

J. T. HARVEY.

Grinding-Mills.

No. 136,321.

Patented Feb. 25, 1873.

Fig. 1.

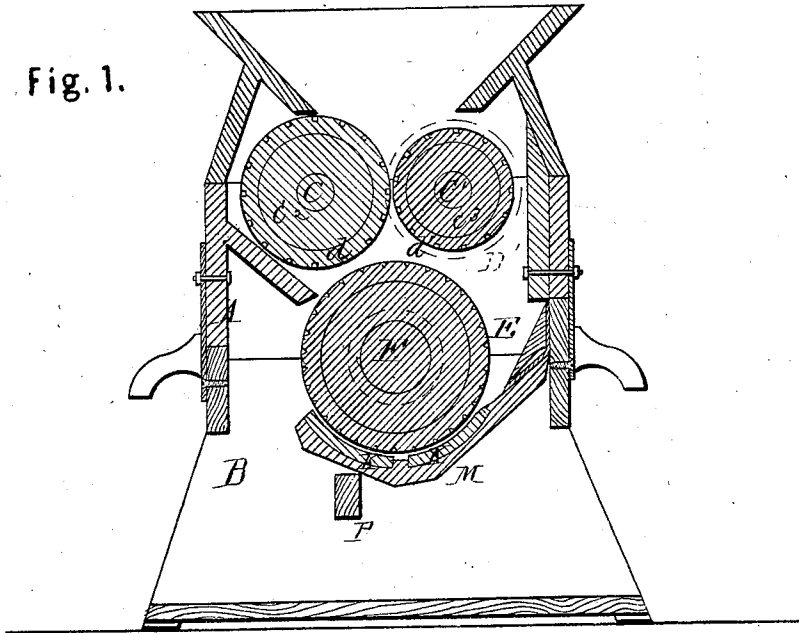
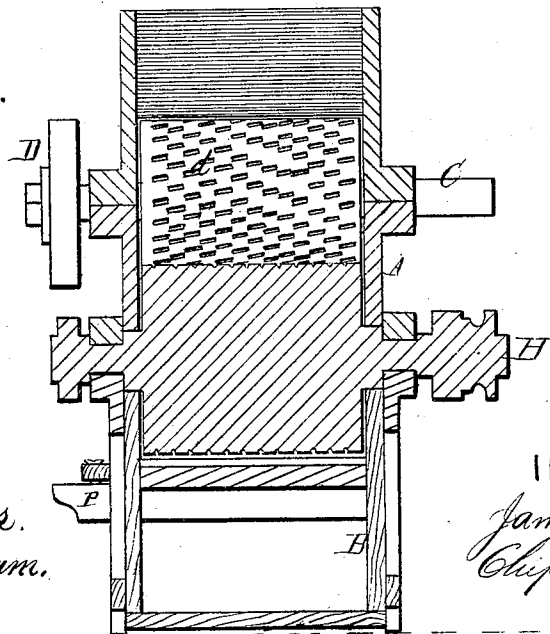


Fig. 2.



WITNESSES
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JAMES T. HARVEY, OF MURRYSVILLE, PENNSYLVANIA.

IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. 136,321, dated February 25, 1873.

To all whom it may concern:

Be it known that I, JAMES T. HARVEY, of Murrysville, in the county of Westmoreland and State of Pennsylvania, have invented a new and valuable Improvement in Flouring and Feed Mills; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical longitudinal section of my invention. Fig. 2 is a transverse vertical section of the same.

My invention has relation to flouring and feed mills; and consists in the combination and novel arrangement of three unequal-sized grinding-rollers, with their outer surfaces encircled by a band of indented soft wrought-iron, substantially as and for the purpose hereinafter more fully described.

In the drawing, A represents a metal case enveloping the working parts of the mill. B is a wooden base or stand, upon which the mill rests. C C¹ represent the shafts of the upper crushing and grinding cylinders or rolls C² C³. These cylinders are of metal, surrounded by heavy bands, *d d'*, of soft wrought-iron, turned to a true cylindrical surface, which is afterward picked or indented, as shown in the drawing. The cylinder supporting the pulley D has a diameter about one-third greater than that supporting the pulley D', and is designed to be propelled with twice the velocity of the latter. The smaller cylinder or roll is to be made adjustable by set-screws or otherwise, so that its surface may be brought within such a distance from that of the larger cylinder as to be adapted to the quality of work to be done or the kind of grain to be ground. The lower cylinder E, supported upon the shaft F, occupies a position below the upper ones, so as to receive their discharge. The diameter of said cylinder is about double that of the large upper roll, and is of the same construction, with the exception that the indentations upon its surface are made finer, a sharp diamond-pointed pick being used in producing said indentations. The coarsely-ground feed is finely pulverized or floured by

being passed, finally, between the surface of this cylinder and the stone concave flouring-bars K, which are inclosed in the box M in the positions indicated. These bars are made adjustable by means of a movable horizontal bridge-tree or bar, P, passing through the stand of the mill and supporting the box M, in which the stone bars are fitted. The velocity of the lower roll is about four times as great as that of the fast-running upper roll. H represents a pulley on the shaft of the lower roll.

I make the bands of soft wrought-iron, so that they can be easily redressed by a pick or any other sharp instrument when redressing is required.

By my combination I have discovered that grain may be most readily, cheaply, and effectually ground by concussion or the instantaneous stroke which it receives from the fast-running cylinder, as it passes between the surfaces of that cylinder, and of one moving at less speed and the concave surface at rest. The two upper are coarsely-grinding rolls, and the lower cylinder, moving with great velocity, completes the work of reducing the grain to a fine flour by the force of concussion, and of friction against a regular grinding-surface.

I am well aware that soft wrought-iron bands have been applied to crushing-rollers; therefore I do not claim such invention broadly.

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

1. The combination of the unequal-sized cylinders C² C³ arranged to run at different degrees of speed, and the large, indented, revolving cylinder E and concave grinding-bars K, all constructed and arranged to operate substantially as specified.

2. In a grinding-mill, the improved grinding-cylinder, encircled by a band of soft wrought-iron indented, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES T. HARVEY.

Witnesses:

JAMES M. LAIRD,
D. B. WEAVER.