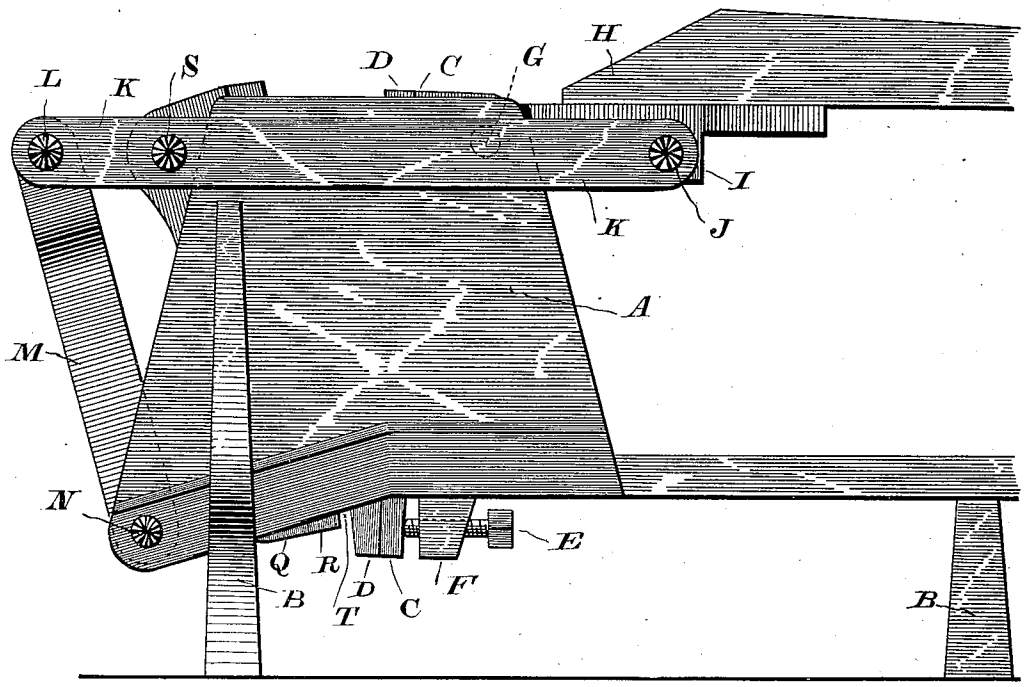
(No Model.) 2 Sheets—Sheet 1.

H. R. TAYLOR.

ORE CRUSHER AND PULVERIZER.

No. 313,554. Patented Mar. 10, 1885.

FIG. 1.



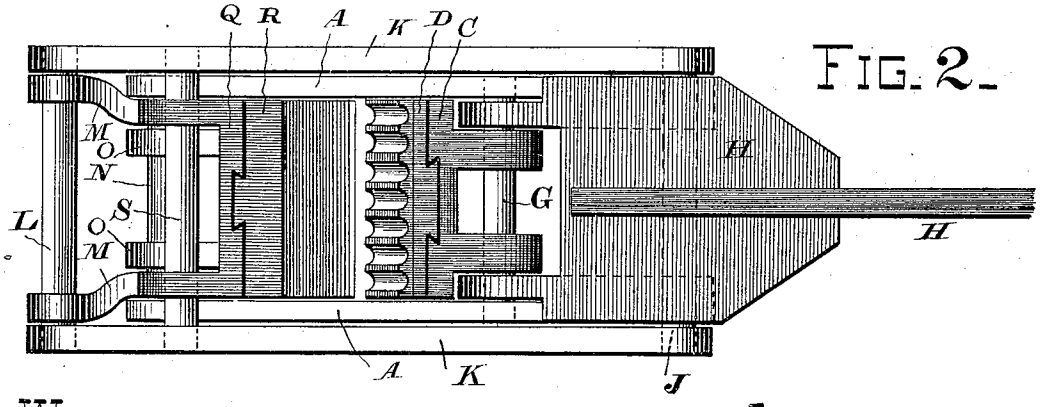


FIG. 2.

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FIG. 3.

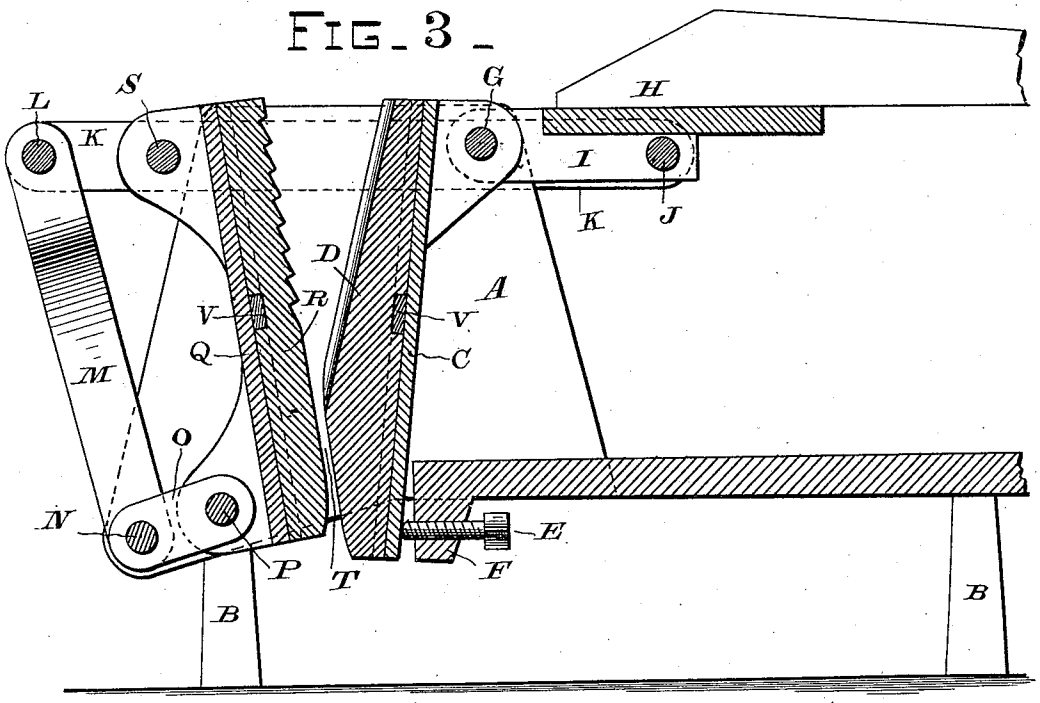


FIG. 4.

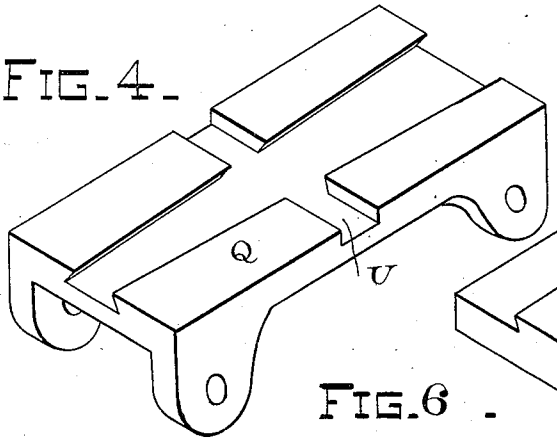


FIG. 5.

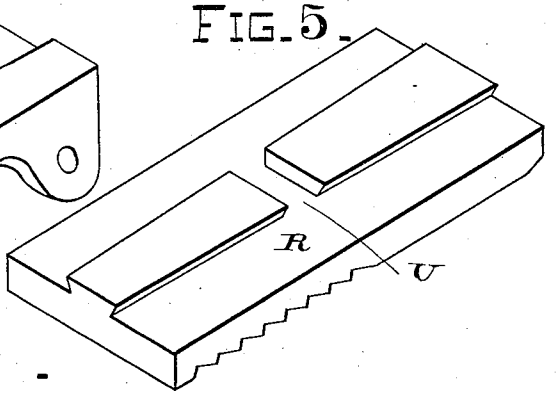
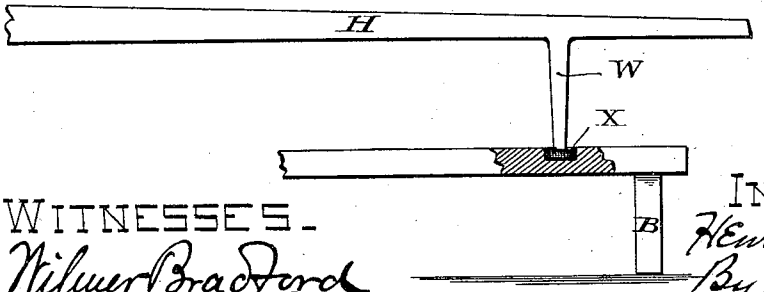


FIG. 6.



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UNITED STATES PATENT OFFICE.

HENRY R. TAYLOR, OF OAKLAND, CALIFORNIA.

ORE CRUSHER AND PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 313,554, dated March 10, 1885.

Application filed August 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. TAYLOR, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Ore Crushers and Pulverizers, of which the following is a specification.

My invention relates to improvements in mills for breaking ores into small pieces and pulverizing the same preparatory to being fed to the stamp-batteries; and it more particularly relates to such mills or ore-crushers as are provided with a fixed and a movable jaw, between which the stones or pieces of ore are fed and crushed.

Figure 1 is a side elevation of my improved ore crusher and pulverizer. Fig. 2 is a top view of the same. Fig. 3 is a central longitudinal sectional view. Fig. 4 is a perspective view of one of the jaws, and Fig. 5 is a perspective view of its case-hardened removable facing. Fig. 6 is a detail view showing the outer end of the operating-lever handle to be used when the machine is operated by hand-power.

Similar letters of reference are used to designate like parts throughout the several figures.

A represents the side walls of the supporting frame-work of my machine mounted upon supports or legs B. To the upper rear corners of the frame or side walls, and between the same, I pivot the fixed jaw C, having a removable facing, D, provided with vertically-arranged flutes or corrugations. This jaw extends down through the base or floor of the frame-work, and its vertical position within the opening through which it passes is regulated by the set-screw or bolt E working through a lug, F, forming part of the floor.

Upon the same bolt G which supports the fixed jaw, I pivot the operating-lever H, having lugs I upon the under face thereof, which receive the bolt J, the ends of which extend out past the sides of the frame A, and to this bolt is pivoted the levers K K, one upon each side of the machine, which extend forward for some distance past the front end of the side walls or frame, and are connected together by a pivot-bolt, L, upon which is pivoted the lever-arms M M, which extend down toward the base of the machine and are connected together at their lower ends by the bolt N, which has its outer bearings in the lower forward end of the side frame, A A.

Pivoted upon the bolt N are two short levers, O O, which extend backward, and their rear ends are connected by a pivot-bolt, P, to lugs projecting from the lower end of the movable jaw Q, which is also faced with a hardened-metal facing, R, having horizontal or transverse corrugations or ridges, as shown in Fig. 3. The upper end of the movable jaw is also provided with lugs, through which passes the pivot-bolt S, which has its outer bearings in the side lever-arms, K K.

The horizontal corrugations or ridges upon the face of the movable jaw are made with a short backward cut or side and a long forwardly and downwardly extending face or side, so that when the machine is in operation the tendency will be to catch upon and force downward the adjacent pieces or fragments of rock, and at the same time to partially crush them. The corrugations upon the face of the fixed jaw are made in the usual form, and extend lengthwise of the face of the said jaw.

From an inspection of Fig. 3 it will be seen that the corrugations upon the faces of the crushing-jaws do not extend the whole length thereof, in order that a smooth surface may be had at the lower end portion of the jaws, and between such smooth portion the finer crushing or pulverizing of the ore takes place, and the fineness of the crushing will depend upon the width of space between the two faces at this point.

The removable facing of the movable jaw is made of a like thickness throughout its length; but the facing of the fixed jaw is given a swell or increased thickness near its lower end, which swell is tapered off toward the top and bottom of the plate. By this construction I am enabled to get a throat or passage way for the rock, which will be of about the same width from top to bottom, as shown at T in Fig. 3, and thereby insure the more even crushing or pulverizing of the ore and prevent the dropping out of the fragments until properly reduced in size.

The removable facings of the jaws are secured in place by a dovetail joint, which is made tapering. The tendency of the facing

on the fixed jaw being to move or be forced downward, I taper its dovetail from the top down toward the bottom; and the tendency of the facing of the movable jaw being to work upward, I taper its dovetail from the lower end upward toward the top. (See Figs. 4 and 5.) As a further precaution against slipping, I cut a transverse slit, U, through the dovetail-joint, into which is inserted a gib or key, V, (see Fig. 3,) which assists in taking up the strain and lessens the labor of knocking out the facings when it becomes desirable to replace them by fresh ones.

This machine may be operated by any suitable power-producing mechanism connected with the operating-lever H; but it is adapted, by reason of the small amount of power necessary to operate it, for a hand-power machine, in which case I provide the outer end of the lever-handle H with a foot, W, which rests upon the base-board or floor of the machine, as shown in Fig. 6.

At that point on the floor beneath the foot W, I make a hole adapted for the reception of a rubber plug, X, upon which the foot rests, and when the machine is in operation acts as a cushion to take up the jar to the operator's hand, which would otherwise occur should the foot be struck forcibly against the floor.

With the arrangement of levers herein set forth, it will be seen that during the process of crushing or pulverizing ore, I am enabled to impart both a feeding and a crushing action to the movable jaw; that by raising up the operating-lever handle H the first motion communicated to the movable jaw is an upward and outward movement, which widens the opening to the throat and permits a fresh supply of rock to enter the space T; that when the handle H is brought down, a downward movement will be imparted to the movable jaw, tending to force it down and impart a feeding motion and at the same time an inward movement, forcing it toward the stationery jaw and crushing and pulverizing the ores; and that the pivotal points from which the whole system of levers are operated are the bolts G and N, which have their bearings in the side walls or frames of the machine.

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

1. In an ore crusher and pulverizer, the combination, with the movable jaw Q, having pivots S and P, of the short horizontal levers O O, the vertical levers M M, the side lever-arms, K K, the operating-lever H, and the pivoted bolts of said levers, substantially as shown and described.

2. The side lever-arms, K K, and operating-lever H, having a foot, W, in combination with the jaws C Q and the floor or base of the machine having a rubber cushion, X, substantially as described.

3. An ore-crushing jaw having a removable facing connected to said jaw by a longitudinal dovetail, a transverse slot, U, formed across said dovetail, and a transverse key, V, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

HENRY R. TAYLOR. [L. S.]

Witnesses:
WILMER BRADFORD,
CHAS. E. KELLY.