J. COLLOM.

Ore-Washers or Buddles.

No. 146,166. Patented Jan. 6, 1874.

Fig: 1.

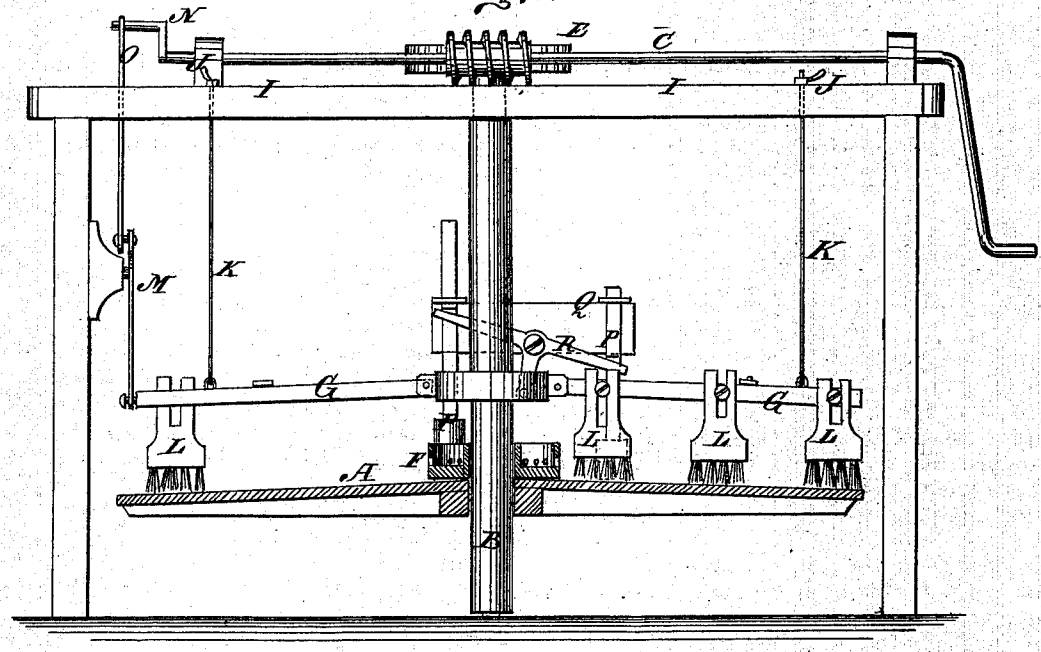
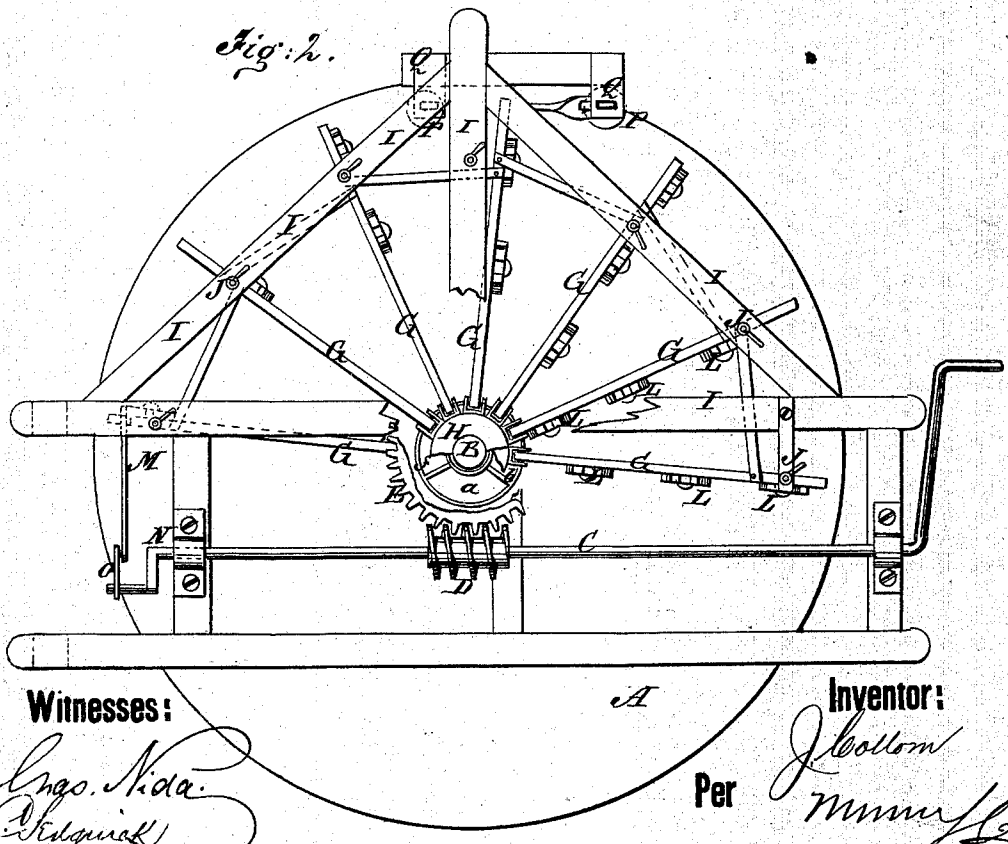


Fig: 2.



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JOHN COLLOM, OF IDAHO SPRINGS, COLORADO TERRITORY.

IMPROVEMENT IN ORE-WASHERS OR BUDDLES.

Specification forming part of Letters Patent No. **146,166**, dated January 6, 1874; application filed July 19, 1873.

To all whom it may concern:

Be it known that I, JOHN COLLOM, of Idaho Springs, in the county of Clear Creek and Territory of Colorado, have invented a new and Improved Buddle, of which the following is a specification:

My invention relates to improvements in that class of machines known as revolving buddles, and is designed to provide such machines whereby the separation of ores and other substances of different specific gravities may be effected more completely in less time and at less cost than has hitherto been done. The first part consists of an oscillating and adjusting arrangement of the brooms employed, in connection with the table, and the water-currents for stirring and distributing the pulverized ore on the table. The second part consists of a partitioned distributing-box for regulating and controlling the application of the water; and the third part consists of a pounding apparatus combined with the table for jarring it, as an additional element in the process of separating and distributing the different kinds of ores.

Figure 1 is a transverse sectional elevation of my improved buddle, and Fig. 2 is a plan view with some parts broken out.

Similar letters of reference indicate corresponding parts.

A is a large table or disk arranged on a horizontal plane on a vertical shaft, B. It is constructed so as to descend from the center to the periphery—say, about half an inch to the foot—and it is caused to revolve slowly by a horizontal driving-shaft, C, worm D, and wheel E, or any other suitable means. F is the distributing-box. It is suspended over the center of the disk so as not to revolve, and contains, say, five compartments, *a*, *b*, *d*, *e*, and *f*, one for the crude ore, and one for water for each class or grade of ore to be made. G represents the brush-arms. They radiate from a hub, H, on the shaft, a little above the distributing-box, and are arranged to oscillate horizontally. The arms are pivoted to this hub, and near their outer ends they are suspended from an overhead frame, I, by rods K and adjusting-nuts J, by which they can be raised or lowered. These brush-arms are, in this example, seven in number, and they are about equally distributed over one-half of the disk. L represents the brushes, which are suspended from the arms, so as to brush the surface of the disk with more or less force, as required by the case in hand, being attached so as to be adjusted. They are arranged about as far apart on the arms as their breadth, and those on one arm are opposite the spaces of the next, or in any equivalent order, whereby the separation and distribution are better than if the brushes were continuous on the arms, or arranged in concentric circles. The number is diminished on the rearmost arms of the series, and those retained are near the periphery of the disk. The brushes are arranged so as to gradually work the substance under treatment from the center to the periphery of the disk, first the finer portions, and then the coarser parts. The oscillatory motion of the brushes is effected by the bell-crank M, crank N, and connecting-rod O. P represents the pounders, of which, in this example, there are two. They are arranged to drop alternately on the margin of the disk at about the middle of the series of brush-arms, said pounders being provided with any suitable supporting-frame, Q, and apparatus for lifting them, which, in this example, consists of a rock-lever, R, which is actuated by one of the brush-arms. The pounding apparatus is for causing a more rapid settling of the heavier minerals after being stirred by the brooms, so as to leave the lighter particles to be carried off by the water.

The manner in which minerals are separated and concentrated by this improved buddle is as follows: The finely-crushed ore, consisting, say, for instance, of quartz, copper pyrites, iron pyrites, and galena, is conveyed by water through a suitable spout into the compartment *a* of the distributing-box, from which it passes through the small holes, and spreads itself uniformly upon the surface of the table, the heavier minerals settling mostly near the center, and the lighter near the periphery, but still in a mixed condition, as the separation caused by the running water only is very imperfect. As the table revolves the minerals are subject to the combined action of the clear water from the distributing-box, and the stirring of the brooms, which causes the quartz and other light earthy matter to pass to the periphery of

the disk, and then to fall into a suitable receptacle, while, owing to the jarring action of the pounders and the greater density of the other minerals, the latter still remain on the buddle; but the copper pyrites, and then the iron pyrites, being subjected to the action of the other brooms and larger quantities of clean water, are each passed to the circumference, and deposited in separate receptacles. The galena still remaining on the table may be removed by other brooms or scrapers, or be washed off by strong jets of water. I prefer the latter method.

The intensity of the action of the brooms upon the minerals under treatment is increased or diminished by lowering or raising the broom-arms by turning the nuts on the upper end of the suspending-rods. By attention to this, together with a proper regulation of the quantity of water that enters the several compartments of the distributing-box, finely-crushed ores of different specific gravities can be separated more perfectly and with greater economy than by such revolving buddles as have hitherto been in use, some of which have no brooms or partitioned distributing-boxes, and others have stationary brooms, whose slow dull action tends rather to collect and push the various minerals together into ridges than to cause their separation, as the rapid strokes of my oscillating brooms do.

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

1. The combination, with the rotating table or disk, of oscillating brushes, arranged substantially as specified.

2. A partitioned distributing-box, in combination with the rotating table, substantially as specified.

3. A pounding or jarring apparatus combined with the rotating table, substantially as specified.

JOHN COLLOM.

Witnesses:
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