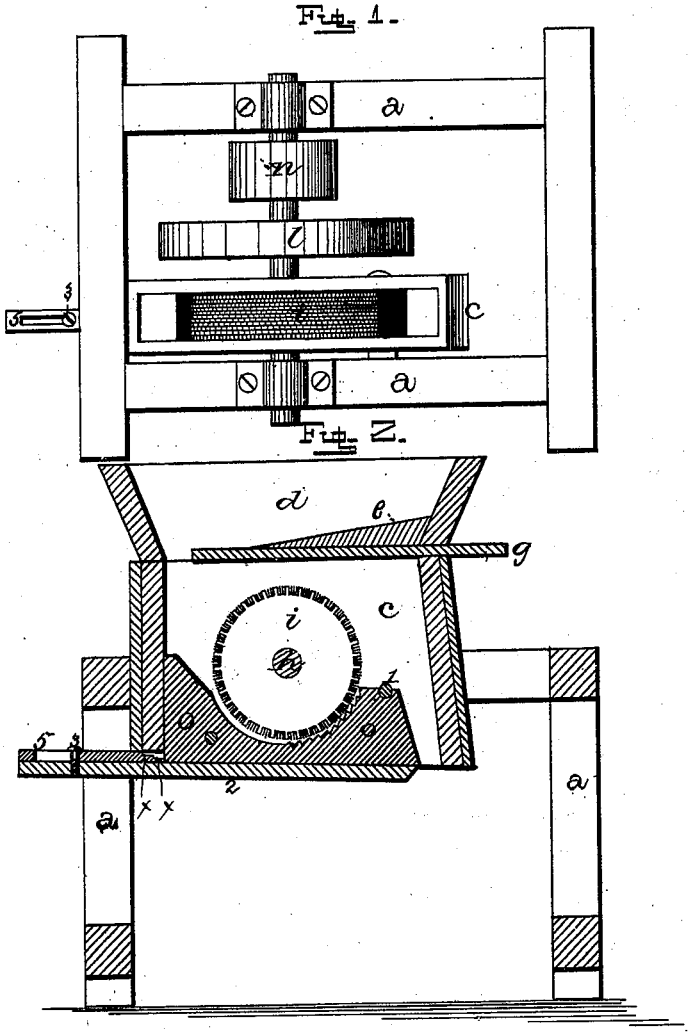
G. B. PORTER.

Mill for Grinding Hay, Grain, &c.

No. 209,981. Patented Nov. 19, 1878.

Fig. 1.



WITNESSES.

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GEORGE B. PORTER, OF CORRY, PENNSYLVANIA.

IMPROVEMENT IN MILLS FOR GRINDING HAY, GRAIN, &c.

Specification forming part of Letters Patent No. **209,981**, dated November 19, 1878; application filed March 7, 1878.

To all whom it may concern:

Be it known that I, GEORGE B. PORTER, of Corry, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Mills for Cutting Grain and Hay; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in grinding-mills; and consists in providing an improved mill for grinding grain and hay for feed for cattle and other stock.

The accompanying drawings show my invention, as follows:

Figure 1 is a plan view of the mill. Fig. 2 is a vertical longitudinal section of the same.

The parts of the mill are as follows: *a a* is a frame-work for supporting the mill, and is of any suitable construction. *d* is the hopper. *c* is the burr-case. *i* is the burr, and *o* the concave grinding-surface.

The essential features of my invention are the burr and the grinding-surface *o* and its attachments, as will more fully appear hereinafter.

The burr consists of a series of serrated circular plates closely clamped together on a shaft or arbor, *h*. These plates are so close together as to leave no intervening space, and all the plates are toothed. It is desirable, also, that the teeth of one plate shall come opposite the notches of the plate adjoining, for if they were placed so as to come in rows parallel with the axis of the burr, particles of hay or grain might lodge therein and pass through the mill unground. The same would also be the case if the plates had any spaces between them or any of them were of less diameter than the others.

The shaft of the burr is journaled on the frame, and it is provided with suitable gearing attachments. The concave is partially smooth and partially roughened or toothed—that is to say, that about half of its surface is smooth, or practically so. The smooth part of its surface is on the feeding side.

The object of this construction is as follows: The mill being largely intended for grinding hay, straw, &c., it is very beneficial that the concave should offer no resistance to the incoming hay, except to pack it. The concave is so set that the smooth surface gradually converges toward the burr, and hence as the hay is drawn in by the teeth of the burr it is packed solid, nearly, before it reaches the real grinding-point, which is where the rough surface of the concave begins. The concave *o* is so hung as to be easily regulated as to distance from the burr—that is, so as to graduate the mill as to fineness of grinding. The concave *o* is supported on a bolt or rod, 2, which acts as a pivot. Another bolt, 1, acts as a stop, so that the concave cannot come in contact with the burr. The pivot-bolt being in the position shown, it will be observed that the motion of the mill will throw the concave at its roughened side away from the burr. The under side of the concave block is extended outside of the frame, and has a sliding gage-block, 5, upon it. This gage-block is stepped or notched, as at *x x*, and it is adjustable laterally by the set-screw 3. By this means the roughened or grinding end of the concave can be graduated from or toward the burr.

What I claim as my invention is—

1. The grinding cylinder or burr composed of a series of circular plates toothed on their peripheral edges, and clamped tightly together upon a horizontal rotating shaft, in combination with a concave having its front half smooth-dressed or toothless and its rear half roughened or toothed, as described, and for the purposes set forth.

2. In combination with the burr composed of toothed disks closely clamped together on a horizontal rotating shaft, the concave *o*, roughened at its rear side and smooth-dressed on its front side, and pivoted on its front side and adjusted by the sliding graduated bar 5, as described, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of January, 1877.

GEORGE B. PORTER.

Witnesses:

THERON S. BLY,

WILLIAM R. DENSLOW.