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1,699,944

C. F. BALL

ROTARY CUTTER

Filed Dec. 17, 1927

Fig. 2.

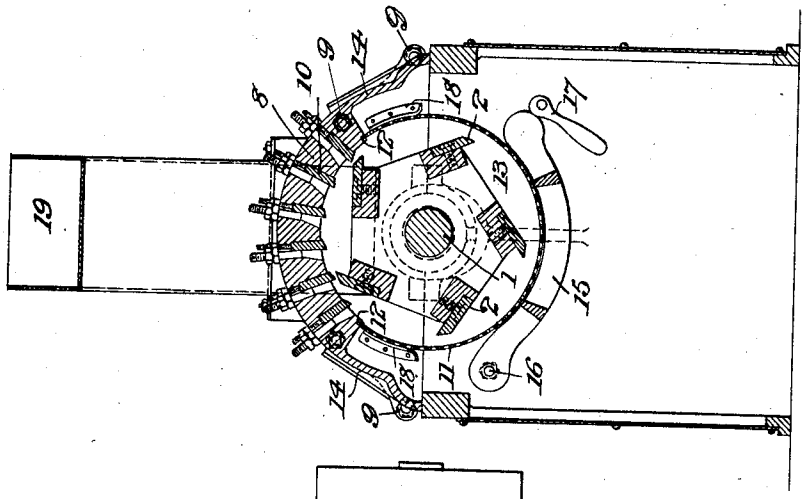
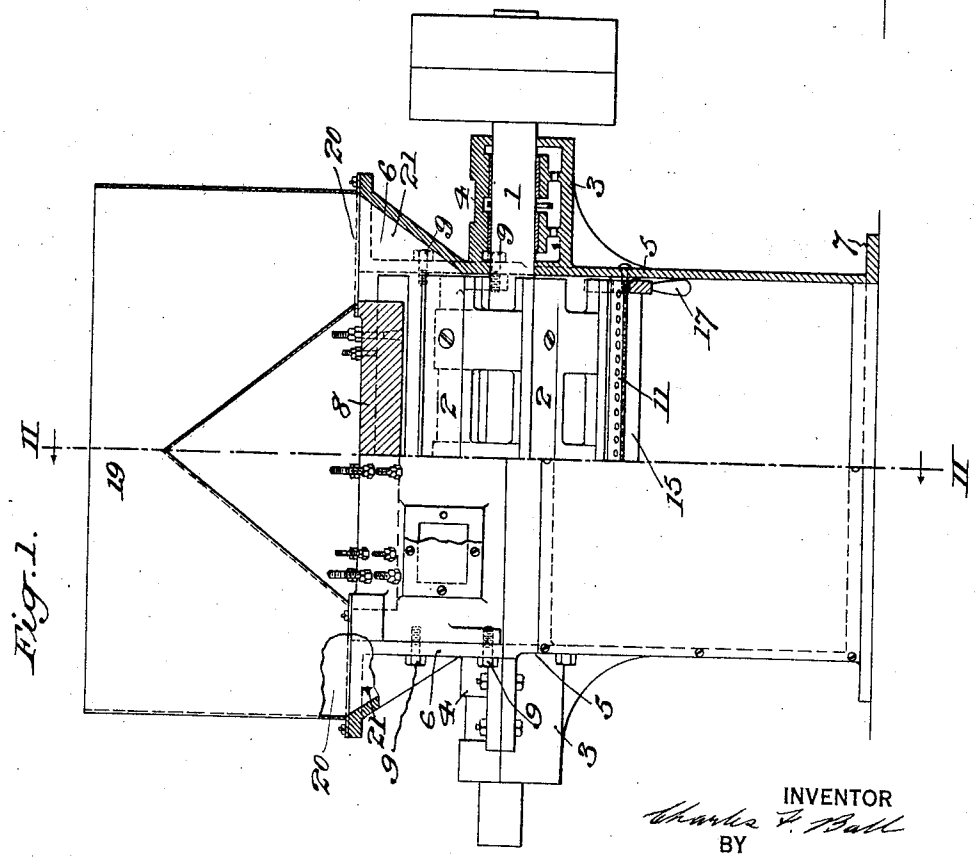


Fig. 1.



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UNITED STATES PATENT OFFICE.

CHARLES F. BALL, OF BROOKLYN, NEW YORK.

ROTARY CUTTER.

Application filed December 17, 1927. Serial No. 240,807.

This invention relates to rotary cutters of the type illustrated in my Patents Nos. 900,254 and 900,255, dated October 6th, 1908, which are particularly well adapted for reducing to a uniform fineness such materials as grain, cork, roots, herbs, spices, etc.

The object of my invention is to provide certain improvements in the construction, form and arrangement of the several parts of the cutter, whereby the output of the machine will be greatly increased.

My invention more particularly comprises a machine of the class described in which a free feeding of the material to be cut is provided for by feeding the material into the opposite ends of the cutting chamber and a free escape of the cut material is provided for by extending the sides of the concave screen upwardly beyond the rotary cutter shaft, thereby permitting the use of a single cheek piece having its knives arranged close together at the top portion thereof.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents a half front view and a half vertical longitudinal section.

Fig. 2 represents a transverse vertical section taken in the plane of the line II—II of Fig. 1, looking in the direction of the arrows.

The rotary cutter shaft is denoted by 1, which shaft carries the desired number of knives 2. The bearing support for the rotary cutter shaft comprises lower half bearings 3 and upper half bearings 4 provided with lower and upper end plate sections 5 and 6 respectively. The lower end plate sections 5, 5 are shown as uprising from a suitable base 7.

A single concave cheek piece 8 is provided, which cheek piece is removably secured at its ends by bolts 9 to the upper end plate sections 6, 6. The desired number of stationary adjustable knives 10 are arranged close together along the top of the cheek piece in position to coact with the knives 2 on the rotary cutter shaft 1. The concave screen 11 extends about three-quarters of the way around the rotary cutter shaft 1 and has its edges removably seated in longitudinal grooves 12, 12 in the cheek piece 8. This screen together with the cheek piece surround the rotary cutter shaft 1 between the end plates and serve to form a cutting chamber 13. The cheek piece 8 is provided with downwardly curved sides 14, 14, spaced from the upper portions of the screen and extending to the dividing line between the lower and upper end bearings. This screen 11 may be held in place by a cradle 15 pivoted to the lower end plate sections 5, 5, at one side of the machine by bolts 16, 16, and held in position by cams 17, 17 carried by the said lower end plate sections at the other side of the machine. Guides 18, 18 carried by the upper end plate sections 6, 6 serve to facilitate the insertion of the edges of the screen 11 into the grooves 12, 12.

A hopper 19 is removably mounted on the upper end plate sections 6, 6 and the cheek piece 8, which hopper has two bottom openings 20, 20 arranged to discharge the material to be cut into the opposite ends of the cutting chamber 13 through ports 21, 21 in the upper end plate sections 6, 6.

Access may be obtained to the knives of the rotary cutter by either removing all of the bolts 9 and then removing the cheek piece entirely, or the bolts 9 at one side of the machine may be removed and the upper bolts 9 on the other side also removed, allowing the cheek piece to be swung open on the remaining bolts in either direction, as the case may be. In this latter instance it is to be understood that the hopper 19 should first be removed from its position on the cheek piece 8 and upper end plate sections 6, 6.

The rotary cutter as herein set forth is not only much simpler in construction than the rotary cutters of this type heretofore produced, but also greatly increases the output in operation. It will be noted that all of the stationary knives 10 are now mounted in a single cheek piece and this cheek piece may be either entirely removed or swung open in either direction for gaining access to the knives. It will also be seen that I have provided ready means for facilitating the insertion of the edges of the screen into their grooves in the cheek piece. It will furthermore be seen that by extending the screen more than half way around the cutter shaft I am enabled to obtain a very free outlet for the disintegrated material, thus taking care of the additional material which can be supplied to the machine by feeding it into the opposite ends of the cutting chamber.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my in-

vention; hence, I do not intend to be limited to the particular embodiment herein shown and described, but

What I claim is:—

1. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates, a cheek piece and its bottom screen forming with the end plates a circumferentially closed cutting chamber, and means for feeding the material to be cut into the opposite ends of the chamber.

2. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates, a cheek piece and its bottom screen forming with the end plates a circumferentially closed cutting chamber, and means for feeding the material to be cut into the opposite ends of the chamber, said screen extending more than half way around the cutter shaft.

3. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates, a cheek piece and its bottom screen forming with the end plates a circumferentially closed cutting chamber, and means for feeding the material to be cut through the end plates into the opposite ends of the chamber.

4. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates, a cheek piece and its bottom screen forming with the end plates a circumferentially closed cutting chamber, and means for feeding the material to be cut through the end plates into the opposite ends of the chamber, said screen extending more than half way around the cutter shaft.

5. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates having ports therethrough, a cheek piece and its bottom screen forming with the end plates a circumferentially closed cutting chamber, and a hopper arranged to discharge the material to be cut to said ports to be fed into the opposite ends of the cutting chamber.

6. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates having ports therethrough, a cheek piece and its bottom screen forming with the end plates a circumferentially closed cutting chamber, and a hopper arranged to discharge the material to be cut to said ports to be fed into the opposite ends of the cutting chamber, said screen extending more than half way around the cutter shaft.

7. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates, a cheek piece and its bottom screen forming with the end plates a cutting chamber, and means for feeding the material to be cut into the opposite ends of the chamber, said cheek piece being removably secured to the end plates and capable of being swung open in either direction or to be entirely removed.

8. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates, a cheek piece removably secured to the end plates, a bottom screen having its upper edges removably engaged with the cheek piece, and guides on the end plates for facilitating the engagement of the screen with the cheek piece.

9. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates, a cheek piece removably secured to the end plates, a bottom screen having its upper edges removably engaged with the cheek piece, said cheek piece and screen forming with the end plates a circumferentially closed cutting chamber, and a hopper removably mounted on the cheek piece and end plates, said hopper being arranged to feed the material into the opposite ends of the cutting chamber through said end plates.

10. In a rotary cutter, a rotary cutter shaft, a bearing support therefor including end plates, a single cheek piece and its bottom screen forming with the end plates a circumferentially closed cutting chamber, knives carried by the cutter shaft, and knives carried by the cheek piece in position to coact with the knives on the cutter shaft.

In testimony that I claim the foregoing as my invention, I have signed my name this 14th day of November, 1927.

CHARLES F. BALL.