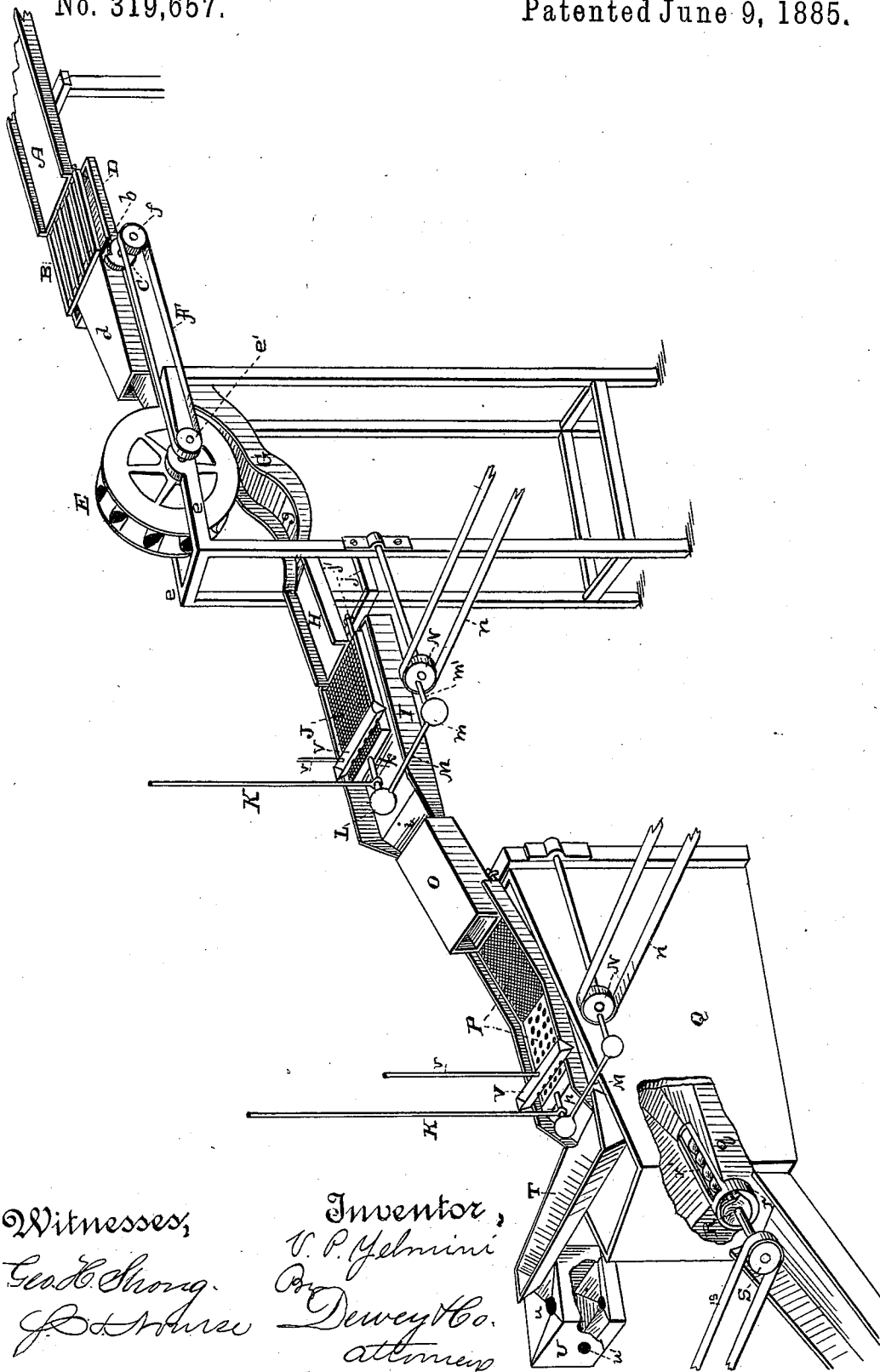


(No Model.)

V. P. YELMINI.
GOLD SAVING APPARATUS.

No. 319,657.

Patented June 9, 1885.



Witnesses,

Geo. H. Shong.

J. A. Morse

Inventor,
V. P. Yelmini
By Dewey & Co.
attorneys

UNITED STATES PATENT OFFICE.

VICTOR P. YELMINI, OF SUTTER CREEK, CALIFORNIA.

GOLD-SAVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 319,657, dated June 9, 1885.

Application filed September 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, VICTOR P. YELMINI, of Sutter Creek, county of Amador, and State of California, have invented an Improvement in Gold-Saving Apparatus; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a new and useful apparatus for saving free gold and other precious metals when combined mechanically with the ore; and my invention consists in the apparatus, comprising screens, grate, boxes, tank, intervening sluices, and driving mechanisms, as hereinafter fully described and claimed.

The object of my invention is to provide an apparatus by which a continuous treatment of the earth, sand, gravel, or ore may be accomplished, in the course of which several separations of the precious from the worthless portions may take place until all that can be saved is taken out.

Referring to the accompanying drawing, which is a perspective view of my invention, A is an ordinary sluice-box into which, from any suitable source, is fed the auriferous earth, sand, or gravel. This sluice-box is set at a downward inclination, and is adapted to discharge its contents upon the grate B, which consists of a suitable number of longitudinal bars, spaced or separated, as is usual, and having at one end an outwardly-projecting pin, *b*, against which the cam C is adapted to operate. It is hinged at its rear end in the top of a box, D, and its forward end is loose, whereby it is given, by means of the cam, a vibrating motion. The box D is open directly under the forward end of the grate, and communicates forward with a covered spout, *d*.

E is a water-wheel of any suitable pattern, mounted in a frame, *e*. The lower end of spout *d* is in such communication with the buckets of the wheel that the contents of said spout are discharged upon the wheel and rotate it.

On the axis of the wheel is a pulley, *e'*, from which a belt, F, extends to the pulley *f* on the shaft of the cam C, whereby said cam is operated.

Under the lower portion of the wheel, and following its curvature, is a sluice or channel,

G, the lower end, *g*, of which has a concave surface, which discharges into a downwardly-inclined sluice, H.

I is a box in which is a sieve or screen, J. At its rear end this screen is mounted on a suitable frame, *j*, by means of pivots, *j'*. The forward end of the screen is suspended by the rod K from suitable timbers above. The lower end of the rod is secured on a forwardly-projecting pin, *k*, provided with a ball or knob, around which fit the boxing L. To this boxing is secured a rod or pitman, M, the other end of which is provided with a similar boxing, *m*, embracing the ball-head of the crank-pin *m'*. The crank-pin is in a pulley, N, which is driven by a belt, *n*, to which suitable power may be imparted. By this means the screen J is given a laterally vibrating or oscillating movement within the box I.

The box I is provided with an apron, *i*, which is adapted to discharge into a covered spout, O, the lower end of which is in communication with an inclined double screen, P. This screen is loosely mounted at its rear to a frame, and at its forward end it is suspended by a rod similar to K, and is given a vibrating movement by devices similar to the ball-and-socket joints of the pitman M, the crank *m'*, pulley N, and belt *n*. The upper half of the screen P is at a greater angle with the horizontal than the lower half, and is constructed of ordinary wire-gauze, while the lower half is made of perforated sheet metal.

The screen P is in the top of a tank, Q, the bottom of which is inclined and has its lower end, *q*, hopper-shaped, as shown. In this hopper-shaped end *q* is a screw-conveyer, R, seated in a pipe or casing, *r*, the top of which is provided with an elongated slot, *r'*, whereby the mud and other stuff in the tank Q is adapted to pass through the slot *r'* and be drawn out by the screw-conveyer R, which is rotated in the proper direction by means of the pulley S and a belt, *s*, to which suitable power is to be applied.

The lower end of the screen P is provided with an apron, *p*, which discharges into the trough T, the lower end of which is in communication with a box or receptacle, U. The upper portion of this box is provided with a hopper, *u*, having a central discharge, as

shown. The discharge-hole *u'* of this box is several inches above the bottom.

Secured across the lower ends of the screens J and P are the sprinkling-troughs V, provided with perforations in their bottoms and supplied with water through the suitable hose, *v*.

The operation of the apparatus is as follows: The material to be worked either directly from the mine itself or after being suitably prepared, according to its character, is fed, together with water, into sluice A. It thence passes down upon the shaking grate B, where all but the very coarse material falls through into the box D below. Then the coarse material—such as large rocks, &c.—remaining upon the surface of the grate is shaken off onto the top of covered spout *d* and removed by hand or otherwise. The remaining portion, which drops through into box D, passes down through the spout *d* and is discharged against the wheel, whereby a rotary movement is imparted to said wheel, which, through the pulleys *e'* and *f* and the belt F, operates the cam C to give the grate its proper vibrating or shaking motion. The material thence passes down the sluice G into the concave portion *g*, wherein some of the larger pieces of precious material are caught and saved. The charge thence passes into the sluice H and is discharged upon the shaking screen J. The finer portion, falling through screen J into the box I, passes from said box through the spout O upon the upper half of the screen P, the smallest particles (or "slickens," as they are called) falling through this portion of the screen into the slickens-tank Q, from which they are discharged by the screw-conveyer R, and may be removed for any subsequent treatment, either with amalgamating-pans or concentrators.

That portion of the material which will not pass through the upper portion of screen P—such as gravel, &c.—passes down upon the perforated iron portion of the screen, where it moves very slowly, giving an opportunity to whatever particles that may be free to fall through into the slickens-tank, and it then passes over the apron *p* into the trough T and is discharged into the box U. In this box, falling through its hopper-top directly into the bottom of the box in which is placed water or other liquid, the heavier and more precious particles constantly find their way to the bottom and remain there, while the lighter and worthless portions are constantly flowing to the top and discharge through the hole *u'*, which is raised above the bottom of the box for the purpose of allowing only the lighter and worthless material to pass.

The sprinklers V at the bottom of each of the shaking screens wash the material as it passes and just before it leaves, and they are placed in this position for the purpose of washing such mud from the gravel as may adhere to it, and thus saving the precious particles which by reason of the mud remain with the gravel.

By suitably regulating the mesh of the

screens I am enabled to save, at first, the larger precious particles, and, as the operation progresses, the smallest.

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

1. In a gold-saving apparatus, the combination of the shaking inclined grate B, adapted to receive the charge, the box D, in which the grate is mounted, covered spout *d*, the shaking screen J, a sluice connecting said screen with spout *d*, the box I, in which the screen J is mounted, covered spout O, the shaking screen P, adapted to receive the contents of spout O, and the tank Q, in which the screen P is mounted, all arranged to operate substantially as herein described.

2. In a gold-saving apparatus, the feed-sluice A, hinged grate B, box D, and covered spout *d*, in combination with the mechanism by which the grate is shaken, consisting of the wheel E, against which the contents of spout *d* are discharged, the pulley *e'* on the shaft of the wheel, the belt F, cam C, operating against the grate, and pulley *f* on the cam-shaft, substantially as herein described.

3. In a gold-saving apparatus, the feed-sluice A, hinged grate B, box D, and covered spout *d*, in combination with the wheel E, rotated by the contents of spout *d*, mechanism connecting the wheel with the grate by which said grate is shaken, and the curved sluice G, under the wheel, having concaved end *g*, in which the heavier gold or precious particles are caught, substantially as herein described.

4. In a gold-saving apparatus, the feed-sluice A, shaking-grate B, box D, having covered spout *d*, wheel E, connecting means by which the grate is shaken, and curved sluice G, having concaved end *g*, in combination with the sluice H, suspended shaking screen J, and box I, having covered spout, O, substantially as and for the purpose herein described.

5. A gold-saving apparatus comprising the laterally-shaking double screen, P, a tank, Q, a rod, *p*, attached to said screen, a cam or eccentric N, and a ball-and-socket mechanism for vibrating the screen, substantially as described.

6. A gold-saving apparatus comprising a double-inclined and laterally-shaking screen, a tank, Q, having an inclined bottom, a V-shaped end, *g*, a horizontal pipe, *r*, having a slot in its top, a horizontal conveyer, R, and mechanism for operating the conveyer to draw the contents from the tank, substantially as herein described.

7. In a gold-saving apparatus, the double-inclined screen P, having apron *p*, the box U, and the trough T, to carry off the surface contents of the screen, in combination with the tank Q, in which the screen is mounted, and the screw-conveyer R, by which the contents of the tank is drawn off, substantially as herein described.

8. A gold-saving apparatus comprising the

feed-sluice A, shaking grate B, box D, having covered spout, wheel E, and means for shaking the grate, sluice G, with its end *g*, sluice H, shaking screen J, box I, covered spout O, 5 double-inclined screen P, apron *p*, discharge-trough T, and the tank Q, having screw-conveyer R, all arranged and operating substantially as and for the purpose herein described.

9. A gold-saving apparatus comprising the 10 feed-sluice A, shaking grate B, box D, covered spout *d*, wheel E, and mechanism, as described, by which the power of the wheel is transmitted to shake the grate B, sluices G and H, shaking screen J, its sprinkling-trough

V, box I, covered spout O, double screen P, 15 having sprinkling-trough V, apron *p*, and discharge-trough T, box U, having hopper-top *u*, and discharge *u'* above its bottom, and tank Q, having screw-discharge R, all arranged to operate substantially as and for the pur- 20 pose herein described.

In witness whereof I have hereunto set my hand.

VICTOR P. YELMINI.

Witnesses:

W. T. WILDMAN,
MORRIS BRINN.