

A. ALEXANDER.

Improvement in Rock and Ore Crushing Rolls.

No. 125,160.

Patented April 2, 1872.

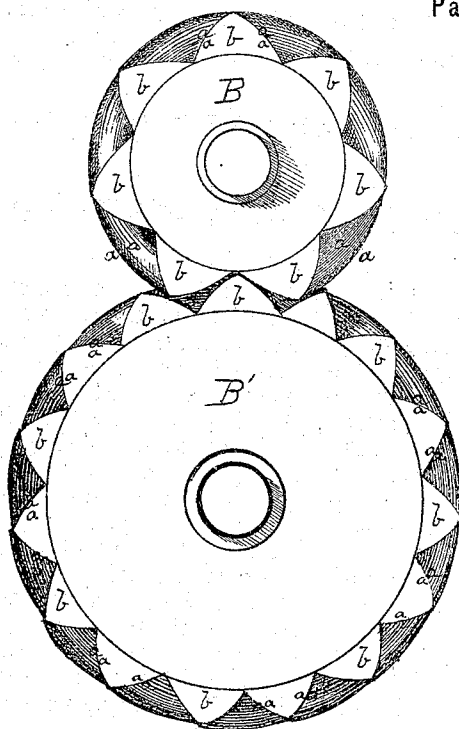


Fig. 1.

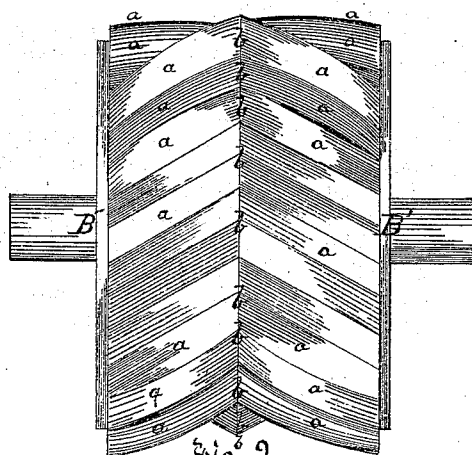


Fig. 2.

Witnesses:  
R. W. Grenshill  
Thornton

Inventor:  
Abram Alexander,  
by Bakewell & Knisly,  
his Atty.

# UNITED STATES PATENT OFFICE.

ABRAM ALEXANDER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF, JOSEPH A. ROBINSON, AND JAMES EWING, OF SAME PLACE.

## IMPROVEMENT IN ROCK AND ORE CRUSHING-ROLLS.

Specification forming part of Letters Patent No. 125,160, dated April 2, 1872; antedated March 26, 1872.

### SPECIFICATION.

*To all whom it may concern:*

Be it known that I, ABRAM ALEXANDER, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rock and Ore Crushing-Wheels; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part hereof, in which—

Figure 1 is an end view of my improved rock and ore crushing wheels, and Fig. 2 is a face view of one of the wheels.

Like letters of reference indicate like parts in each.

The object of my invention is to combine in the operation of a pair of crushing-wheels, both a crushing and grinding action; and this I do by making on each wheel a series of double spiral ribs of corresponding size—the operative face of each side of each rib being made convex, so that while the ribs mesh into and against each other, and so crush the material, the opposite ribs so meshing together shall roll or slide on each other, and thus operate with a grinding action.

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

The wheels B B' are made of cast-iron, chilled or not, at pleasure, or of other material, such as will give them a hard, durable face. The ribs *b* extend in a double spiral form from or near the middle of each wheel outwardly, as shown.

Each of the two opposite faces *a* of each rib, is made slightly convex from at or near the base of the rib to its point, and such faces may unite at their upper and lower edges angularly, or with an interposed curved surface. The wheels may be mounted in suitable housings, and may be operated by power communicated in any known way.

By the construction described, I secure not only a crushing action, but also combine therewith a grinding motion, since, from the convex form of the rib-faces, such faces will rub one on or in close proximity to another, and thereby grind the ore or rock, and secure the more complete pulverization thereof. This effect is also aided by the spiral direction given to the ribs. The grinding action begins from the time the faces of the opposite ribs take a bite on the material to be pulverized, and continues at all points in the revolution of the wheels, until it is discharged in a finely-pulverized state, instead of in the form of cakes or sheets, as is the case with crushing-rollers as heretofore made.

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

The construction and arrangement of the crushing-wheels B and B', provided with double spiral convex-faced ribs *b*, as herein described, and for the purpose set forth.

In testimony whereof I, the said ABRAM ALEXANDER, have hereunto set my hand.

ABRAM ALEXANDER.

Witnesses:

THOS. B. KERR,  
JOHN GLENN.