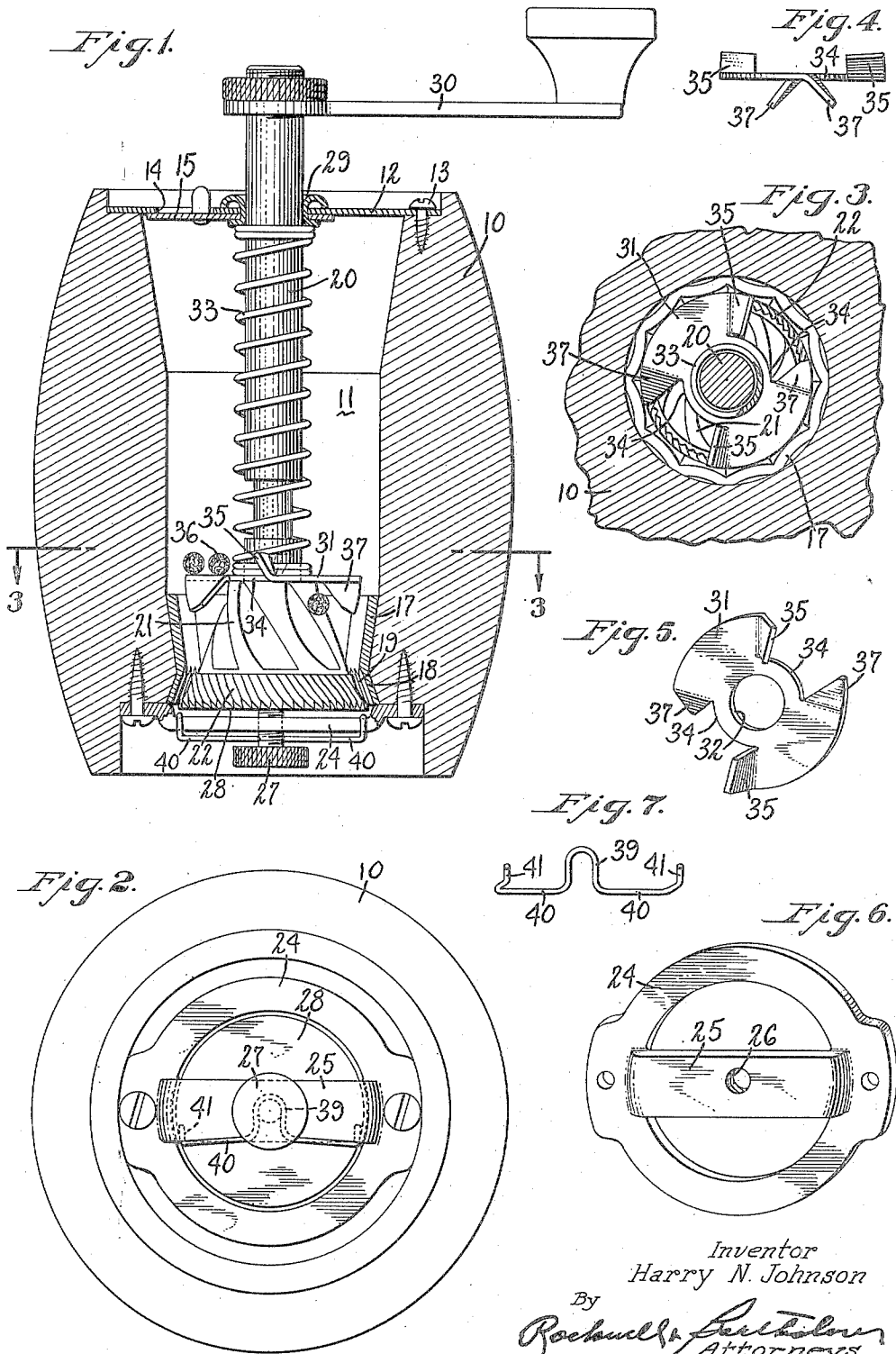


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PEPPER GRINDERS WITH FEED MEANS TO FORCE MATERIAL
BETWEEN THE FIXED AND ROTARY GRINDING MEMBERS
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PEPPER GRINDERS WITH FEED MEANS TO FORCE MATERIAL BETWEEN THE FIXED AND ROTARY GRINDING MEMBERS

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This invention relates to pepper grinders and more particularly to a device of relatively small size which may be placed upon the table and used to grind pepper corns for immediate use.

The device comprises a hollow body provided with a substantially cylindrical grinding or crushing member having an internal working surface to cooperate with the external grinding and crushing working surface on a member mounted upon a stem rotatably supported in the body.

The pepper corns are placed within the body around the stem and gravitate downwardly into the space between the external and internal crushing members. It has been found, however, that because these corns are of light weight they are sometimes not drawn into the "bite" between the two crushing members in a satisfactory manner but tend to "float" when the inner crushing member is rotated so that the ground pepper is not delivered from the device as it should be.

It is contemplated by the present invention to provide a member for forcing the pepper corns downwardly so that they will be drawn into the mill and will be properly acted upon by the cooperating grinding members to grind the pepper corns and deliver a satisfactory quantity of the ground material. To this end I employ a plate upon the rotating stem and above the grinding member, this plate having openings to permit the pepper corns to pass therethrough under the force of gravity, and adjacent this opening on the upper side of the plate is a tongue or lip which acts as a cam member to urge the corns downwardly through the opening. The plate is also provided with a cam lip or tongue extending downwardly from the lower surface thereof to cam the corns downwardly into the "bite" of the two grinding surfaces so that after they pass downwardly below the plate they will not tend to float upwardly out of the bite between these two members but will be positively urged downwardly so as to be caught between the crushing surfaces and acted upon.

One object of this invention is to provide a pepper grinder of improved structure and operation.

Another object of the invention is to provide an improved pepper grinder for grinding pepper corns which will be provided with means for forcing the corns downwardly between the opposing grinding surfaces of the crushing members so as to be properly acted upon by the latter.

A still further object of the invention is to provide a pepper grinder having a pair of opposing grinding surfaces one of which is provided upon a rotary stem and to provide upon this stem a yieldably mounted member to assist in forcing the pepper corns toward the surfaces of the crushing members.

A still further object of the invention is to provide a pepper grinder having a pair of cooperating crushing members with means for adjusting the distance between the opposing crushing surfaces so as to vary the fineness of the grind, this means consisting of an adjusting screw,

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and with improved mechanism for releasably holding the adjusting screw in a desired adjusted position.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a sectional view of a pepper grinder embodying my invention;

Fig. 2 is a bottom plan view thereof;

Fig. 3 is a sectional view on line 3—3 of Fig. 1;

Fig. 4 is a side elevational view of the yieldable disk-like member mounted upon the rotating stem;

Fig. 5 is a perspective view thereof;

Fig. 6 is a view of the supporting member at the lower portion of the casing; and

Fig. 7 is a perspective view of the spring which serves as a detent for the adjusting screw.

To illustrate a preferred embodiment of my invention I have shown in the drawings a pepper grinder comprising a casing 10, which casing has an opening therethrough providing a chamber 11 within which the pepper corns are placed to be ground. This chamber is normally closed at its upper end by a cover 12 held in place by screws 13, the cover being provided with a charging opening 14 through which the pepper corns may be introduced into the chamber 11, this opening normally being closed by a slide 15 of usual construction.

At the lower end of the chamber is provided a grinding member 17 in the shape of a frustum of a cone, this member being gradually tapered downwardly so as to be slightly larger at its upper end. At the lower end of the member 17 is a downwardly flaring crushing member 18 having grinding teeth 19 upon its inner surface.

Rotatably mounted within the casing 10 is a stem 20 upon the lower end of which is mounted a cooperating crushing member comprising an upper portion 21 having a roughened exterior surface to cooperate with the interior surface of the member 17 within which it is disposed and a lower crushing surface 22 to cooperate with the interior crushing surface 19 of the member 18. The member 21 is flared slightly toward its lower end to form a tapering passage with the internal surface of the member 17, while the member 22 is flared outwardly toward its lower end so as to be generally complementary in shape to the surface 19 of the member 18, and the member 22 is provided with relatively fine teeth.

Secured to the lower surface of the casing 10 is a spider 24 shown in Fig. 6. This spider is provided with a cross member 25 having a threaded opening 26 which threadedly receives the adjusting screw 27. The upper end of this screw bears against the lower surface 28 (Fig. 2) of the member 22 so that the crushing member and the stem 20 may be adjusted in a vertical direction.

The stem 20 is rotatably mounted in an opening 29 in the cover 12 and may be adjusted vertically in this opening. It will be seen that adjustment of the screw 27 in a direction to move it upwardly will cause an upward movement of the member 22 and, therefore, cause its exterior grinding surface to approach more closely to the interior grinding surface 19 so as to produce a finer grind. Adjustment of the screw 27 in an opposite direction will, of course, have an opposite effect. A crank 30 is provided upon the stem 20 so that it may be rotated.

As previously stated it sometimes occurs that the pepper corns placed in the chamber 11 will tend to float around upon rotation of the crushing member 21 and will not be drawn down into the bite between the external and internal crushing members. In order to prevent such an occurrence, I provide a disk-like plate 31 of the form shown more especially in Figs. 4 and 5, which plate is provided with an opening 32 slidably mounted

upon the stem 20. This plate is urged downwardly against the upper surface of the crushing member 21 by a coil spring 33 which acts between the cover 12 and the upper surface of the plate.

As shown the plate 31 is provided with openings 34 through which the pepper corns may pass, and at each side of this opening there is provided a lip or tongue to cam the corns downwardly. As shown in Figs. 1 and 4, tongues 35 are provided at the rear of the openings 34, which tongues project upwardly in an inclined position from the surface of the plate. It will be apparent that when one of the tongues 35 engages one of the pepper corns 36 during the rotation of the stem 20 which also rotates the plate 31, it will cam the corns downwardly through the opening 34 into the space below the plate 31.

Also at the rear end of the portion of the plate between the openings 34 there is provided a downwardly inclined tongue 37, which tongue lies forwardly of the adjacent opening 34. These tongues 37 engage the corns 36 which are within the space below the plate 31 and tend to cam these corns downwardly so as to insure their entry into the space between the inner and outer crushing members. It will be understood that the corns usually fill the space below the plate 31 and above the crushing members 18 and 22 so that the engagement of the corns by the tongues 37 will force them downwardly upon the lower corns and force the latter into the space between the crushing members.

It will also be noted that the disk or plate member 31 is permitted to yield upwardly against the tension of the spring 33 if the pressure below it becomes too great so that it will not impose too great an effort upon the crank 30 but will through the spring 33 exert sufficient effort upon the pepper corns to insure their entry between the grinding surfaces.

A detent is provided to engage the adjusting screw 27 and prevent the screw from being accidentally rotated so as to change the fineness of the grind. This detent is in the form of a spring member shown in Figs. 1, 2 and 7. This spring is provided with a U-shaped intermediate portion 39, leg portions 40 extending outwardly from both sides of the U-shaped portion, and laterally extending offset end portions 41. This spring is mounted, as shown more especially in Fig. 2, and it will be noted that the U-shaped portion 39 engages the threaded portion of the screw 27 while the legs extend outwardly therefrom to permit the offset laterally extending ends 41 to lie above the bar 25, while the U-shaped portion 39 is below this bar. The proportions of the parts are such that, as shown in Fig. 2, the ends of the legs 40 will be slightly sprung when mounted in position so as to cause the U-shaped portion 39 of the spring to embrace the threaded portion of the screw snugly and thus exert a frictional binding action against the screw to prevent any inadvertent turning thereof. At the same time the screw may be readily rotated by the user by means of its knurled head.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A grinder comprising cooperating fixed and rotary grinding members, a shaft on which the rotating member is mounted, said members having between them a space for entry therein of the corns to be ground, means for forcing said corns into said space, said means comprising a disk member mounted on the shaft above the rotating member and having tongue elements thereon to engage the corns and urge them into said space, and a spring pressing said disk member yieldably against said rotating member to cause it to rotate therewith.

2. A grinder comprising cooperating fixed and rotary grinding members, a shaft on which the rotating member is mounted, said members having between them a space for entry therein of the corns to be ground, means for forcing said corns into said space, said means comprising a disk-like member mounted on the shaft, a hopper for the corns above said last-named member, said disk member having openings therein and tongue elements thereabove to force the corns downwardly through said openings, and a spring yieldably urging said disk member downwardly into engagement with the rotating member.

3. A grinder comprising cooperating fixed and rotary grinding members, a shaft on which the rotating member is mounted, said members having between them a space for entry therein of the corns to be ground, means for forcing said corns into said space, said means comprising a disk-like member mounted on the shaft, a hopper for the corns above said last-named member, said disk member being provided with openings, tongue members adjacent the openings to urge the corns downwardly, and a spring member on the shaft to urge said disk-like member downwardly toward the grinding members.

4. A grinder comprising cooperating fixed and rotary grinding members, a shaft on which the rotating member is mounted, said members having between them a space for entry therein of the corns to be ground, means for forcing said corns into said space, said means comprising a disk-like member mounted on the shaft, a hopper for the corns above said last-named member, said disk member having openings therein and a tongue element thereabove to force the corns downwardly through said openings, an additional tongue element below the disk to force the corns downwardly between the grinding members, said disk being spring-pressed downwardly toward the grinding members.

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