

No. 693,089.

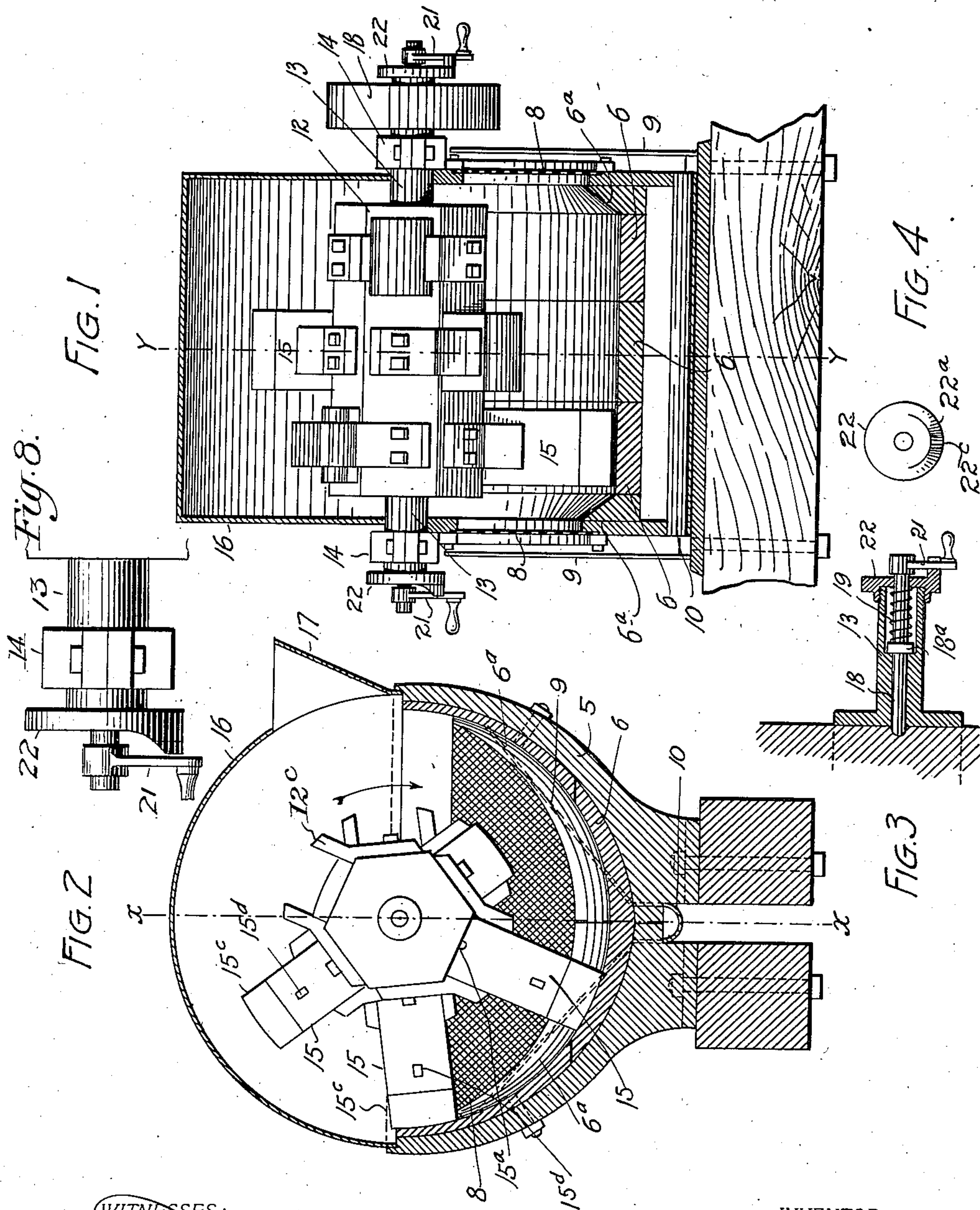
Patented Feb. 11, 1902.

C. WALLACE.
PULVERIZING MILL.

(Application filed Mar. 15, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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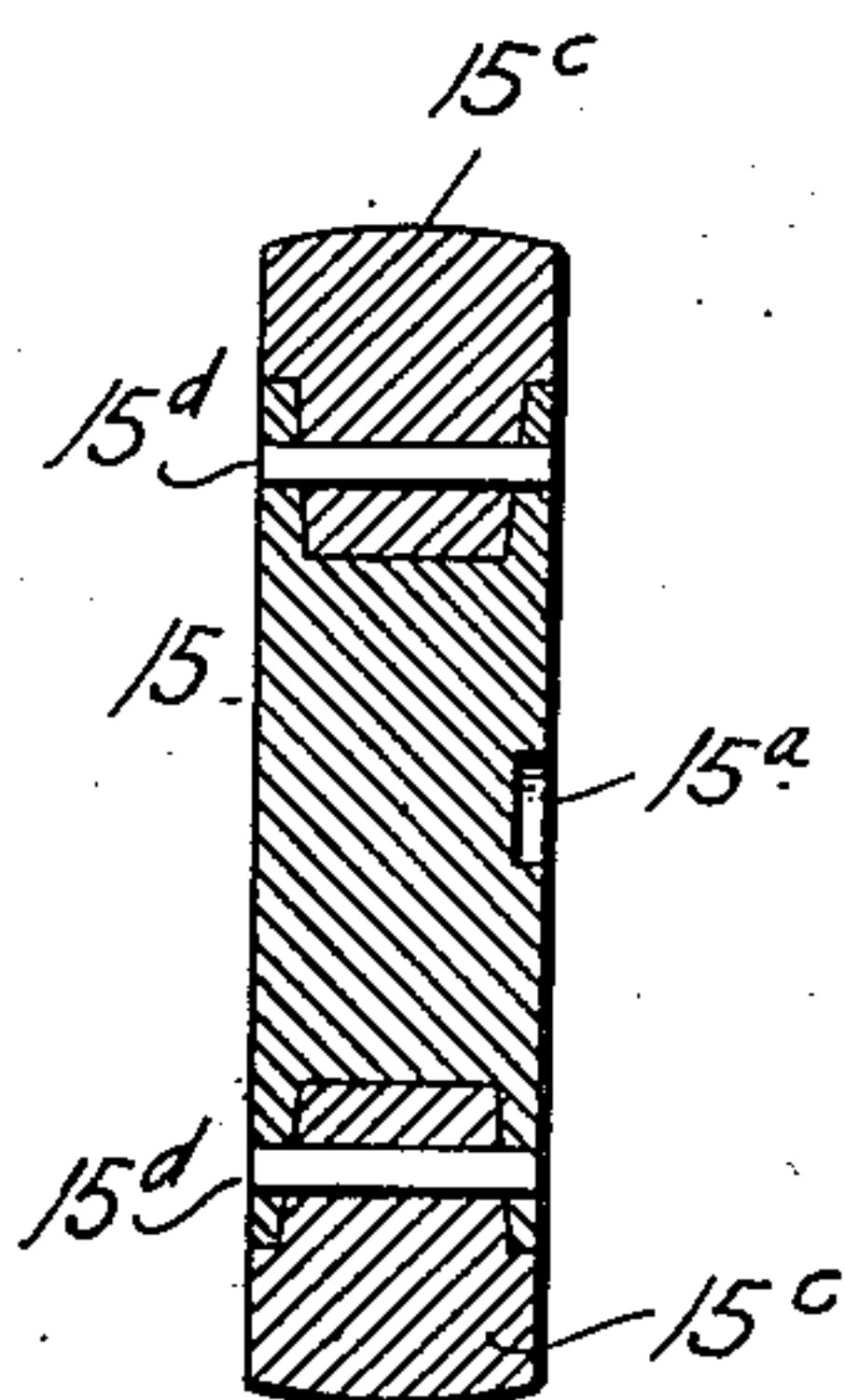


FIG. 6.

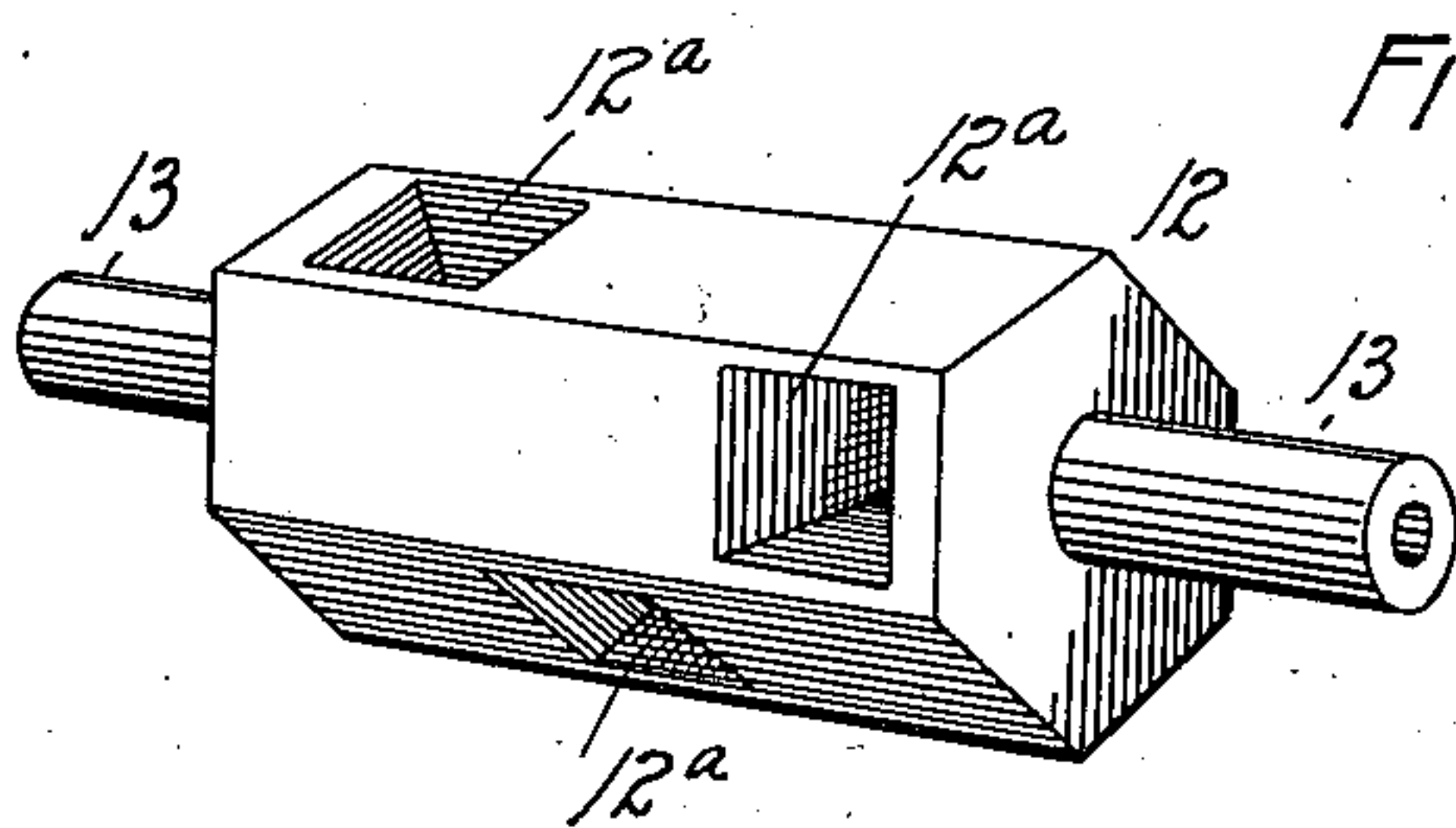


FIG. 5.

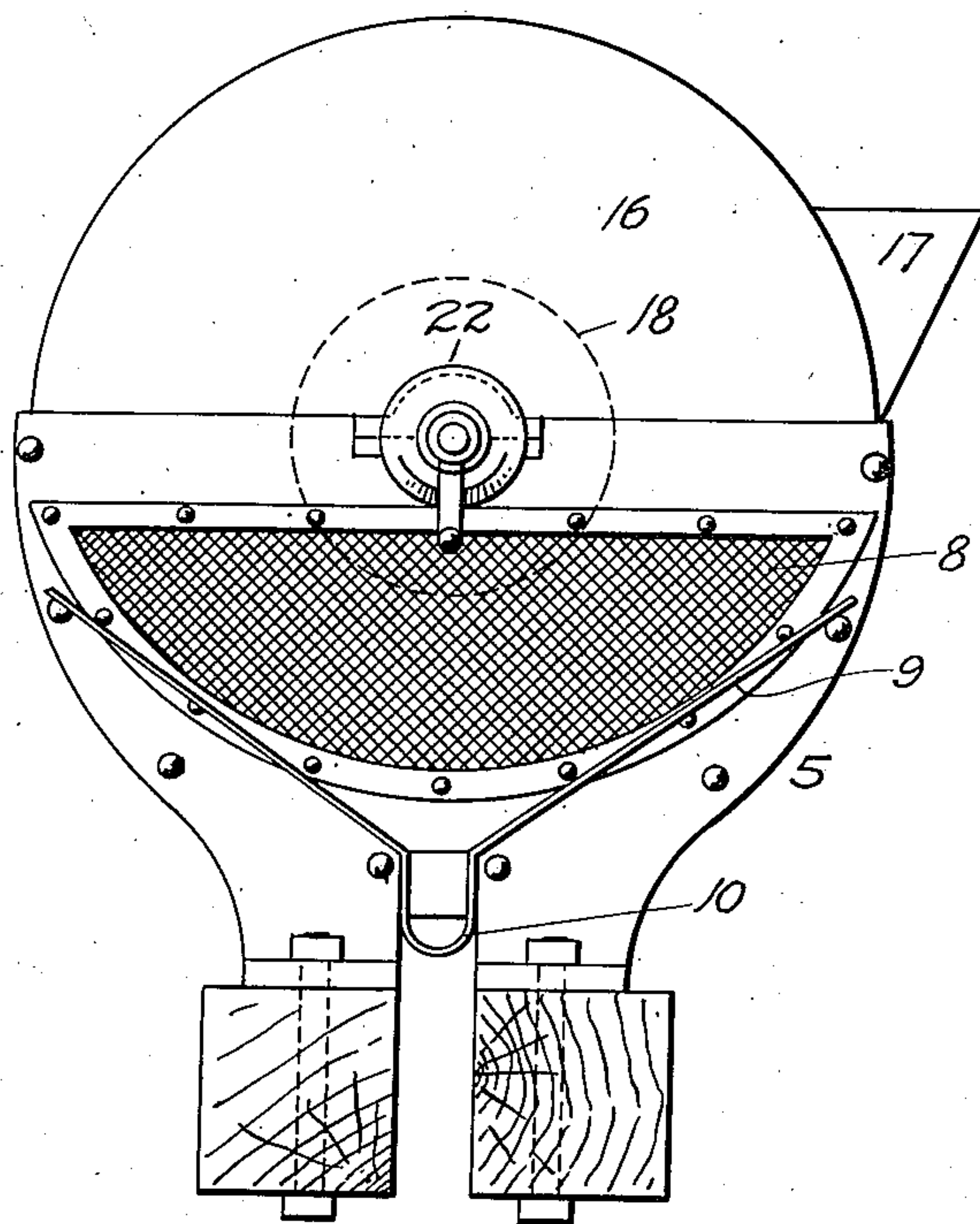


FIG. 7.

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CHARLES WALLACE, OF DENVER, COLORADO, ASSIGNOR TO THE NEW ERA MACHINERY COMPANY, OF DENVER, COLORADO.

PULVERIZING-MILL.

SPECIFICATION forming part of Letters Patent No. 693,089, dated February 11, 1902.

Application filed March 15, 1901. Serial No. 51,406. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WALLACE, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Pulverizing-Mills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in pulverizing-mills, my object being to provide an apparatus of this class which shall be comparatively simple in construction, economical in cost, reliable, durable, and efficient in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a section taken on the line *x x*, Fig. 2, the stamp-holder or yoke and the stamps being shown in front elevation. Fig. 2 is a section taken on the line *y y*, Fig. 1, the yoke and stamps being shown in end elevation. Fig. 3 is a section taken through the hollow journal of the yoke, illustrating an adjustable pin for engaging a recess of the stamp and supporting it out of contact with the die. Fig. 4 is an end view of the cam-disk mounted on the journal and in which the locking-pin turns. Fig. 5 is a perspective view of the yoke or stamp-holder. Fig. 6 is a section taken through one of the stamps shown in detail. Fig. 7 is a side elevation of my improved mill.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a suitable casing or mortar which is semicircular in longitudinal section and gradually increases in thickness from the top toward the bottom, since the power exerted by the stamps or pulverizing-blocks is greater at the bottom of the mortar and diminishes toward the top. In this mortar box or casing are located three

dies 6, which are semicircular to conform to the shape of the mortar. Each of these dies is for convenience formed in three parts. The bottom of the mortar is provided with beveled flanges 6^a, located outside of the pulverizing area of the stamps. In the side walls of the mortar, which are provided with openings for the purpose, are located screens 8 of suitable mesh, through which the pulverized material passes in the form of pulp when it has been reduced to the required mesh. Outside of each screen is located a downwardly-inclined flange 9, which directs the pulverized material into a trough 10 below.

Mounted to rotate in the mortar-casing is a yoke or stamp-holder 12, provided with shaft extensions or journals 13, which engage boxes 14. In this yoke or holder are formed three rectangular openings 12^a, whose axes form suitable angles with each other and in which are respectively located the stamps or pulverizing-blocks 15, which slide in the yoke by gravity as the latter is rotated. By virtue of the arrangement of the yoke-openings in which the stamps slide the latter drop successively to engagement with the dies in the performance of their pulverizing function. The mortar is closed at the top by a detachable housing 16, provided at one side with a feed-hopper 17, through which the material to be pulverized is fed into the mortar.

To one of the shaft extremities of the yoke is attached a pulley 18, which may be connected with any suitable power for operating the yoke. As the latter is rotated the stamps drop successively into the mortar when the yoke is turned sufficiently to allow the stamp to slide through the yoke in a vertical or approximately vertical position. After the drop the stamp, as the yoke continues to turn, performs a grinding function as it moves upwardly to the top of the die. The other stamps drop successively through their openings in the yoke upon the material in the mortar and repeat the action of the first stamp, as explained. After each has acted on the material in the mortar it projects upwardly into the mortar-housing until the yoke has turned sufficiently to allow it to drop, as aforesaid. By virtue of the construction of my improved mill it becomes practicable for the

stamps to drop a considerable distance. Hence their pulverizing action is correspondingly increased.

It will be observed that as the stamps operate their position is reversed—that is to say, both extremities of the stamp are alternately utilized for pulverizing purposes.

As shown in the drawings, (see Fig. 3,) the shaft extremities of the yoke are formed hollow to receive movable pins 18, each of which is adapted to enter a central recess 15^a, formed in the adjacent stamp, whereby the latter may be supported out of contact with its mortar-die when the stamps are not in use, thus giving access to the mortar without the interference of the stamps. Each of these pins, as shown in the drawings, is surrounded by a coil-spring 19, one extremity of which engages a stop 18^a, formed integral with the pin and engaging a shoulder on the journal, while the other extremity of the spring bears against a disk 22, mounted on the shaft extremity or journal 13. To the exposed extremity of the pin 18 is made fast a small crank 21. The pin is adapted to be held out of contact with the stamp by means of a cam 22^a, formed on the disk and provided with a recess 22^c, adapted to receive and lock the crank in the adjusted position. As the crank is turned in either direction it moves up the inclined face of the cam and engages the said recess. During this operation the pin is withdrawn from the stamp, leaving the latter free to operate. The pin is locked in this position until it is desired to again utilize it for the purpose stated.

The yoke is provided with projections 12^c, extending outwardly from each opening and forming supporting-guides for the stamps. These guides are bolted to the yoke, as shown in the drawings. They may of course be secured in any other suitable manner.

As shown in the drawings, (see Fig. 6,) each stamp 15 is preferably provided with two steel shoes 15^c, one being located at each extremity. Each of these shoes has a reduced inner extremity adapted to enter a counterpart socket formed in the body of the stamp, which,

as shown in the drawings, consists of a solid piece of metal polygonal in cross-section. The shoes are locked in place by pins 15^d. These shoes are readily detachable to the end that they may be removed when worn and new ones substituted.

Attention is called to the fact that no provision need be made for hanging or supporting the middle stamp above the pulverizing-face of the die, since by turning the yoke to bring the middle stamp to the horizontal position the said stamp will be supported above the pulverizing-face of the mortar.

Having thus described my invention, what I claim is—

1. In a pulverizing-mill the combination with a suitable mortar or casing, of a rotary stamp-holder, stamps slidably mounted therein, and means mounted on the stamp-holder for supporting a stamp above the pulverizing-bed of the mortar.

2. In a pulverizing-mill the combination with a suitable mortar or casing, of a prism-shaped rotary yoke journaled therein and provided with openings, stamps located in said openings in which they are normally adapted to slide, and means mounted on a journal of the yoke for locking a stamp against movement.

3. In a pulverizing-mill the combination with a suitable mortar or casing, of a rotary prism-shaped yoke or stamp-holder, provided with openings and having hollow journals, whose openings communicate with the adjacent stamp-openings of the yoke, stamps located in said openings in which they are normally adapted to slide, each stamp adjacent the journal having a recess, and a pin located in the opening of each journal and adapted to enter the recess of the adjacent stamp whereby the latter is locked from sliding movement.

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

CHARLES WALLACE.

Witnesses:

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