D. C. NEWELL.
Grinding-Mill.

No. 196,100. Patented Oct. 16, 1877.

FIG. 1.

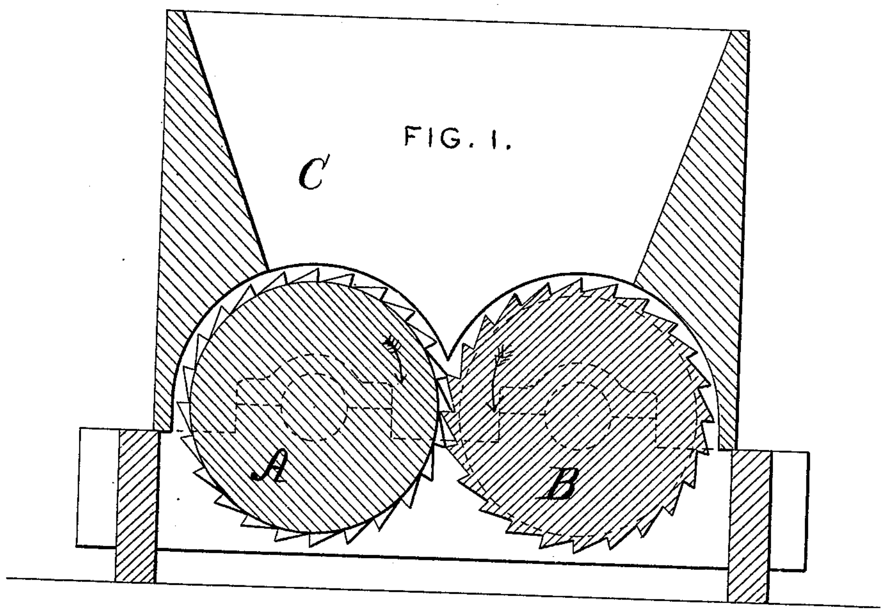
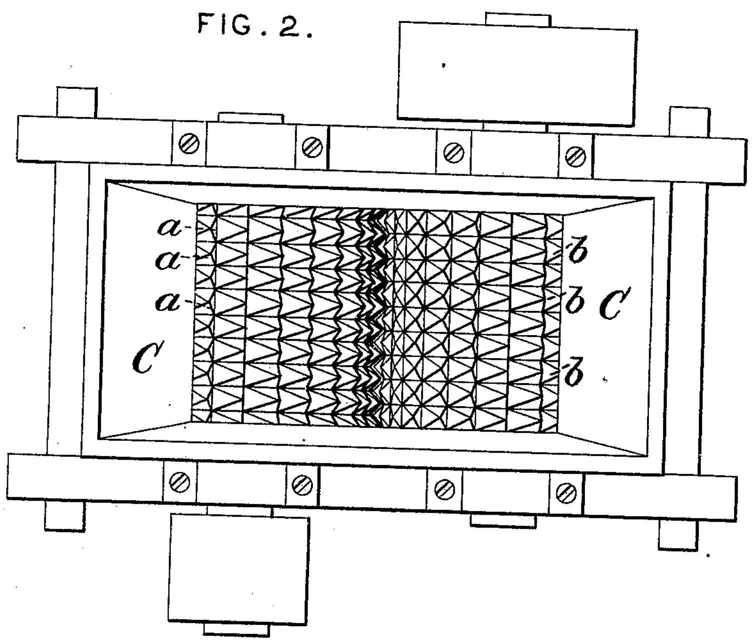


FIG. 2.



WITNESSES:
Walter Pell
Wm Kemble Hall

Darius C. Newell,
INVENTOR.

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

UNITED STATES PATENT OFFICE.

DARIUS C. NEWELL, OF YONKERS, NEW YORK.

IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. **196,100**, dated October 16, 1877; application filed July 16, 1877.

To all whom it may concern:

Be it known that I, DARIUS C. NEWELL, of Yonkers, in the State of New York, have invented a new and useful Improvement in Grinding-Mills, of which the following is a specification:

In grinding chips, bark, and other similar material in an ordinary bark-mill, the liability of the mill to become choked requires the services of an attendant to look after it, and a horizontal toothed cylinder running in a stationary casing furnished with teeth is also liable to the same difficulty in operation.

The object of my invention is to obviate this objection; and it consists of a pair of toothed cylinders running together at different speeds, and with the pointed teeth reversed and interlocking, to form together a miter-joint.

The material introduced between the cylinders or rollers must necessarily travel at least as fast as the slower-moving teeth, so that it cannot choke or jam in the mill, and while it is held on one side by the slow teeth it is caught and torn and ground by the swifter-moving teeth on the opposite side.

For the convenience of construction, I prefer to make the teeth on circular plates or disks of the thickness of a single tooth, and to place them on their respective shafts, so that the points of the set of triangular teeth on one side of the mill project into the spaces between the corresponding triangular teeth on the opposite side. The flat or radial faces of the slow-moving teeth lie uppermost, to hold the shavings or chips, and on the other and faster side they face downward, to catch and tear them.

In the annexed drawing, Figure 1 is a vertical section of a mill constructed according to my said improvement, and Fig. 2 is a plan of the same.

The toothed cylinders or rollers A and B are composed, respectively, of the disks or plates *a* and *b*. The cylinder A is fitted with a small pulley, and B has a larger one, so that when they are both driven from pulleys of the same size the former revolves more rapidly than the latter. The casing forms a hopper, C, to receive the shavings above, which are delivered below after they have been subjected to the tearing and grinding action of the teeth consequent upon the difference of their velocities. The revolution of B carries them through the mill, and the superior speed of A causes them to be torn, cut, and ground.

Two or more mills or sets of rollers may be combined in a series, with the first that act upon the material set wider apart than the last; or the carrier that conveys the shavings or chips or bark may be arranged to return the material to the mill after it has been sifted, to be again ground.

I claim as my invention and desire to secure by Letters Patent—

The combination of the cutting-roller A and the feeding-roller B, geared to revolve together in opposite directions and with different speeds, and having the plane surfaces of their beveled teeth opposed at their point of intermeshing, substantially as described.

DARIUS C. NEWELL.

Witnesses:

WALTER PELL,

WM. KEMBLE HALL.