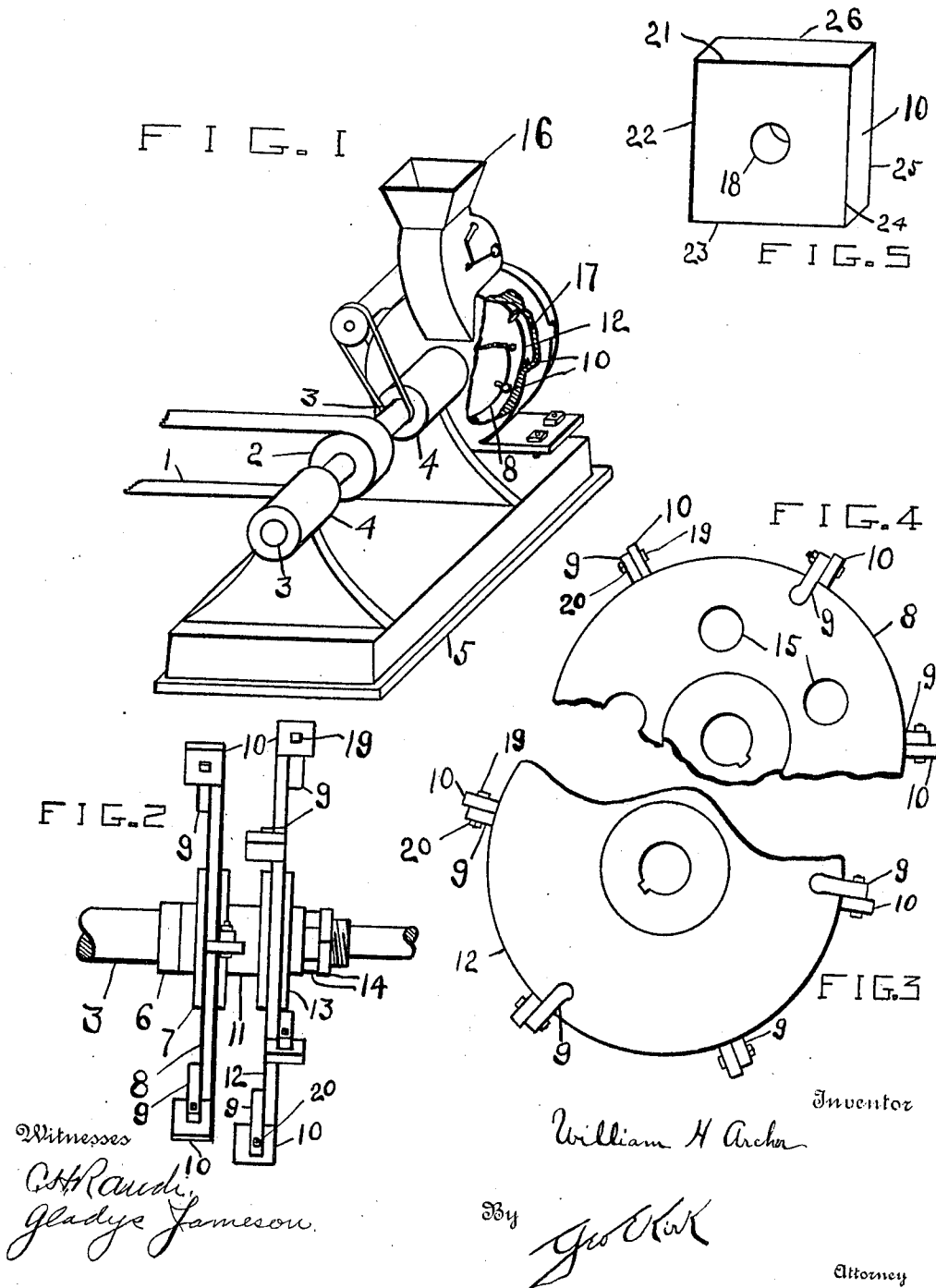


W. H. ARCHER.
GRINDER.

APPLICATION FILED DEC. 17, 1909.

969,741.

Patented Sept. 6, 1910.



UNITED STATES PATENT OFFICE.

WILLIAM H. ARCHER, OF TOLEDO, OHIO.

GRINDER.

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Specification of Letters Patent.

Patented Sept. 6, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM H. ARCHER, a citizen of the United States, residing at Toledo, Lucas county, Ohio, have invented new and useful Grinders, of which the following is a specification.

This invention relates to a die or working element having an operating edge, and the mounting for the element.

This invention has utility when adapted for use in mills of the centrifugal type, wherein it is simple in form and capable of quick and economical adjustment.

Referring to the drawings: Figure 1 is a perspective view showing an embodiment of the invention in a centrifugal mill such as may be used for pulverizing purposes by manufacturing pharmacists; Fig. 2 is a detail view in elevation, showing the working element or beater and its mounting as embodied in the centrifugal mill of Fig. 1; Fig. 3 is a fragmentary view of one of the mounting disks or carriers; Fig. 4 is a similar fragmentary view of the other mounting disk; and Fig. 5 is a perspective view of one of the working elements or hexahedral beaters.

The driving belt 1, through the pulley 2 actuates the grinder shaft 3 of the mill. This shaft 3 is carried in the bearings 4 on the base 5. The shaft 3 has an overhang beyond one of the bearings 4, which overhang portion of the shaft 3 is provided with a collar 6, fixed on the shaft. Against this collar 6 abuts the stiffening collar 7 to reinforce the mounting member or spider 8. This member or carrier is provided with radially disposed integral lugs or arms 9, alternately on opposite faces of the disk, resulting in staggered mounting of the working elements 10, carried by this rotatable carrier or mounting member 8.

A second reinforcing collar 11 is disposed between the carrier 8 and the carrier 12, which second carrier is held by a third reinforcing collar 13 locked in position by the nuts 14. Of the plurality of beater carrier plates, that one to which the material is first fed is provided with openings 15, to permit freer travel of the material, as well as allowing for more circulation.

Material fed into the hopper 16 is delivered to the chamber having the armored lining 17, in the various mills usually roughened or perforate. The plurality of working elements 10, rotating at high speed in

this chamber have slight clearance from the walls of this chamber, so besides violently throwing the material by centrifugal action against the chamber walls, these working elements are effective at their forward operating edges to contact the material lodging against the chamber walls and by this action contribute directly to disintegration which the centrifugal throwing brings about indirectly. The staggering of the dies is such as to increase the effective field of the working elements, while the overlapping of the lines of travel of these elements intermediate the disks, renders their action continuous throughout the length of the chamber in which they act.

In operation, the forward outer edge of the working element is worn more or less rapidly, depending upon the character of material being ground or powdered. For rapid and efficient operation, it is desirable to keep the operating edges of the working elements sharp. Adjustments for accomplishing this end may be quickly made by the mill operator at any time with the structure of this disclosure, for the working elements are each provided with central openings 18 for the holding means, herein shown as tangentially disposed bolts 19, held by nuts 20 against the forward faces of the arms 9. As so mounted, in normal forward operation, the action of the material tends to more firmly seat the working element against the arm, instead of working it loose. For adjustment, the nut 20 is loosened up to permit rotation from say operating edge 21 to the meeting angularly disposed edge 22. As edge 22 becomes worn, further adjustments may be made to edges 23, 24, to complete the set on one side of the element, and then the element may be reversed to use the similar opposite set of operating edges 25, 26, &c. As shown, the one die or element may serve for eight adjustments, and is then readily replaced. The periphery of the disk serves as a shoulder for the beater, while the simple polyhedral form of this element is a feature of simplicity, making it impossible to mount it wrong, while it is cheap and substantial.

What is claimed and it is desired to secure by Letters Patent is:

The combination in a centrifugal mill grinder, with a disk having integral there-with lugs alternately disposed on opposite sides of the disk and extending beyond the

periphery of the disk to form beyond the disk
periphery holding faces lying in axially ex-
tending planes, of uniform thickness working
elements mounted against said holding faces
5 and locked from rotation by the disk pe-
riphery, and adjustable means centrally en-
gaging the elements to detachably maintain
the elements in position against the holding

faces, for adjusting each edge of the ele-
ment into operative position. 10

In testimony whereof I affix my signature
in the presence of two witnesses.

W. H. ARCHER.

Witnesses:

C. H. RAUCH,
GEO. E. KIRK.