(No Model.)

H. B. MEECH.

STONE AND ORE CRUSHER.

No. 253,742. Patented Feb. 14, 1882.

Fig. 1.

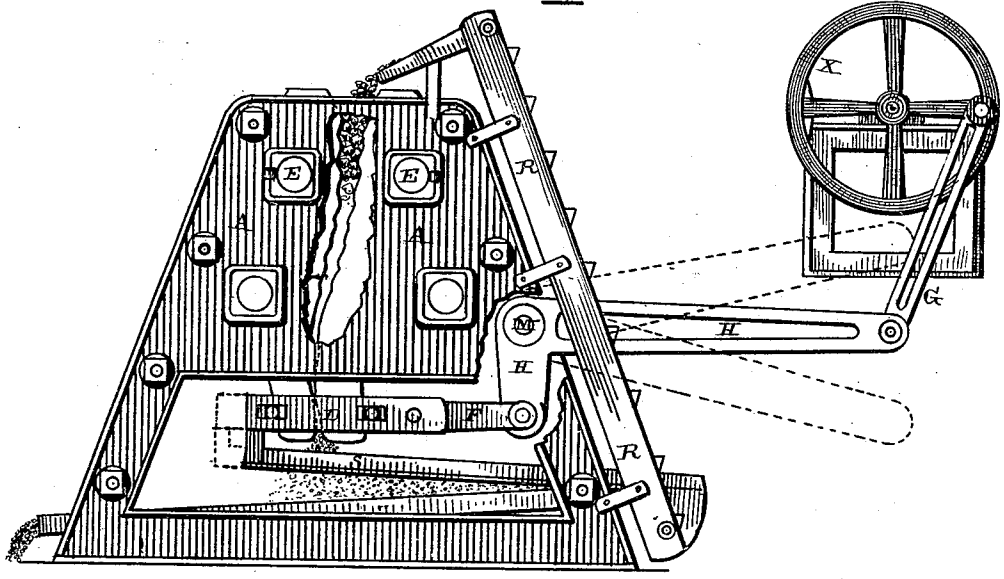


Fig. 2.

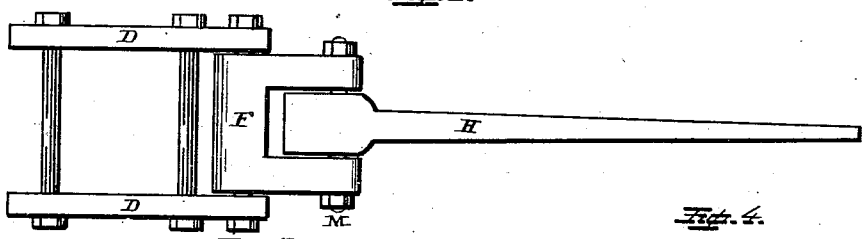


Fig. 3.

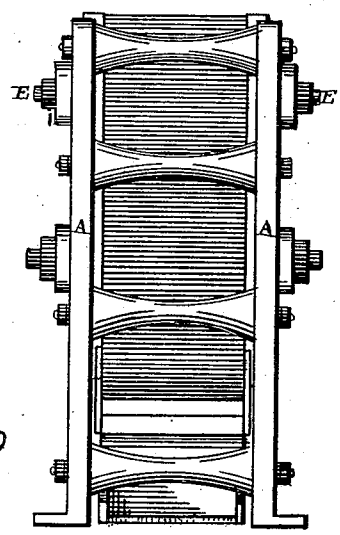
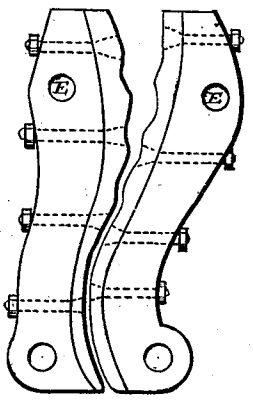


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

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STONE AND ORE CRUSHER.

SPECIFICATION forming part of Letters Patent No. 253,742, dated February 14, 1882.

Application filed November 19, 1881. (No model.)

To all whom it may concern:

Be it known that I, HARRISON B. MEECH, of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Stone and Ore Crushers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in stone and ore crushers; and it consists in the combination of two pivoted jaws which have both a convex and a concave surface, and which are provided at their upper ends with suitable roughened surfaces for breaking the lumps of ore, and at their lower ends with comparatively smooth surfaces for grinding the broken pieces, and a suitable frame which is attached to the lower ends of the jaws for the purpose of working them back and forth, as will be more fully described hereinafter.

The object of my invention is to so shape and construct the jaws that when they are reciprocated back and forth by any suitable mechanism they will exert both a crushing and a grinding effect upon the ore or stone, and thus reduce it much more perfectly than can be done where a simple crusher alone is applied.

Figure 1 is a side elevation of my invention complete, partly in section. Fig. 2 is a plan view of the frame which moves the lower ends of the jaws. Fig. 3 is an end view of the frame, showing the manner of bolting it together. Fig. 4 is a detached view of the jaws by themselves.

A represents the two iron frames, which are bolted together by means of suitable bars or braces, so as to form a solid rigid frame in which the two crushing-jaws are pivoted at their upper ends. Each one of these jaws has secured to its inner surface by means of suitable bolts a chilled, hardened, or steel plate, which has its surface provided with suitable corrugations, so as to take a better hold upon the ore or stone which is to be crushed. These jaws are made concave at one end and convex at the other, as shown, and are separated a sufficient distance at their upper ends to allow the stone or ore to be freely fed in between them, while their lower ends are in just close enough contact with each other to grind and pulverize the ore very thoroughly before it passes out from between them. The lower portions of these jaws, where they come in contact with each other, are not provided with such large grooves, ridges, or other projections as the upper portion, for the reason that they are to move back and forth upon each other, and exert not only a pressure but a grinding effect upon the stone or ore which is being crushed between them. The lower ends of these jaws are connected together by means of a rectangular frame, D, which has secured in one end the swiveled connecting-piece F. Bolted to this swiveled connecting-piece F is the lower end of the L-shaped lever H, which is connected at its outer end by the connecting-rod G with a wheel or any other suitable operating mechanism, X. As this L-shaped lever H is made to rock upon its pivot M the frame D is pushed back and forth, and the lower ends of the jaws are caused to move with it. As these jaws are pivoted at E near their upper ends, their lower ends are made to rub back and forth over each other as they are reciprocated, and thus exert a grinding and a rubbing effect upon the ore. As the ore drops from the lower ends of the two jaws it is caught upon a sieve, S, which may be made to constantly reciprocate, so as to shake the finer portions of the ore or rock through it, while the coarser portions will be carried down toward a suitable receiver which is connected with an elevator, R, so that these larger portions will be carried up and dropped back in between the jaws, so as to be again passed in between them. By means of this construction only ore or rock which has been crushed to a certain fineness will get outside of the frame.

I am well aware that jaws have heretofore been pivoted at their upper ends, and that the jaws have been made one concave and the other convex, and this I disclaim. My invention consists in making each one of the jaws both concave and convex upon its inner side, so that their upper ends will break the ore, while their lower ends will grind and pulverize it.

I am aware that it is not new to reciprocate the jaws by means of a yoke, and that it is not new to provide the jaws with concave and con-

vex surfaces which are smooth from top to bottom.

Having thus described my invention, I claim—

In an ore-crusher, the combination of the two jaws pivoted at their upper ends and having both concave and convex surfaces, the said surfaces being roughened at their tops where the ore is broken and comparatively smooth at their lower ends where the broken ore is ground, with the frame D, the pivoted connecting-link, and the cranked lever H, which is connected at its outer end to an operating mechanism, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

HARRISON B. MEECH.

Witnesses:

L. D. FREDRICKS,

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