(No Model.)

J. & A. J. JONES.

GRINDING MILL.

No. 422,223. Patented Feb. 25, 1890.

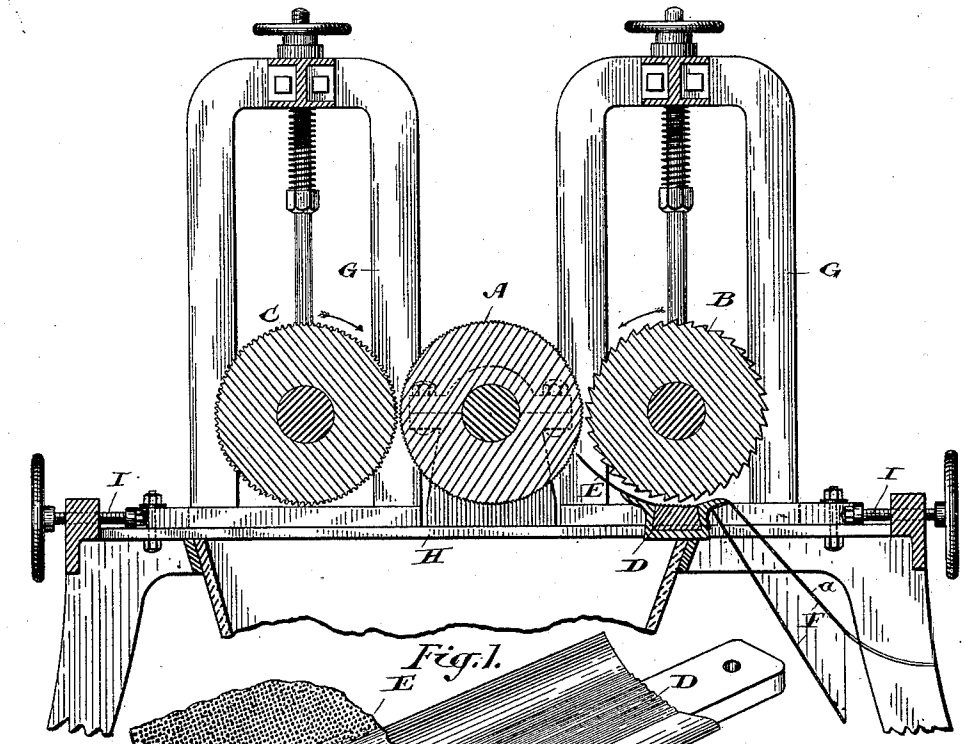


Fig. 1.

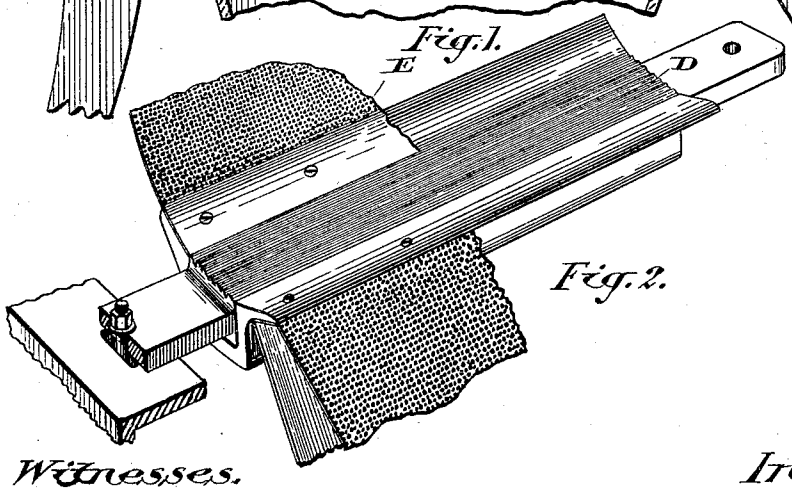


Fig. 2.

Witnesses.
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Inventors.
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N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

JAMES JONES AND ALDRED J. JONES, OF THOROLD, ONTARIO, CANADA.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 422,223, dated February 25, 1890.

Application filed August 8, 1889. Serial No. 320,115. (No model.)

To all whom it may concern:

Be it known that we, JAMES JONES and ALDRED JAMES JONES, both millers, and both of the town of Thorold, in the county of Welland, in the Province of Ontario, Canada, have jointly invented a certain new and useful Improvement in Grinding-Mills, of which the following is a specification.

The object of the invention is to design a roller grinding-mill which will produce the finest grade of middlings in the shortest possible time and with a minimum of power; and it consists, essentially, of a longitudinally-grooved roller held stationary between two revolving rollers, one of which has longitudinal ratchet-shaped furrows cut round its periphery, the said furrowed roller being caused to revolve, thereby acting in conjunction with the stationary grooved roller, and a stationary grooved plate being provided to grind and regrind the wheat, separating the flour and producing a high grade of middlings, the bran being reground by being carried between the stationary grooved roller and the revolving grooved roller located on the side of the stationary roller opposite to that occupied by the furrowed roller, the whole being otherwise constructed substantially as hereinafter more particularly explained.

Figure 1 is a cross-sectional elevation showing the location of our grinding-rolls. Fig. 2 is an enlarged perspective detail of the stationary grinding-plate.

As we do not claim anything original in the mechanism for driving the grinding-rolls, or the arrangement of hoppers, sieves, &c., which necessarily form a part of or operate in conjunction with a grinding-mill, we have not deemed it necessary to illustrate these parts, as every one familiar with the construction of grinding-mills will, from the description read in conjunction with the accompanying diagram, readily understand how to adapt our invention to almost any kind of grinding-mill.

In the drawings, A represents a grooved or corrugated roller, which is held in suitable bearings so that it will remain stationary. We prefer to make from twenty to thirty-two corrugations to the inch in this roller.

B is a roller having a series of longitudinal ratchet-shaped furrows made around its periphery, preferably from two to six to the inch. This roller B is carried in suitable bearings, and is caused to revolve in the direction indicated by arrow by any suitable power, which is not necessary to show in this application.

On the opposite side of the roller A we journal another roller C, and cause it to revolve in the direction indicated by arrow by any suitable driving-power. The roller C is grooved or corrugated in a similar manner to the roller A.

D is a grooved or corrugated plate located below the roller A.

E is a curved screen extending from the plate D beyond the junction of the rollers A and B.

F is a spout extending into the flour-hopper and having its top side *a* perforated, as indicated.

The frames G, in which the rollers B and C are journaled, are adjustably supported on the table H. It will be understood that each of the rollers B and C is provided with two frames G, and one at each end of its roller. The base of each frame G is provided with a screwed spindle I, connected to it and the frame of the machine in the ordinary manner to allow of the easy adjustment of the frames G by merely revolving the spindles I. In this manner the rollers B and C may be readily adjusted to suit the class of work they are intended to perform.

In operation the grain is first admitted between the stationary roller A and the revolving ratchet-shaped furrowed roller B. After passing between these rollers it falls onto the screen E and the fine flour and middlings fall through the perforations in the skirt into the flour-hopper located below the machine. The bran and coarser part of the grain fall down the screen E, and passing between the roller B and the corrugated plate D are reground, finally falling from screen E onto the perforated top side *a* of the spout F. The flour and middlings passing through the perforations in the spout F are conveyed into the flour-hopper below the machine, while the bran falls off the top side *a* into elevators, which convey it back to a point where it may fall between the

corrugated roller C and the stationary corrugated roller A. It will thus be seen that by our arrangement of rollers we obtain three reductions with only two revolving rollers.

The roller A is held in such a manner that when necessary it may be revolved, so as to bring a different surface opposite to the grinding-rolls B and C.

It will of course be understood that instead of the grooved or corrugated rollers a roller having longitudinal ratchet-shaped furrows may be substituted for either or both of them.

What we claim as our invention is—

1. In a grinding-mill, a revolving roller having longitudinal ratchet-shaped furrows cut around its surface, in combination with a grooved or corrugated roller A, a stationary grooved or corrugated plate D, a perforated screen E, and a spout F, having a perforated side *a*, substantially as and for the purpose specified.

2. In a grinding-mill, the combination of the adjustable frames, the corrugated roller, and the roller having ratchet-furrows carried by the frames, the stationary grooved roller between said rollers, the grooved or corrugated plate below the roller having the ratchet-shaped furrows, the perforated skirt on one side of the said plate, and the spout having the perforated side on the other side of the plate.

Toronto, July 26, 1889.

JAMES JONES.
ALDRED J. JONES.

In presence of—
H. A. SMITH,
A. B. SHAW.