(No Model.)

P. A. OTIS.

GRINDING MACHINERY.

No. 344,919. Patented July 6, 1886.

Fig. 1

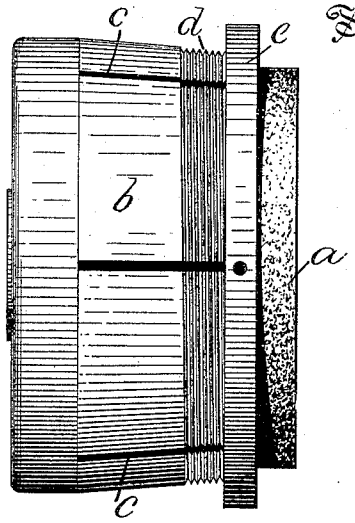


Fig. 2

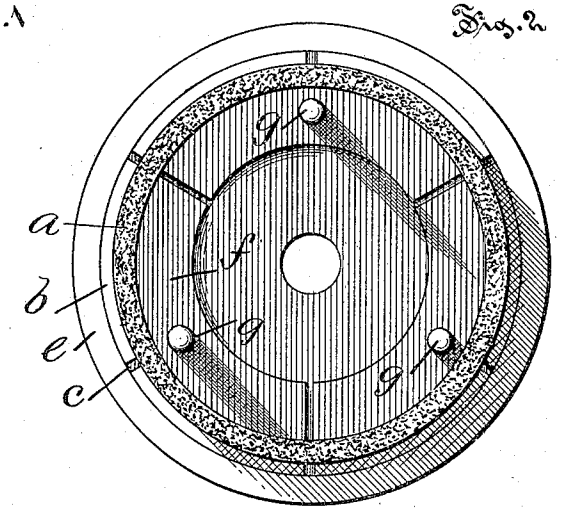


Fig. 4

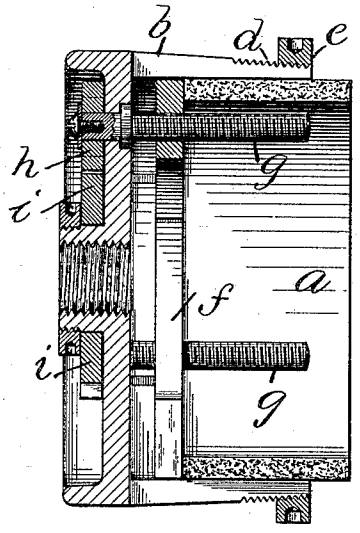
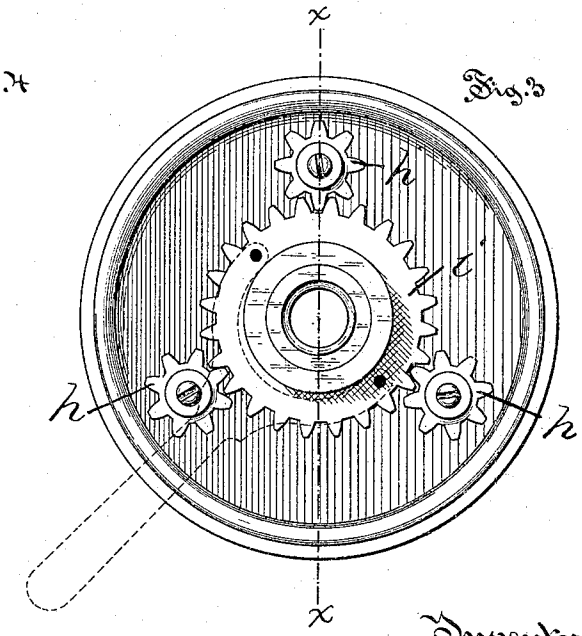


Fig. 3



Witnesses:

Wm. Bjorkman

A. R. Williams

Inventor.

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By Simonds & Burdett

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UNITED STATES PATENT OFFICE.

PHILIP A. OTIS, OF LEEDS, MASSACHUSETTS, ASSIGNOR TO THE NORTHAMPTON EMERY WHEEL COMPANY, OF SAME PLACE.

GRINDING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 344,919, dated July 6, 1886.

Application filed December 24, 1885. Serial No. 186,619. (No model.)

To all whom it may concern:

Be it known that I, PHILIP A. OTIS, of Leeds, in the county of Hampshire and State of Massachusetts, have invented a certain new and useful Improvement pertaining to Grinding Machinery, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a view of my embodied improvement, which may be called a "top" view. Fig. 2 is an end view of the same—a view of the front end or working end. Fig. 3 is a rear end view of the same. Fig. 4 is a view of the same in central vertical section, taken on the line *x x* of Fig. 3.

This improvement pertains to the use of hollow cylindrical grinding-wheels, (emery-wheels, for instance,) in the use of which the grinding is done on what may be called the "end" of the cylinder—a process that is illustrated and described in the Letters Patent of John L. Otis, for improvement in grinding-machines, No. 182,284, dated September 19, 1876. In the patent just referred to the grinding-wheel is a so-called "emery-wheel," and is cup-shaped—that is, it is a hollow cylinder with one closed end, the whole of which is made up of emery compound. The use of the improvement herein described enables me to dispense with closing the end of the grinding-cylinder, thereby saving considerable material and expense. It further enables me to make the grinding-cylinder of less thickness than before, and, still further, enables me to use a much higher speed of rotation for the grinding-cylinder than would otherwise be practicable.

In the accompanying drawings, the letter *a* denotes a hollow cylindrical grinding-wheel, which is (or at least may be) open at both ends. This grinding-wheel fits within a separate hollow metallic cylinder, *b*, and in use projects therefrom somewhat. The protecting-cylinder *b* is radially expansible and contractible; this capacity being mainly given by the slots *c*. To this end the protecting-cylinder *b* bears exteriorly the screw-thread *d*, on which runs the adjusting-ring *e*, interiorly threaded for that purpose, and the protecting-cylinder is contracted or expanded for grasping or loosing the grinding-wheel by rotating the adjusting-ring *e* backward or forward on the screw-thread *d*. As the edge or grinding-face of the grinding-wheel wears away by use it must, of course, be fed laterally to compensate therefor. To this end there is within the protecting-cylinder *b*, and back of the grinding-cylinder, a sectionally-divided ring, *f*. Each of the sections is hung upon a threaded shaft, *g*, running through and journaled in the disk part of the protecting-cylinder and rearward thereof, bearing a pinion, *h*, meshing into a gear, *i*, by the rotating of which gear the sectionally-divided ring is advanced or retreated, as desired. This arrangement, just described, of the sectionally-divided ring, threaded shafts, pinions, and gear, constitutes an adjustable feeding device for the grinding-wheel. The disk part of the protecting-cylinder *b* is centrally perforated. This perforation is threaded and intended to be screwed upon a rapidly-rotating shaft, which, of course, will give rapid rotation to the protecting-cylinder and to the grinding-cylinder.

I claim as my improvement—

1. In combination, the sectionally-divided ring *f*, the threaded shafts *g*, the pinions *h*, the gears *i*, and the supporting-cylinder *b*, all substantially as described, and for the purpose set forth.

2. In combination, the hollow and exteriorly-threaded supporting-cylinder *b*, the interiorly-threaded ring *e*, the sectionally-divided ring *f*, the threaded shafts *g*, the pinions *h*, and the gears *i*, all substantially as described, and for the purpose set forth.

PHILIP A. OTIS.

Witnesses:
A. C. TANNER,
H. R. WILLIAMS.