2 Sheets—Sheet 1

E. RHODES.

Grinding-Mill.

No. 214,195. Patented April 8, 1879.

Fig. 1.

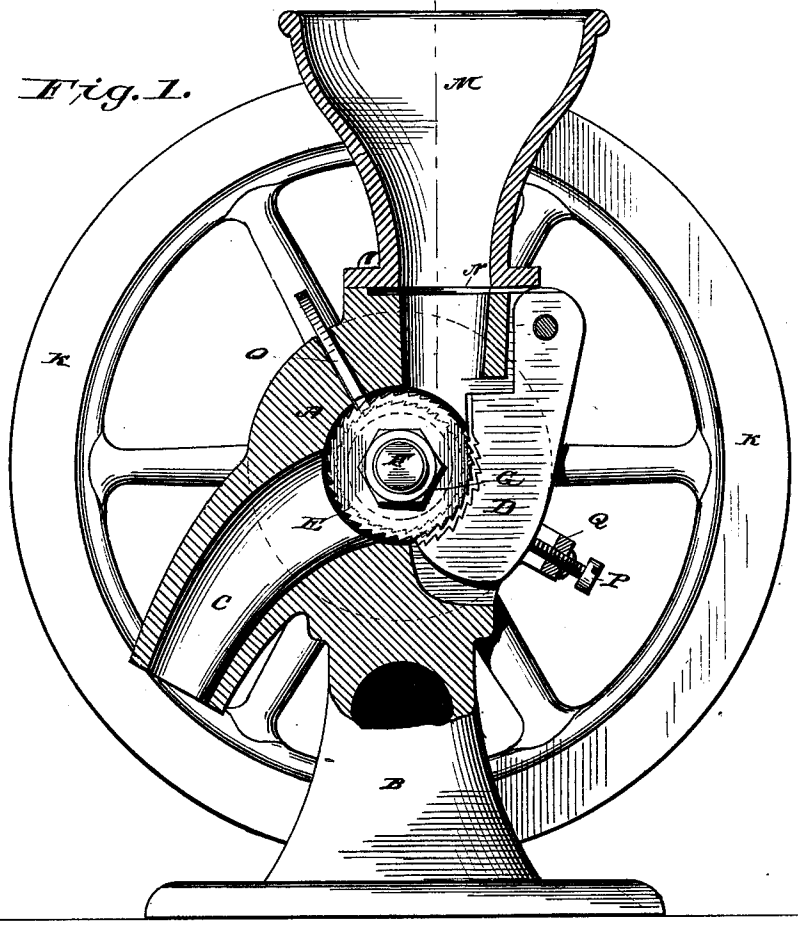
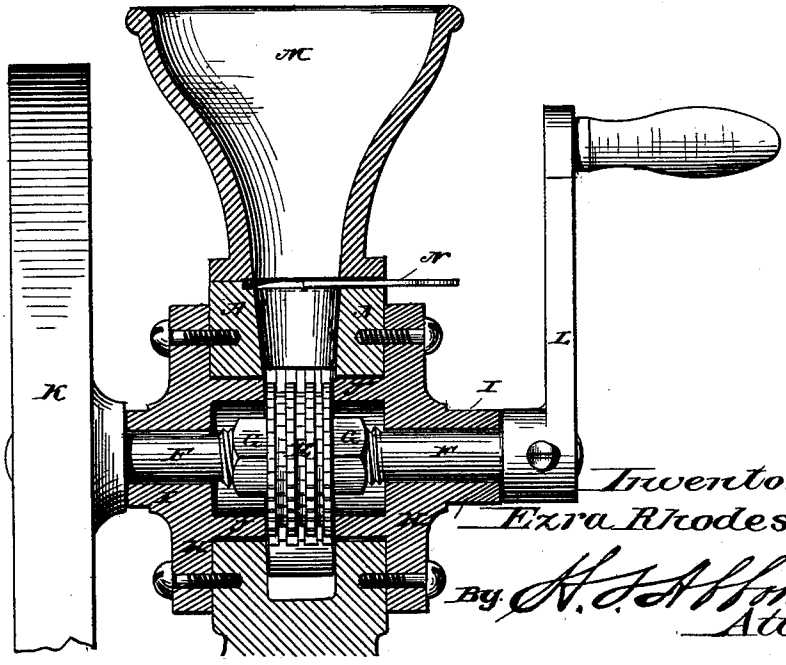


Fig. 2.



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2 Sheets—Sheet 2.

E. RHODES.

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Fig. 3.

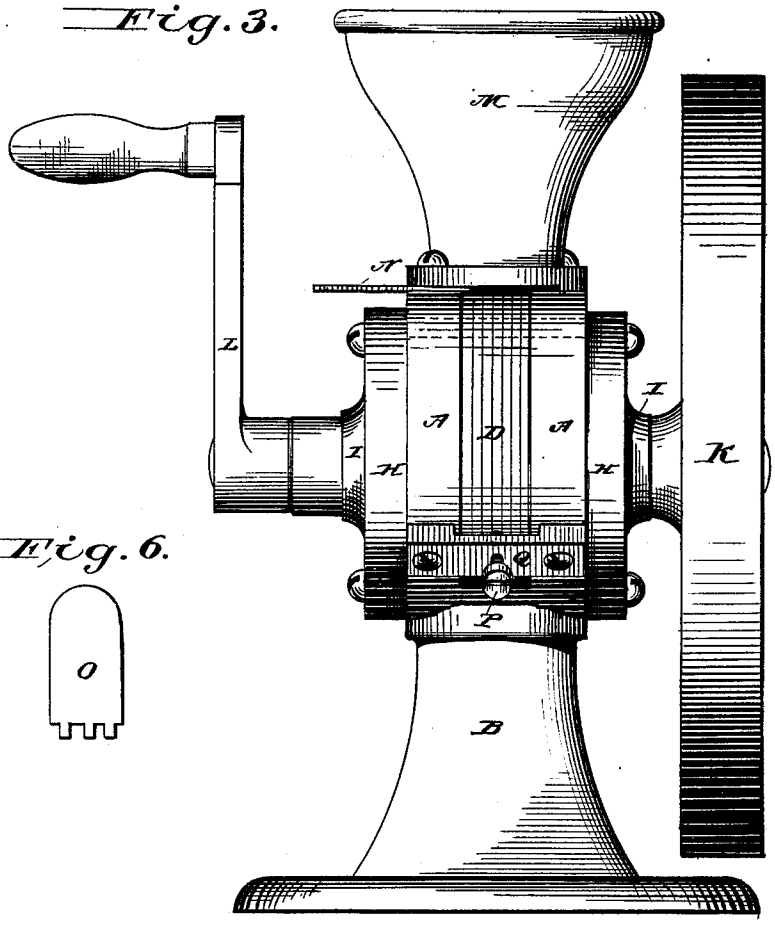


Fig. 6.

Fig. 4.

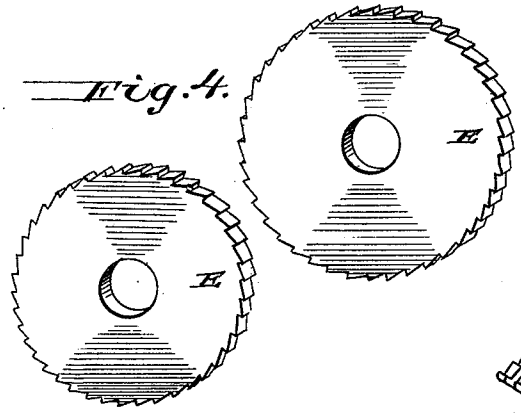
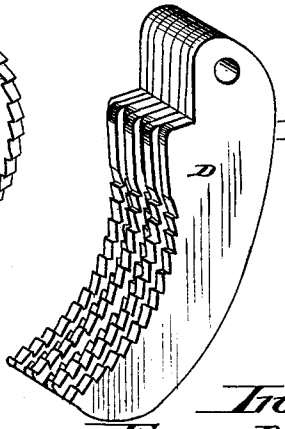


Fig. 5.



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UNITED STATES PATENT OFFICE.

EZRA RHODES, OF ERIE, PENNSYLVANIA, ASSIGNOR TO THE SELDEN & GRISWOLD MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. **214,195**, dated April 8, 1879; application filed February 3, 1879.

To all whom it may concern:

Be it known that I, EZRA RHODES, of Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Grinding-Mills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a sectional side view; Fig. 2, a sectional end view; Fig. 3, an end elevation; Fig. 4, detached views of burr-plates; Fig. 5, a detached perspective of concave; Fig. 6, a face view of comb for cleaning burr-teeth.

My invention relates to mills for grinding beans, pease, corn, coffee, or other grains; and it consists in the construction, arrangement, and combination of parts hereinafter more particularly specified.

In the accompanying drawings, A indicates the cylinder of the mill, beneath which is the standard or base B, and which is provided with spout C. One end of this cylinder is cut away, in order that the concave D may be hung in the opening thus made. This concave is composed of a series of plates of different sizes, and put together so that the cutting-edge of every other plate will be back of the cutting-edge of the adjoining plate, all of the plates having serrated or toothed cutting-faces, and the whole clamped together by any suitable means. The concave thus constructed presents an irregular or grooved face, the whole of the face being serrated or toothed.

Within this cylinder A there is journaled a burr, E, which is composed of a series of disks, each disk having a serrated or toothed cutting-edge, and every other disk being of smaller circumference than the adjoining one, in order that they may be formed with an irregular or grooved cutting-face, the whole of the face being grooved.

The burr and concave thus constructed are positioned in the cylinder so that the projecting plates of the burr will fit in the grooves in the opposite concave, and vice versa, and at the same time have one cutting edge or face opposite to another throughout the entire width of the cutting-faces. I have demonstrated by actual experiment that by thus constructing and suspending the concave and burr less power is required to produce the same amount of cutting—in the same time, with as satisfactory results—than by other mills used for the purpose.

The plates of the burr are secured to a shaft, F, which is threaded near its middle with right and left hand threads, so that nuts G may be screwed up thereon against the plates, thereby securely holding them together and to the shaft. This shaft is journaled in the boxes or hubs I of the plates H, which have flanges J projecting at right angles from their inner faces.

After the shaft F and burr E have been properly positioned within the cylinder, the plates H are slipped over the ends of the shaft and pushed up against the sides of the cylinder, to which it is bolted, the flanges passing within the cylinder. A wheel, K, is next secured to one end of the shaft, and a crank, L, to the other end. On top of the cylinder, over an opening therein, is placed a hopper, M, which may be bolted to the cylinder; and between it and the opening in the cylinder there is pivoted a plate, N, which is adapted to be moved to one side, so as to regulate the flow of the material from the hopper to the grinding-surfaces within the cylinder.

A comb, O, passes through the side of the cylinder A, and the teeth thereof fit in the grooves of the burr, the object being to keep the grooves clear of the ground material, so that they will not become clogged by it, and also to keep the material from passing over to the concave and there mixing with the unground material.

The concave D is pivoted at its top to the cylinder A, and is free to move from that end to the bottom to or from the face of the burr, the extent of its movement being regulated by a hand-screw, P, passing through the frame Q, and bearing against the lower portion of the concave.

The operation is as follows: The grain is poured into the hopper; the sliding plate is

moved so much as to allow the grain to fall into the cutting-cylinder; the burr is turned, and the grain feeds between the concave and burr, where it is cut by the teeth on the face of the burr and of the concave, and the cut material is delivered by the spout C.

Having described my invention, what I claim is—

1. The plates H, provided with flanges J and hubs I, in combination with cylinder A and shaft F, provided with burr E and nuts G, substantially as set forth.

2. The improved grinding-mill constructed, substantially as described, with cylinder A, provided with hopper M, spout C, and concave D, constructed and hung as described, in combination with plates H, provided with flanges J and hubs I, and with shaft F, provided with burr E, wheel K, and a crank for turning the shaft, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

EZRA RHODES.

Witnesses:
JOHN B. RUTH,
J. M. STANELIFF.