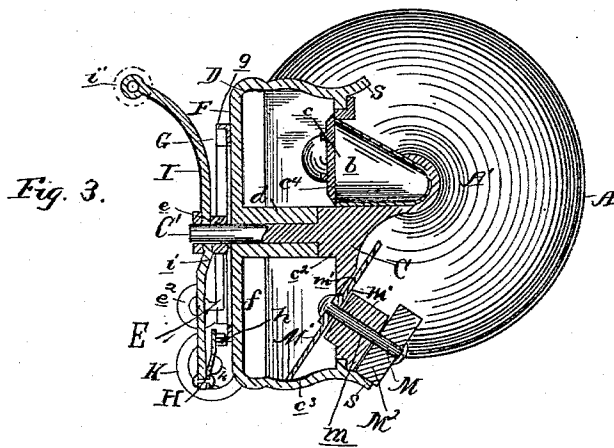
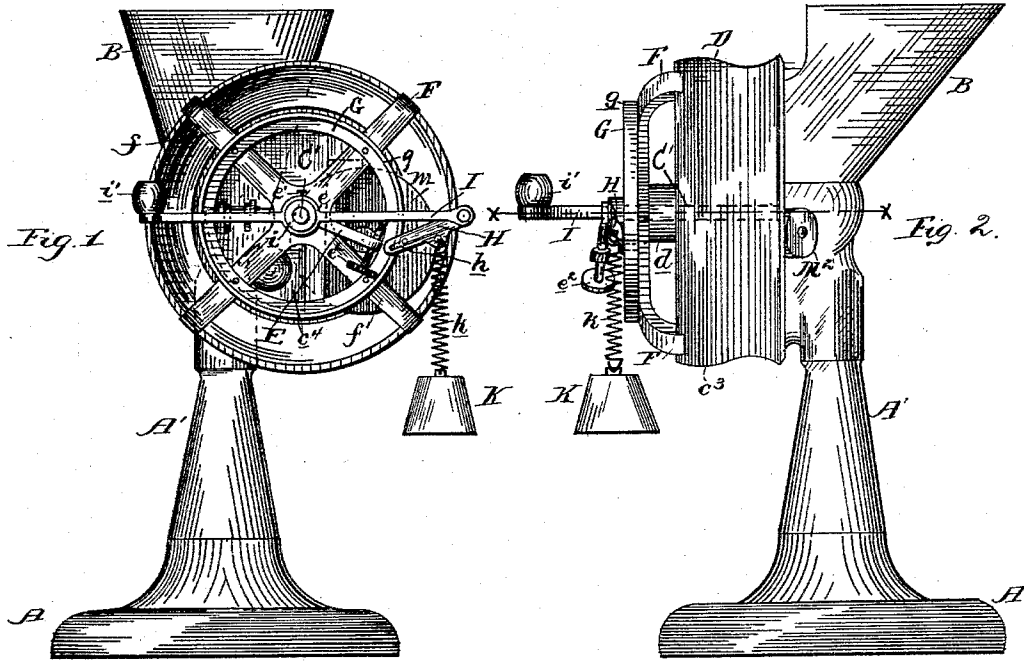


W. S. SHARPNECK.

ORE FEEDER.

No. 325,701.

Patented Sept. 8, 1885.



WITNESSES
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E. Robertson.

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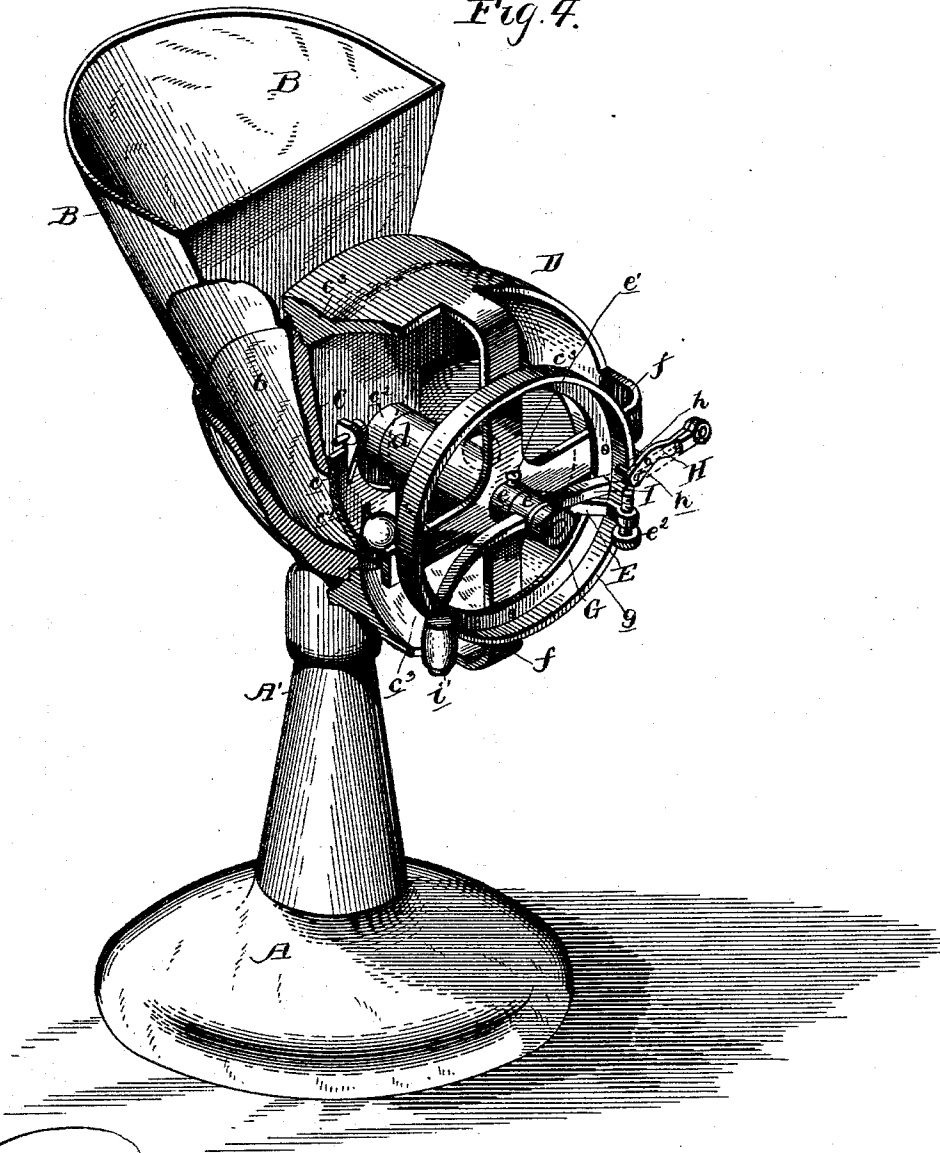
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Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM S. SHARPNECK, OF DENVER, COLORADO, ASSIGNOR TO H. N. NICHOLS, OF SAME PLACE.

ORE-FEEDER.

SPECIFICATION forming part of Letters Patent No. 325,701, dated September 8, 1885.

Application filed May 5, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. SHARPNECK, a citizen of the United States of America, 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.

The invention relates to devices for feeding ore to stamps and other similar machines; and the novelty consists in the construction, arrangement, and adaptation of parts, as will be more fully hereinafter set forth, and specifically pointed out in the claims.

The object of the invention is to provide means which shall automatically regulate the feed, according to the demand of the stamping or crushing devices—that is to say, when the tappets or stamps go farther down than usual into the mortars, by reason of there being a small amount of ore therein, the amount of feed will be increased. This object has been before attained, and I seek to improve upon the construction and arrangement of devices which have been used for this purpose.

I provide the movable cylinder with an open frame-work upon its front end, and upon this frame I support a ring which is of smaller diameter than the cylinder, and which is engaged by the bight of a peculiar lever. The mechanism which operates this lever, set in motion by the stamping devices, automatically regulates the feed from the cylinder to the mortar; but I provide means for controlling the action of the lever independent of the stamp mechanism.

I provide a disk which is supported rigidly by the standard, and which fits loosely within the movable cylinder, which disk furnishes bearings for the shaft of a revolving scraper.

The invention is illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a face view in elevation; Fig. 2, a side elevation; Fig. 3, a horizontal section taken on the line *xx* of Fig. 2. Fig. 4 is a perspective view, broken away to show internal construction.

Referring to the drawings, A designates the base, and A' the standard, of the main frame. This frame supports the hopper B, having an inclined chute, *b*.

The parts thus far described may be of any ordinary and approved construction.

Rigid upon the front of the standard is a stationary disk, C, having a passage, *c*, connecting with the chute *b*, controlled by a weighted door, *c'*. Centrally upon the face of the disk C is formed a boss, *c''*, and supported by this boss and disk is a rigid horizontal shaft, C', which provides journal-bearings for the central sleeve or hub, *d*, of the movable cylinder D. This sleeve D, bearing at one end against the boss *c''*, is prevented from longitudinal movement on the shaft C' at the other end by the collar *e* of an arm, E. This arm is adjustably secured upon the shaft C' by a set-screw, *e'*, and it carries upon its outer or free end an adjusting-screw, *e''*, the functions and purposes of which will presently appear. The portion of the movable cylinder which lies in front of the disk C is flaring and spherical, as seen at *c''*, and across its front is an open-work frame, F, formed of cross-bars *f*, the junctions of which are integral with or rigidly secured to the sleeve *d*. Upon this frame F is secured concentrically a ring, G, which is of considerably less diameter than the cylinder. This ring G has a flange, *g*, which is engaged between pins *h* of an arm, H, pivoted to a lever, I, supported by a collar, *i*, upon the shaft C', and carrying upon its other end a cushion, *i'*, which is designed to receive the stroke of the stamp-arm. (Not shown.) A weight, K, by a spring, *k*, is suspended from the arm H, and its gravity serves to hold the lever I normally in contact with the adjusting-screw *e''*. By my construction the diameter of the cylinder does not in any sense limit the capacity of the mill. My ring G is of sufficiently less diameter than the cylinder to allow the cylinder to be revolved to a much greater extent with a given stroke of the lever than if the bight were made at the circumference of the cylinder, and by means of my adjusting-screw *e''* and set-screw *e'*, I am enabled not only to vary the feed at

will, but also to modify the effect of the stamping mechanism upon the feed-operating devices.

In inclined journals m in the disk C is supported a shaft, M , carrying upon one end a revolving scraper, M' , which works loosely in a slot, m' , formed in said disk C , and carrying upon the other end a friction-roller, M^2 , which is at all times in contact with the bevel s of the inner surface of the cylinder in the rear of the disk. The roller M^2 is of such diameter as to give to the scraper M' a faster motion than is attained by the adjacent surfaces of the cylinder when the machine is in operation, and the direction of incline and motion both tend to scrape off and eject contacting ore from the cylinder. I attach importance to this construction as in contrast with an ordinary stationary scraper, with which the ore is liable to choke or jam between adjacent surfaces. A loose scraper would in a measure avoid this fault; but by providing a differential motion to the adjacent surface I render the choking at this point substantially impossible.

Modifications in details of construction may be made without departing from the principle or sacrificing the advantages of my invention, the important features of which will be understood from the foregoing description, taken in connection with the drawings.

The operation of the device will be obvious. The hopper being filled, a quantity of the ore will find its way to the cylinder, and as the cylinder revolves the material is forced off by the revolving disk M' . By means of the arm E , its adjusting-screw e' , and the adjusting-screw e^2 , the stroke of the lever I may be adjusted in one direction so as to regulate the movement of the cylinder, its movement in the other direction being controlled by the amount of material in the mortar.

What I claim as new is—

1. In an ore-feeder, the combination, with a hopper, B , and the disk C , having an aperture connected with said hopper and provided with a central bearing, C' , of the cylinder D , mounted to revolve on said central bearing, substantially as described.

2. In an ore-feeder, substantially as described, the combination, with a hopper, B , and the disk C , having an aperture which connects with said hopper B , and having shaft C' , of the cylinder D and operating-lever I , both mounted on said shaft C' , substantially as described.

3. The combination, with the hopper B , chute b , and the disk C , having aperture c and shaft C' , of the cylinder D , operating-lever I , and adjustable arm E , having adjusting-screw e^2 , all mounted on said shaft, substantially as specified.

4. In an ore-feeder, substantially as described, the combination, with the hopper, stationary disk, revolving cylinder, and feed-connections, of a loose disk hung in journals at an incline with the axis of motion of the cylinder, and having its periphery closely adjacent to the inner surface of the cylinder at an angle, as and for the purpose set forth.

5. In an ore-feeder, substantially as described, the combination, with the hopper, the stationary disk C , and the cylinder D , having spherical surface e^3 , of a revolving disk, M , arranged diagonally across such spherical surface, and means for imparting to said disk a speed greater than that of the surfaces to which it is adjacent, substantially as set forth.

6. The combination, with the hopper, the disk C , having feed-chute opening c , and the revolving cylinder having concave surface e^3 and bevel s , of the shaft M , disk M' , and frictional pulley M^2 , all arranged and adapted to serve as and for the purposes set forth.

7. In an ore-feeder, substantially as described, the combination, with the hopper, the stationary disk, the revolving cylinder having cross-bars f , and ring G , of the adjustable arm E , adjusting-screw e^2 , and operating mechanism $H I$, &c., as specified, for the purposes set forth.

8. The combination, with the standard-frame $A A'$ and hopper B , having chute b , of the stationary disk C , having shaft C' , and weighted door e^4 , and with the movable cylinder fitting loosely around the disk, as set forth.

9. The combination, with the hopper, the disk C , having feed-aperture, and the cylinder D , having ring G , with flange g , of the arm H , having pins h , and the operating-lever I , mounted on a fulcrum substantially in the center of the cylinder and disk, as set forth.

In testimony whereof I affix my signature, in presence of two witnesses, this 20th day of April, 1885.

WILLIAM S. SHARPNECK.

Witnesses:

WM. KNAPP,
D. S. BENTON.