp, sand, or gravel, and an eventual settling of the gold and heavy metals and sulfurets to the bottom and into a supplemental retaining-channel.

It also consists in details of construction which will be more fully explained by reference to the accompanying drawings.

Figure 1 is a view of my complete apparatus. Fig. 2 is a view showing the means for operating the table. Fig. 3 is a detail of one of the concentrating-plates. Fig. 4 is a cross-section of the same with the spoon in its place. Fig. 5 is a lateral section of the table with its connections.

A is a framework of any suitable construction. Upon this framework are journaled rollers B B. These rollers stand transversely and have flanges at the sides.

C are transverse bars having the edges adapted to rest upon the rollers B, and at the points where they do so rest upon the rollers the bars are serrated, as shown at *c*, so that when the bars are caused to move back and forward over the surface of the rollers the serrations will produce a vertical bumping motion. Upon these bars are fixed the inclined bars D, which stand longitudinally in the machine and serve to support the inclined table E, which is suitably fixed to these bars, so that the table and the bars C and D may have a side shaking motion given to them by any suitably-arranged mechanism. In the present case I have shown a longitudinal inclined shaft F journaled centrally upon the main frame of the machine, having a crank or rocker arm G extending upwardly at each end and connected with the transverse bars C. From some part of this shaft projects a rocker-arm H, and this is connected by a rod or pitman I with a crank J upon the power-shaft K. Through this shaft power may be applied in any suitable or convenient way to oscillate the shaft F, and through the rocker-arm to produce a transverse movement of the bars C, as above described, and through them the supporting-bars D and the table E. The surface of this table is fitted with metal plates L, which are formed with depressed transverse channels M, extending across from side to side of the table E. In the bottom of each of these channels M is a supplemental deep narrow channel N, and at the lower edge of the channels M is an upwardly-projecting lip O, over which the pulp and material escaping from the channels M flow upon the plate L below each channel.

The pulp or material to be treated is placed in any suitable chute or hopper, as shown at P, and delivered upon the table either in a dry state, or, as shown in the present case, a sufficient quantity of water is introduced to make it flow, and it passes into a distributing-box Q, situated above the upper end of the table E and supported upon rollers, so that it may be caused to travel or oscillate from side to side, thus distributing the pulp, sand, or gravel through openings or screens in the bottom and allowing it to fall upon the upper part of the table. Flowing down over the table, this pulp passes into the transverse troughs or depressions M, and as it accumulates flows over the upwardly-projecting lips O, and so on down the table.

The table is all the time constantly agitated from side to side and with a vertical bumping movement, as above described, thus keeping the material agitated and spread upon

the table-surface. The simultaneous combination of these two movements, as above described, enables the machine to work dry ground on a desert, and save the gold without the use of water until the final clean-up of the deposit in the transverse channels M. This final clean-up requires but a few gallons of water, which can be used over and over an indefinite number of times.

In order to prevent the material from packing and becoming clogged in the troughs or depressions M, I have shown a series of spoon-shaped blades R, the upper ends of which are secured to transverse bars S, which bars are fixed to and supported from stationary side frames T on the main frame, so that the bars extend across above the moving table, but out of contact with it, and each of the blades or spoons R dips into the material in the troughs M.

Each bar S has a series of these spoons at a short distance apart, and each spoon has a spur or lip R′, Fig. 4, projecting upwardly from it and just above the surface of the table immediately behind the edge of the depression M. These projecting lips agitate and stir up the material before it enters the depressions M, and insures its being distributed and loosened up at that instant, while the blades or spoons themselves constantly stir and agitate the material within the depressions M, and by this agitation all gold and heavy metals will be gradually settled to the bottom and deposited in the deep narrow channels N, while the lighter pulp will be displaced by the constantly inflowing pulp, sand, or gravel from above and caused to flow over the lips O, and so on down the table. There are as many of these transverse depressions and agitators as may be found necessary to save all the valuable material by several repetitions of the action above described.

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

1. An apparatus for settling and saving gold consisting of an inclined table having grooves or depressions made transversely at intervals between the upper and lower end with an upwardly-projecting lip at the lower edge, mechanism by which the table is oscillated from side to side, and at the same time given a vertical bumping movement, and stationary blades or spoons supported above the depressions and dipping into them, and having rearwardly-extending spurs or lips to agitate the material before it flows into the depressions.

2. The transversely-grooved inclined table, stationary blades or spoons supported above the depressions and dipping into them, and having rearwardly-extending spurs or lips to agitate the material before it enters the depressions transverse bars upon which the upper and lower ends of the table are supported, said bars having notches or serrations formed in them, grooved rollers journaled upon the framework at such points that the serrated edges of the bars rest upon and reciprocate across the rollers, a shaft journaled parallel with and beneath the table, having rocker-arms connected with the bars, and a rocker-arm connecting with a crank-shaft whereby motion is transmitted to the table.

3. In an apparatus for saving gold, an inclined table having transverse channels at intervals in its surface, supports for the ends of the table and a mechanism whereby a combined side shake and bumping motion is transmitted thereto, side bars fixed to the main stationary frame, transverse bars extending therefrom above the movable table and having depending stationary blades adapted to dip into the channels of the moving table, said blades having rearward extensions to agitate the material before it passes into the depressions.

4. In an apparatus for saving gold, an inclined table having a series of transverse channels across its surface with upwardly-projecting lips at the lower edge of each channel and narrower and deeper channels formed in the bottom of each of the main ones, a mechanism by which a simultaneous transversely-shaking and vertically-bumping motion of the table is produced, stationary arms extending across above the table having blades projecting downwardly and dipping into the main channels of the table, each blade having a rearwardly-projecting extension or fin to agitate the material before it enters the depression, and means whereby sand or material to be treated is distributed upon the upper end of the table.

In witness whereof I have hereunto set my hand.

JOSEPH MAIT.

Witnesses:
S. H. NOURSE,
JESSIE C. BRODIE.