(No Model.) 2 Sheets—Sheet 1.

# W. A. MAHAFFY.

## ROLLER MILL.

No. 266,488. Patented Oct. 24, 1882.

Fig. 1.

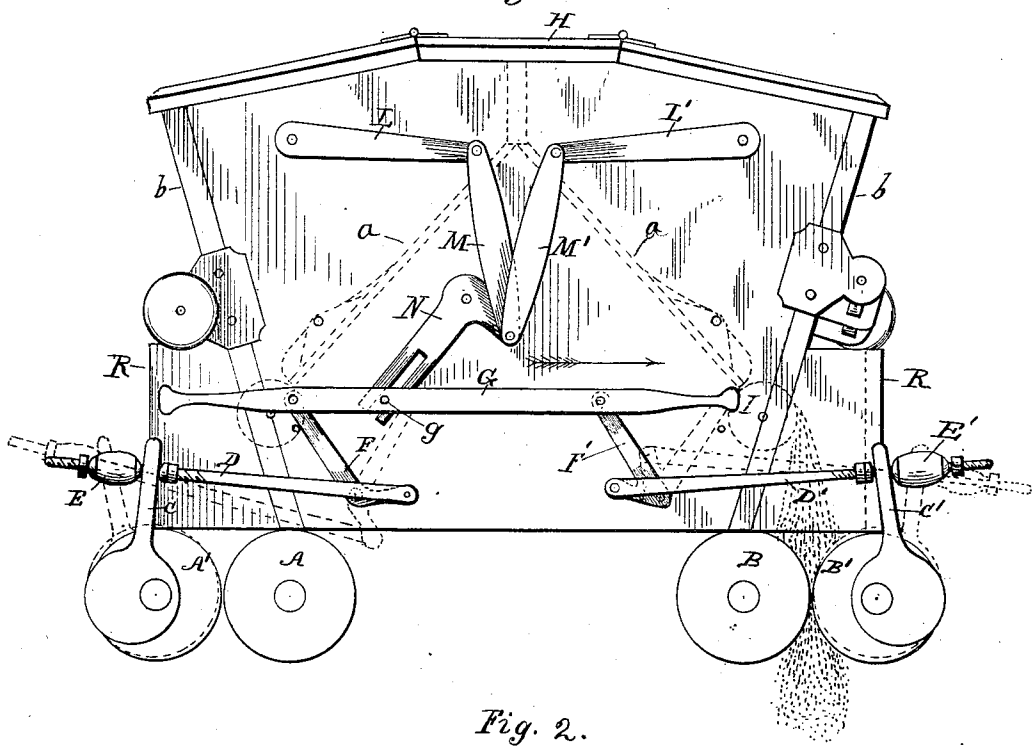
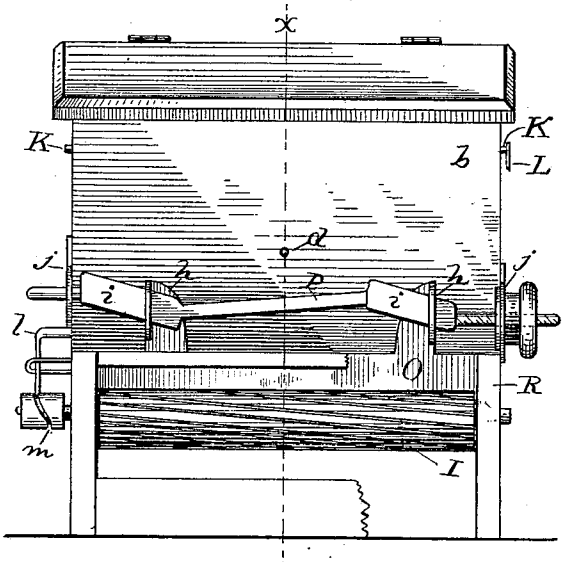



Fig. 2.




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Solon C. Kemon

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(No Model.)

2 Sheets—Sheet 2.

# W. A. MAHAFFY.

## ROLLER MILL.

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*Fig. 3.*

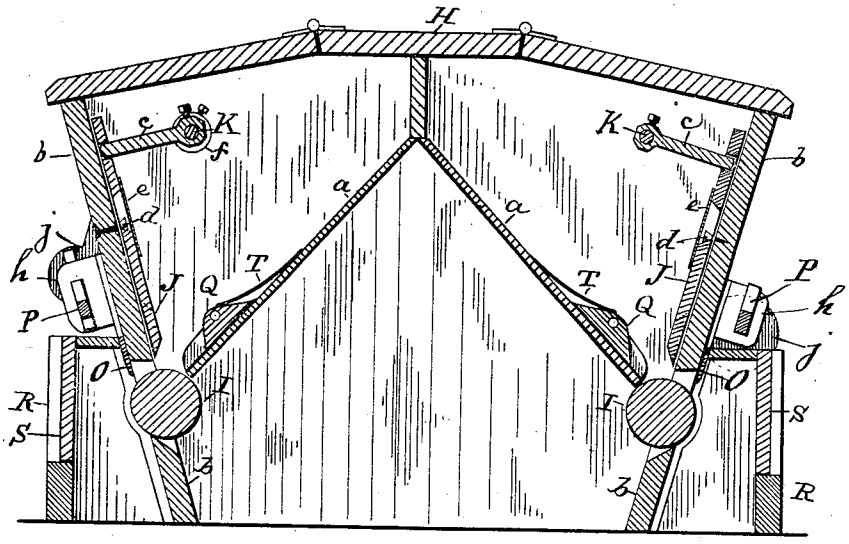
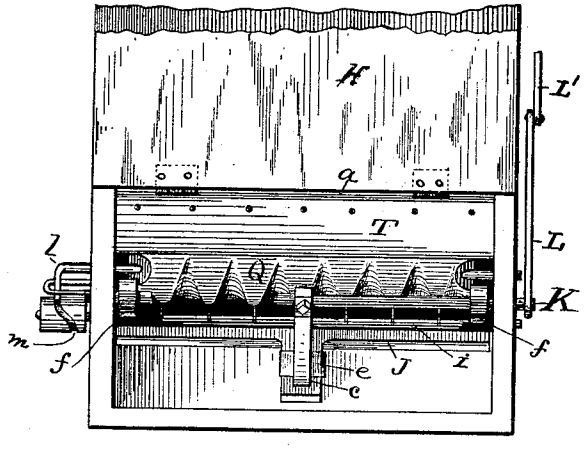



*Fig. 4.*




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# UNITED STATES PATENT OFFICE.

WILLIAM A. MAHAFFY, OF RUSHFORD, MINNESOTA.

## ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 266,488, dated October 24, 1882.

Application filed August 26, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. MAHAFFY, of Rushford, in the county of Fillmore and State of Minnesota, have invented a new and useful Improvement in Roller-Mills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved feed device for roller-mills. Fig. 2 is an end elevation of the same. Fig. 3 is a vertical section on the line *x x*, Fig. 2, and Fig. 4 is a top view of the interior of one end of the hopper.

My invention relates to a novel construction of roller-mills, or mills which reduce the grain by crushing it between revolving rolls. It consists in the peculiar construction and arrangement of parts for securing a uniform and regular feed throughout the length of the rolls, and in the peculiar means for opening or closing the feed devices simultaneously with and by the same movement that gives the adjustment to the rolls for commencing or stopping their work, as will be hereinafter more fully described.

In the drawings, A A′ and B B′ represent two pairs of flouring-rolls, one of each pair of which is journaled in a bearing placed eccentrically in a rotary adjustable hub having a rigid arm, C C′, projecting therefrom, by turning which arm the said adjustable rolls are brought closer to or carried farther from their companion or stationary rolls. These arms are turned by rods D D′ with springs E E′, elbow-levers F F′, and a parallel-motioned bar, G, as shown and described more fully in my prior patent, dated September 5, 1882, No. 263,927. Just above these rolls are arranged my feed devices consisting of a double hopper, H, having inclined bottoms *a a*, sloping from the middle of the hopper downwardly toward the outer ends. At the bottom of each feed-receptacle, between the walls *a* and *b*, is a grooved feed-roll, I, and just above it, and moving up and down against the end wall, *b*, of the hopper, is a cut-off, J, for the feed. This cut-off is in the nature of a bar with a stem rising from its middle part and loosely connected with an arm, *c*, or a rock-shaft, K, in each hopper. This bar serves to cut off or let on the grain to the flouring-rolls by closing down upon the feed-roll I or rising therefrom. This cut-off bar rests flat against the wall *b*, and is preserved always in a parallel position by a slot through its stem and a bolt, *d*, fastened to the wall *b* and working through said slot. This slot is covered by a sheet-metal cap, *e*, to prevent the grain from getting in the same. That the bar may rise readily through the grain without getting any jammed between it and the wall *b*, its upper edge should be beveled toward the wall *b*. Its lower edge is also beveled in a like manner, so that when the bar is shut down upon the feed-roll below it will not pack the grain thereagainst, but will leave the same loose and free to pass down when the mill is put to work again. The rock-shaft for raising and lowering the cut-off bar is provided with set-collars *f* to prevent longitudinal movement, and the ends of the rock-shafts on each side are extended through the side of the case and connected respectively to rigid arms L L′, which in turn are jointed to the links M M′. The lower ends of both these links are jointed to the short arm of an elbow-lever, N, whose lower and longer arm is slotted and embraces a pin, *g*, on the adjusting-bar G for the rolls. It will therefore be seen that the movement of the bar G not only adjusts the movable rolls A′ B′ to or from the stationary ones A and B to commence or stop the reduction of the grain, but the same movement also adjusts the cut-off bar J to let on the supply of grain when the rolls are put to work, or to cut off the supply of grain when the rolls are stopped. The advantages of this connection are that the mill cannot be put to work without the feed being supplied, nor the rolls become choked or clogged by the feed not being cut off when the mill is stopped, thereby preventing injury to the mill and keeping the belts from being burned or thrown off. The rock-shafts for the cut-off bar being near the top edge of hopper, it will be seen that the whole inside of the hopper is free from obstruction.

On each end of the hopper, and outside the same, is a gage-slide or feed-gate, O, which

regulates the flow of feed to the rolls. This feed-gate has perforated and upwardly-projecting arms, *h*, through which passes a longitudinally-adjustable bar, P, having oblique or inclined sections *i*, which as said bar is adjusted longitudinally raise or lower the feed-gate and increase or diminish the passage of grain to the rolls below. This longitudinally-adjustable bar is sustained at its ends in support *j j*, projecting from the hopper, and one of its ends is made screw-threaded and provided with a nut for giving it its adjustment.

Inside the hopper, and resting against the inclined bottom *a* on each side, is a corrugated bar, Q, having downwardly-projecting teeth. This bar is sustained by stems that pass through the sides of the hopper, and one of the stems is bent down, as shown at *l*, and its end arranged to play in a cam-groove, *m*, in a boss formed on the shaft of the feed-roll. This cam-groove causes the bar Q to reciprocate longitudinally, and it performs the office of a stirrer to keep the feed in the hopper in constant motion and evenly spread when the mill is at work, giving the full use of the whole length of the grinding-rolls and effectually preventing any possibility of the rolls or hopper being clogged. Just above this stirrer-bar, and lapping over it, is an apron of sheet metal or leather, T, fastened to the inclined wall *a* of the hopper, and under which the stirrer works back and forth. This apron serves to prevent the stuff from working under the agitator or stirrer. There will be also in practice a feather-piece running down between the grinding-rolls from inside the hopper to keep the stuff from getting over the end of the rolls unground.

Outside of the feed-roll and the gate-bar is formed a housing, R, with a glass plate, S, in front, through which the progress and character of the feed may be inspected.

Having thus described my invention, what I claim as new is—

1. The hopper having inclined sides and bottom *a b*, and a feed-roll, I, at the bottom thereof, in combination with the outside feed-gate O, and the longitudinally-adjustable bar P, having incline sections *i* and a screw-threaded end with nut, as described.

2. The combination, with the hopper having inclined sides and bottom *a b*, of the feed-roll I, arranged at the bottom thereof, the longitudinally-reciprocating stirrer Q, and the overlapping apron T, substantially as described.

3. The combination of the hopper, the cut-off bars J, rock-shafts K, having arms *c* and L L′, the links M M′, the elbow-lever N, the bar G, levers F F′, rods D D′, and the arms C C′, with hubs carrying the eccentrically-journaled rolls, substantially as shown and described.

WILLIAM A. MAHAFFY.

Witnesses:
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