

(No Model.)

A. E. REDSTONE.

QUARTZ MILL.

No. 248,791.

Patented Oct. 25, 1881.

Fig 1.

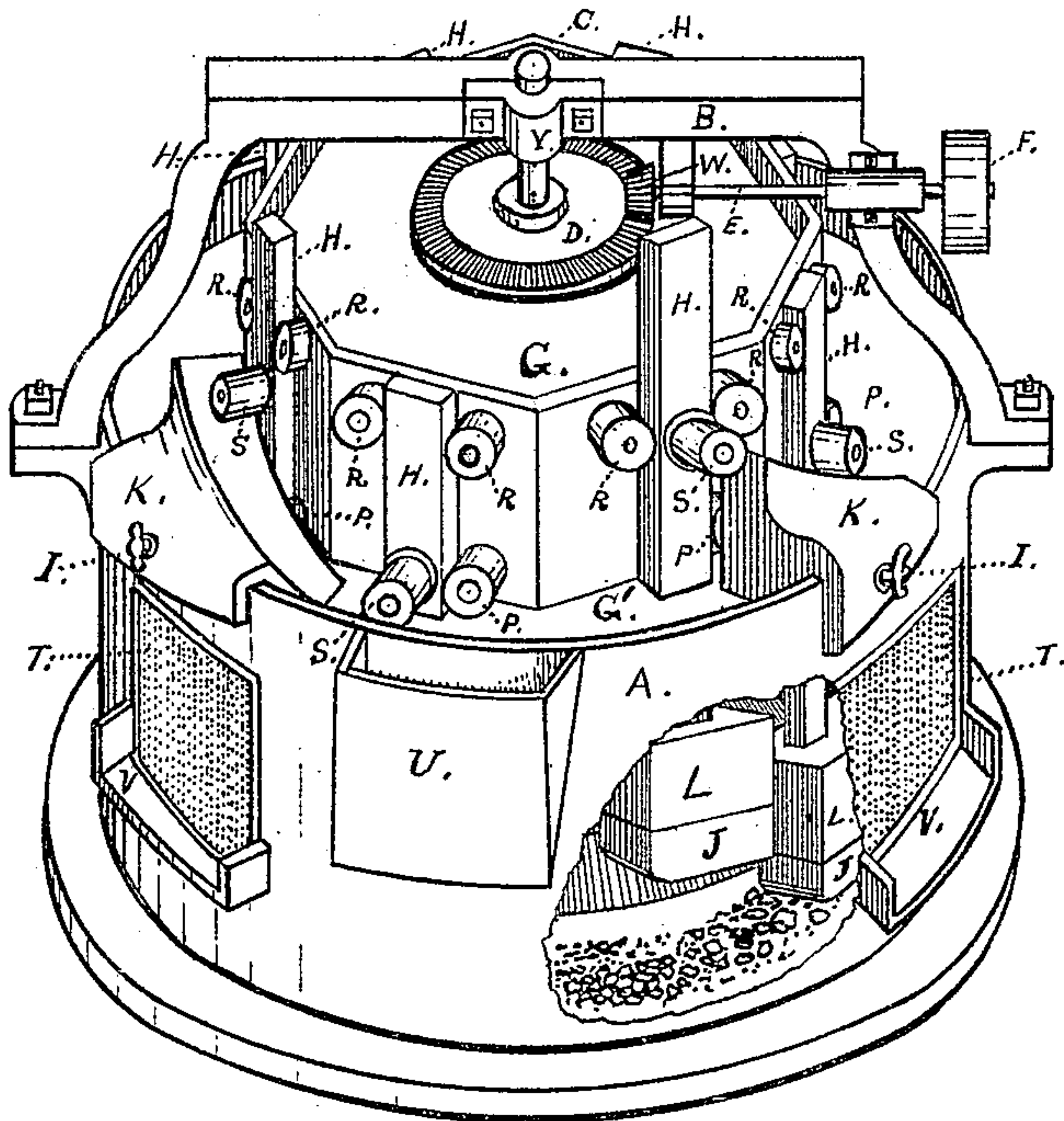


Fig 2.

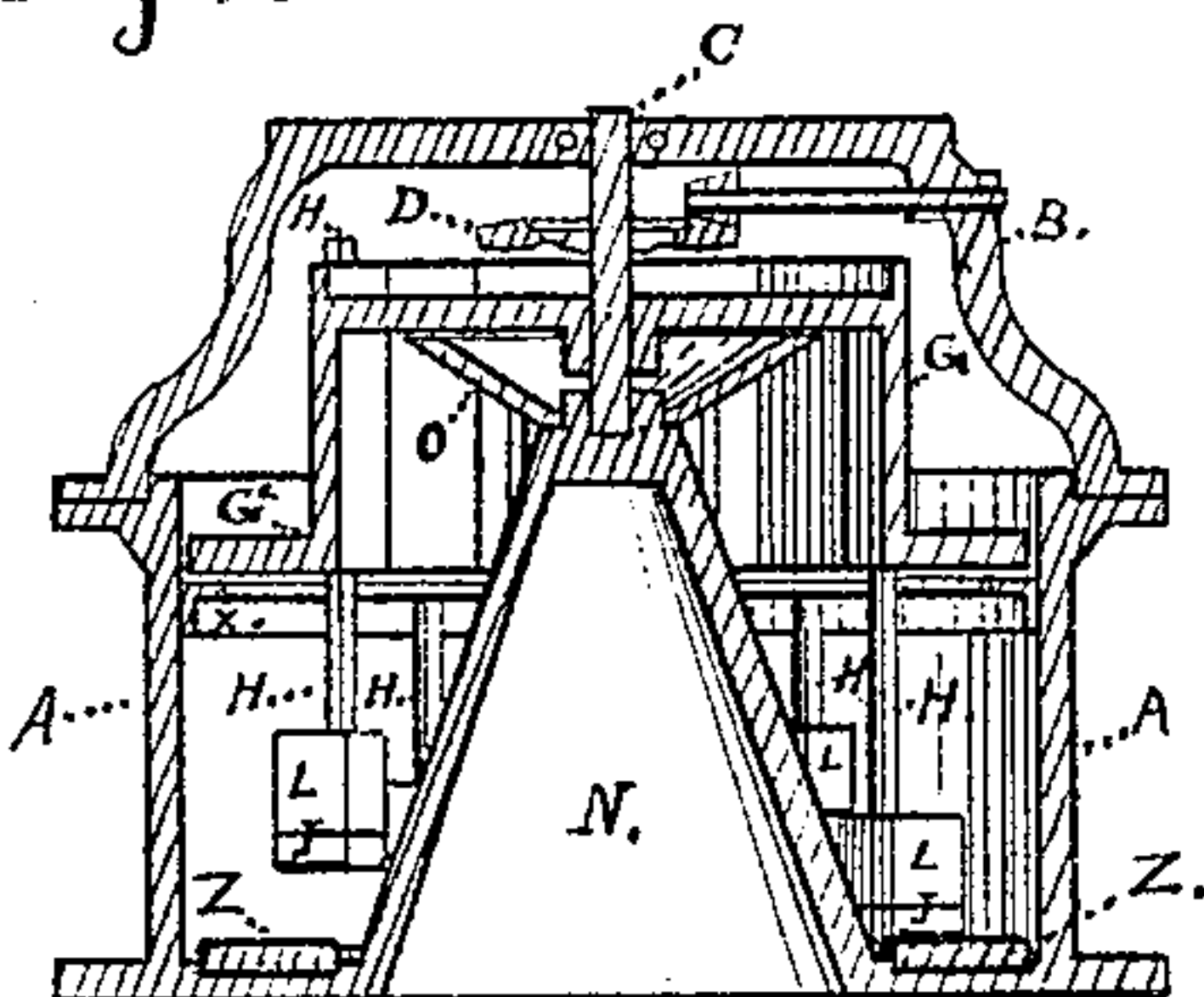
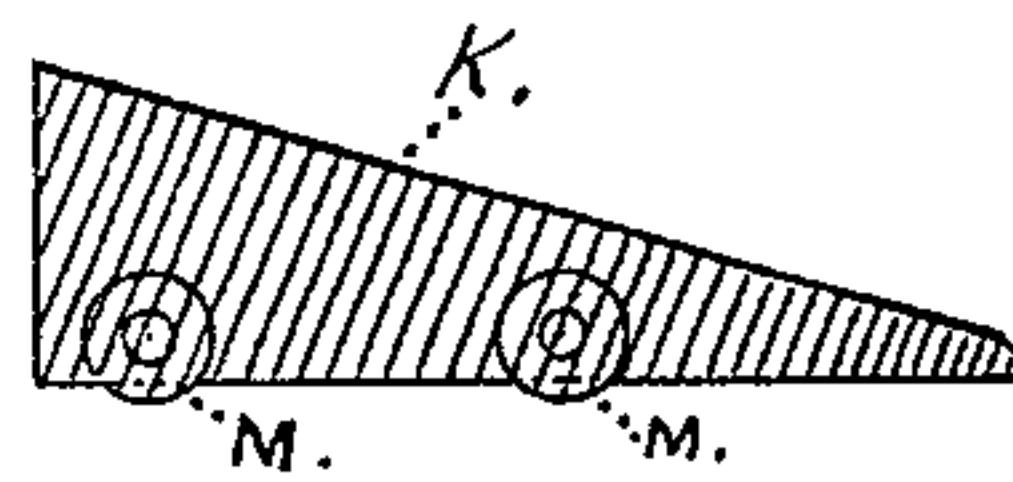


Fig 3.



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# UNITED STATES PATENT OFFICE.

ALBERT E. REDSTONE, OF OAKLAND, ASSIGNOR TO HIMSELF AND FRANK  
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## QUARTZ-MILL.

SPECIFICATION forming part of Letters Patent No. 248,791, dated October 25, 1881.

Application filed March 21, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT E. REDSTONE, of Oakland, in the county of Alameda, and State of California, have invented a new and  
5 useful Improvement in Quartz-Mills; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to an improvement in quartz-mills; and its object is an improved  
10 manner of operating the stamps, whereby the quartz is subjected to a grinding as well as a crushing action during the operation of the mill.

The invention consists, mainly, in combining with a stationary base-plate a revolving  
15 frame which carries the stamp, and a series of cams upon the base which operate the stamps in turn as they revolve.

The invention further consists in various details of construction and in the combination of  
20 the operative parts, as fully hereinafter described.

In the drawings, Figure 1 represents a perspective view of the entire device, with the enclosing-shell partly broken away. Fig. 2 is a  
25 central cross-section, and Fig. 3 is a longitudinal section of one of the cams.

The outer metallic rim or shell of the mill is shown at A. It may be cast solid in one piece, preferably of iron, or may be made in  
30 sections, united and adapted to be taken apart for portability.

The feed-opening in the side of the rim is shown at U; and V V represent chutes, where the pulp after passing through screens T T is  
35 discharged.

The space or chamber within which the pulverizing and crushing is carried on is of annular shape, and is formed by the outer rim, A, and the wall of a cone, N, formed in one  
40 piece with the rim A, or separately, if desired. In the top of this cone is stepped a vertical shaft, C, the upper end of which runs in bearings Y in the cross-piece B, the lower ends of which cross-piece are bolted to the shell A, as  
45 shown.

G is a frame mounted on the shaft C, and adapted to revolve with such shaft. Motion is imparted to shaft and frame by a bevel-wheel, D, gearing into a pinion, W, on a horizontal shaft, E, having a pulley, F, from which  
50

a belt may run to the engine or other power. The revolving frame G, which I have shown as of octagonal form, carries a series of stamps, L. Around the bottom of the frame G is a horizontal flange, G', and through this flange pass the  
55 stems H of the stamps L. On each stem is a bearing-roller, S, and on the frame are guide-rollers R R P, between which the stem passes when reciprocating.

Motion is given the stamps by a series of  
60 stationary adjustable cams, K, mounted on the shell A. These cams consist of an inclined plate having its bottom deeply slotted and provided with an adjusting-screw, I. The slot fits upon the upper edge of rim or shell A, and  
65 the position of the cam on this rim may be adjusted by the screw to vary the force of the blow of the stamp.

Near the upper part of the cone N is a shoulder, upon which rests the splash-board O, 70 formed like an inverted cone. The purpose of this is to protect the bearings of the shaft C from grit, which would otherwise lodge there.

X is a splash-rim, which prevents the pulp from working between the outer end of flange  
75 G' and the shell A.

The dies Z are cast in any desired lengths to fit around the bottom of the machine in the path of the stamps.

The purpose of this construction just de-  
80 scribed is to give a double motion to the stamp, to effect, besides the crushing caused by the vertical blow of the stamp, a grinding of the quartz between the stamp and die, and to accomplish this the operation of the mill is as  
85 follows: Motion is imparted to the frame G which carries the stamps, and such stamps in their revolution are raised and dropped by the cams successively. The velocity which the stamps acquire in their movement with the  
90 frame gives them a momentum which causes them to strike a glancing blow, and in the interval between the drop from one cam to the commencement of the next incline they rub steadily with their full weight, producing a  
95 grinding and pulverizing effect. The number of drops per minute correspond to the number of stamps multiplied by the number of cams, and the product multiplied by the number of revolutions of the frame G. The weight of the  
100



stamp varies from forty pounds to over six hundred; but it can be increased, if necessary, by placing upon the stem an auxiliary weight having a hole to fit the stem. I find it practicable to drop the stamps one hundred and eighty times each per minute—nearly twice as often as in the stamp-mills ordinarily used.

Having thus described my invention, what I claim is—

1. In a quartz-mill, the combination of a base-plate, a revolving frame carrying a series of stamps, and a series of stationary cams, whereby the stamps are given a vertical movement to crush and a horizontal movement to grind the quartz.

2. In a quartz-mill, the combination of the

case A, the frame G, mounted on a vertical shaft, gearing D W for giving said frame a rotary motion, the stamps L, mounted in frame G and having stems H, provided with bearing-rollers S, and the inclined stationary cams K. 20

3. In combination with the cone N and the revolving frame G, mounted in the shaft C, an imperforate splash-plate, O, mounted on the said cone and surrounding said shaft. 25

4. In combination with the upper rim or edge of the shell A, the cams K, provided with a slot and having the set-screw I.

ALBERT E. REDSTONE.

Witnesses:

JOHN H. REDSTONE,  
H. P. WILLARD.