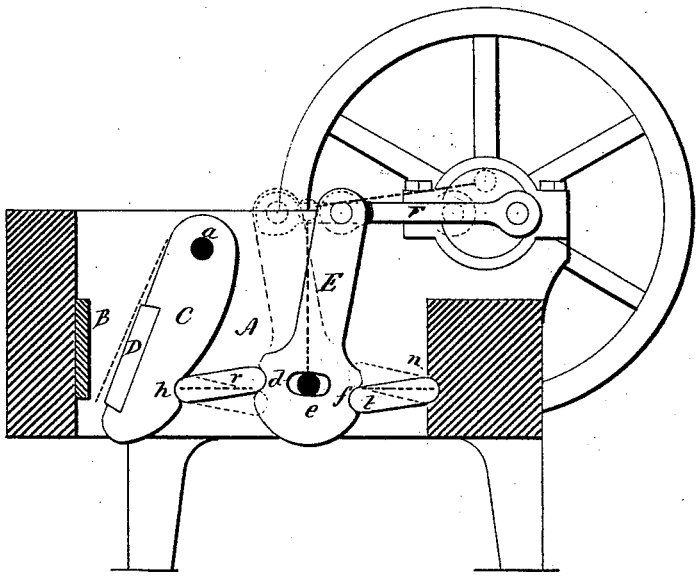
S. L. MARSDEN.

STONE CRUSHER.

No. 181,698. Patented Aug. 29, 1876.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL L. MARSDEN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE BLAKE CRUSHER COMPANY, OF SAME PLACE.

IMPROVEMENT IN STONE-CRUSHERS.

Specification forming part of Letters Patent No. **181,698**, dated August 29, 1876; application filed July 24, 1876.

To all whom it may concern:

Be it known that I, SAMUEL L. MARSDEN, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Stone-Crushers; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent a sectional side view.

This invention relates to an improvement in the machine for crushing stone, commonly known as the Blake crusher, the object being to relieve the strain upon the driving mechanism. It consists in combining, with the vibrating crushing-jaw, a vibrating lever in connection with the shaft, and hung upon a pivot with slight longitudinal movement on the said pivot, and with a block between the said lever and the said jaw on one side, and the said lever and abutment on the opposite side, in line with the said pivot, whereby the said lever and blocks form a compound toggle for imparting a reciprocating movement to the said jaw, as more fully hereinafter described.

A represents the frame; B, the stationary cheek; C, the crushing-jaw, pivoted at *a*, and provided with a crushing-cheek, D, in substantially the usual manner of a Blake crusher. E is a lever, hung upon a pivot, *e*, below the pivot of the crushing-jaw, or in substantially longitudinal line from the point of applying the power to the jaw. The lever at the fulcrum or pivot *e* is constructed so as to have a slight longitudinal movement by either slotting the lever at the pivot or making a sliding bearing for the pivot. The other end of the lever E is connected to the driving-shaft by a rod, F, or other known device. The lever is formed with a seat, *d*, on one side, and *f* on the other, in line with the pivot, and the jaw C is constructed with a corresponding seat, *h*, and the abutment in the rear, or the other side of the lever is also constructed with a seat, *n*. These seats *h*, *d*, *f*, and *n* are in line with the pivot when the lever stands in its central position, as indicated by the heavy broken lines. Between these seats on the lever and the seat on the jaw, and on the abutment, blocks *r* and *t* are placed, fitting the seats, but so as to allow a vibrating movement to be imparted to the lever from the driving-shaft, as indicated in broken lines. In this vibratory movement of the lever the seats *d* and *f* are carried from the point above to the point below the central line, and vice versa, one working up as the other works down. When standing in either of the extreme positions, therefore, the seats *d* and *f* will be one above and the other below the center, according to whether the lever is forward or back, as shown, and this position correspondingly carries one end of one block up, and the corresponding end of the other block downward, thus standing in an inclined position, as indicated.

This condition allows the crushing-lever to fall back its maximum distance from the stationary cheek; then the lever moving, turns the two blocks *r t* one up and the other down, until they come into line with the pivot, thus forcing the jaw C toward the stationary cheek to the extent of the sum of the two arcs produced by such movement of the said two blocks, and which is the full movement of the crushing-jaw.

The sliding movement of the lever on the pivot is necessary, because of the rear block *t*, which will force the lever forward to the extent of the arc described by the block.

This arrangement of the lever and blocks so far multiplies the leverage over the usual construction that much less actual power is required to produce the crushing force, and hence enables the construction of a machine for hand-power, or for very much less power than when but a single toggle is used.

I claim—

As an improvement in the Blake crusher, the combination of the crushing-jaw and a reciprocating lever hung upon a movable fulcrum, with a block between the said lever and jaw on one side, and between the lever and abutment on the opposite side, substantially as described.

S. L. MARSDEN.

Witnesses:
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