E. COLEMAN.

Ore-Stamp Feeder.

No. 228,609. Patented June 8, 1880.

Fig. 1.

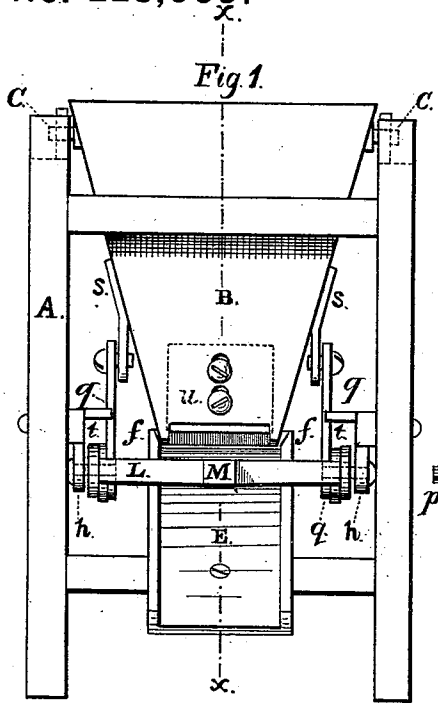


Fig. 2.

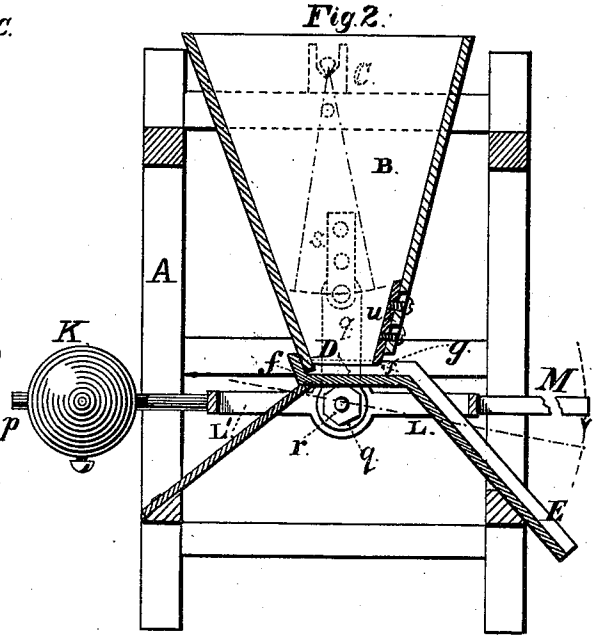
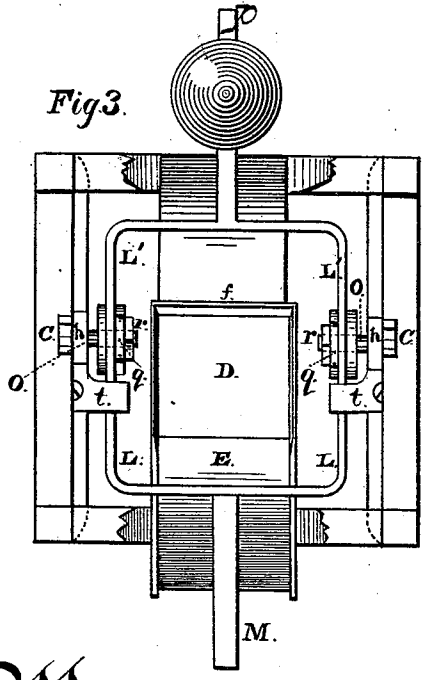


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

EZRA COLEMAN, OF SAN FRANCISCO, CALIFORNIA.

ORE-STAMP FEEDER.

SPECIFICATION forming part of Letters Patent No. 228,609, dated June 8, 1880.

Application filed November 4, 1879.

To all whom it may concern:

Be it known that I, EZRA COLEMAN, of the city and county of San Francisco, and State of California, have invented an Improved Ore-Feeder; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention has reference to an improved machine for feeding rock and other substances to crushing and grinding mills. It is intended more particularly, however, for feeding ore to the stamps of stamp-batteries where the power for operating it is derived from the drop of the stamp.

My first improvement consists of a horizontal stationary tray or table, with a swinging or pivoted hopper adjusted above it, and whose lower end is extended down to and to remove deposits from the table as the latter leave the hopper at each vibration or movement of the hopper, substantially as hereinafter more fully set forth.

My second improvement relates to the construction and arrangement of the lever that receives the stroke of the tappet and transmits the motion to the hopper, all as hereinafter described.

Referring to the accompanying drawings, Figure 1 is a front elevation of my improved machine. Fig. 2 is a vertical section taken through the line *x x*, Fig. 1. Fig. 3 is a top view of Fig. 1 with the hopper removed.

Let A represent a frame such as is ordinarily used in the construction of machines for feeding ore to stamps, The hopper B, I sussuspend inside of this frame on two knife-edge trunnions, C C, one on each side. These trunnions I prefer to place near the top of the hopper, as shown, so that the lower end of the hopper will swing freely; but they could be applied at any desired point so long as they maintain the hopper on a balance. Below the hopper I secure a stationary tray, D, which has an apron or chute, E, leading from one side of it down to the edge of the battery. This tray has a vertical rim or side piece, *f*, on both of its side edges, and also on its rear edge. The rims of the side edges extend down or along the edges of the apron, so as to form a trough to guide the ore into the battery. The lower open end of the hopper comes inside of the rim of the tray, and the rear side of the hopper extends down close to the bottom of the tray, while an opening, *g*, is made in the lower end of the front side for the ore to pass out through, as shown.

The lever which transmits the motion from the tappet to the swinging hopper I combine in the following manner with a weight, K, for throwing the lower end of the hopper back after it has been thrown forward by the drop of the stamp: The lever-bar M, which extends forward to the stamp-stem, has the half of a rectangular frame, L, projecting from its rear end. This frame extends on each side of the hopper, and a bolt, O, passes through lugs *h*, which are attached to the timber of the frame on each side of the hopper, and also through the ends of the frame. The weight-rod *p*, at the rear of the hopper, is connected to the rectangular frame L L′, arranged to pass on each side of the hopper, and the bolts O also pass through their ends in the same way. A short upright arm, *q*, is also placed upon the bolt on each side, and a nut, *r*, is turned up against it, so as to clamp the upright arm and the two overlapping ends of the frame-pieces tightly together. The upper ends of the arms *q* are then connected with lugs *s* on the sides of the hopper, so that they form crank-arms to throw the lower end of the hopper forward when the tappet depresses the forward end of the lever-bar M.

The weight K can be adjusted to or from the hopper on the weight-rod *p*, in order to increase or diminish its leverage. Directly in front of each arm *q* is a projecting lug or plate, *t*, which extends across the arm, so that when the lever-arm *q* strikes this plate the arm will be forced back in proportion to the depression of the lever M by the tappet. The object of this arrangement is to compensate for the wear of the stamps. When an ore-feeder is operated by a fixed lever, as heretofore, the wearing away of the stamps keeps increasing the length of stroke, so that frequent adjustment of the parts is necessary. By the above arrangement, however, the parts will adjust themselves automatically.

When the stamp wears off sufficiently to cause the arm *q* to strike the plate *t* the arm will be forced back by the contact, so as to preserve a uniform throw or motion of the hopper. This latter improvement is of great importance, as it renders the machine entirely automatic.

When the hopper is filled with ore it will swing easily on its knife-edged trunnions, and, as the ore rests on the stationary tray, every forward swing of the lower end of the hopper will force some of the ore down the chute into the battery, and the weight K will return the hopper to its position again. The lower edge of the rear side of the hopper also acts as a scraper to force forward any sticky ore that might adhere to the bottom of the tray.

The opening in the front side of the hopper for the ore to pass through I make adjustable by means of a gate or sliding plate, *u*, which can be raised or lowered to adjust the size of the opening, and fixed in any desired position by a screw, *v*.

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

1. The combination, with the horizontal stationary table or tray, of the swinging or pivoted hopper with its lower end extended down to move along the table to remove the deposits therefrom, substantially as specified.

2. The swinging hopper B, suspended above the stationary tray D, in combination with the lever M, frame L L′, crank-arms *q*, and lugs *s*, substantially as and for the purpose set forth.

3. The swinging hopper B, suspended above the stationary tray D, in combination with the lever M and frame L L′, arms *q*, connected to the lever-frame L L′ and to the lugs *s* of the hopper, and the stop *t*, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand and seal.

EZRA COLEMAN. [L. S.]

Witnesses:

W. F. CLARK,

EDWD. E. OSBORN.