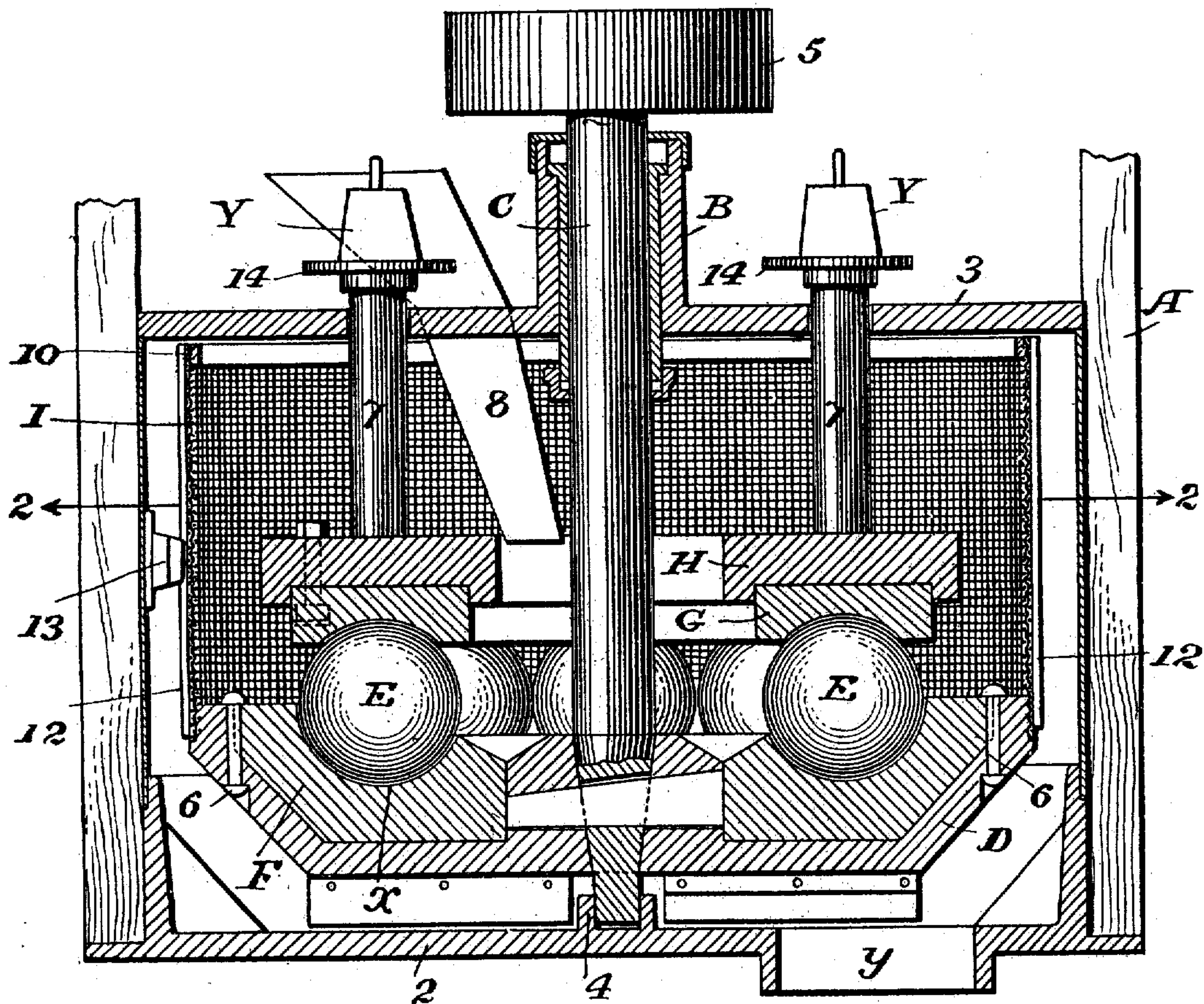


J. C. CLARK.  
PULVERIZING MILL.  
APPLICATION FILED DEC. 5, 1908.

940,129.

Patented Nov. 16, 1909.  
2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

*J. H. Stinkell*  
*J. J. McCarthy*

Inventor

*John C. Clark*  
*By J. J. Freeman, Watson & Co.*

Attorneys

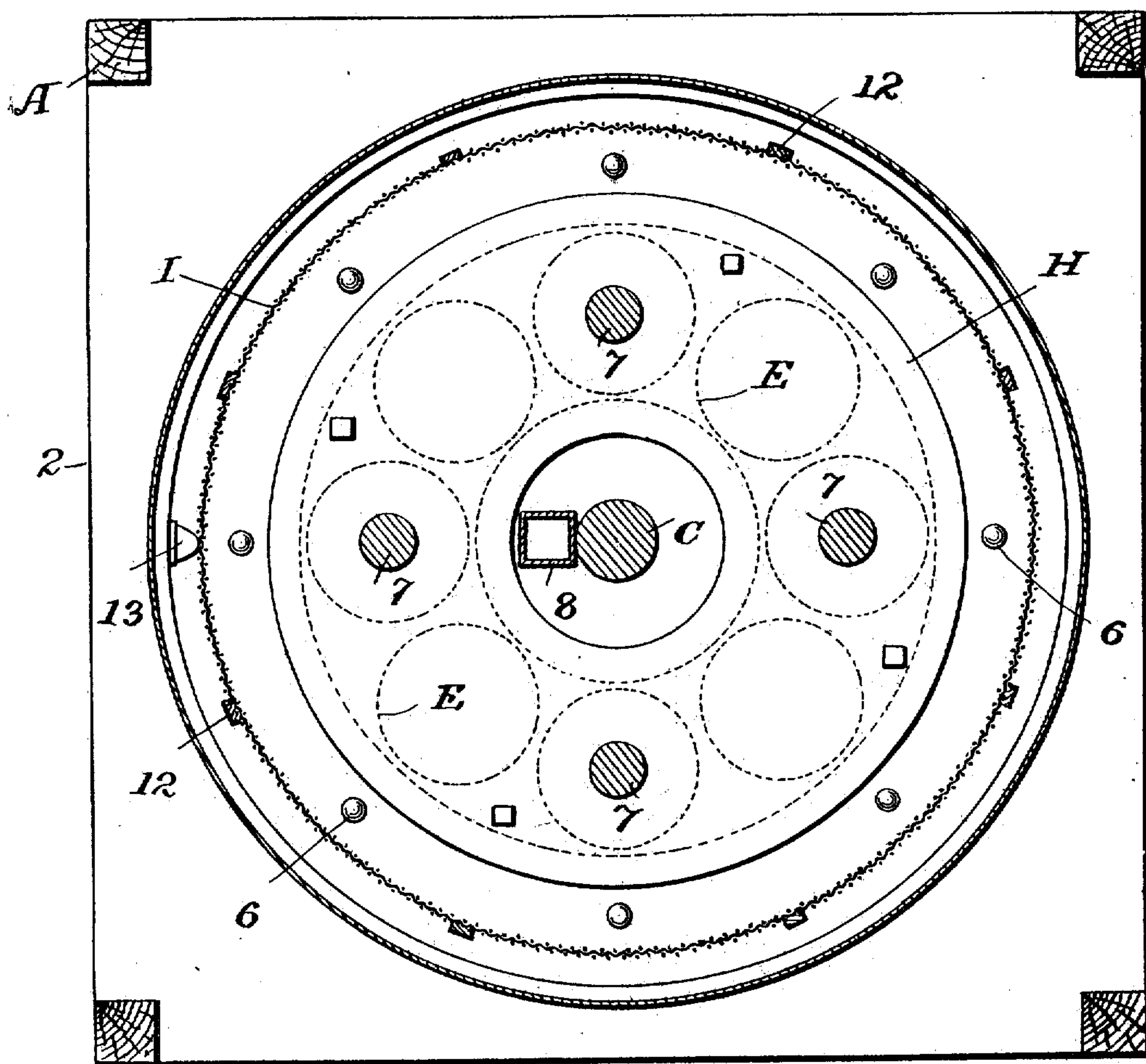


J. C. CLARK.  
 PULVERIZING MILL.  
 APPLICATION FILED DEC. 5, 1908.

Patented Nov. 16, 1909.  
 2 SHEETS—SHEET 1.

940,129.

Fig. 2.



Witnesses  
*J. P. Hinkel*  
*J. J. McCarthy*

Inventor  
*John C. Clark*  
 By *Forster Freeman, Patent Att.*  
 Attorneys



# UNITED STATES PATENT OFFICE.

JOHN C. CLARK, OF ATLANTA, GEORGIA.

PULVERIZING-MILL.

940,129.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed December 5, 1908. Serial No. 466,160.

*To all whom it may concern:*

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

My invention relates to that class of pulverizing mills in which grinding members are rotatable within rotatable basins, and my invention consists in combining with the rotatable basin and its grinding members a stationary pressure device adjustable to vary the pressure upon the said members, and in certain details of construction fully set forth hereinafter and illustrated in the accompanying drawing, in which:

Figure 1 is a sectional elevation of a pulverizing mill embodying my invention; and Fig. 2 is a sectional plan on the line 2—2, Fig. 1.

The frame A of the apparatus is of any suitable construction having a bed-plate 2 and a spider 3, in the center of which is a box B constituting the upper bearing of a vertical shaft C, the lower bearing of which is in a step 4. The shaft is provided with a pulley 5, to which motion may be imparted from any suitable source. Keyed to the shaft near the lower end thereof is a pan or basin D having an annular channel or groove  $\alpha$  to receive the loose grinding members E, which as shown are in the form of balls or spheres. This channel  $\alpha$  may be formed in the pan itself, but preferably is formed in a grinding ring F which is bolted to the pan by bolts 6 extending downward through coinciding channels in the pan and in the periphery of the ring F.

Upon the grinding members E rests a pressure ring G which has an annular channel adapted to the contour of the grinding members E and which is bolted to and carried by a ring frame H, so supported as to be capable of vertical movement without revolving. As shown, arms 7 extend upward from the frame H through openings in the spider 3, and the said arms may slide vertically in said openings to permit any desired degree of vertical movement of the frame and its ring, while restraining the same from revolution. A spout or chute 8 extends through an opening in the spider, its lower end close to the shaft C so that the material is delivered to the basin as near the center of the same as possible.

To the periphery of the basin is secured the lower edge of a suitable screen 1, stiffened at the upper edge by means of a stiff ring 10, and at intervals at the outer side of the screen are ribs 12, and a contact block or piece 13 is bolted to the frame A in such position as to be struck by the ribs 12 in succession as the basin rotates. An opening  $\gamma$  in the bed-plate 2 permits material which may be carried onto the bed-plate to pass downward to a suitable receptacle.

The material to be ground is fed preferably continuously in small portions at a time into the basin through the spout 8, and a high degree of rotative speed is imparted to the said basin, when the material will tend to move outward by centrifugal action and will be brought into contact with the spheres E and into the channel  $\alpha$ , and will be crushed by the action of the said spheres as they are carried around in said channel, the degree of crushing action of the spheres being regulated by the pressure applied thereto, which may be regulated by depositing any suitable weights upon the frame H or upon the arms 7, projecting upward through the frame, which arms may have suitable supports 14 to secure and support the weights Y.

Inasmuch as the ring G, while vertically adjustable, cannot revolve, the contact of the rotative members therewith results in insuring a comparatively positive rotation of the said members, and thereby secures an increased crushing effect over what would result if the members did not thus travel in contact with the stationary track.

As the material is ground it is thrown outward against the screen and when fine enough to pass through the mesh passes downward onto the bed-plate and out through the opening  $\gamma$ , and the screen is prevented from being clogged by the jarring of the same resulting from the contact of the ribs 12 with the stationary contact piece or block 13.

I do not here claim broadly the combination of a rotative basin and rotatable members arranged to act therein with means for carrying the members forcibly against the face of the ring, as this constitutes the subject of a separate application for Letters Patent.

Without limiting myself to the construction and arrangement shown, I claim:

1. The combination in a grinding machine



of a vertical rotatable shaft, a basin carried at the lower end of the said shaft provided with a grooved annular grinding face, a series of spherical grinding members, a ring  
5 resting upon said members, arms extending upwardly from said ring, means for supporting removable weights upon said arms, and a stationary spider having openings through which the arms extend.

10 2. The combination in a grinding machine of a vertical rotatable shaft, a basin carried at the lower end of the said shaft provided with a grooved annular grinding face, a series of spherical grinding members, a ring  
15 resting upon said members, arms extending upwardly from said ring, means for supporting removable weights upon said arms, a stationary spider having openings through which the arms extend, and a screen carried  
20 by the basin and extending therefrom to said spider.

3. The combination of the frame, central bearings, shaft rotating in said bearings, a

basin carried by the shaft, grinding members in the basin, a yielding screen carried 25 by the basin and extending upward from the periphery thereof, vertical ribs on said screen, and a rigid contact piece carried by the frame in position to be struck by the ribs. 30

4. The combination in a grinding machine, of a vertical rotatable shaft, a basin carried at the lower end of the said shaft and provided with a grooved annular grinding face, a series of spherical grinding mem- 35 bers, a ring resting upon said members, arms extending upwardly from said ring, means for applying pressure to said arms, and a stationary spider having openings through which the arms extend. 40

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

JOHN C. CLARK.

Witnesses:

E. W. COLLINS,  
EDWARD JOHNSON.