G. A. CHURCH.

ORE-FEEDERS FOR QUARTZ-MILLS.

No. 188,587. Patented March 20, 1877.

Fig. 1.

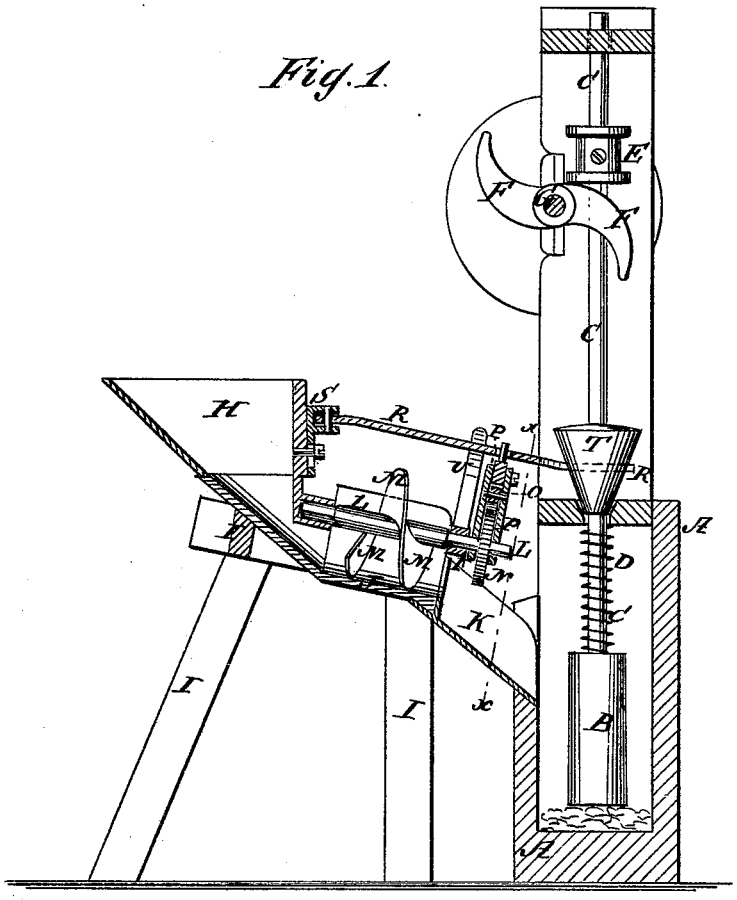
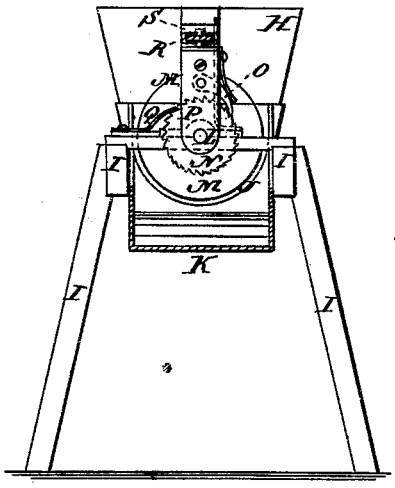


Fig. 2.



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GEORGE A. CHURCH, OF NEVADA CITY, CALIFORNIA, ASSIGNOR TO HIMSELF AND EDWARD L. MONTGOMERY, OF SAME PLACE.

IMPROVEMENT IN ORE-FEEDERS FOR QUARTZ-MILLS.

Specification forming part of Letters Patent No. **188,587**, dated March 20, 1877; application filed December 23, 1876.

To all whom it may concern:

Be it known that I, GEORGE ALMON CHURCH, of Nevada City, in the county of Nevada and State of California, have invented a new and useful Improvement in Ore-Feeder for Quartz-Mills, of which the following is a specification:

Figure 1 is a vertical section of my improved feeder, shown as applied to a mortar. Fig. 2 is a front view of the same, the spout being shown in section through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved device for feeding ore to the mortars in quartz-mills, which shall be so constructed as to feed the ore to the mortar only as it is wanted, which will feed dry and wet ore with equal facility, which will not allow soft running stuff to run through and fill the mortar, and which will not impair the effect of the blow of the stamp by which it is operated.

The invention will first be described in connection with the drawing, and then pointed out in the claims.

A represents the mortar. B represents the stamp. C is the stamp-stem. D is the spring that supplements the weight of the stamp in giving the blow. E is the collar, against which the cams F act to raise the stamp B, and which is attached to the stamp-stem C. G is the driving-shaft, to which the cams F are attached, and which is driven from any convenient power. H is the feed-hopper, which is attached to and supported by a suitable frame-work, I. The forward side of the hopper H is made vertical, and its back and sides are inclined. The lower part of the back and sides of the hopper H are drawn into semi-tubular form, and pass out beneath the lower edge of the vertical front, forming a semicircular discharge-opening. With the discharge-opening of the hopper H is connected a semi-tubular spout, J, which is placed at a slight inclination, and from the outer end of which a steeply-inclined spout, K, leads to the mortar A. L is a shaft placed parallel with the semi-tubular spout J. One end of the shaft L revolves in a socket attached to the front of the hopper H, and its other end revolves in a bearing attached to the frame I. To the shaft L is attached, or upon it is formed, a spiral flange, M, reaching to, or nearly to, the bottom of the spout J. To the forward end of the shaft L is attached a ratchet-wheel, N, which is operated by a pawl, O, attached to a lever, P. The lower part of the lever P is slotted to receive the ratchet-wheel N, and its lower end is pivoted to and rides upon the shaft L. The ratchet-wheel N is kept from being turned back by the friction of the pawl O, when drawn back for another stroke by the pawl Q, attached to the frame I, and the engaging end of which rests upon the teeth of the said ratchet-wheel N. Upon the upper end of the lever P is formed a pin, which passes through a hole in the bar R. The outer end of the bar R is pivoted to a bracket, S, the lower part of which is slotted to receive the bolt by which it is secured to the front of the hopper H, so that the bar R may be adjusted as may be required.

The side of the forward end of the bar R rests against an inverted cone, T, through the axis of which the stamp-stem C passes, and which is secured adjustably to said stem by a set-screw or other suitable means.

By this construction, as the stamp B drops, the cone T pushes the driving-bar R outward, causing the pawl O to turn the flanged shaft L M and feed the ore to the mortar.

As the stamp B is raised the driving-bar R is pushed inward to carry the pawl O back for another stroke by the spring U, the lower end of which is attached to the frame I, and its upper end rests against the outer side of the said bar R.

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

1. The combination, in a quartz-mill, of the shaft L, journaled in hopper, having spiral flange M, and provided with ratchet N, with a reciprocating pawl, O, to produce an intermittent feed, as set forth.

2. The combination, with the pawl-lever P, that operates the intermittent mechanism, of

the pivoted spring-bar R and inverted cone T on the stamp-shaft C, as and for the purpose specified.

3. The combination of the semi-tubular spout J, the flanged shaft L M, the ratchet-wheel N, the push-pawl O, the holding-pawl Q, the driving-bar R, the inverted cone T, and the spring U, with the feed-hopper H, the mortar A, and the stamp-stem C of a quartz-mill, substantially as herein shown and described.

GEORGE ALMON CHURCH.

Witnesses:
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