J. C. CLARK.

PULVERIZER.

APPLICATION FILED JAN. 13, 1916.

1,260,330.

Patented Mar. 26, 1918.

2 SHEETS—SHEET 1.

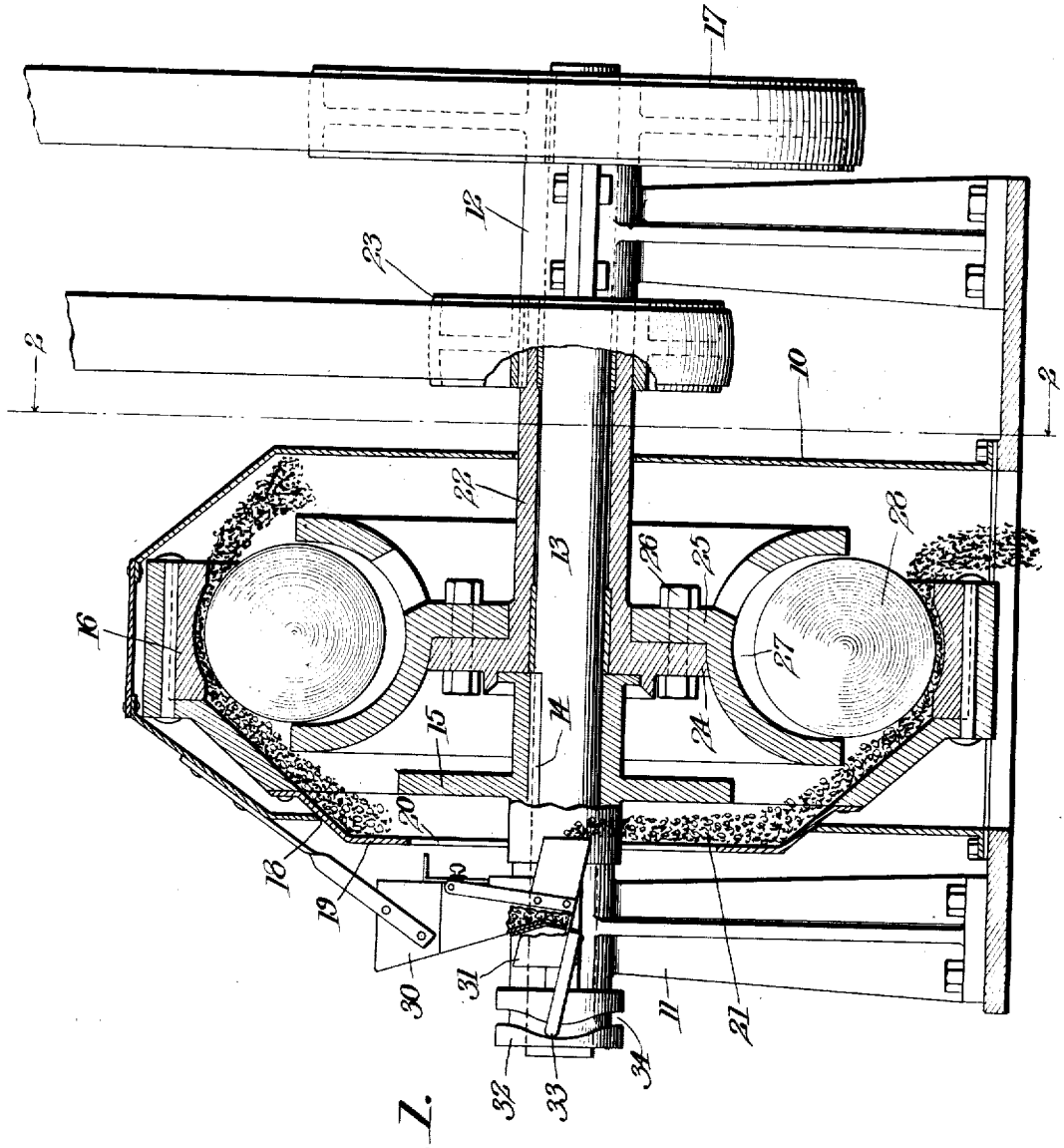


FIG. 1.

Witnesses

G. F. Baker.

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2 SHEETS—SHEET 2.

Fig. 3.

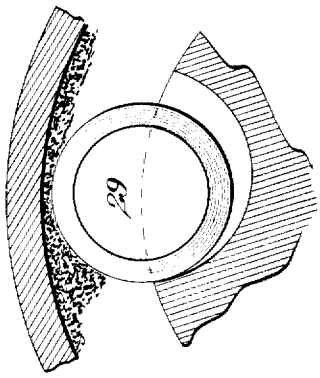


Fig. 4.

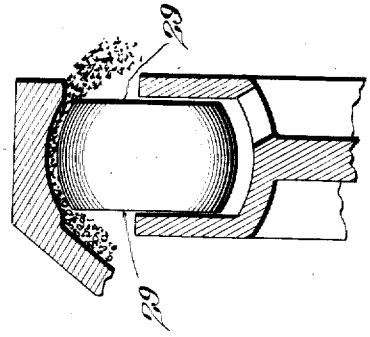
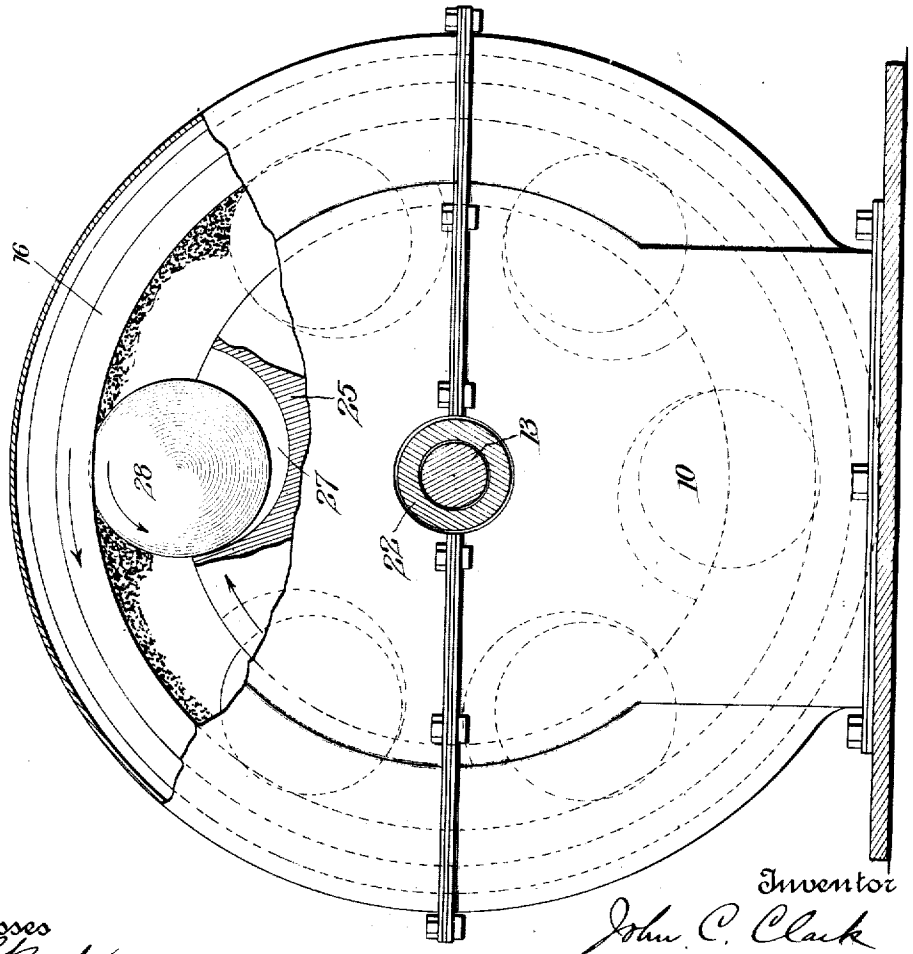


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN C. CLARK, OF ATLANTA, GEORGIA.

PULVERIZER.

1,260,330. Specification of Letters Patent. Patented Mar. 26, 1918.

Application filed January 13, 1916. Serial No. 71,952.

To all whom it may concern:

Be it known that I, JOHN C. CLARK, a citizen of the United States, and resident of Atlanta, county of Fulton, State of Georgia, have invented certain new and useful Improvements in Pulverizers, of which the following is a specification.

This invention relates to grinding machinery and more particularly to pulverizers and has for its objects the provision of a machine of simple and substantial construction which will be capable of pulverizing materials to the desired fineness with the maximum of efficiency and with a minimum expenditure of power.

Other objects and the features of novelty will be apparent from the following description taken in connection with the accompanying drawings in which:—

Figure 1 is a longitudinal section through a machine embodying the invention, certain parts being shown in elevation;

Fig. 2 is a section on the line 2—2 of Fig. 1 with certain parts broken away to more clearly show other parts; and

Figs. 3 and 4 are detail sections of a modification in which rolls with flattened sides are employed.

Referring to the drawings, 10 indicates the casing and 11 and 12 suitable bearings in which a shaft 13, which projects through the casing, is supported. The shaft 13 has secured thereto, by means of one or more keys 14 or other suitable securing devices, a cup-shaped disk 15 in which a ring 16 is secured. The shaft 13 may be rotated in either direction by a suitable driving device such as the pulley 17. The casing 10 is provided with an opening 18 in one side thereof through which the dished-plate 19, which is secured to the side of the disk 15, projects. The plate 19 is provided with a central opening 20 through which the material to be pulverized is introduced as indicated at 21.

A sleeve 22 is rotatably mounted on the shaft 13 and may be driven in either direction by any suitable device such as the pulley 23. The sleeve 22 is provided with a flange 24 to which the spider 25 is secured by means of the bolts 26. The spider 25 has roll pockets 27 in its periphery and rolls 28 are arranged in these pockets and adapted to run on the inner surface of the ring 16. In Figs. 1 and 2 the rolls are shown as of spherical form and in Figs. 3 and 4 the rolls have flat sides 29 and the pockets in the spider are made to suit this shape.

Any suitable form of feeding device for the material to be crushed may be provided and in Fig. 1 there is illustrated a hopper 30 arranged at one side of the machine and having an open bottom so that the material therein may flow into the shaker 31 which projects through the opening 20 so as to deliver the material to the inside of the dished-plate 19 whence it flows, due to centrifugal force and gravity to the inner surface of the ring 16 where it is crushed by the rolls, the pulverized material being discharged from the opposite side of the ring and passing out through the opening in the bottom of the casing 10. The shaker 31 is preferably automatic in its action and may be operated in any suitable manner as by means of the cam 32 on the end of the shaft 13, the shaker having an arm 33 which coöperates with the groove 34 of the cam and thus effects the to and fro movement of the shaker.

In the operation of the machine, the shaft 13 and sleeve 22 may be rotated in opposite directions or in the same direction at different speeds and under some conditions one of the parts may be held stationary while the other is rotated, the difference in the mode of operation depending largely upon the character of the material to be pulverized. When the shaft and sleeve are rotated in opposite directions as indicated by the arrows in Fig. 2, the material will be held on the inner surface of the ring 16 by centrifugal force and the rolls 28 will be thrown out against the material with a force determined by the speed of rotation of the sleeve 22. The material after being pulverized is discharged from the side of the ring opposite to that from which it enters and falls through the opening at the bottom of the casing 10.

It will be evident to those skilled in the art that changes may be made in the details of construction without departing from the spirit of the invention, as defined in the appended claims, and therefore I do not wish to be limited to the exact details shown and described.

Having thus described the invention what is claimed and desired to be secured by Letters Patent is:

1. A machine of the class described including in combination a stationary casing having an opening in one side and a dis-

charge opening in the bottom thereof, a horizontal shaft extending through said casing, a sleeve rotatively mounted on said shaft extending into the casing, a cup shaped member secured to said shaft with its base perforated and arranged adjacent said side opening, a dished plate secured to the said base projecting through the said side opening to conduct material fed thereto to the perforations of said base, said member having a ring which forms a roll track, a spider secured to the sleeve having peripheral roll pockets, rolls in said pockets adapted to run on said track and means for independently rotating said shaft and sleeve.

2. A machine of the class described including in combination a stationary casing, a horizontal shaft mounted in suitable bearings at opposite ends of said casing, a sleeve rotatable on said shaft, a cup shaped disk having a ring carried by said shaft and formed with feed perforations in the base portions thereof, a spider carried by said sleeve and provided with roll pockets in its periphery, crushing rolls arranged in said pockets and adapted to rotate on the inner surface of said ring when the shaft is rotated, means for feeding material through one side of said casing to said perforations, and means at the other side of the casing for rotating said shaft and sleeve.

In testimony whereof I affix my signature.

JOHN C. CLARK.