

C. P. STANFORD,
Ore-Feeders for Grinding and Crushing-Mills.
 No. 139,523. Patented June 3, 1873.

Fig. 1.

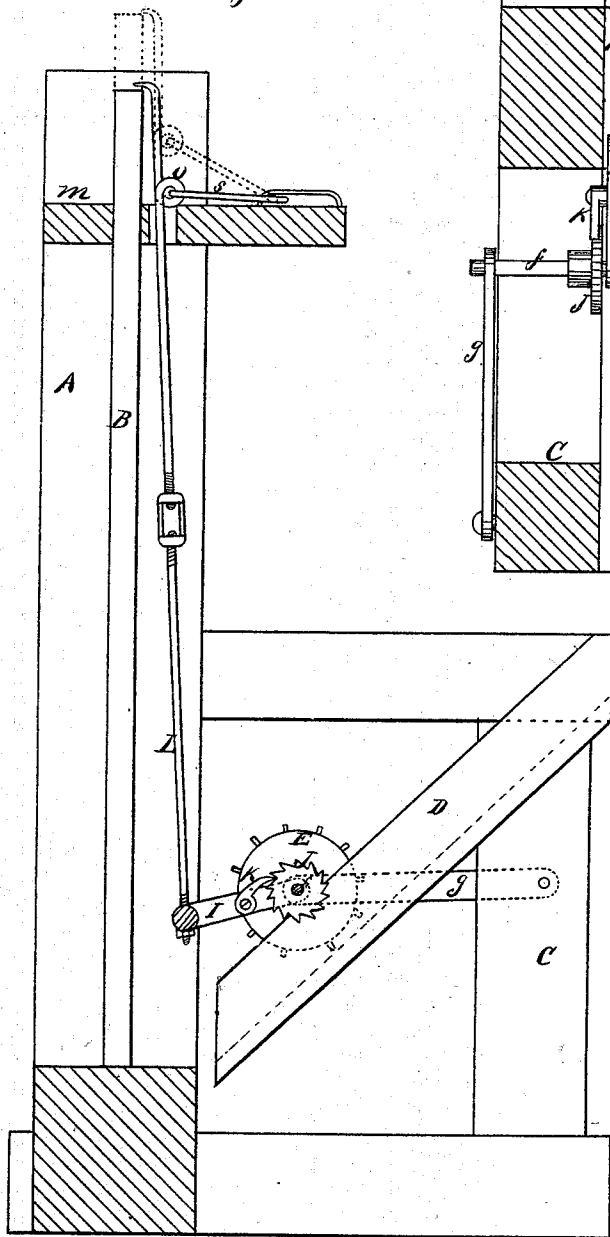
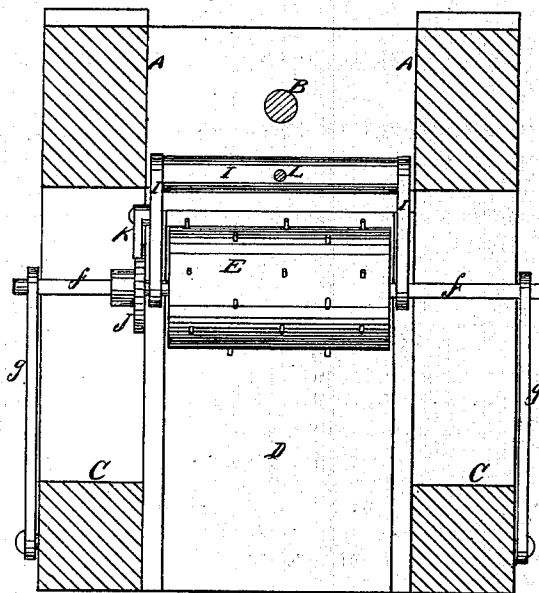


Fig. 2.



Witnesses

J. L. Boone
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UNITED STATES PATENT OFFICE.

CHARLES P. STANFORD, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN ORE-FEEDERS FOR GRINDING AND CRUSHING MILLS.

Specification forming part of Letters Patent No. **139,523**, dated June 3, 1873; application filed November 4, 1872.

To all whom it may concern:

Be it known that I, CHARLES P. STANFORD, of San Francisco city and county, State of California, have invented Improvements in Ore-Feeders; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

My improvement in ore-feeders relates to an arrangement by which the feeding is accomplished automatically, by the lifting of the stamp's stem instead of by the drop, as heretofore, thus supplying the ore at the instant the stamp is raised and out of the way.

In order to explain my invention so that others will be able to understand its construction and operation, reference is had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a side sectional elevation of my device. Fig. 2 is a horizontal section.

A A are the upright frame-timbers of a stamp-mill, and B is the stamp-stem, which is moved up and down between them in the usual way. C is a supplementary frame at one side of the main frame, and which supports the chute D at the proper angle, to convey the ore beneath the stamp. E is a roller or cylinder, which is of the proper length to fit inside of the sides of the chute when placed transversely across it a short distance above its lower end. A shaft, *f*, passes longitudinally through the cylinder, and extends to each side of the frame, where its ends bear in the extremity of adjustable arms or links *g g*, the opposite ends of which are pivoted to the upright timbers of the supplementary frame. This attachment permits the cylinder to rise and lower, according as the surface of the ore in the shoe may vary. The cylinder or feeder is armed with radial teeth, similar to the teeth of a thrashing-cylinder, so that every time it revolves toward the lower end of the chute, a portion of the ore is carried below it, and falls beneath the stamp. A loosely-swinging yoke, I, has the ends of its arms attached to the shaft *f*, one on each side of the cylinder, and at either one or both ends

of the cylinder, outside of the arms of the yoke I, a ratchet-wheel, J, is fixed upon the shaft. A pawl, K, is secured to the arm or arms of the yoke, so as to engage with the ratchet or ratchets J, and as the yoke is lowered and lifted, the pawls engage with the teeth of the ratchet and revolve the cylinder. In order to operate the yoke or pawl-carrier I, a rod, L, passes up through the cross-timber M of the frame, the lower end of which is loosely attached to the pawl-carrier. A suitable stop or enlargement, O, near the upper end of this rod, rests upon the upper side of the cross-timber, and supports the rod in its position when it is free. The rod extends above the projection O, and has its upper extremity bent so as to come just over the upper end of the stamp-stem when the stamp is down; but when the stamp is lifted, the upper end of the stamp-stem catches the hooked or curved projection and lifts the rod, which also raises the pawl-carrier and turns the cylinder. A stop-link, S, is attached to the rod L, and to the upper side of the cross-timber, which serves to limit the lift of the rod and draw it back from the end of the stamp-stem when the rod has been lifted to a certain height, thus freeing it and allowing it to drop down ready for the next lift of the stamp.

As long as a sufficient quantity of ore is beneath the stamp, the stamp-stem will not drop low enough to catch the curved upper end of the rod L; but as soon as the ore beneath the stamp has been reduced sufficiently to require another charge, the stem will catch the curved end of the rod and feed the ore to it in the usual way, thus regulating the feed according to the requirements of the stamp.

By this means I provide an ore-feeder for crushing-mills that is operated by the lift of the stamp-stem, and by which the ore is deposited beneath the stamp when it is raised, thus placing it at once in position to be crushed by the descending stamp.

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

1. The toothed cylinder E, in combination with the chute D, substantially as and for the purpose above described.

2. The adjustable toothed cylinder E, in combination with the chute D, for the purpose described.

3. The adjustable toothed-cylinder E, ratchet-wheel J, and pawl-carrier I with its pawl K, in combination with the rod L and stamp-stem B, substantially as and for the purpose above described.

4. The above-described or equivalent device

for feeding ore to crushing-mills, when arranged to be operated by the lift of the stamps, as above described.

In witness whereof I hereunto set my hand and seal.

CHARLES P. STANFORD. [L. S.]

Witnesses:

J. L. BOONE,

C. M. RICHARDSON.