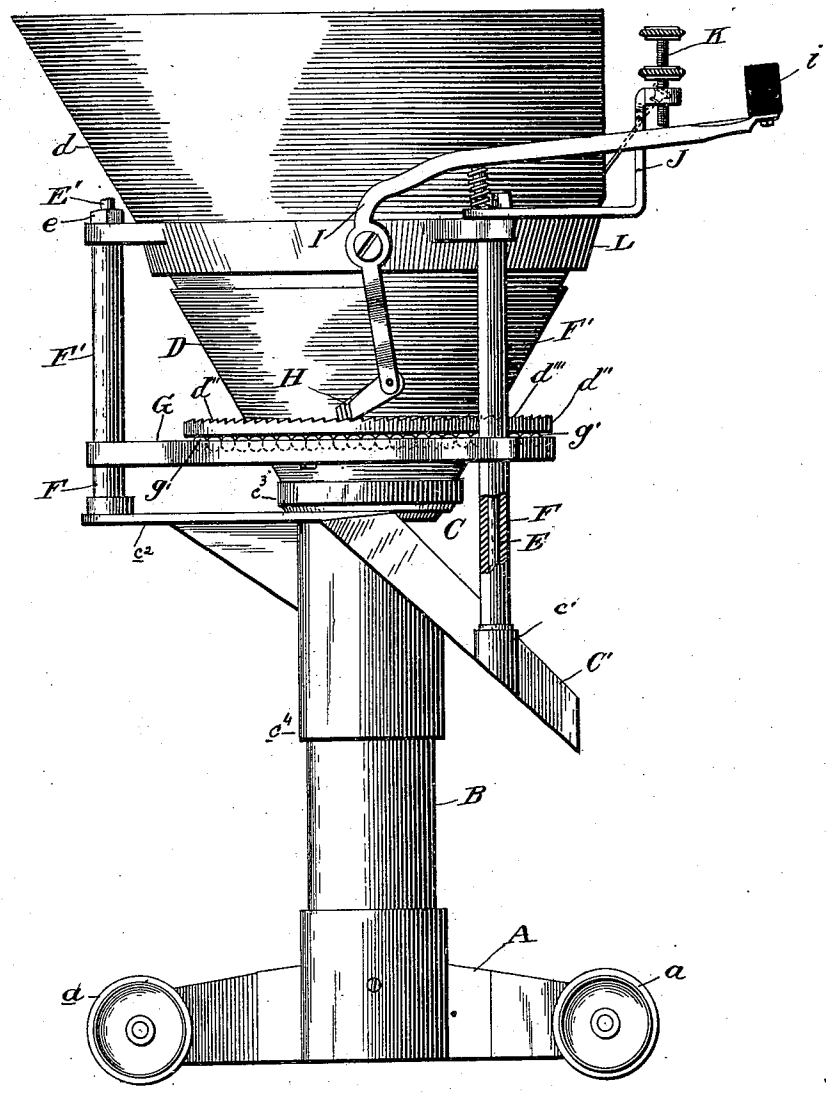
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W. S. SHARPNECK.

ORE FEEDER.

No. 354,940. Patented Dec. 28, 1886.

Fig. 1.



Witnesses
C. H. Ragden
E. H. Bond

Inventor
William S. Sharpneck
By his Attorney J. J. W. Robertson

N. PETERS. Photo-Lithographer, Washington, D. C.

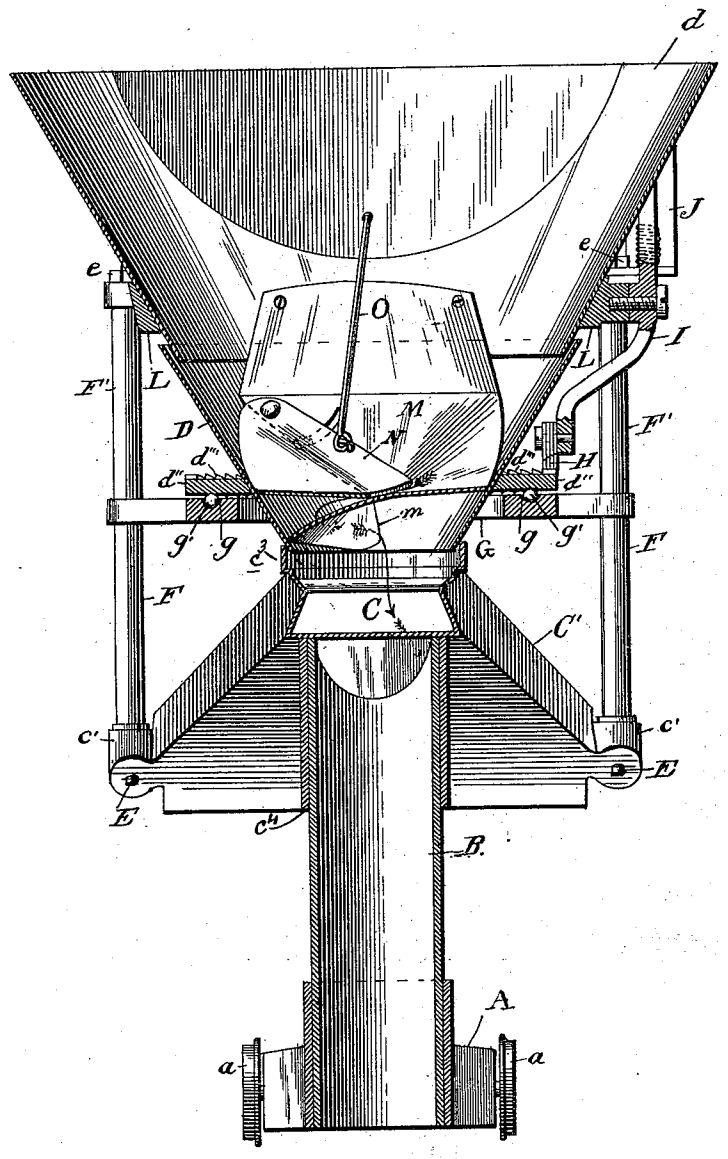
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Fig. 2.



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W. S. SHARPNECK.

ORE FEEDER.

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Fig. 3.

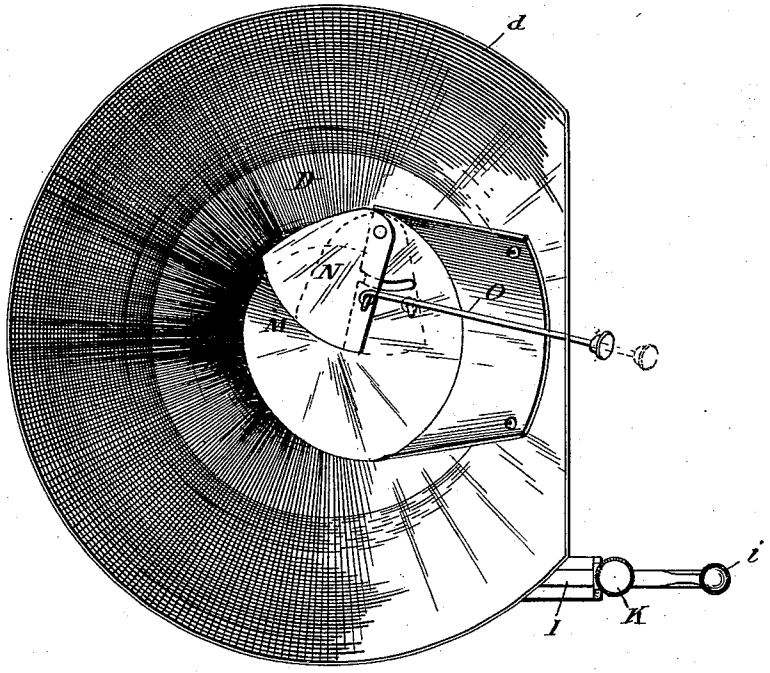
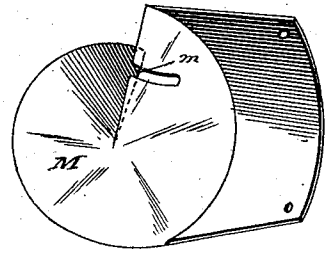


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM S. SHARPNECK, OF DENVER, COLORADO.

ORE-FEEDER.

SPECIFICATION forming part of Letters Patent No. 354,940, dated December 28, 1886.

Application filed June 18, 1886. Serial No. 205,541. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. SHARPNECK, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Ore-Feeders, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a side elevation of my ore-feeder with parts broken away; Fig. 2, a central vertical section of the same, and Fig. 3 a plan of the same. Fig. 4 is a plan view of a detached part of the hopper.

This invention relates more particularly to that class of ore-feeders designed to regulate the amount of ore fed by the distance the stamps fall, so that the less material there is in the mortar for them to operate on the greater distance will the feeding device move, and the more of the material will be fed into the machine in consequence.

The invention consists in the peculiar construction, arrangement, and combination of parts, as hereinafter more particularly described, and then pointed out in the claims.

Referring now to the details of the drawings, A represents a stand or truck provided with wheels *a*, from which rises a hollow standard, B, on which sets a casting, C, the lower part of which has a socket, c^4, to receive the standard B, and which may be fastened thereon by a bolt or other suitable means. The top of this casting is provided with an annular ring or socket, c^3, in which sets the lower part of the double or two-part hopper D *d*, and from this socket broadens out a chute, C′, having at each side a socket, *c′*, in which is secured a rod, E, around which are two tubes, F F′.

On the opposite side of the casting an arm, c^2, extends, which carries a socket for another rod, E′, around which are also two similar tubes, F F′.

On the lower tubes, F F, rests a spider, G, having an opening in which sits the lower portion of the hopper. In the upper surface of this spider is a circular groove, *g*, in which is placed a number of balls, *g′*, and on these balls rests a flange, *d″*, that forms part of or extends from the lower hopper, D, and is provided with teeth *d‴* on its upper side, into which teeth the pawls H catch. These pawls are hung on the lower arm of a pivoted lever, I, whose other arm extends through a guide, J, in the direction of the stamp, and is provided with a rubber buffer or cushion, *i*. Beneath the upper arm of this lever is a spiral spring which tends to force said arm upward and against the lower end of a set-screw, K, which governs, to a certain extent, the amount of upward motion that will be given to the arm. Resting upon the upper tubes, F′, is another spider, L, in which sets the upper or fixed hopper, *d*, which is preferably made of heavy sheet metal and secured fast to the spider L, which in its turn is made fast by the nuts *e* on the rods E, as shown. The upper hopper, *d*, of the double hopper is provided with an extension, M, (shown detached in Fig. 4,) which sets low down in the movable hopper D, and forms a kind of spiral bottom to said movable hopper, over which is arranged a pivoted slide, N, having a rod, O, loosely connected thereto, by means of which it may be moved as desired, so as to almost entirely close the opening in the bottom, or to leave it open wide, as shown by dotted lines in Fig. 3.

The operation is as follows: The hopper being filled with ore and set in position before a stamp-mill, as the stamp descends an arm on the same comes in contact with the cushion *i* on the end of the lever I, and drives it downward, thereby turning the movable hopper D by means of the pawls H, of which there are four of different lengths. As the hopper moves it carries with it the material it contains, and as soon as a portion of the material passes over the edge *m* of the spiral bottom (see Fig. 2) it falls on the chute C′, from whence it passes into the mortar of the stamp-mill. If there were just as much material in the mortar all the time, the feeder would feed in the same amount at every stroke of the stamp; but as the amount varies the stamp descends lower at one time than another, and thus forces down the lever accordingly, so that the feed increases with the distance the stamp descends. The amount of feed can also be regulated by changing the set-screw, because the less it projects through the guide J the higher the lever-arm rises, and consequently the more motion is given to it by the stamp as the latter descends.

I prefer to use a plurality of pawls, because

a greater variation can be given to the feed with a less number of teeth on the disk *d''* than if a single pawl were used. With four pawls in use, as in the drawings, the hopper may be moved only the fourth of a tooth at a time, because each pawl will act in succession on the same tooth—an old and well-known construction. It is evident, however, that a single pawl may be used, if preferred. The fixed part of the hopper may also be dispensed with, if preferred; but I prefer that a portion of the same shall be fixed and the lower part movable. It is also evident that many other changes may be made in the construction without departure from the spirit of my invention.

From this description it will be seen that I have invented an ore-feeder that is strong, easily made, and not likely to get out of repair, and one that will automatically regulate the amount of feed with the greatest nicety.

What I claim as new is—

1. The combination, with the movable hopper D and fixed hopper *d*, of the stationary extension M, set low in said movable hopper and forming a spiral bottom therefor, substantially as described.

2. In an ore-feeder, the combination, with the movable hopper D, fixed upper hopper, *d*, and means for revolving the hopper D, of the extension M in said movable hopper, forming a spiral bottom therefor, and the slide N, pivoted to said extension, substantially as and for the purpose specified.

3. An ore-feeder provided with a moving hopper, D, a stationary extension extending within and forming a spiral bottom for said hopper, and means for giving the hopper an intermittent motion around said extension, substantially as described.

4. An ore-feeder provided with a movable hopper, D, a fixed hopper, *d*, an extension forming a spiral bottom for said movable hopper, and means for giving the lower hopper a revolving motion, substantially as described.

5. An ore-feeder provided with a movable hopper, D, a fixed hopper, *d*, having the extension M, forming a spiral bottom for the movable hopper, and means for giving the movable hopper an intermittent revolving motion, substantially as described.

6. The combination, in an ore-feeder, of a casting, C, having a ring or socket, c^3, a fixed hopper, *d*, a movable hopper, D, set in said ring or socket, and the vibrating lever I and pawls H, for giving the said hopper D a rotary movement, substantially as described.

7. The combination, in an ore-feeder, of the standard B, a casting, C, having chute C′, a socket, c^4, below, resting on said standard, and a ring or socket, c^3, above, with a movable hopper, D, resting in said ring or socket c^3, and the vibrating lever I and pawls H, for giving an intermittent motion to the hopper D, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 15th day of June, 1886.

WILLIAM S. SHARPNECK.

Witnesses:
A. P. BOYNTON,
SAMUEL LEGER.