J. C. DICKEY.

Ore Mill.

No. 33,829. Patented Dec. 3, 1861.

Fig: 1

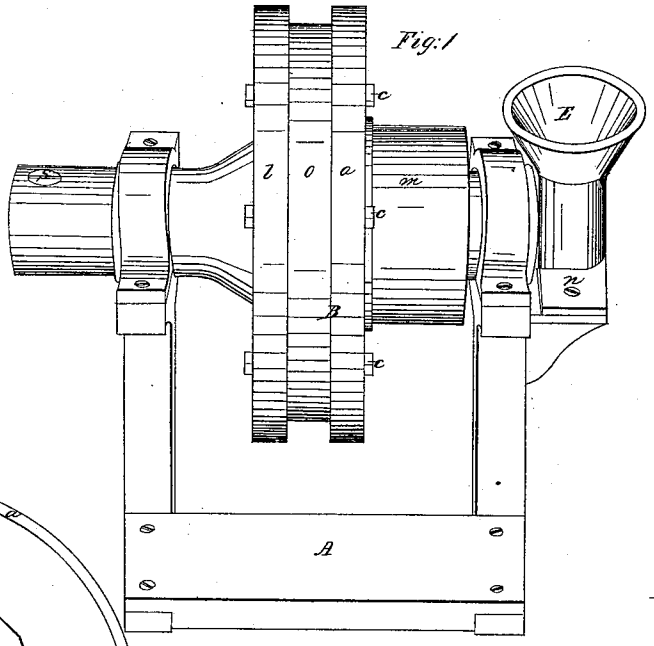


Fig: 3

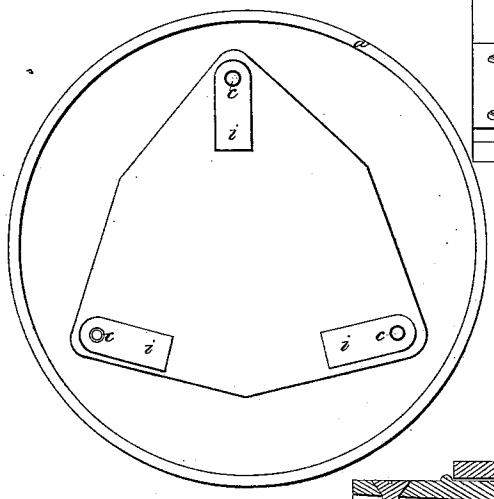


Fig: 4

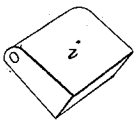
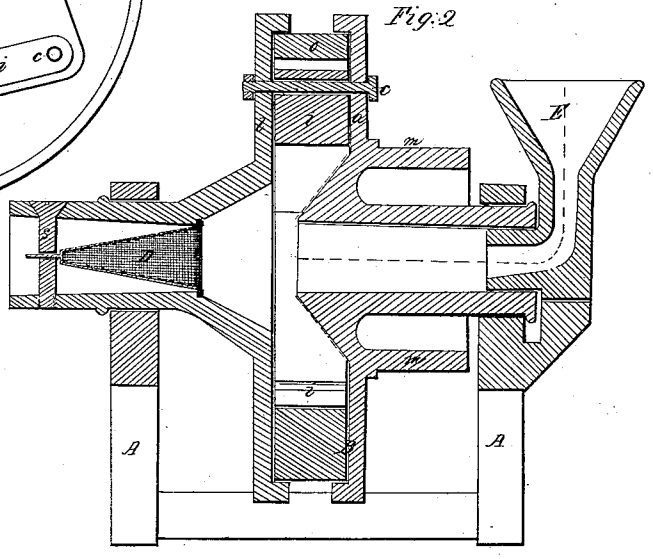


Fig: 2



Witnesses;
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UNITED STATES PATENT OFFICE.

JULIUS C. DICKEY, OF SARATOGA SPRINGS, NEW YORK.

IMPROVEMENT IN MACHINERY FOR CRUSHING OR PULVERIZING QUARTZ.

Specification forming part of Letters Patent No. **33,829**, dated December 3, 1861.

To all whom it may concern:

Be it known that I, JULIUS C. DICKEY, of Saratoga Springs, in the county of Saratoga and State of New York, have invented a new and Improved Mode of Constructing Machinery for Crushing and Pulverizing Quartz, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the employment of one or more adjustable hammers or stampers in a hollow drum or wheel for the purpose of crushing and pulverizing quartz, &c.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 shows a perspective view; Fig. 2, a cross-section; Fig. 3, a side view of the hollow wheel B, with the sections *a o* of the same, and an end view of the adjustable hammers I I I; and Fig. 4, a side view of the adjustable hammer I.

The frame A, I make in part or in whole of iron. The wheel B, I secure to the frame A in suitable bearings, and as shown by the drawings. Sections *a* and *l* of wheel B, as shown in Fig. 2, I make of cast-iron, and make section *o*, the hammers I, and bolts *c* of chilled cast-iron, wrought-iron, or steel.

The hopper E, as shown in Fig. 2, I make with a projection on two sides at its base and secure it to frame A by means of bolts or screws passing through said projections into said frame. The said hopper E, I also make with a projection at its base, which extends into the hollow shaft on section *a* of wheel B. The hollow part of this shaft I make with an incline plane, so that as the quartz passes through the hopper into said shaft it will more readily pass into wheel B. The drum *m*, I cast or bolt onto section *a* of wheel B, and to which I attach a belt when I wish to give wheel B a revolving motion.

On the inside of section *a* of wheel B, as shown by the dotted lines, I make a circular projection. Said projection I make in such a form that it will, in combination with the hammers I and the current of air produced by the action of the hammers, force the pulverized quartz to the opposite side of wheel B and into sieve D, and thereby sift the pulverized quartz into the hollow shaft on section *l*, so that said pulverized quartz will pass out of wheel B. The pulverized quartz, being forced against this circular projection by the action of the hammers, is thereby forced into the sieve. The inside of section *o*, I make of any desirable form and with projections of any suitable form, number, or size, should they be deemed necessary for the more effectual crushing and pulverizing of the quartz. The hammers I also make of any desirable form and secure them to the inside of wheel B by the bolts *c* passing through them and through sections *a* and *l* of wheel B.

In some cases I contemplate using but one adjustable hammer in wheel B and securing one end of said hammer in the center of said wheel and have the other end rest on or strike on projections made on the inside of section *o* of said wheel B. In some cases round balls or a stamper may be used to advantage in said wheel B for crushing and pulverizing quartz, &c.

The center of section *l* of wheel B, I make conical, so as to allow for the space taken up by the circular projection on section *a* and allow the pulverized quartz to pass into sieve D.

The sieve D, I secure in a suitable frame, with inside and outside bands to make the sieve sufficiently durable, and secure the large end of the sieve to section *l* by means of set-screws. The small end of said sieve or frame-work is secured in the set-screw *s*. I make the sieve conical and also partly conical and partly square, and it is readily removed when it is necessary to replace it with a new one.

The hollow shaft on section *l*, and in which the sieve D is located, I make with an incline plane, commencing where the large end of the sieve is secured and terminating at the outer end of said shaft, so that the pulverized quartz when sifted into said hollow shaft will readily pass out into a receiver.

On a working machine I make the diameter of wheel B from three to six feet and the inside width of the same from six to twenty-four inches, and employ as many hammers as will work to advantage. As section *o*, the hammers, and bolts will more quickly wear out than the other parts, they may be readily replaced by removing section *l*.

Operation: When the hopper E is filled

with quartz of suitable size and power is applied to wheel B to give it a revolving motion, the quartz passes into said wheel, as shown by the dotted line, where it is crushed and pulverized by the action of the hammers striking against section *o*, and after being sufficiently pulverized it is forced into the sieve D and sifted into the hollow shaft, from which it passes into a receiver, as aforesaid.

I claim—

1. The employment of one or more of the hammers I in the wheel B, for the purpose specified.

2. The employment of the sieve D in the hollow shaft of section *l* of wheel B, for the purpose specified.

3. The arrangement and employment of the hopper E, for the purpose specified.

JULIUS C. DICKEY. [L. S.]

Witnesses:

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W. R. RONALDS.