A. REYNOLDS.
Coffee-Mill.

No. 197,798. Patented Dec. 4, 1877.

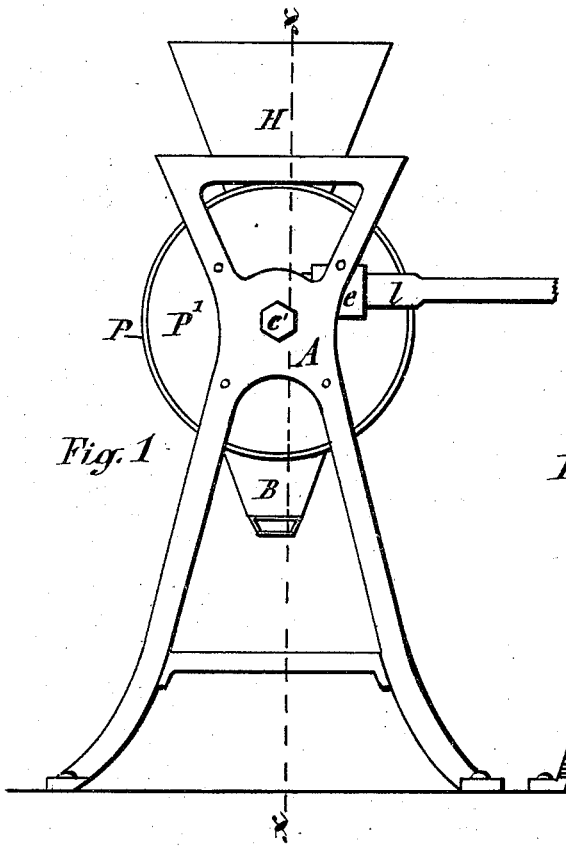

Fig. 1

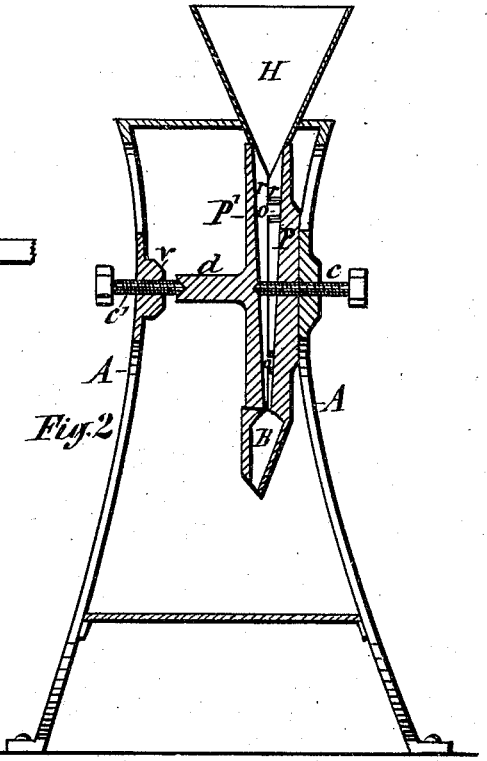

Fig. 2

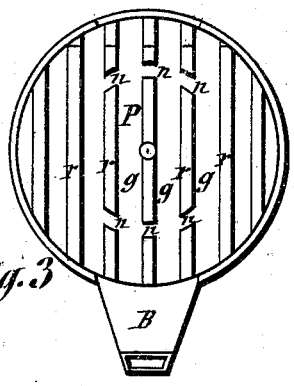

Fig. 3

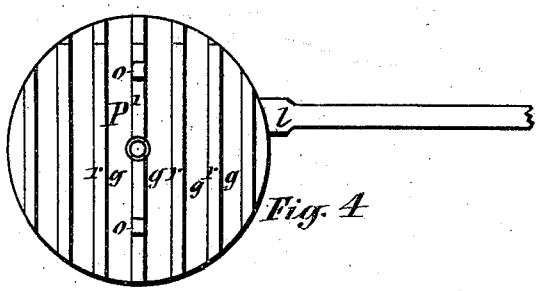

Fig. 4

WITNESSES:
E. Bendixen
J. C. Laass.

INVENTOR:
Alexander Reynolds
by E. Laass his Atty.

UNITED STATES PATENT OFFICE.

ALEXANDER REYNOLDS, OF OSWEGO, NEW YORK.

IMPROVEMENT IN COFFEE-MILLS.

Specification forming part of Letters Patent No. **197,798**, dated December 4, 1877; application filed November 2, 1877.

To all whom it may concern:

Be it known that I, ALEXANDER REYNOLDS, of Oswego, in the county of Oswego, in the State of New York, have invented a new and useful Improvement in Coffee-Crushers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in the class of mills designed for grinding or crushing roasted coffee, spices, and other dry granular substances, and in which the grinding disks or plates are arranged in a vertical position, and operated by oscillating one of said plates.

The invention consists, first, in an improved construction of the opposing surfaces of grinding-disks, arranged and operated as aforesaid; and, second, in a novel construction and combination of the grinding-disks with each other and with the oscillating lever, whereby the extra cover of the mill may be dispensed with, ready access to the interior of the mill is obtained, and the operation of the mill facilitated, all as hereinafter fully described.

The invention is clearly illustrated in the accompanying drawings, wherein Figure 1 is a front view of my improved coffee-crusher complete; Fig. 2, a transverse vertical section taken on line *x x* in Fig. 1; Fig. 3, a view of the grinding-surface of the stationary disk detached, and Fig. 4 the same view of the movable disk.

Similar letters of reference indicate corresponding parts.

P and P′ are the grinding-disks of the crusher or mill, arranged in a vertical position, P being the stationary disk or plate, permanently secured to a suitable frame, A, and P′ the movable disk, having attached thereto a lever, *l*, by means of which it is oscillated on its central axis. H is the hopper or funnel, fitted to the top of said plates, for feeding to the mill the article to be ground, and B the spout at the bottom thereof for the discharge of the ground substance.

To improve the effectiveness of mills arranged vertically and operated by oscillating one of its grinding-plates on its axis, the grinding or opposing surfaces of the respective plates are constructed of a series of vertical ribs or ridges, *r r*, and intervening grooves or furrows *g g*, which gradually diminish in depth from the top to the bottom of the plates, thus allowing the article to be ground to freely pass between the grinding-plates, and rapidly reducing it to the condition desired by the shearing action upon it of the ribs *r r* of the respective grinding-plates. One of the said plates is provided with one or more spurs or projections, *o*, of a height equal to the depth of the groove of the opposite plate, and the latter has notches *n* in its ribs *r* for the passage through the same of the spur *o* when the mill is in operation. This transverse movement of the spur *o* across the groove *g* aids in distributing the coffee or other article fed to the mill in its passage between the grinding-plates, and prevents it from lodging in the furrows or grooves, and thus clogging the mill.

The movable plate P′ is pivoted and held in its relative position to the stationary plate P by a set-screw, *c*, passing through the latter from the rear thereof, and protruding at the front, where it is fitted into a step or countersink in the center of the movable plate P′, and by another set-screw, *c′*, passing through a stationary nut, *v*, on the frame of the mill, and arranged directly opposite and in line with the first-mentioned set-screw, and fitted at its inner end into a countersink in a stud, *d*, projecting from the rear of the movable plate P′. By means of these set-screws the movable plate is adjusted in its proximity to the stationary plate, and at the same time is pivoted in a manner which produces little or no friction, and any wear of the respective bearings can be readily compensated.

The stationary plate P being provided with a circumferential flange on its periphery, and thus forming the case of the mill, the movable plate P′ is fitted closely to the interior thereof to form the cover of the mill, thus dispensing with the extra plate and reducing the cost of the mill. The rear of the movable plate P′ is provided with a socket, *e*, for the attachment of a horizontal lever, *l*, which, by this relative position, affords greater convenience and effectiveness of operation.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a mill arranged vertically and oscillated as described, the plates P and P′, hav-

ing vertical ribs *r* and grooves *g*, gradually diminishing in depth toward the bottom of the plates, and one of said plates provided with one or more spurs, *o*, and the opposite plate having notches *n* through ribs *r*, substantially as shown and described, for the purpose set forth.

2. The combination and arrangement, in a coffee-crusher, of the vertical stationary plate P, provided with a circumferential flange, and the oscillating plate P′, fitted to the interior thereof to form the cover of the crusher or mill, and having the lever *l* attached horizontally to a socket on the rear of said plate, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand in the presence of two attesting witnesses at Syracuse, State of New York, this 20th day of October, 1877.

ALEXANDER REYNOLDS.

Witnesses:
I. C. LAUSS,
E. BENDIXEN.