J. SULLIVAN.

Ore Amalgamator.

No. 4,988. Patented Feb. 27, 1847.

Fig. 1,

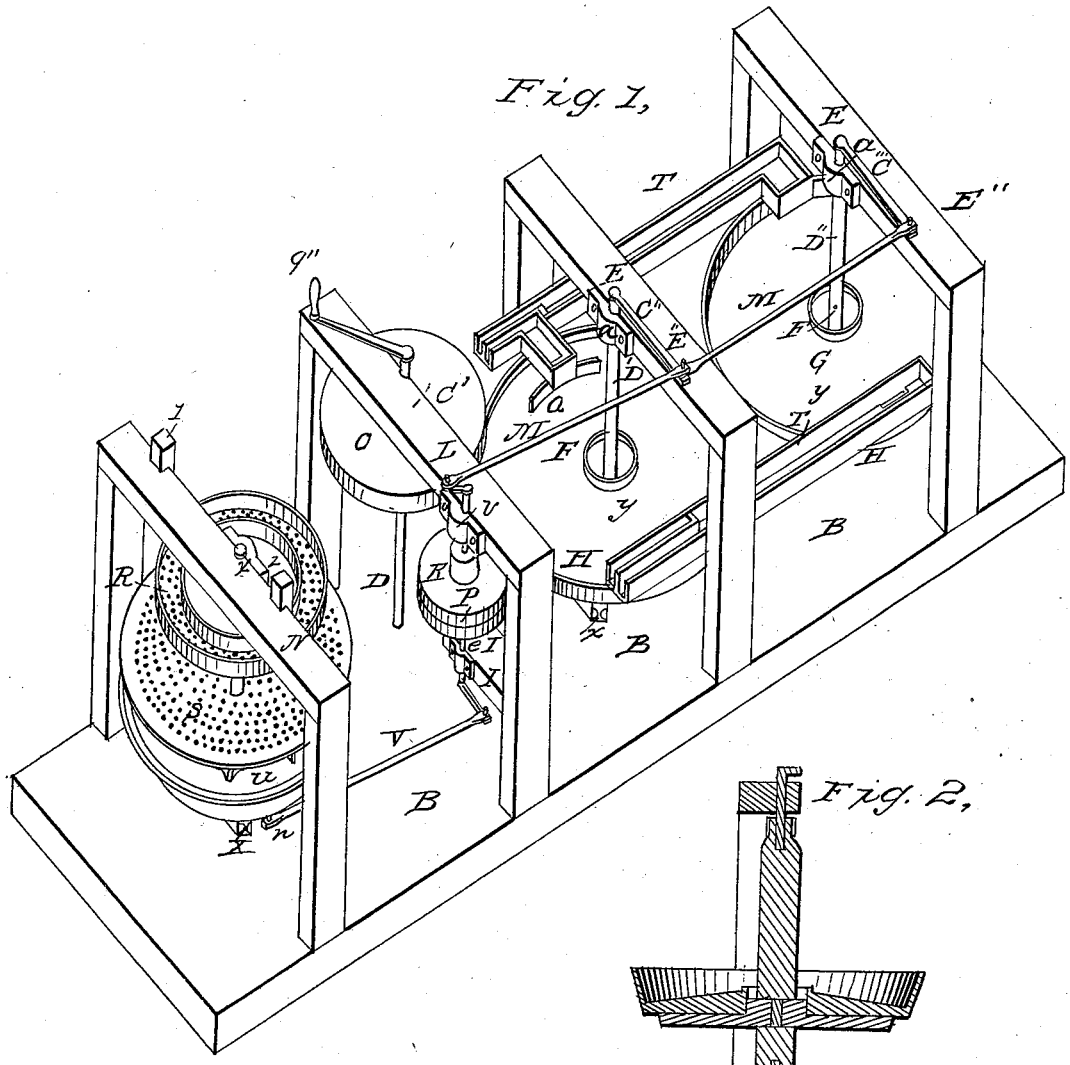
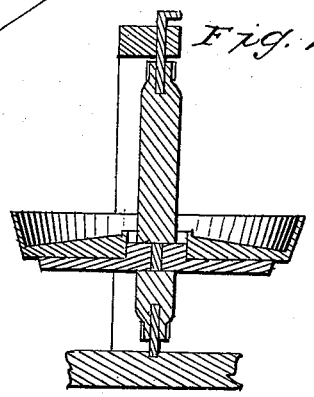


Fig. 2,



UNITED STATES PATENT OFFICE.

JONATHAN SULLIVAN, OF GOLD REGION, NORTH CAROLINA, ASSIGNOR TO R. K. SMITH.

MACHINE FOR SEPARATING GOLD FROM IMPURITIES.

Specification of Letters Patent No. 4,988, dated February 27, 1847.

To all whom it may concern:

Be it known that I, JONATHAN SULLIVAN, of Gold Region, in the county of Moore and State of North Carolina, have invented a new and Improved Mode of Saving Gold; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view.

The machine is constructed in the following manner. Upon a common platform B at proper distances from each, three frames are erected. These frames are separately composed of two uprights opposite each other, fitted into the base B, leaving a sufficient distance between them, and each upright connected with the opposite one by a cross piece (C′, C″, C‴).

Vertical shafts, (D′, D″) are supported by the platform, and their upper ends kept in place by a plate (*a*) or fixture attached to each of the cross pieces (C″ C‴). An iron crank E is fitted into the top of each of these shafts, and a motion given to the cranks imparts it to the shafts D′, D″.

At a convenient distance above the platform arms (X) in a horizontal plane, project from (and are perpendicular to) the two shafts upon which the basins, Y, are to be placed, and these arms support the basins. These basins have a space left, F, at their center and around the shaft, through which the water and sand escape. Around this aperture F, there is a rim, G, the height of which is determined by experiment.

The outer rim, H, is proportioned to the duty to be performed. The bottoms of the basins see Fig. 2 in draft or that part which receives the gold, sand &c. are convex surfaces, and are highest at their centers. These bottoms are either channeled or smooth. The ore is ground and thrown into the troughs, T, and is made to pass from them into the basins by the action of water. Upon the third shaft, D, is a horizontal wheel O. Upon one of the uprights of the frame for the third shaft, D, and at a proper distance above the platform is a horizontal projecting piece I, which may be supported at its other end by a vertical piece springing from the platform. Upon the piece I rests a small vertical shaft K the upper end of which is supported by a plate *b*, upon the horizontal piece C′ of the frame; fitted to the upper end of this shaft K, is a crank L. Upon this small shaft K is fitted a horizontal wheel P (in the same plane as the wheel O). The cranks E″, E‴, and L are connected by an arm M having an elbow, Z, at the center crank. A band passes around the circumference of the horizontal wheels O and P and by turning (either by hand or machinery) the crank, E′, of the shaft to which the wheel O is attached, the band gives a motion to the wheel P which revolving, causes the crank, L attached to it, to revolve, which being connected to the cranks E″ of the first and E‴ second shaft, by the arm M, produces through their agency the necessary motion in the basins, which is a backward and forward or semi rotary, motion. By this centrifugal motion and the action of gravitation, the gold is separated from the sand and deposited in the basins (which are fed by troughs T affixed to the two uprights into which the ground ore is thrown and washed by water from there into the basins) near the outer edge or rim while the water and sand are continually passing off at the aperture, F, in the center of the basins. To prevent the possibility of a current toward the center traverses, Q, may be placed at different points of the convex surface of the basins, as in the basins connected with the second shaft D′.

The fourth frame composed of the uprights X and cross piece N is an arrangement for working deposits. It differs from the method heretofore described by making the ore and water pass through two sieves R (which is fastened to N by the clamps 1 and 2) and S, one above the other. Escaping from these it falls upon a convex surface U of smaller diameter than the basin Z and which convex surface having no aperture at the center carries the deposit into the basin Z where the gold is deposited (and quicksilver if used) the water and sand passing off at the center as (as in the tubs Y) before described. This arrangement of sieves and tubs may receive its motion by the motion of a crank *q*, fastened to the lower part of the shaft K, which shaft is connected with the

bottom of the basin Z by an arm V, and which moves on a pivot at *n* and *q*. The whole may be made of wood or iron.

What I claim as my invention, and desire to secure by Letters Patent, is—

The method of washing and saving gold by a combination of the semi rotary motion and convex form, of the surface of the basins, together with the apertures for the escape of water and sand at their center, and fitted with feeding troughs as described, the whole being constructed, combined and operating substantially as herein set forth.

JONATHAN SULLIVAN.

In presence of—
WILLIE HADLEY,
JONATHAN L. SULLIVAN.