

M. SMITH.
Ore Mill.

No. 33,405.

Patented Oct. 1, 1861.

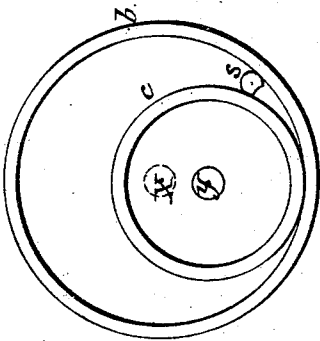


Fig. 3.

Fig. 2.

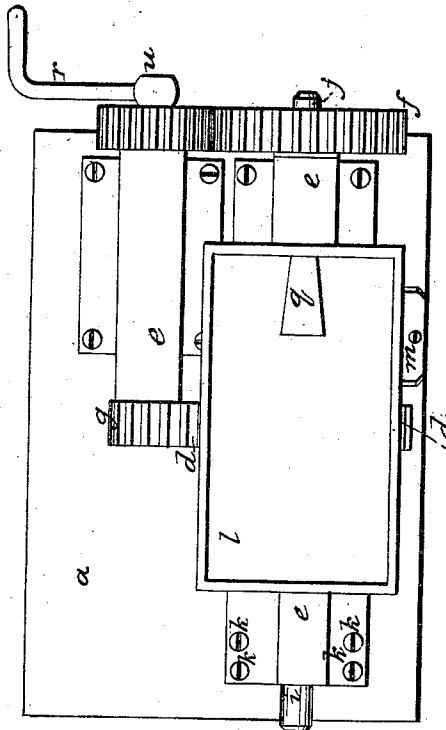
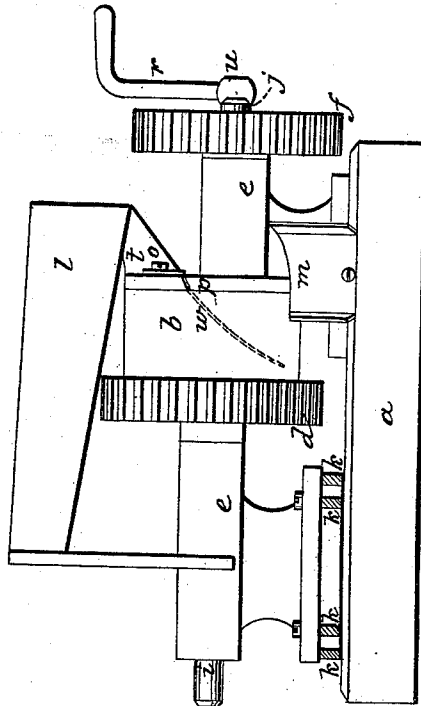


Fig. 1.



Witnesses.

James J. Johnston.

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UNITED STATES PATENT OFFICE.

MATTHEW SMITH, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR CRUSHING AND PULVERIZING VEGETABLE AND MINERAL MATTER.

Specification forming part of Letters Patent No. **33,405**, dated October 1, 1861.

To all whom it may concern:

Be it known that I, MATTHEW SMITH, of Pittsburg, in the county of Allegheny, in the State of Pennsylvania, have invented certain new and useful Improvements in Machines for Crushing or Pulverizing Vegetable and Mineral Matter, such as Apples, Sandstone, &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 use of two drums of different diameters, one being placed inside of the other and both running in the same direction, with the shaft of each placed on a different plane, the whole being constructed, arranged, and combined in the manner hereinafter described.

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

In the accompanying drawings, Figure 1 is a face or side view of the machine. Fig. 2 is a top view of the machine. Fig. 3 is a cut or sectional view of the drums and represents the relative position of the drums to each other.

In the accompanying drawings, *a* is the base of the machine.

b is the large drum, and *c* is the small drum.

e are the supports for the shafts *i*, *j*, and *u*, and are held to the base *a* by screws.

l is the hopper.

m is a chute for carrying off the crushed or pulverized matter.

n is a scraper, which is placed between the two drums and is used for the purpose of throwing out into the chute *m* the crushed or pulverized matter from between the drums. The scraper *n* is secured to the plate *p* by means of a set-screw *o*. The plate *p* is placed at the front or open end of the drums and is furnished with a chute *t* for the hopper *l* and an opening for the shaft *j*, and also a notch or recess opposite to the scraper *n* to allow the crushed or pulverized matter to be thrown out into the chute *m* by the scraper *n*. The plate *p* is used for the purpose of holding the substance to be crushed or pulverized in between the drums until it comes in contact with the scraper *n*. The drum *b* and the wheel *d* are

secured to the shaft *i*, and the drum *c* and wheel *f* are secured to the shaft *j*. The driving-wheels *g* and *h* are secured to the driving-shaft *u*, to which is attached the crank *r*. The wheel *g* gears into the wheel *d* and the wheel *h* gears into the wheel *f*. The wheels *g* and *d* turn the shaft *i*, which will revolve the drum *b*, and the wheels *h* and *f* turn the shaft *j*, which will revolve the drum *c*. The wheels *g*, *d*, *h*, and *f* are so arranged in size that the outer surface of the small drum and the inner surface of the large drum will travel the same distance in the space of time, which is necessary to the perfect working of the machine.

The machine is regulated by raising or lowering the support of the shaft *i*, which is done by means of the set-screws *k*. By raising the support the machine will crush or pulverize fine, and by lowering it it will pulverize or crush coarse.

s represents an apple placed in the space between the two drums.

The operation of my improvement is as follows: The article to be crushed or pulverized is placed in the hopper *l*, from which it passes down through opening *q* and chute *t* into the space between the two drums. Now by turning the crank *r* the article will be gradually and evenly crushed or pulverized and will be thrown up against the scraper *n*, which will throw it out from between the drums into the chute *m*, which will carry it off into a suitable vessel provided for receiving the crushed or pulverized matter.

Having thus described the nature, construction, and operation of my improvement, what I claim as of my invention, and desire to secure by Letters Patent of the United States, is—

The use of two drums of different diameters, one placed inside of the other and both running in the same direction, with the shaft of each placed on a different plane, when said drums are used for crushing and pulverizing, as herein described and set forth.

MATTHEW SMITH.

Witnesses:

JAMES J. JOHNSTON,
A. S. NICHOLSON.