Oct. 6, 1925. 1,556,323

P. G. GARZA

MILL DISK

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Fig. 1.

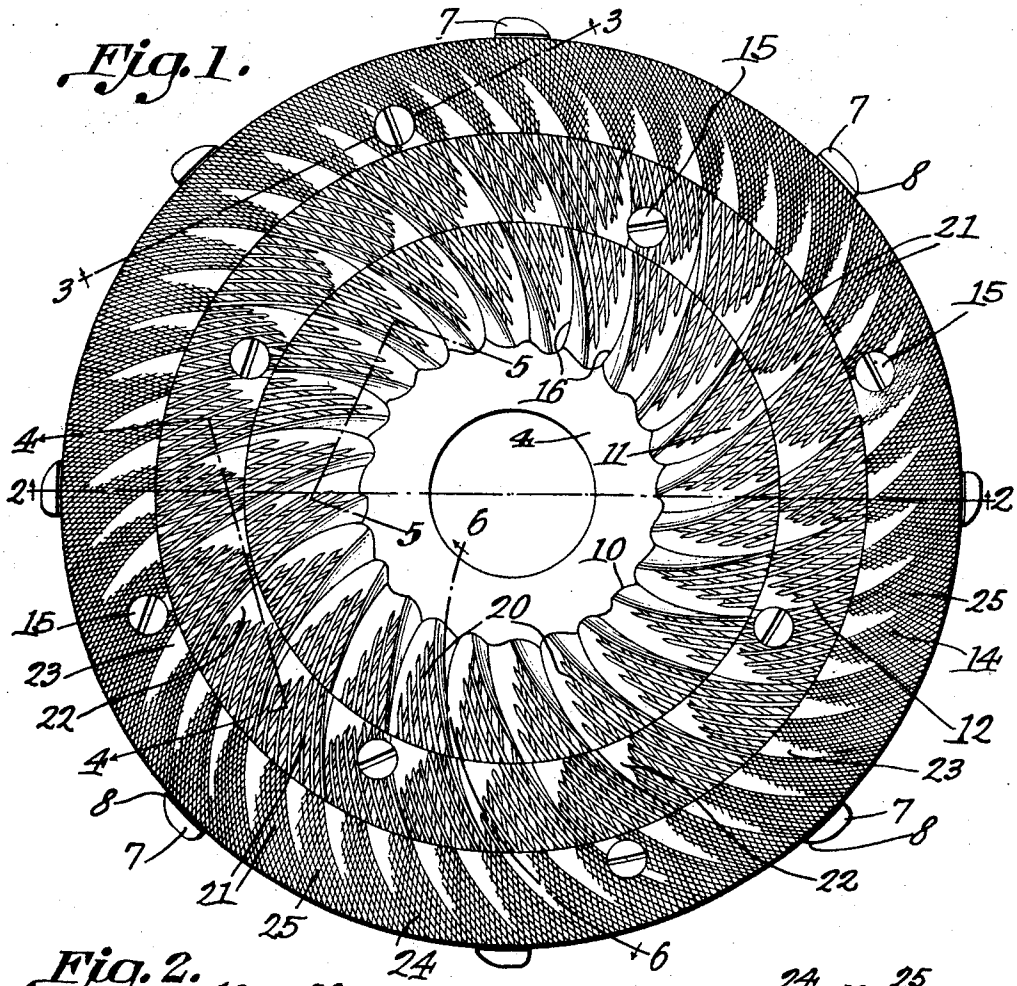
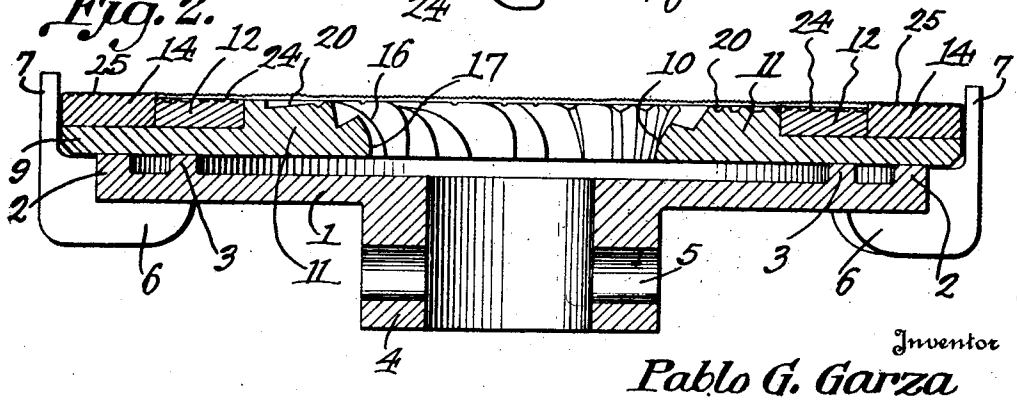


Fig. 2.



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Fig. 3.

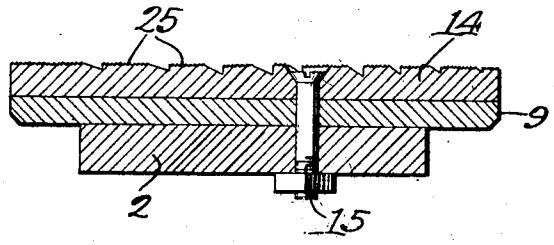


Fig. 4.

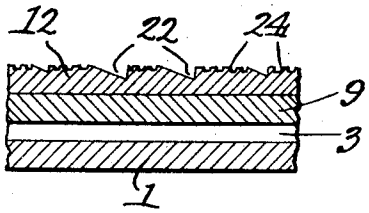


Fig. 5.

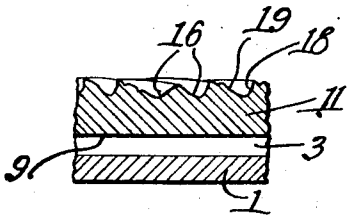
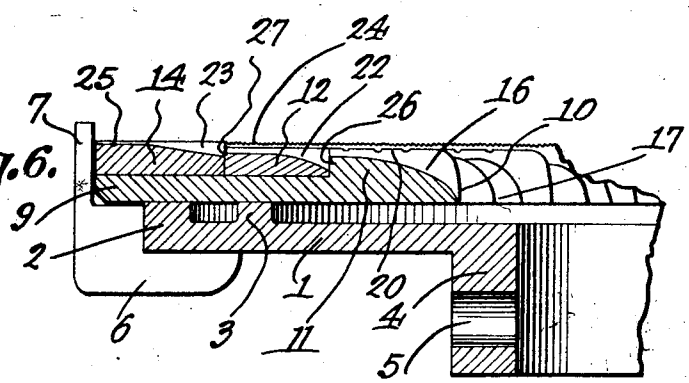


Fig. 6.



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Patented Oct. 6, 1925. 1,556,323

UNITED STATES PATENT OFFICE.

PABLO GONGÁLES GARZA, OF SAN ANTONIO, TEXAS.

MILL DISK.

Application filed June 4, 1925. Serial No. 34,968.

To all whom it may concern:

Be it known that I, PABLO GONGÁLES GARZA, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented a new and useful Mill Disk, of which the following is a specification.

This invention aims to provide a disk which will be peculiarly efficient in grinding wet cereals, the disk being of peculiar utility in preparing dough for tortillas and similar viands.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that sort to which the invention appertains.

Although a preferred form has been shown, a mill-wright, working within the scope of what is claimed, may make such alterations as his skill may suggest, without departing from the spirit of the invention.

In the drawings:—

Figure 1 is a face view of a grinding member constructed in accordance with the invention; Figure 2 is a section on the line 2—2 of Figure 1; Figures 3, 4 and 5 are sections taken, respectively, on the lines 3—3, 4—4 and 5—5 of Figure 1; Figure 6 is a section on the line 6—6 of Figure 1.

The grinding member forming the subject matter of this application includes a support 1 which may be in the form of a disk. The support 1 has an outer annular offset rib 2 and a similar inner rib 3. The support 1 is provided with a hub 4. The hub 4 has an opening 5 adapted to receive means, not shown, whereby the support 1 may be connected to a rotatable shaft, likewise not shown. Angle brackets 6 are formed integrally with the support 1. The brackets 6 have fingers or blades 7 provided with cutting edges 8.

A main disk 9 is mounted on the ribs 2 and 3. The disk 9 has a central opening 10. About the opening 10, the disk 9 is provided with an annular rib 11. An intermediate ring 12 surrounds the rib 11 and is supported on the disk 9. An outer ring 14 is disposed about the intermediate ring 12 and is supported on the disk 9. The edges 8 of the fingers 7 on the brackets 6 are disposed at the periphery of the ring 14 and are located about at right angles to the working surfaces of the parts 14, 12 and 11. Securing elements 15, such as bolts, connect the parts 12—9—1 and 14—9—1.

On the working surface of the rib 11 there are transverse grooves 16. The grooves 16 extend as at 17 across the edge of the opening 10. The grooves 16 are substantially V-shaped in plan. The narrower ends of the grooves 16 are disposed toward the periphery of the grinding member. Each groove 16 comprises a wall 18 disposed at a pronounced angle to the working surface of the rib 11, and the wall 19 disposed at a less pronounced angle to the working surface of the rib 11. The grooves diminish in depth as they extend outwardly. There are similar grooves 22 in the intermediate ring 12 and similar grooves 23 in the outer ring 14. Owing to the fact that the grooves diminish in depth as they extend outwardly, a shoulder 26 is formed at the point where the shallower outer end of the groove 16 communicates with the deeper end of the groove 22, and a shoulder 27 is formed at the place where the shallower outer end of the groove 22 communicates with the deeper inner end of the groove 23. The grooves 16, 22 and 23 may be described as parts of a main groove extended outwardly on a curve from the central opening 10 toward the periphery of the grinding member, the more abruptly inclined walls, such as the wall 18, of the said parts of the main groove being in longitudinal alinement, as Figure 1 will clearly show when compared with Figure 6. Between the grooves 16 there are flat surfaces 20, there being similar surfaces 24 between the grooves 22, and similar surfaces 25 between the grooves 23. The flat surfaces above mentioned are roughened, preferably by intersecting creases 21.

The main grooves, which are composed of the parts 16, 22 and 23, gradually diminish in depth from their inner ends to their outer ends and this construction, notably in combination with other details of the device, produce a finely ground product. The creases 21, crossing each other at an angle, produce a roughened surface which has a file-like effect on the product and grind it with corresponding rapidity and fineness. Owing to the relative slope of the walls 18 and 19, the product, as it is being ground, not only is carried outwardly toward the periphery of the grinding member, but is allowed to move, also, in a circumferential direction, thus working its way over the grinding surfaces 20, 24 and 25. The shoulders at 26 and 27 retain the material

which has been already triturated to some extent and produce a mixing of the material, between the stages of grinding, as the material moves outwardly toward the periphery of the grinding member. The parts 14, 12 and 11 may be renewed individually when worn, since they are detachably mounted on the part 1 by the securing elements 15. Certain of the grooves 23 on the ring 14 are individual to that ring only, and the said ring is the one which is subjected to most friction. This ring, being the outer ring, may be removed and replaced quickly. The fingers or blades 7, with their cutting edges 8, break up and separate the material as it leaves the periphery of the grinding member. The device shown and described may be used with any suitable kind of a complementary disk, not shown.

I claim:—

1. A grinding member provided with a central opening and equipped in its working surface with grooves which extend across the edge of the opening and outwardly toward the periphery of the grinding member, each groove being made up of a plurality of parts, each of said parts being of substantially V-shape in plan, the narrower ends of the parts of the grooves being disposed toward the periphery of the grinding member, each part of the groove comprising a wall disposed at a pronounced angle to the working surface of the grinding member, and a wall disposed at a less pronounced angle to the working surface of the grinding member, the parts of the groove diminishing in depth as they extend outwardly, thereby to form a shoulder at the point where the shallower outer end of each of said parts communicates with the deeper inner end of an adjoining one of said parts, there being flat surfaces between the said parts of adjoining grooves, the flat surfaces being roughened by intersecting slits, the first-specified walls of the parts of the grooves being in longitudinal alinement, and there being projecting blades at the periphery of the grinding member, the blades having sharpened edges disposed approximately at right angles to the working surface of said member and located closely adjacent to the periphery of said member.

2. A grinding member provided with a central opening and equipped in its working surface with grooves which extend across the edge of the opening and outwardly toward the periphery of the grinding member, each groove being made up of a plurality of parts, each of said parts being substantially V-shaped in plan, the narrower ends of the parts of the grooves being disposed toward the periphery of the grinding member, each part of the groove comprising a wall disposed at a pronounced angle to the working surface of the grinding member, and a wall disposed at a less pronounced angle to the working surface of the grinding member, the parts of the groove diminishing in depth as they extend outwardly, thereby to form a shoulder at the point wherein the shallower outer end of each of said parts communicates with the deeper inner end of an adjoining one of said parts, there being flat surfaces between the said parts of adjoining grooves, the flat surfaces being roughened, and the first-specified walls of the parts of the grooves being in longitudinal alinement.

3. A grinding member equipped in its working surface with grooves which extend from a point adjacent to the center of said member outwardly toward the periphery thereof, each groove being made up of a plurality of parts, each of said parts being of substantially V-shape in plan, the narrower ends of the parts of the grooves being disposed toward the periphery of the grinding member, each part of the groove comprising a wall disposed at a pronounced angle to the working surface of the grinding member, and a wall disposed at a less pronounced angle to the working surface of the grinding member, the parts of the groove diminishing in depth as they extend outwardly, thereby to form a shoulder at the point where the shallower outer end of each of said parts communicates with the deeper inner end of an adjoining one of said parts, there being flat surfaces between the said parts of adjoining grooves, the flat surfaces being roughened by intersecting slits, the first-specified walls of the parts of the grooves being in longitudinal alinement, and there being projecting blades at the periphery of the grinding member, the blades having sharpened edges disposed approximately at right angles to the working surface of said member and located closely adjacent to the periphery of said member.

4. A grinding member equipped in its working surface with grooves which extend from a point adjacent to the center of said member outwardly toward the periphery thereof, each groove being made up of a plurality of parts, each of said parts being of substantially V-shape in plan, the narrower ends of the parts of the grooves being disposed toward the periphery of the grinding member, each part of the groove comprising a wall disposed at a pronounced angle to the working surface of the grinding member, and a wall disposed at a less pronounced angle to the working surface of the grinding member, the parts of the groove diminishing in depth as they extend outwardly, thereby to form a shoulder at the point where the shallower outer end of each of said parts communicates with the deeper inner end of an adjoining one of said parts, there being flat roughened surfaces between said parts

of adjoining grooves, the first-specified walls of the parts of the grooves being in longitudinal alinement.

5. A grinding member equipped in its working surface with grooves which extend from a point adjacent to the center of said member outwardly toward the periphery thereof, each groove being made up of a plurality of parts, each of said parts being of substantially V-shape in plan, the narrower ends of the parts of the grooves being disposed toward the periphery of the grinding member, each part of the groove comprising a wall disposed at a pronounced angle to the working surface of the grinding member, and a wall disposed at a less pronounced angle to the working surface of the grinding member, the parts of the groove diminishing in depth as they extend outwardly, thereby to form a shoulder at the point where the shallower outer end of each of said parts communicates with the deeper inner end of an adjoining one of said parts, the first-specified walls of the parts of the grooves being in longitudinal alinement.

6. A grinding member equipped in its working surface with grooves which extend from a point adjacent to the center of said member outwardly toward the periphery thereof, each groove being made up of a plurality of parts, each of said parts being of substantially V-shape in plan, the narrower ends of the parts of the grooves being disposed toward the periphery of the grinding member, each part of the groove comprising longitudinal walls, the parts of the groove diminishing in depth as they extend outwardly, thereby to form a shoulder at the point where the shallower outer end of each of said parts communicates with the deeper inner end of an adjoining one of said parts, corresponding longitudinal walls of the parts of each groove being in longitudinal alinement.

7. A grinding member equipped in its working surface with grooves which extend from a point adjacent to the center of said member outwardly toward the periphery thereof, each groove being made up of a plurality of parts, each of said parts being of substantially V-shape in plan, the narrower ends of the parts of the grooves being disposed toward the periphery of the grinding member, the parts of the groove diminishing in depth as they extend outwardly, thereby to form a shoulder at the point where the shallower outer end of each of said parts communicates with the deeper inner end of an adjoining one of said parts.

8. A grinding member constructed as set forth in claim 7, and further characterized by the provision of blades including sharpened edges located at the periphery of said member, and disposed about at right angles to the working surface of said member.

9. A device of the class described, constructed as set forth in claim 7, and further characterized by the fact that the grinding member comprises a support, detachable annular elements whereon the respective parts of the grooves are located, and securing devices connecting said elements with the support.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

PABLO GONGÁLES GARZA.