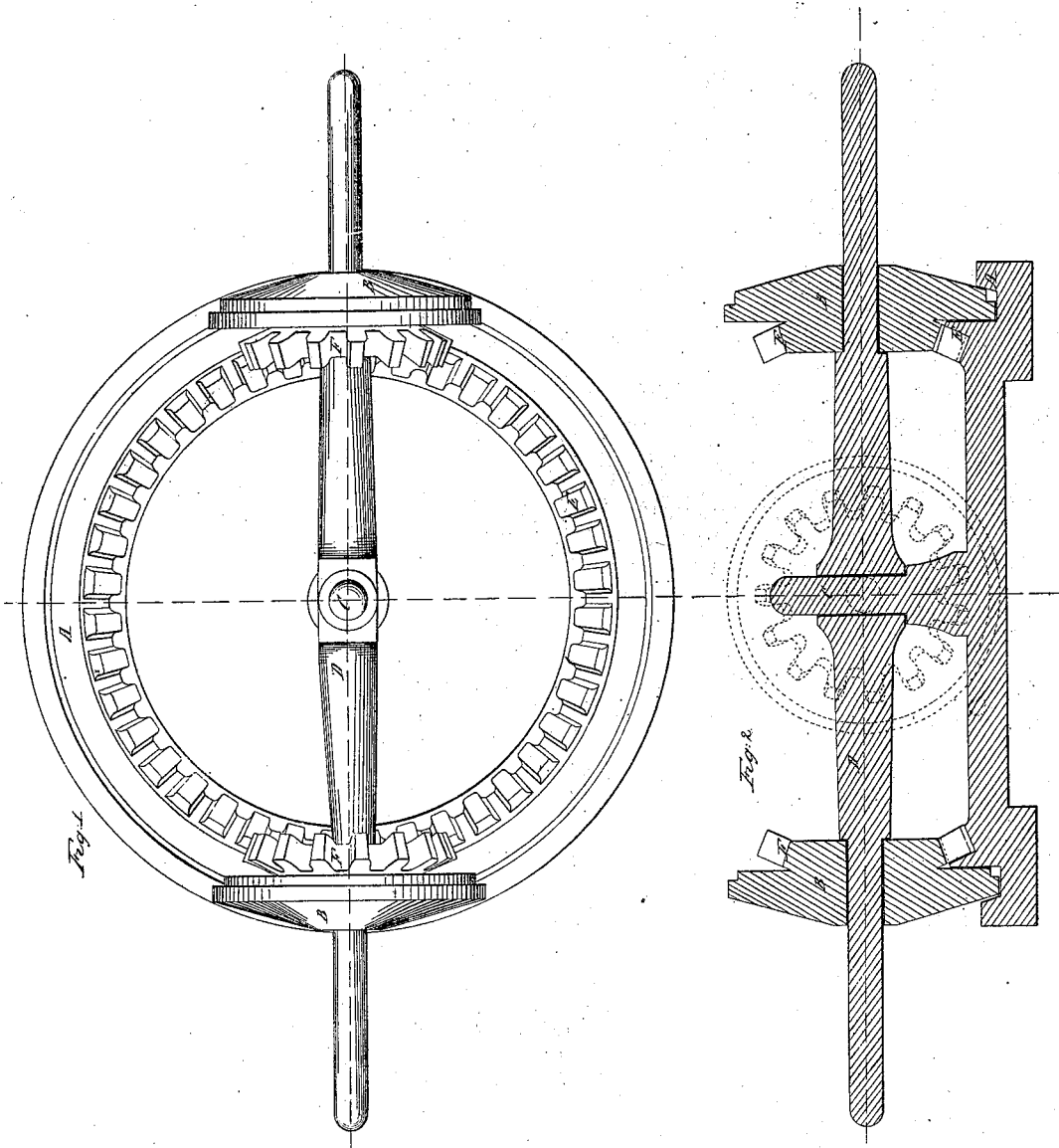


S. W. BULLOCK.
QUARTZ CRUSHER.

No. 10,570.

Patented Feb. 28, 1854.



UNITED STATES PATENT OFFICE.

SMITH W. BULLOCK, OF NEW YORK, N. Y., ASSIGNOR TO STILLMAN, ALLEN & CO.

QUARTZ-CRUSHER.

Specification of Letters Patent No. 10,570, dated February 28, 1854.

To all whom it may concern:

Be it known that I, SMITH W. BULLOCK, of the city, county, and State of New York, have invented a new and Improved Mode of Crushing and Grinding Quartz-Rock and other Hard Substances; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification and in which like letters in the different figures designate like parts.

Figure 1 is a plan of the machine. Fig. 2 is a section of the same.

Construction.—I make a circular trough A of iron or other hard substance, about eight inches wide on the bottom and eleven inches on the top and six inches high (or deep). To the inside edge of this trough I attach a bevel cog wheel E, with the face up and the pitch line raised about ten inches above the bottom of the trough. I then make two wheels B B of iron or other hard substances about five feet in diameter and twenty inches thick in the center but diminished toward the outer edge or periphery to suit the width of the trough until within three inches of the edge. I then cut down about $\frac{3}{8}$ of the face of the wheel about three inches, leaving one side of the wheel four feet six inches in diameter. Then place the wheels in the trough so as to bring the large diameter of one wheel on the inside diameter of the trough, and the large diameter of the other wheel on the outside. By this means a much larger piece of rock may be crushed than could otherwise, by simply dropping it in to come under the small side, or diameter, of the wheel that is first to pass over it which breaks it down to small pieces so that they form less obstruction to the next wheel whose large diameter will run on that side of the trough, and crush these small pieces to powder and so vice versa. I then attach cog wheels F, F to the inside of these crushing wheels of a suitable diameter to match

and gear into the bevel wheel E. I then put a shaft or axle D through the center of these wheels on which they are allowed to turn freely. The shaft D rests on, and turns upon the center post C. The object of this post being to keep the wheels in their proper position while rotating around in the trough A.

Modus operandi.—The several parts being placed as described, I attach a team of horses or other motive power to the shaft or axles of the wheels B B. Then by driving the team around on the circle that the ends of this shaft describe in swinging around upon the center post C, that movement causes the wheels B B to roll around in the trough A, but as the crushing wheels B B are larger in diameter than the cog wheels F F which are attached to them, and in gear with the cog wheel E, which is fast to the trough A, on the bottom of which the wheels B B rest. The face or periphery of the wheels B B are made to slip or slide backward causing a crushing and grinding motion at the same time by the rolling and sliding of the wheels B B upon the rock or other substance in the trough, by which it is reduced to a powder at a very rapid rate.

I have thus fully described my invention and the manner of constructing and operating the same.

What I claim as my invention and desire to secure by Letters Patent is—

The introduction of gear wheels as described, or other analogous device, between and attached to the crushing wheels and the trough, in which they roll, to cause a sliding or grinding motion while rolling over the rock or other matter in the trough, the whole being combined and arranged substantially as herein set forth.

SMITH W. BULLOCK.

Witnesses:

TIMOTHY QUIGLEY,
A. D. PORTER.