

(No Model.)

H. P. MABRY.
ORE CONCENTRATOR.

No. 287,840.

Patented Nov. 6, 1883.

Fig:1.

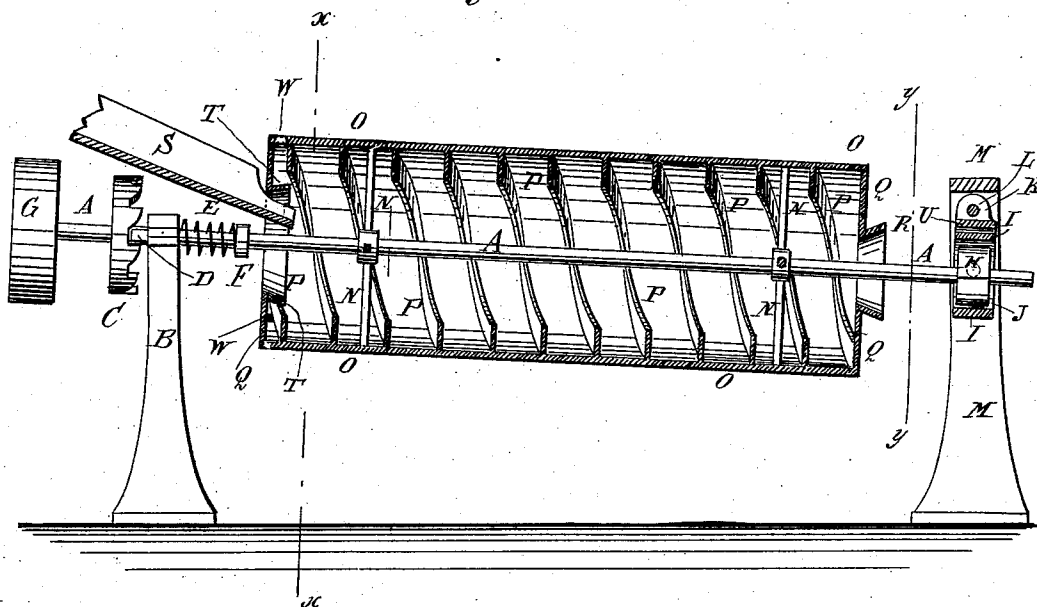


Fig: n.

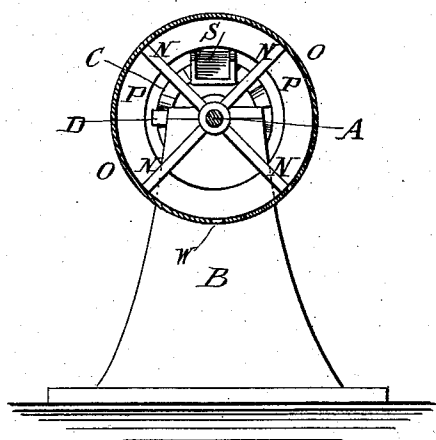
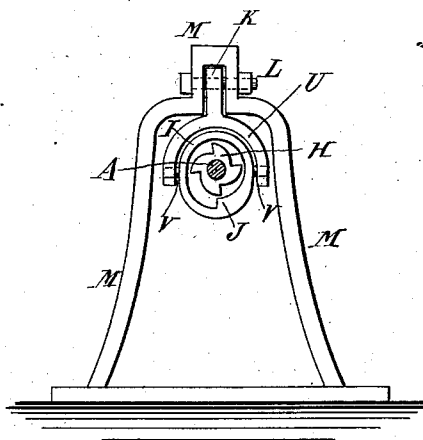


Fig: 3.



WITNESSES :

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UNITED STATES PATENT OFFICE.

HINCHE P. MABRY, OF FORT WORTH, TEXAS.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 287,840, dated November 6, 1883.

Application filed February 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, HINCHE P. MABRY, of Fort Worth, in the county of Tarrant and State of Texas, have invented a new and useful Improvement in Ore-Concentrators, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of my improvement. Fig. 2 is a sectional end elevation of the same, taken through the line *x* *x*, Fig. 1. Fig. 3 is a sectional end elevation of the same, taken through the line *y* *y*, Fig. 1.

The object of this invention is to facilitate the removal of the lighter and worthless parts of the ore from the heavier and valuable parts.

A represents a shaft placed in a slightly-inclined position, and the upper part of which revolves in bearings in a standard, B.

To the shaft A, outside the standard B, is attached a wheel, C, having a series of cams upon the inner side of its rim, which engage with a projection, D, attached to the outer part of the standard B.

The shaft A is pressed inward by a spring, E, placed upon it, and interposed between the standard B and a collar, F, formed upon or secured to the said shaft. With this construction, as the shaft A is revolved, it is forced outward by the action of each cam of the wheel C upon the projection D, and is forced inward as each cam passes from the said projection by the spring E, so that the said shaft will be vibrated longitudinally.

To the upper end of the shaft A is attached a pulley, G, to receive the belt by which the said shaft is rotated.

To the lower part of the shaft A is attached a cam-wheel, H, which revolves in a bearing, I, having interior shoulder, J, so that the shaft A, as it revolves, will be raised by the action of each cam of the wheel H upon the shoulder of the bearing I, and will be allowed to drop as each cam passes off the said shoulder, so that the said shaft will be vibrated vertically as it revolves.

The bearing I is placed within the forked lower end of the hanger U, and is supported

by two pivot-screws, V, which pass in through screw-holes in the ends of the arms of the hanger U, and the points of which rest against the opposite sides of the said bearing I.

Upon the upper side of the bearing I is formed a lug, K, which is perforated to receive the bolt L, by which it is suspended from and hinged to the supporting-frame or skeleton standard M. By this construction the longitudinal vibration of the shaft A will be facilitated.

To the shaft A, or to hubs placed upon the said shaft, are attached the inner ends of radial arms N, to the outer ends of which is attached a cylindrical shell, O, so that the said cylinder will be carried around by and with the said shaft in its revolution.

To the inner surface of the shell O are attached one or more spiral flanges, P. To the ends of the shell O are attached annular flanges Q.

To the inner edge of the lower flange, Q, is attached a flaring spout, R, through which the water and lighter parts of the ore flow into a chute or other receiver.

The powdered ore and water are introduced into the upper end of the cylindrical shell O through a spout, S. With this construction, as the ore and water are introduced into the machine, the ore is carried downward through the shell O by the rush of the water, and the lighter parts of the ore are carried out by the water through the discharge-opening in the lower end of the shell O. The heavier parts of the ore settle into the spaces between the coils of the flange or flanges P, and are carried up or backward by the said flanges as the said shell is revolved, and are discharged through openings W in the said shell at the upper end of the flange P into some suitable receiver. To the inner edge of the upper flange, Q, is attached an inwardly-projecting flaring spout, T, to prevent the water and ore entering through the spout S from flowing out through the discharge-openings at the upper end of the shell O.

It will be observed that the shaft A and shell O must be revolved in such a direction as will turn the spiral flange P backward, so that the said flange will carry the heavier parts of the ore upward or backward through the shell

O and force them out at the upper end of the said shell. If desired, the shell O and flanges P can be made of copper and coated with amalgam, so that the machine can be used as an amalgamator for removing gold and silver from sand or powdered ore.

I am aware that it is not broadly new to give a rotary shaft a longitudinal reciprocating movement or a rising-and-falling movement; hence I desire only to patent my particular means for doing these two things.

What I claim as new and of my invention is—

1. In an ore-concentrator, the shell O, the skeleton frame M, the shaft A, carrying the collar F, the spring E, and the wheel C, having a series of side cams, in combination with the standard B, having a projection, D, whereby said shell and shaft will be given a short, quick endwise movement, as and for the purpose described.

2. The combination, with the shell O, shaft A, and suitable supporting means, of the cam-wheel H and the swinging bearing I, having interior shoulder, J, whereby said shell and shaft may be reciprocated from the upper end and made to rise and fall at the lower end, as and for the purpose specified.

3. The shell O, the shaft A, the hanger U, having screw-holes in the ends of the arms, and a perforated lug, K, the bolt L, the pivot-screws V, and the bearing I, in combination with the standard B and skeleton-frame M, whereby rising, falling, and reciprocating movements of the shaft and shell are allowed, as described.

H. P. MABRY.

Witnesses:

JAMES T. GRAHAM,
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