J. C. DICKEY.

MACHINE FOR PULVERIZING AND CRUSHING QUARTZ.

No. 39,899. Patented Sept. 16, 1863.

Fig. 1.

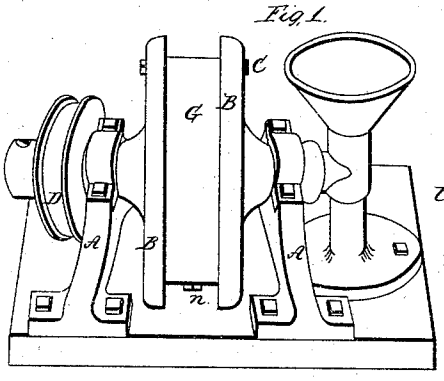


Fig. 3.

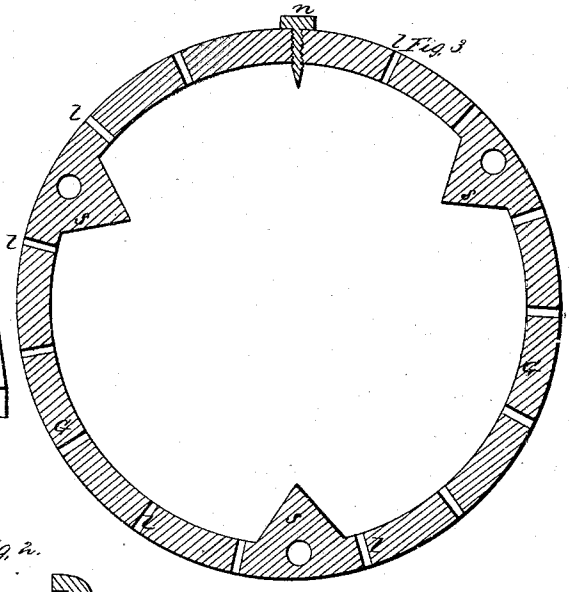
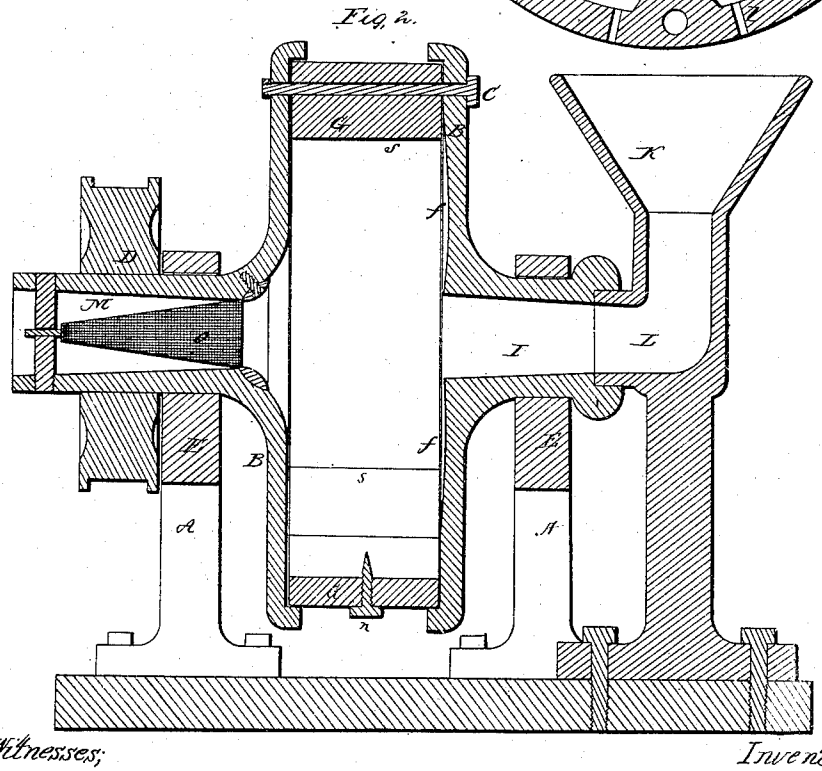


Fig. 2.



Witnesses;
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UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN MACHINERY FOR PULVERIZING AND CRUSHING QUARTZ.

Specification forming part of Letters Patent No. **39,899**, dated September 15, 1863; antedated June 29, 1862.

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, Iron Ore, &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.

Figure 1 is a perspective view of the machine; Fig. 2, a longitudinal section through the same; Fig. 3, a vertical section of the ring G.

The frame A is to be wholly or in part of iron. The crushing-drum, which is formed of two sections or halves, B B, secured together with bolts C, is revolved by power applied to pulley D in the bearings E in the main frame. Within the drum is secured the ring G. (Seen detached in Fig. 3.) The axle of the drum is hollow, Fig. 2, and to the induction end I thereof is adapted a hopper, K, with a bent spout, L, the hopper being for the reception of the broken rock, which is thus introduced into the machine. To the opposite or eduction end M of the axle is adapted a screen, O, of wire-gauze or other suitable material, for the purpose of sifting the pulverized stone, only that which is sufficiently fine being allowed to pass through the screen. The powdered rock is thrown into the screen by the action of the quartz in the drum, this part of the operation being facilitated by the form of the case, as seen at *f*, Fig. 2. In the ring G, Fig. 3, I make the holes *l*, through which the crushed or pulverized quartz passes out of the drum. Holes may be also made in the sides of the drum B B for the same purpose. The form of these holes may be round, conical, square, or other desirable and useful form. I contemplate making holes through the ring G or drum only when the use of the screen O is discontinued, and when the drum is used for crushing quartz for macadamized roads, iron ore, &c. Round balls may be used to advantage in the drum to facilitate the crushing of the quartz. The chisel *n*, Figs. 1, 2, and 3, may be made to screw into the ring G or made permanently on said ring. These chisels may be made of any desirable form and secured to the sections B B of the drum as well as to the ring G. The projections *s*, Figs. 2 and 3, are made of any desirable and efficient form. These projections may be also made on or secured to sections B B of the drum, as well as to the ring G. These projections and chisels greatly facilitate the crushing and pulverizing of the quartz by the quartz being forced against said chisels and projections.

When the drum is made sufficiently large to receive several hundred pounds of quartz, the crushing and pulverizing of the quartz is greatly facilitated by the action of quartz upon quartz.

In some cases I contemplate discontinuing the use of the ring G and making the sections B B of the drum answer the purpose of the ring by making the projections of said sections B B, where they lap onto said ring, longer and so as to unite, in which case I make the projections, &c., on the inside of sections B B of the drum.

I contemplate making the form of the drum square, round, or other desirable and efficient form.

It is manifest that the form and arrangement of the parts may be somewhat varied without a departure from the spirit of my invention.

Having now set forth the nature of this invention, and explained the manner of carrying the same into effect, I wish it to be understood that what I claim as my invention, and desire to secure by Letters Patent, is—

Crushing and pulverizing quartz in the revolving drum B B when the quartz passes into said drum through the induction end I, and when the said drum is provided with the screen O, or its equivalent.

JULIUS C. DICKEY.

Witnesses:

THOMAS HAGERTY,

H. L. JONES.