

S. J. Mc Dougall. Quartz Crusher.

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PATENTED  
FEB 18 1868

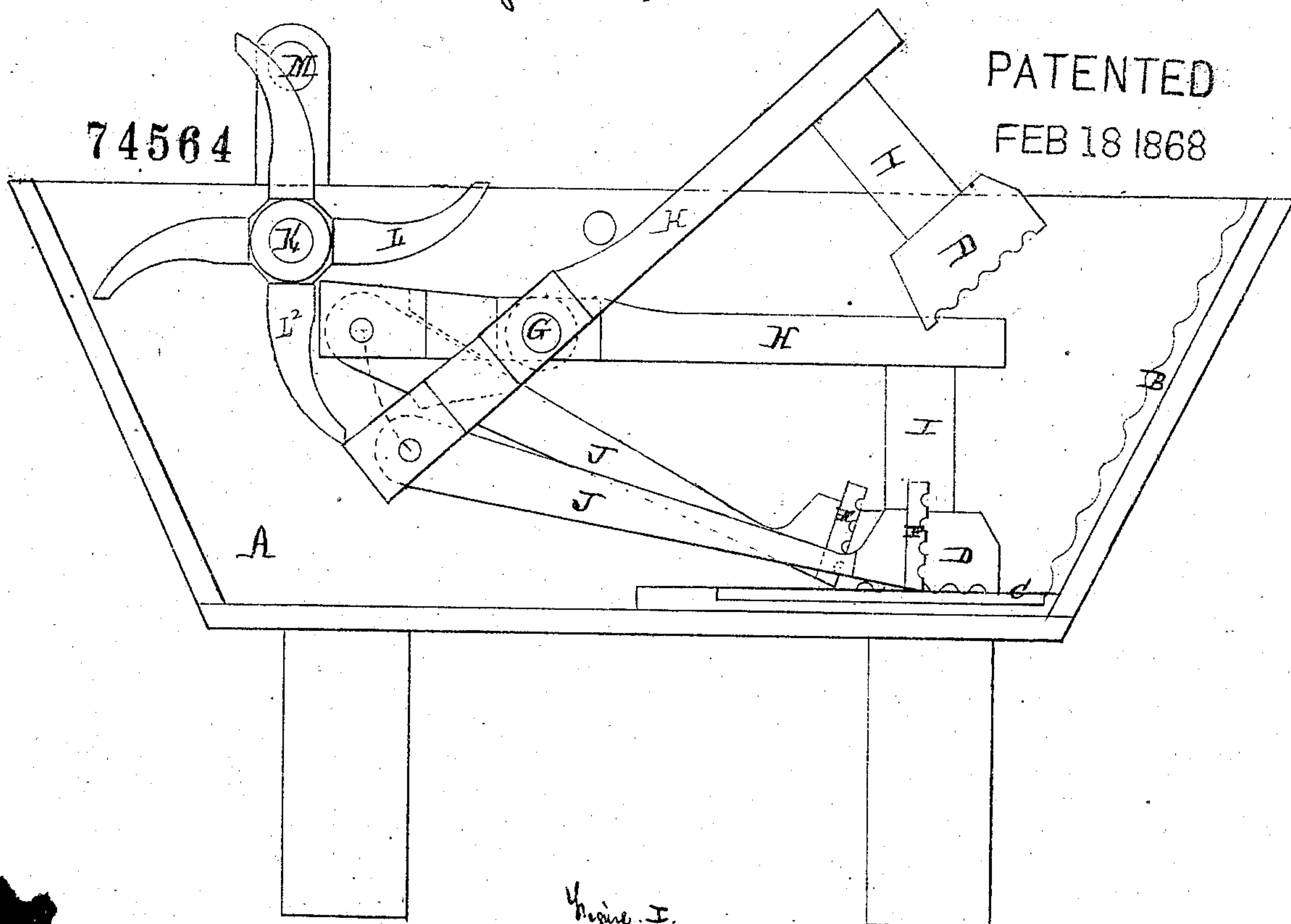


Figure 1.

Geo. J. Gordon } S. J. Mc Dougall by his atty  
C. C. Gordon } Affidavit sworn

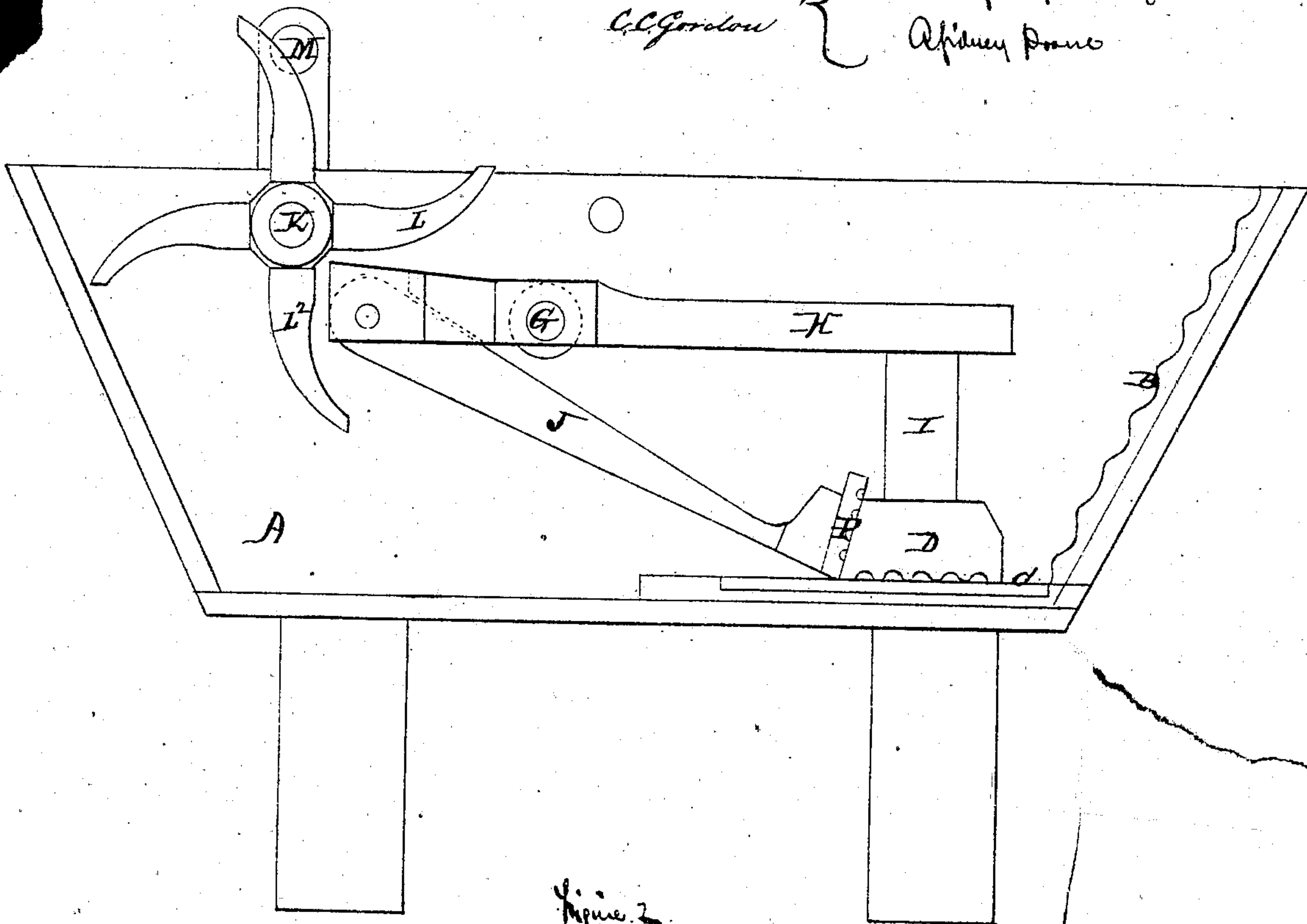


Figure 2.

# United States Patent Office.

S. T. McDOUGALL, OF BROOKLYN, NEW YORK.

*Letters Patent No. 74,564, dated February 18, 1868.*

## IMPROVED QUARTZ-CRUSHER.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, S. T. McDOUGALL, of Brooklyn, in the county of Kings, New York, have invented, made, and applied to use a new and useful Quartz-Crusher; and I do declare that the following is a full, clear, and correct description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of my improved quartz-crusher.

Figure 2 is a side elevation of the same.

In the drawings like parts of the invention are pointed out by the same letters of reference.

The nature of my invention consists in certain new and useful improvements, as more fully hereinafter set forth, in the construction and operation of a quartz-crusher.

To enable those skilled in the arts to make and use my invention, I will describe the construction and operation of the same.

A is a box, to receive the quartz to be crushed. About midway the length of the box is inserted the shaft G, having its bearings in the sides of the box, and supporting the pounders and followers. Upon this shaft are hung the long arms or levers H, having attached to their forward ends the short arms I, holding the pounders, which may be blocks of wood or metal, of any desired size, having their under sides corrugated or fluted. These arms or levers, H, have their rear ends slotted, to receive the rear ends of the shorter arms or levers J, which support upon their forward ends the followers F, consisting of the upright blocks of wood or metal, having their faces corrugated or fluted, which faces fall, when the machine is not in operation, directly behind the pounders or beaters D. K is a shaft, inserted in the box A, back of and above the shaft G, and L and L<sup>2</sup> are cams placed and held upon the same. This shaft K is provided with a crank, M, to which a handle may be attached.

Such being the construction, the operation may be thus described: The quartz to be crushed having been introduced into the box A (partially filled with water) at its forward end, directly in front of the beaters and followers, motion is imparted to the shaft K, upon which are the cams L and L<sup>2</sup>. As this shaft revolves, the cams L and L<sup>2</sup> impinge upon the rear ends of the levers H and depress the same, by which movement the forward ends of the same, to which are attached the pounders or beaters, are elevated until the cams pass beyond the rear ends of the levers H, when the same drop upon the quartz pushed beneath them by the followers, which, as the cams impinge upon the rear ends of the levers H, are thrown forward by their being attached to the arms J, receiving a forward movement from the impingement of the cams upon the rear ends of the levers to which they are attached. Thus it will be seen that the cams accomplish a double purpose, namely, elevating and depressing the pounders or beaters, and giving to the followers a reciprocating movement. Again, it will be observed that the cams are so positioned upon the shaft that the beaters or pounders and followers employed are operated alternately; thus, when one pounder or beater is elevated the other is thrown down, and when one follower is thrown forward the other has been thrown back to its position behind the pounder or beater to which it is attached. The quartz is thus constantly crowded up beneath or brought into contact with the pounders or beaters, and the operation is greatly facilitated and made most thorough.

A rod is sometimes employed to prevent the arms H from being thrown back too far, and serves to act as a spring to depress them. This rod is placed on a line with the shaft K, and slightly in advance of shaft G, and when desired, the under sides of the pounders and faces of the followers may be formed of corrugated or fluted rubber.

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

Combining, constructing, and operating the pounders and followers, substantially as shown, for the purposes indicated.

S. T. McDOUGALL.

Witnesses:

A. SIDNEY DOANE,  
GEO. P. GORDON.