

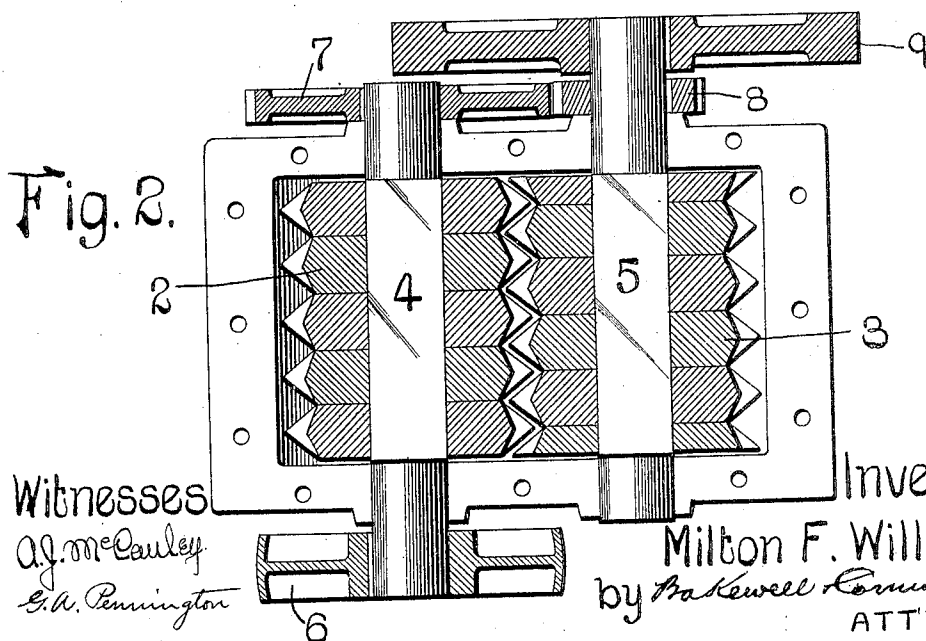
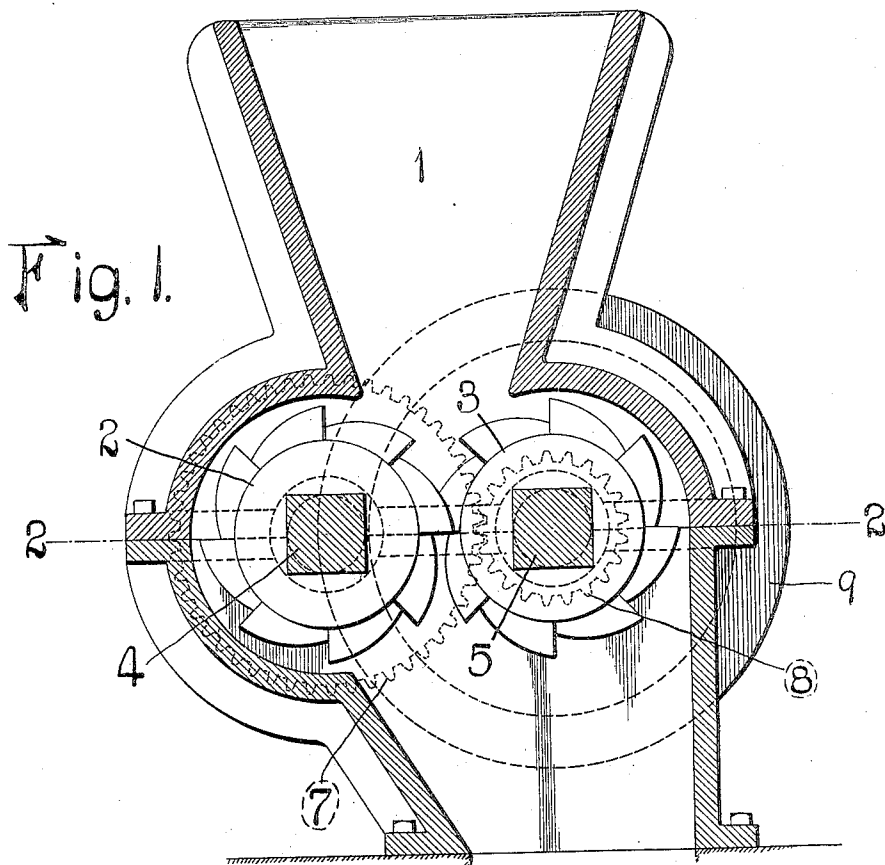
No. 818,328.

PATENTED APR. 17, 1906.

M. F. WILLIAMS.

PRELIMINARY BREAKER FOR CRUSHERS AND PULVERIZERS.

APPLICATION FILED JULY 31, 1905.



Witnesses
A. J. McCauley
E. W. Pennington

Inventor
Milton F. Williams
by *Brakewell Cornwall*
ATTY'S.

UNITED STATES PATENT OFFICE.

MILTON F. WILLIAMS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO WILLIAMS
PATENT CRUSHER & PULVERIZER COMPANY, OF ST. LOUIS, MISSOURI,
A CORPORATION OF MISSOURI.

PRELIMINARY BREAKER FOR CRUSHERS AND PULVERIZERS.

No. 818,328.

Specification of Letters Patent.

Patented April 17, 1906.

Application filed July 31, 1905. Serial No. 271,982.

To all whom it may concern:

Be it known that I, MILTON F. WILLIAMS, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Preliminary Breakers for Crushers and Pulverizers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical sectional view through my improved machine, and Fig. 2 is a horizontal sectional view on the line 2 2 of Fig. 1.

This invention relates to a new and useful improvement in preliminary breakers for crushers and pulverizers, the object being to attach a breaker to the feed end of the Williams type of crushers and pulverizers, whereby the preliminary work of disintegrating the material is performed by the breaker, the finishing being done by the crusher and pulverizer, to which the material from the preliminary breaker is delivered. In some classes of material where it is not designed to disintegrate to a degree of extreme fineness the preliminary breaker shown will perform the crushing operation satisfactorily without further treatment of the material.

In the drawings, 1 designates a hopper, below which are mounted two toothed cylinders 2 and 3. These cylinders are made up of sections preferably strung on the squared portions of shafts 4 and 5, respectively, said sections being staggered with relation to each other and having V-shaped teeth, which provide V-shaped recesses for the opposite teeth. In this manner it is possible to get the teeth of the respective cylinders to travel in intersecting paths, so that no material can pass through the breaker without being operated

upon by these teeth. On one end of shaft 4 a driving-pulley 6 is arranged, while at its opposite side is a gear-wheel 7. This gear 7 meshes with a pinion 8 on shaft 5, which shaft 5 also carries a balance-wheel 9.

It will be observed that the gearing between the cylinders 2 and 3 is such that cylinder 3 is made to rotate at a higher speed, and consequently the teeth on said cylinders do not match each other, their relations being constantly changing, and in addition to which the teeth on cylinder 3 will effect a shearing cut, tending to more quickly disintegrate the material as it is supported on the teeth of cylinder 2, rotating at a lower speed.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

In an apparatus of the character described, the combination with a casing, the upper portion of which forms a hopper, two shafts having squared portions mounted in said casing below the hopper, cylinder-sections arranged on the squared portions of said shafts in intimate engagement with each other and provided with V-shaped teeth, the cylinder-sections of one shaft being staggered with relation to each other, whereby the paths of travel of said teeth intersect each other on the respective cylinders, a pulley on one of said shafts, a pinion on the other of said shafts meshing with said gear whereby said shafts rotate at unequal speeds, and a balance-wheel on the shaft carrying the pinion; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 25th day of July, 1905.

MILTON F. WILLIAMS.

Witnesses:

F. R. CORNWALL,
GEORGE BAKEWELL.