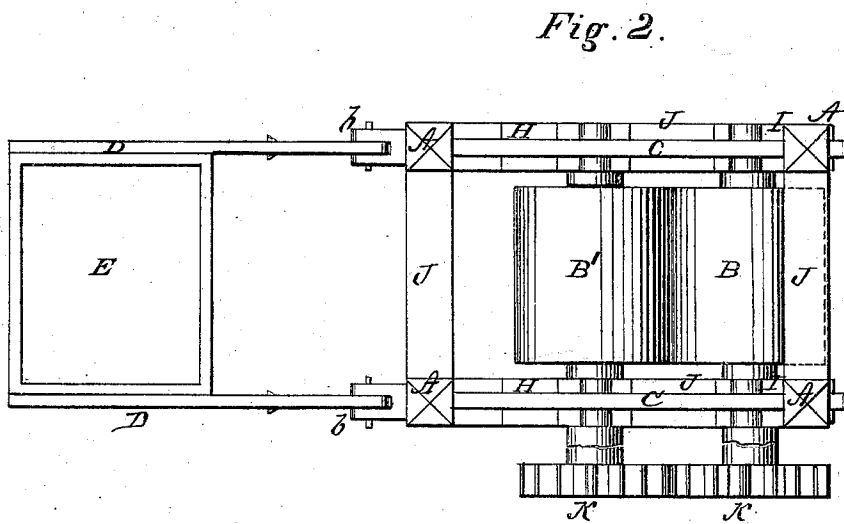
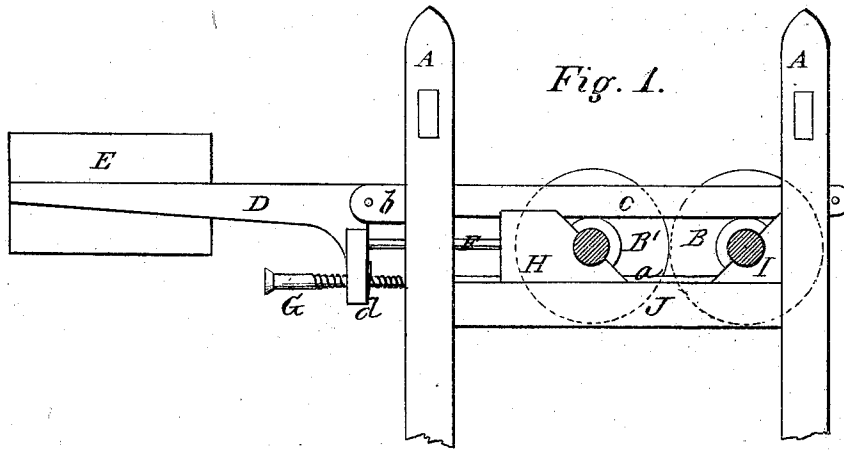


J. FERGUSON.  
Pulverizers.

No. 147,316.

Patented Feb. 10, 1874.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

JOHN FERGUSON, OF CLEARFIELD, PENNSYLVANIA.

## IMPROVEMENT IN PULVERIZERS.

Specification forming part of Letters Patent No. **147,316**, dated February 10, 1874; application filed November 21, 1873.

### *To all whom it may concern:*

Be it known that I, JOHN FERGUSON, of Clearfield, in the county of Clearfield and State of Pennsylvania, have invented certain new and useful Improvements in Crushing-Rolls; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in the construction and arrangement of certain devices whereby one of a pair of crushing-rolls is caused to give or yield when any substance harder than the material intended to be crushed gets in between them, and moves back into its position again, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which forms a part of this specification, and in which—

Figure 1 is a side elevation, and Fig. 2 a plan view, of my invention.

A A represent four corner-posts, connected by suitable horizontal bars J J, to form the frame of my machine, which frame, however, may be constructed in any desired manner. B B' represent the crushing-rolls. The roll B has its journals resting in stationary boxes I, while the journals of the roll B' rest in movable boxes H. The boxes H are guided in their movement to and from the roll B by guides a and tie-rods C in the frame, as shown in Fig. 1. Through the posts A A, nearest to the boxes H, pass horizontal pins F, which are movable back and forth in the posts. At this end of the frame the ends of the tie-rods C C form forks or forked ears bb. In each of these is pivoted a lever, D, having at its inner end a downward-projecting arm, d, through which passes a set-screw, G, to bear against the end of the frame. These parts are further so arranged that the arms d d of the levers D D will bear against the outer ends of the pins F F, and the inner ends of the said pins will bear against the movable boxes H. The levers D D support between their outer ends a box, E, to contain any desired amount of weights. The weight-box E is weighted to the point necessary to crush the clay or other

mineral or material to be operated upon, and, should a piece of iron or other foreign body get between the rolls, the movable roll B' and the boxes or pillow-blocks H slide back, acting on the levers D through the movable pins F, causing the levers to fly up and allow the iron or other extra-hard substance to pass through the rolls without stoppage or injury to the machine. As soon as this foreign substance has passed through, the weight-box E, through the medium of the levers and pins, causes the movable roll to resume its former position.

By turning the set-screws G to the right or left, the space between the rolls can be regulated to any distance required, thus grinding the clay or other material to any fineness which may be desired.

These set-screws G G are considered an important novel feature in this invention, as, through their means, the crushing-rolls are rendered adjustable, thereby allowing the "flour" or product to be made of any degree of fineness desired.

The rolls B B' are geared together by means of cog-wheels K K, of unequal diameter, causing them to revolve at different rates of speed. This differential speed causes a rubbing as well as a crushing motion, whereby a larger amount of flour or finely-pulverized material is produced—a matter of great importance in hard fire-clays, for example, where a certain amount of said flour is indispensable in the tempering process for brick-making, &c.

I am aware that crushing-rolls of different diameters, and revolving at different rates of speed, are not new; as also rolls of different diameters geared and operated by pinions of different diameters; such, therefore, I do not claim; but

What I do claim, and desire to secure, is—

The rolls B B', of equal diameters, in combination with pinions K K, of unequal diameters, pin F, set-screw G, and weighted lever D, as specified.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of October, 1873.

JOHN FERGUSON.

In presence of—

J. G. HARTSWICK,  
PETER FERGUSON.