(No Model.)

E. C. RORABACK.

GRATER.

No. 438,588. Patented Oct. 14, 1890.

Fig. 1.

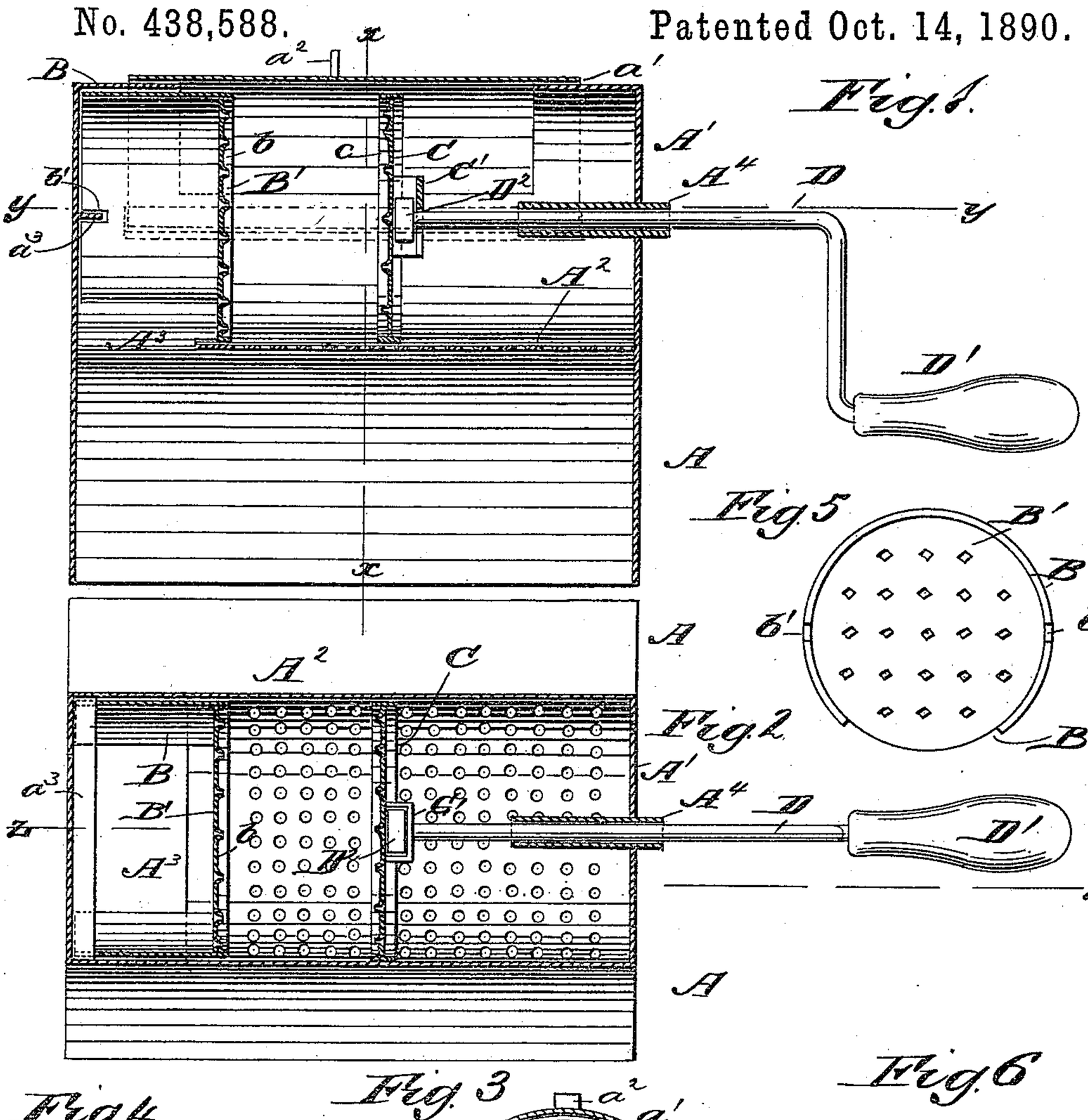


Fig. 5.

Fig. 2.

Fig. 4.

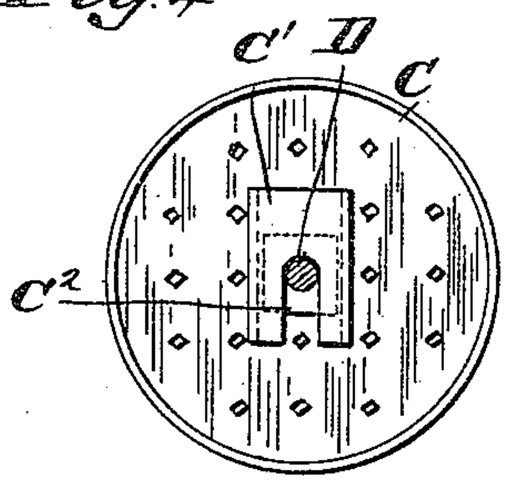
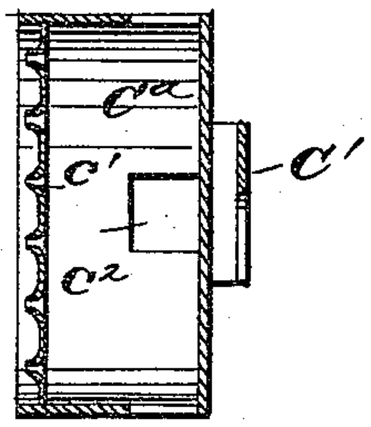


Fig. 3.

Fig. 6.



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GRATER.

SPECIFICATION forming part of Letters Patent No. 438,588, dated October 14, 1890.

Application filed July 7, 1890. Serial No. 357,998. (No model.)

To all whom it may concern:

Be it known that I, EDWIN C. RORABACK, of Saginaw, in the county of Saginaw and State of Michigan, have invented a new and Improved Grater, of which the following is a full, clear, and exact description.

My invention relates to improvements in graters, and is intended to be used in grating nutmegs and similar small articles; and the object of the invention is to produce a simple, durable, and efficient grater by means of which the articles to be grated may be rapidly reduced to the desired degree of fineness.

To this end my invention consists in a horizontal cylinder mounted upon a suitable frame and having a perforated bottom, a stationary grinding-cylinder mounted in one end of the horizontal cylinder, and a revoluble perforated disk mounted loosely in the cylinder, so as to be longitudinally movable therein, and means for rotating the said disk.

My invention also consists in certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical longitudinal section of the grater on the line *z z* of Fig. 2. Fig. 2 is a horizontal section on the line *y y* of Fig. 1. Fig. 3 is a vertical transverse section on the line *x x* of Fig. 1. Fig. 4 is a rear elevation of the revoluble disk, showing the means for attaching the disk to the crank-shaft. Fig. 5 is a rear elevation of the stationary grinding-plate and shell, and Fig. 6 shows a modified form of a revoluble grinding-cylinder adapted to be used in place of a revoluble disk.

To the hollow base A, which is flared outwardly, as shown, and is open at the bottom, is attached at its top the cylindrical body A′ of the grater. That portion A^2 of the bottom of the body A′ which is within the walls of the base is provided at the rear end with an opening A^3, and from said opening to the forward end is provided with perforations. The body A′ has a sleeve or tubular bearing A^4, centrally fixed in one end and adapted to support a crank-shaft D, as described below, the said bearing being sufficiently long to firmly support the crank-shaft so that it will not oscillate therein. The body A′ has an opening in the top, through which the articles to be grated can be inserted, said opening being closed by a sliding cover *a′*, which rests in the laterally-extending ears *a* on each side of the cylinder. The cover *a′* is provided at the top with a suitable handle a^2, by means of which it may be moved. In the rear of the body A′ is a transverse rib a^3, for a purpose hereinafter set forth.

A grinding-plate B′, having perforations forming a grater-surface, is fixed in the forward end of a cylindrical shell B, which fits closely within the cylindrical body A′ and in the rear end of the same, said shell having an opening B^2 in the under side, which aligns with the opening A^3 in the bottom of the body A′, and lateral slots *b′* in the rear end thereof adapted to engage the rib a^3 and prevent the shell from turning. The grinding-plate is so set in the shell that there is a forwardly-extending rim *b* around the plate.

A disk C is mounted loosely in the body A′, said disk having a grater-surface similar to that of the plate B′. The disk C is also provided with a projecting rim *c*, so that when the disk is forced toward the grinding-plate the rim *c* of the disk and the rim *b* of the plate will meet, and thus prevent the abrading-surfaces of the disk and plate from coming in contact.

Upon the back side of the disk C is a U-shaped bracket C′, adapted to fit upon a block D^2 on the inner end of the crank-shaft D, said bracket having a vertical slot C^2 in the lower end thereof adapted to receive the crank-shaft. The shaft D extends horizontally through the tubular bearing A^4, and is provided at its outer end with a crank having a suitable handle D′. It will thus be seen that by turning the crank-shaft D the disk C will also be turned, and that by moving the shaft out or in the disk C may be brought into any desired position in relation to the grinding-plate B′. In order that the device may grind nicely, the perforations producing the cutting-edges on the grinding-plate and on the revoluble disk are arranged in squares, as is best shown in Figs. 3 and 4.

To operate the device, the cover a' is moved from over the opening in the body A′ and the article to be grated is placed therein between the grinding-plate B′ and the disk C. The cover is then replaced, the shaft D is pushed inward, so as to make the disk C and the grinding-plate B′ press against the article to be grated, and by turning the crank the article will be abraded, the severed particles passing through the perforated bottom of the body and also through the perforations in the grinding-plate and in the disk C. The particles that pass through these perforations will drop through the apertured bottom of the body and through the opening A^3, so that it will be impossible to clog the machine.

The device may be made to grind coarser or finer, as desired, by regulating the inward pressure on the shaft D, the machine grinding coarser when the pressure upon the shaft is heavy and finer when it is light.

The disk C may be provided with a cylindrical shell C^a, as shown in Fig. 6, having lateral openings c^2 to permit the ground material to fall therefrom. The shell C^a is also provided with a suitable bracket C′ to adapt it for attachment to the crank-shaft.

I do not confine myself to the particular form of frame or base shown in the device, as any suitable form may be used. The grinding-plate B′ may also be fixed in the body A′, if desired, and a hinged cover may be substituted for the sliding cover a'.

From the foregoing description it will be seen that the grinding-disk or the revoluble shell C^a may be easily removed from the grinding-shaft to be cleaned.

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

1. A grater consisting, essentially, of a horizontal cylindrical body mounted upon a suitable support and having a perforated bottom with an opening through one end thereof, a grinding-plate held in a cylindrical shell fixed in one end of the main cylinder, said grinding-plate having a perforated cutting-face and said shell having an opening therein aligning with the opening in the bottom of the main cylinder, a revoluble disk mounted loosely in the main body, so as to be longitudinally movable therein, said disk having a perforated cutting-face, and a grinding-shaft mounted horizontally in the main body and detachably connected with the revoluble disk, substantially as shown and described.

2. In a grater, the combination, with a cylindrical body mounted upon a suitable support and provided with a perforated bottom having an opening through one end thereof and having a sliding cover thereon, of a grinding-plate having a perforated cutting-face and fixed in a cylindrical shell to form a projecting annular rim, said shell having an opening aligning with the opening in the main body, a revoluble disk mounted in the main body, said disk having a perforated cutting-face and an annular rim adapted to abut on the rim of the grinding-plate, and a crank-shaft mounted loosely in one end of the cylinder and detachably connected with the revoluble disk, substantially as shown and described.

3. In a grater, the combination, with the cylindrical body mounted in suitable supports and having in one end a revoluble grinding-disk, which is longitudinally movable therein, and having at the other end a transverse rib, of a cylindrical shell mounted within the body and carrying a grinding-plate having a perforated cutting-face, said shell having lateral slots adapted to engage the rim of the main cylinder, substantially as shown and described.

4. In a grater, the combination, with a cylindrical body having a stationary grinding-plate fixed in one end thereof, of a revoluble grinding-disk mounted loosely in the main body, said disk having upon its back side a vertically-slotted bracket, as shown, and a crank-shaft mounted loosely in one end of the cylinder, said crank-shaft having at its inner end a block adapted to fit within the bracket of the revoluble disk, substantially as shown and described.

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