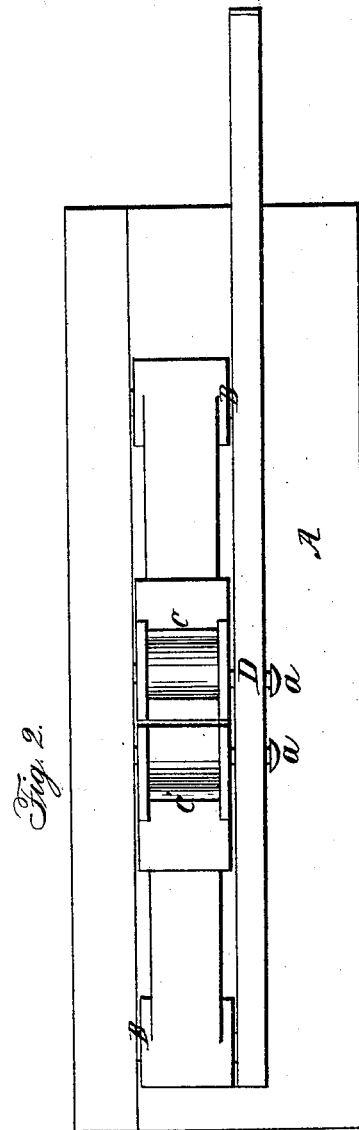
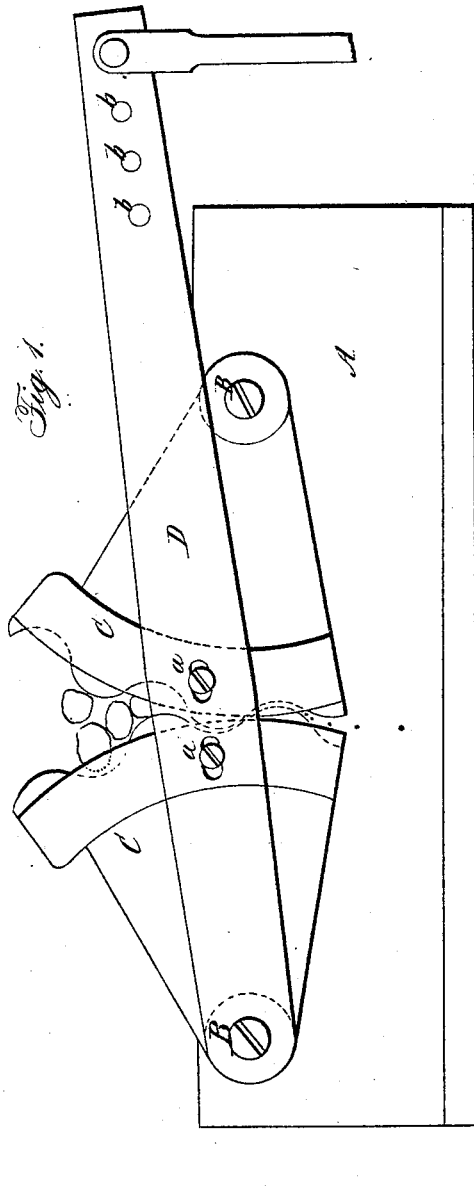


A. BUCHANAN.

Ore Crusher.

No. 50,683.

Patented Oct. 31, 1865.



Witnesses:

*Wm. Stearn*  
*W. Haupt.*

Inventor:

*Andrew Buchanan*

# UNITED STATES PATENT OFFICE.

ANDREW BUCHANAN, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN QUARTZ-CRUSHERS.

Specification forming part of Letters Patent No. 50,683, dated October 31, 1865.

*To all whom it may concern:*

Be it known that I, ANDREW BUCHANAN, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Machine for Crushing Quartz, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of this invention. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a machine for crushing quartz and other hard substances, in which two segments are employed with smooth or corrugated faces, said segments being hung on rock-shafts or gudgeons, and connected at or near their peripheries to a lever or other suitable device in such a manner that by the action of said lever or other device a very powerful oscillating motion can be imparted to the segments, and quartz or other materials placed between their faces are crushed with ease and facility.

If a lever is used to impart to the segments the desired motion, the crushing-power can be increased to any desired extent, and the motion of the segments can be easily adapted to the material to be crushed.

A represents a frame or box, of cast-iron or other suitable material, the sides of which form the bearings for the rock-shafts or gudgeons B of the segments C. These segments are made of cast-iron or other suitable material, with plain or corrugated faces, according to the material to be crushed. An oscillating motion is imparted to these segments by means of a lever, D, which has its fulcrum on the gudgeon or rock-shaft of one of the segments, and catches over a stud, *a*, which projects from said segment near its periphery; or, if the faces of the segments are plain, said lever is made to catch over two studs, one on each segment, as clearly shown in the drawings.

The lever may be made of any desired length, and its loose end is connected to a steam-engine or other source of power in such a manner that a slow oscillating motion can be imparted to it.

By connecting the lever to the segments near their crushing-faces the gudgeons or rock-shafts are relieved from all torsional force to which they are subjected if the power is applied by means of cog-wheels or other devices to the rock-shafts or gudgeons, and a very powerful motion can be imparted to said segments without requiring any costly or intricate machinery.

The lever D may be provided with a series of holes, *b*, so that the connecting-rod can be brought closer to or farther from its fulcrum, and the throw of the segments can be regulated according to the material to be crushed.

If the lever connects to both segments, that slot in the same which catches over the stud of the second segment must be made oblong in order to permit the motion. It is obvious, however, that different means might be employed to impart the desired motion to the segments, and I do not wish to confine myself to the precise mechanism shown in the drawings, but reserve the right to change the same as circumstances may render it necessary or desirable. A shaft might be used, for instance, with one or more cranks connecting with one or both segments at points near their peripheries; but I use, by preference, the lever, because it gives me a chance to increase the crushing-power with little expense, and to regulate the throw of the segments in a simple manner.

If desired, one or both segments may be made adjustable, so that their crushing-faces can be brought closer together or farther apart, as occasion requires.

What I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of two segments C, with curved crushing-faces either plain or corrugated, in combination with a mechanism for imparting to the same an oscillating motion, substantially as and for the purpose set forth.

2. The oscillating lever D, in combination with the segments C, constructed and operating substantially as and for the purpose described.

ANDREW BUCHANAN.

Witnesses:

M. M. LIVINGSTON,  
C. L. TOPLIFF.