J. STEVENS.
Grinding-Mill.

No. 221,371. Patented Nov. 4, 1879.

Fig. 1.

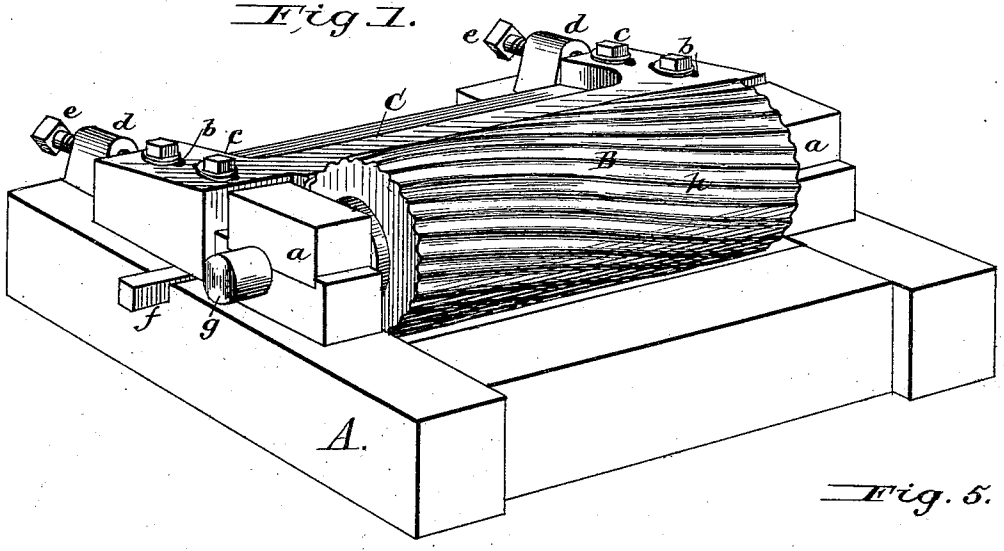


Fig. 5.

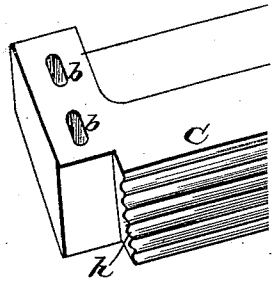


Fig. 2.

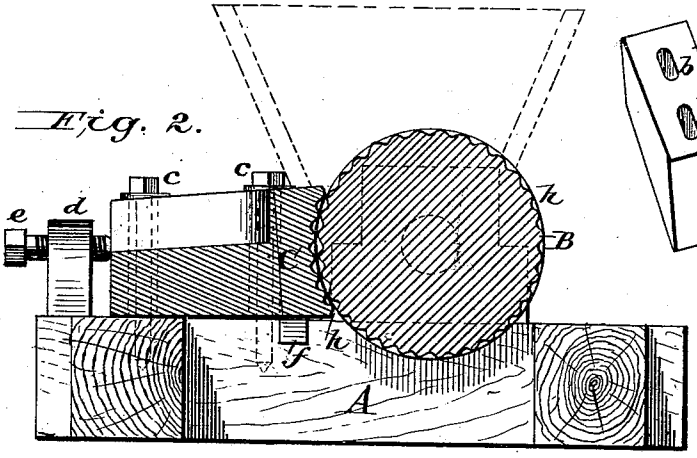


Fig. 3.

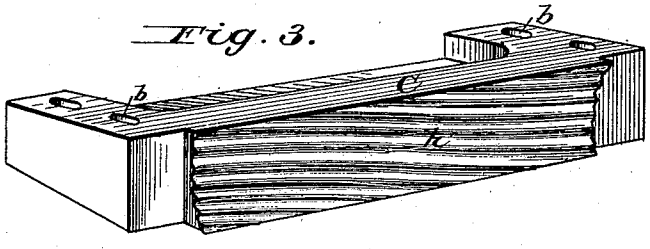
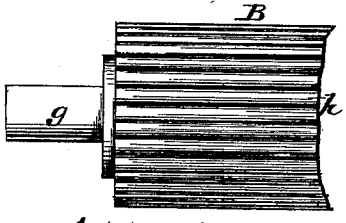


Fig. 4.



Attest:
H. D. Perrine
C. H. Keller.

Inventor:
John Stevens
By. Parkinson & Parkinson
Atty's

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN STEVENS, OF NEENAH, WISCONSIN.

IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. **221,371**, dated November 4, 1879; application filed June 13, 1879.

To all whom it may concern:

Be it known that I, JOHN STEVENS, of Neenah, in the county of Winnebago and State of Wisconsin, have made certain new and useful Improvements in Mills for Grinding and Reducing Grain and other Materials, of which the following is a specification.

My invention relates particularly to that class of grinding-mills in which a rotating cylinder works against a fixed breast or concave; and it consists in an improved dress to be given such cylinder and concave, as hereinafter described.

In the drawings, Figure 1 is a perspective view, the dress being shown as applied spirally. Fig. 2 is a cross-section transverse of the cylinder and concave; Fig. 3, a view of the concave with dress matching the cylinder shown in Fig. 1. Fig. 4 represents a cylinder with straight dress, and Fig. 5 a corresponding concave.

The mechanism is mounted upon a strong frame, A, which may be of any approved construction. In suitable bearings *a* upon this frame is journaled the cylinder B, which turns against or in the concave C. This concave is so mounted upon the frame that it may be adjusted nearer to or farther from the cylinder, in order to grind high or low, and also so mounted that it may be tipped to vary the angle between it and the circumferential face of the cylinder. For these purposes slots *b* are made in each end of the concave, or in flanges formed thereon, through which clamps or set-screws *c* are passed, holding the concave to the frame.

To the rear of the concave in the frame-work, or in suitable lugs *d* projecting therefrom, are set adjusting-screws *e*, by which the concave is advanced or retracted to determine the space between it and the cylinder.

Well forward beneath the concave at each end wedges *f*, or equivalent devices, are placed, by which, when the clamps are loosened, the concave may be tipped to vary the angle between its face and the cylinder. These adjustments and the resulting compound adjustment, it is obvious, may be obtained by various equivalent devices, as cams or eccentrics, and in various manners, which will be readily apparent.

The cylinder B is driven by any suitable connection with a prime motor, as by means of a sheave or pinion mounted upon the end of its shaft *g*.

The dress which I have invented, and which I apply to the cylinder and concave, consists of a series of parallel rounded flutes, the dividing-ridges being also rounded, so that a cross-section presents the appearance of a series of ogee curves running into each other. This dress may be of any degree of fineness, or may be measurably coarse; and it may be applied in straight lines or spirally.

In the drawings the dress is represented at *h*. In Fig. 1 it is shown as applied spirally, being given about a quarter-turn in the length of the cylinder. The corresponding concave shown in Fig. 3 has the dress similarly applied, but with the spirals running in such direction that, when brought together, the dress of the cylinder will cross that of the concave.

A somewhat similar effect might be produced by making the spirals on one faster, or with a more rapid pitch, than on the other; but this I do not deem so desirable.

In Figs. 4 and 5 I have represented the dress as applied in straight lines longitudinally of the cylinder and concave. This form may sometimes be used with advantage.

The dress which I have described presents no sharp cutting, rasping, or tearing edges, and no re-entrant angles in which the material may lodge and remain. Its action is a pinching and crushing one, in contradistinction to cutting and grinding.

It is not necessary to the efficient operation of the cylinder and concave provided with my improved dress that they should be used with the particular adjusting devices or be capable of each of the relative adjustments hereinbefore described.

I claim as my invention—

1. The herein-described dress for cylinder and concave, consisting of a series of parallel rounded flutes with rounded dividing-ridges, substantially as set forth.

2. The combination of a cylinder having a dress composed of a series of parallel rounded flutes with rounded dividing-ridges and a concave having a similar dress, substantially as described.

JOHN STEVENS.

Witnesses:

ALFRED GALPIN,

GEO. B. LEONARD.