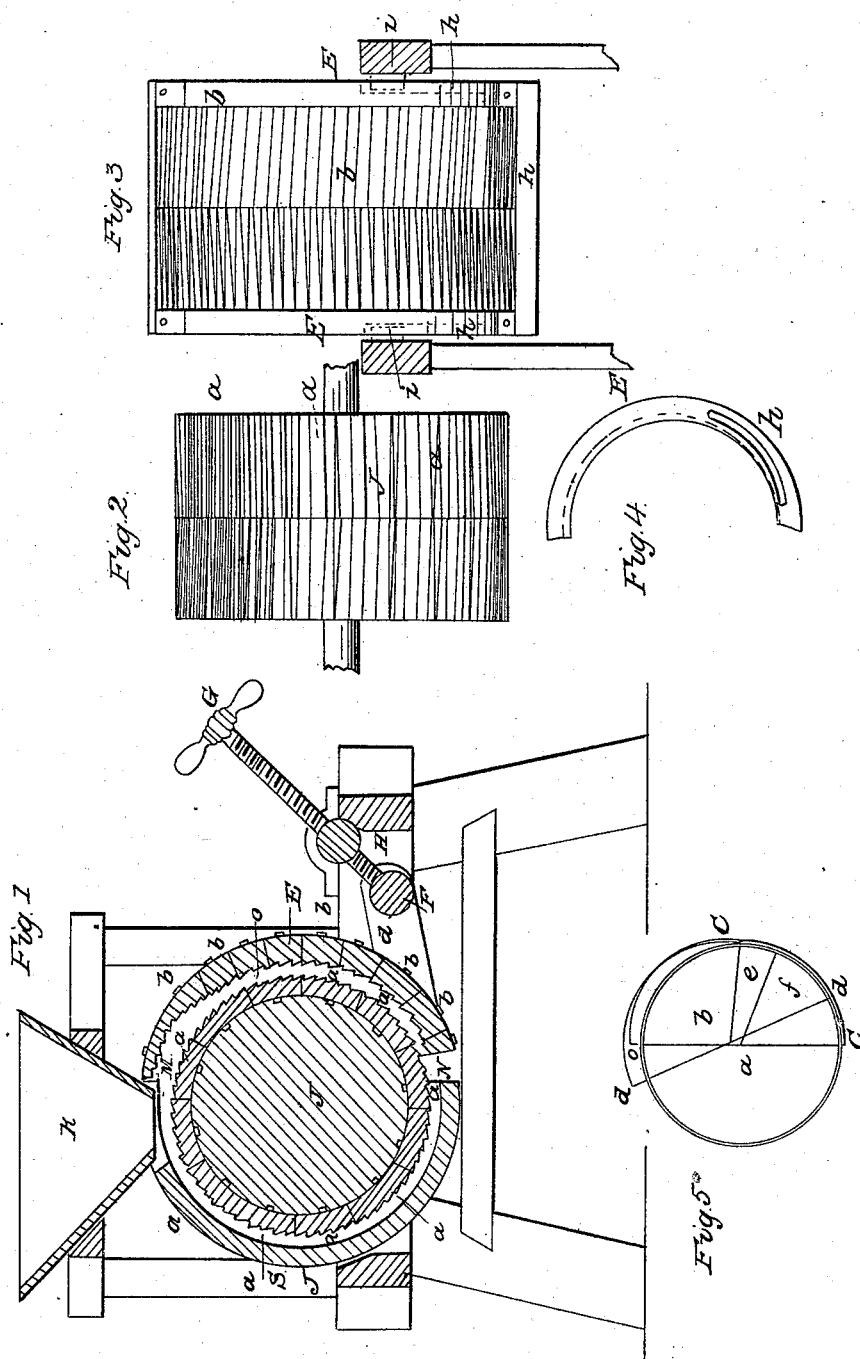


J. GROAT.  
Grinding Mill.

No. 3,658.

Patented July 11, 1844.



# UNITED STATES PATENT OFFICE.

JACOB GROAT, OF TROY, NEW YORK.

## CYLINDRICAL MILL FOR GRINDING GRAIN.

Specification of Letters Patent No. 3,658, dated July 11, 1844.

*To all whom it may concern:*

Be it known that I, JACOB GROAT, of the city of Troy, county of Rensselaer, and State of New York, have invented a new and useful Improvement in Machinery for Grinding Grain; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a vertical section; Fig. 2, the cylinder showing the manner in which it is dressed. Fig. 3, is a section of the concave, or case and frame. Fig. 4, shows the slot in the concave for guiding it. Fig. 5 is a diagram explanatory.

The nature of my invention consists in the set to the grinding surfaces of a cylinder mill by rotating the concave about an imaginary center not coincident with the center of the grinding cylinder instead of effecting this by moving the concave directly toward or from the cylinder, by which I am enabled to employ a concave extending around full a more than half of the circumference of the cylinder.

The construction of my machine is as follows: A suitable frame is made to support the cylinder and case firmly, and in which the boxes, in which the journals of the cylinder run, are securely and permanently fastened. These it is not deemed necessary to show on the drawing as the construction is of the usual character and is well understood by mill wrights. The cylinder J, has attached to it, by bolts or otherwise, steel laye or staves (*a, a,*) covering the periphery of the cylinder. The cylinder may be driven in any of the usual ways.

The cylinder is inclosed by a case E, S, having an opening at the top M for the grain to enter from a hopper K and another opening underneath for it to pass out of when ground. The side of the concave or case where the grain passes around, and against which it is ground is lined with staves (*b, b,*) similar to those covering the cylinder; these are both channeled from the two ends to the center the channels running a little spiral and meeting at the center where they form an obtuse angle as shown in Figs. 2 and 3. The lower section of the grinding surface of the case is concentric

with that of the cylinder, the upper section gradually recedes from the surface of the cylinder, from the point (*o,*) to the top where it is far enough off to receive the grain; this is equivalent to the bosom of a common mill-stone. On the outside of the case near the lower side, there are two arms, one of which is shown at (*d*) Fig. 1, which project out and sustain a cross bar F into the center of which the end of a screw G is fastened and turns in the frame. There is a roller H that has the screw G above named passing through it said screw standing on a tangent line, with the case. By turning the screw G the case is moved more or less around, thus increasing or decreasing the space between the concave and cylinder uniformly or nearly so from top to bottom. This is effected by having grooves (*h*) (see Fig. 4), cut in the sides of the case a little eccentric to the center of the cylinder and thus making the center of revolution of the case, a little above that of the cylinder by fixing ways (*i*) to the frame which project into the grooves in the case. By this construction it will clearly appear that as the arms (*d*) are elevated and the case turned up it will gradually recede from the cylinder and when lowered will close in toward it.

Fig. 5 is a diagram showing two positions of the concave in relation to the cylinder. The center of the cylinder is at (*a*), and the center of revolution of the case is at (*b*). The black curved line (*e*) shows the case when the screw is turned down to the lowest point and the red line (*d*) represents it elevated as shown in Fig. 1. The lines (*e* and *f*) show the limits of the grinding surface represented in Fig. 1, from N, to (*o*).

Having thus fully described my invention what I claim therein as new and for which I desire to secure Letters Patent is,

The method of adjusting the case or concave by revolving it around the cylinder as described by means of the grooves and ways and adjusting screw in the manner and for the purpose above set forth or by any other means substantially the same.

JACOB GROAT.

Witnesses:

J. J. GREENOUGH,  
JOHN HITZ.