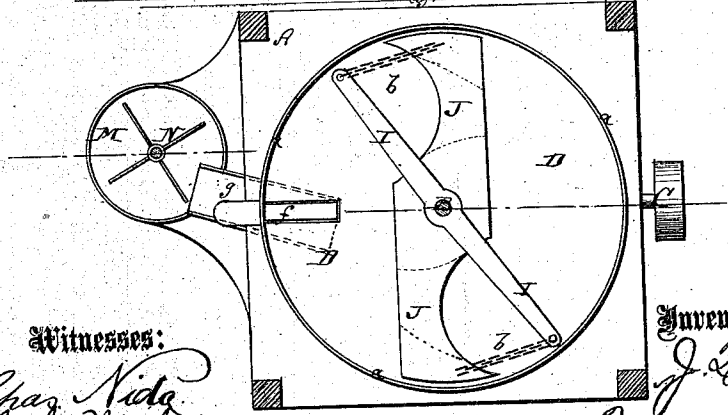
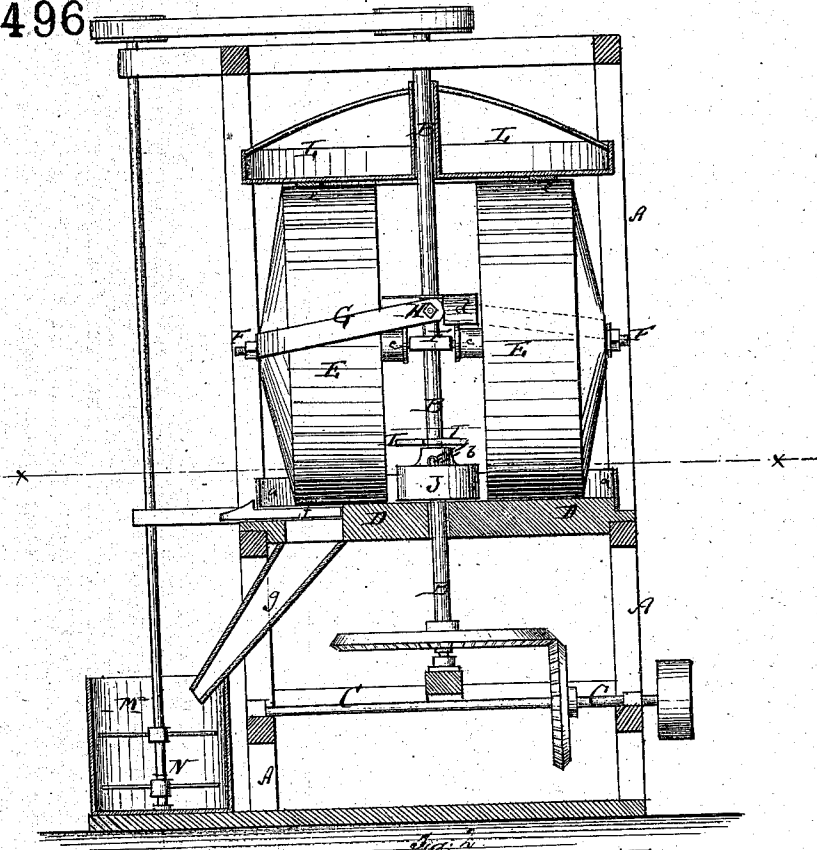


J. Quainlance's Quartz Crusher.

Fig. 1.

PATENTED JUN 21 1870

104496



Witnesses:
Chas. Nida
D. S. Mober

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PER *Wm. H. B.*
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United States Patent Office.

JESSE QUAINANCE, OF BUCYRUS, OHIO.

Letters Patent No. 104,496, dated June 21, 1870.

IMPROVEMENT IN QUARTZ-CRUSHERS.

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, JESSE QUAINANCE, of Bucyrus, in the county of Crawford in the State of Ohio, have invented a new and improved Quartz-Crusher; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a side elevation, partly in section, of my improved quartz-crusher.

Figure 2 is a horizontal section of the same, taken on the plane of the line *x x*, fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to improvements in quartz-crushers of that kind in which two or more rotary crushers are employed upon a circular bed.

The invention consists in a new construction of scraper, and in the application to the crusher-shaft of a series of dust-protectors, as hereinafter more fully described.

A, in the drawing, represents the frame of my improved quartz-crusher. It is made of wood, metal, or other suitable material, of suitable size, and strong enough to support the machinery which is connected with the apparatus.

B is the vertical main shaft of the apparatus. It has suitable bearings in the frame A, and receives rotary motion by means of gearing or otherwise from the driving-shaft C.

D is the bed of the crusher. It is placed horizontally upon the frame A, and is made circular by means of projecting rim *a*, as shown.

E E are the crushers. They are wheels made of stone or metal, or lined at the edges with the latter material. Their crushing part or main body is cylindrical, so that the edges are parallel, as shown. There are two such crushers hung loose upon opposite ends of a horizontal shaft, F. This shaft F has an eye in the middle, and is fitted loosely around the shaft B, so that it may move up and down on the same, and not be affected directly by the rotation of the same.

The ends of the shaft F are, by means of pivoted springs G G, connected with the ends of arms H H, that project from the shaft B at right angles to F.

The arms H are firmly attached to the shaft B, and serve to carry the shaft F and the crushers E around with the same.

The springs G allow the crushers to yield vertically to material of varying thickness.

I I are other arms projecting from the shaft B, a short distance above the bed D. Their ends are, by means of cords or chains *b*, connected with the ends of a scraper, J. This scraper rests upon the bed D, and works loose around the shaft B, and is so shaped, as shown in fig. 2, as to sweep the material on the bed toward the crushers.

The flexible fastening *b* allows it to yield to unequal layers of quartz.

The crushers E have tubular inner projections *c c*, embracing the shaft B, and serving to keep the dust from the bearings of the crusher.

A hood, *d*, is placed over the arms H for the same purpose.

L is a circular pan, placed upon the crushers, concentrically but loose around the shaft B. It is to be filled with a suitable quantity of weights, and imparts, by resting upon the crushers, power to the same.

A metal ring, *e*, is secured to the under side of the pan, to furnish a narrow support for the same on the crushers, the latter, working on a circular path, turn quicker on their outer than on their inner sides, and would, therefore, produce considerable friction on the pan L, should the same rest upon the whole width of the crushers.

When the quartz has been reduced to the required degree of fineness, a plug, *f*, in the bed D, is withdrawn, and thereby the upper end of a spout, *g*, opened. The spout conducts the quartz into the amalgam-pan M, in which a suitable stirrer, N is set up.

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

1. The tubes *c c* and hood *d*, arranged with relation to the crushers E E, shafts F, and arms H H, as and for the purpose specified.
2. The scraper J, constructed as shown, arranged loose on the shaft B; and connected with the fixed arms I of the same by means of the chains *b b*, as and for the purpose specified.
3. The weight-pan L *e*, crushers E E, shafts F B, scraper J, arms I, bed D *a*, all combined, constructed, and arranged to operate as shown and described.

Witnesses: JESSE QUAINANCE.

S. R. HARRIS,
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