B. TYSON.

Ore-Separator.

No. 160,041 Patented Feb. 23, 1875.

Fig. 1.

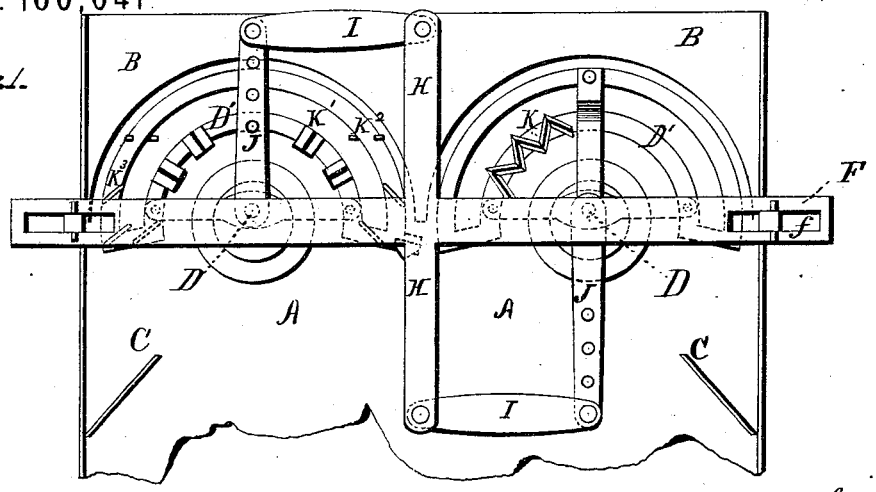


Fig. 2.

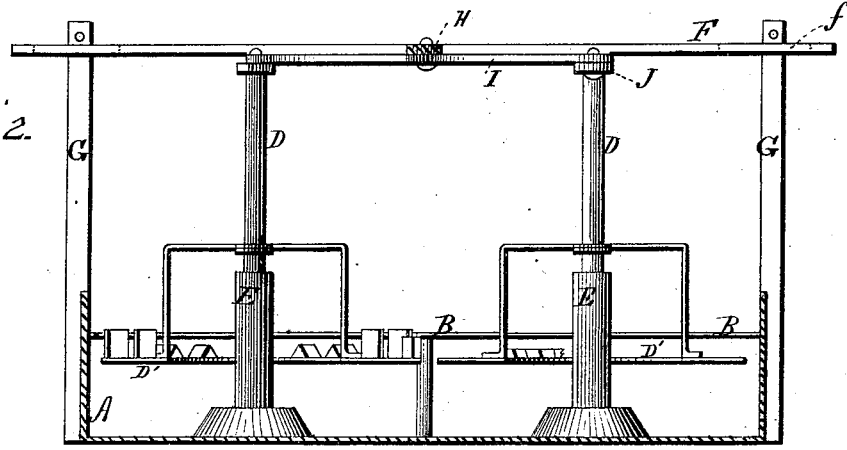
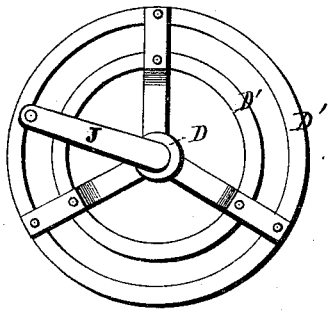


Fig. 3.



WITNESSES

W. S. Newman,

R. M. Barr.

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UNITED STATES PATENT OFFICE.

BRYAN TYSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN ORE-SEPARATORS.

Specification forming part of Letters Patent No. **160,041**, dated February 23, 1875; application filed November 20, 1874.

To all whom it may concern:

Be it known that I, BRYAN TYSON, of Washington, in the county of Washington and District of Columbia, have invented certain new and useful Improvements in Machinery for Separating Gold from Sand; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in machinery for separating gold from sands, gravel, or other substances in which it is found, and more particularly to the mechanism by which the sands are agitated and the gold precipitated.

My invention consists in the combination of devices and appliances, as hereinafter more fully set forth and claimed.

In the drawings, Figure 1 is a plan view of the receiving-box containing my improved agitating mechanism. Fig. 2 is a section of the said receiving-box, showing my improved agitating mechanism in elevation. Fig. 3 is a separate detached plan view of one of the agitators.

In the Letters Patent No. 156,448, granted to me the 3d day of November, 1874, the agitators were so constructed as to reciprocate in a straight line across the receiving-box; and the tendency was to cause an accumulation of sand or gravel at the sides of the receiving-box.

In the device here shown in the drawings the agitators are upon the arcs of circles, and are caused to rotate and reciprocate about vertical axes. The agitators that are adjacent to the sides of the receiving-box have a motion nearly parallel to the said sides, and serve, therefore, to agitate the sands, and to prevent an accumulation at the sides of the box. The reciprocating motion is given by means of a sliding shaft and a cross-bar, the ends of the said cross-bar being united by connecting-rods to cranks placed at the tops of the vertical axes. The extent of the rotation of the axes may be governed by the length of the stroke of the sliding bar; or it may be governed by increasing or diminishing the length of the crank-arms. A is a receiving-box. B is a plate, preferably of case-iron, so shaped as to permit the agitators to rotate immediately in front of and below the same. C C are fenders. They may be placed within the receiving-box, at the sides, to divert the sands from the sides of the box. D D are vertical shafts, to which are attached the frames D′, that bear the agitators. The frames D′ are made circular, or semicircular, or may form any other arc of a circle. E E are posts that extend up above the level of the contents of the box, and in the tops of which the vertical shafts rest; the object being to lift the step or foot of the vertical shaft out from the gritty substances contained in the box. F is a sliding bar, sustained upon posts G, and provided with slots *f*, by which it is held in position on the posts, and permitted to slide longitudinally. H is a cross-bar, attached rigidly to the sliding bar F. At its ends are connecting-rods I, that connect the cross-bar with the crank-arms J of the shaft D.

It will thus be seen that the sliding bar F, through the medium of the connecting-rods, will give to the agitators a reciprocating rotary motion. If it is desired that the agitators should move with a circular motion—always in the same direction without reciprocating—then the rim D′ should be made circular, as shown in Fig. 3, and the crank-arm J be so connected with the driving mechanism as to give it a revolving motion all the way round; or the top of the shaft may be provided with cog or belt gearing, and thereby connected to the driving mechanism.

K represents the form of agitator that I prefer to place upon the inner edge of the frame D′. Other forms of agitators are shown at K^1, K^2, &c.; but it remains for a practical demonstration to determine what form of agitator is best suited to the purpose.

In the drawings are represented two pairs of arcs or plates bearing the agitators working in combination; but there may be one or more wheels or rims bearing such agitators, according to the width of the stream and quantity of sands to be washed. Where the quantity is small one wheel or one semicircle, filling the receiving-box from side to side, may be employed. Where the quantity of sand is large, or the

stream broad, two or more of the arcs, or the same number of wheels, whichever may prove to be best, may be employed.

What I claim is—

1. The shallow receptacle or receiving-box A, constructed with the plate B and fenders C C, in combination with the rotary oscillating or reciprocating agitating arcs or wheels D′ K, as and for the purposes described.

2. In combination with the shallow receptacle or receiving-box A, constructed with the plate B and fenders C, the shafts D D, stepped in posts E secured in the box A, and extending above the agitators, said shaft carrying the arcs or circular frames D′ and agitators K, as and for the purpose described.

3. In combination with the box A, constructed with the plate B and fenders C, the agitators D′ K, placed in the box in front of and below the plate B secured to the shaft D that is supported or stepped in a post, E, which extends above the plate B, said agitators receiving, through said shaft D, a rotary oscillating or reciprocating motion, as and for the purposes described.

4. The combination of the sliding bar F, cross-bar H, and connecting-rods I, substantially as and for the purposes set forth.

5. The combination and arrangement, in an ore separator or washer, of the shallow box A B C, posts E, and agitating devices D D′ K, said agitators receiving, through a sliding bar, F, cross-bar H, and connecting-arms I J, a rotary oscillating or reciprocating agitation or motion, as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand.

BRYAN TYSON.

Witnesses:

ROBT. M. BARR,

H. A. HALL.