

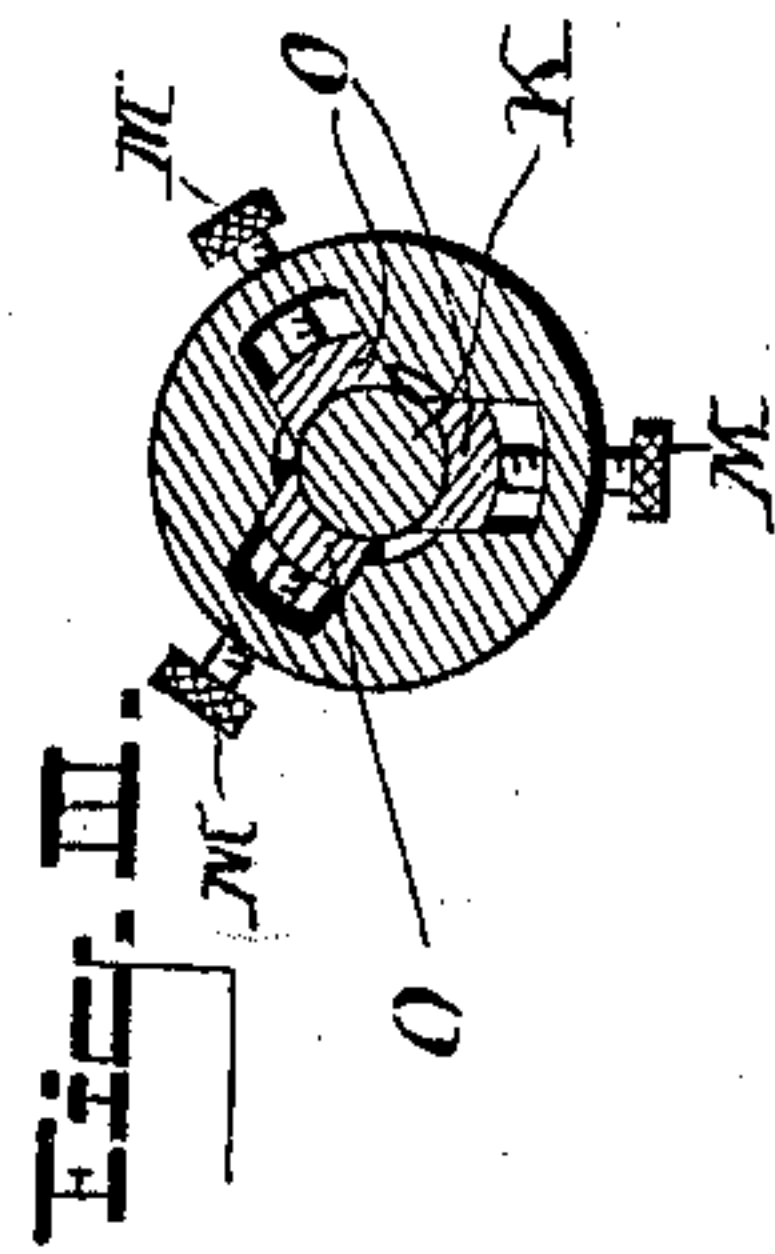
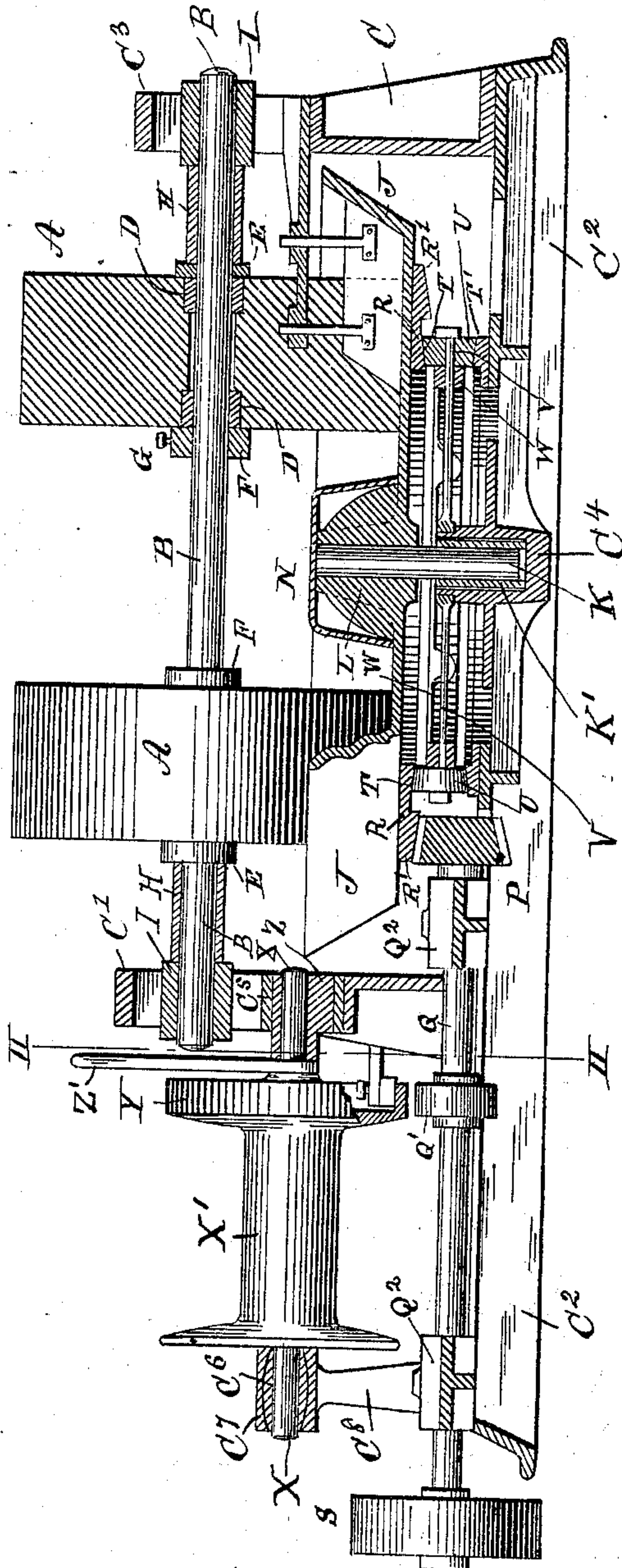
(No Model.)

H. J. HUGHES.
GRINDING MILL.

No. 561,317.

Patented June 2, 1896.

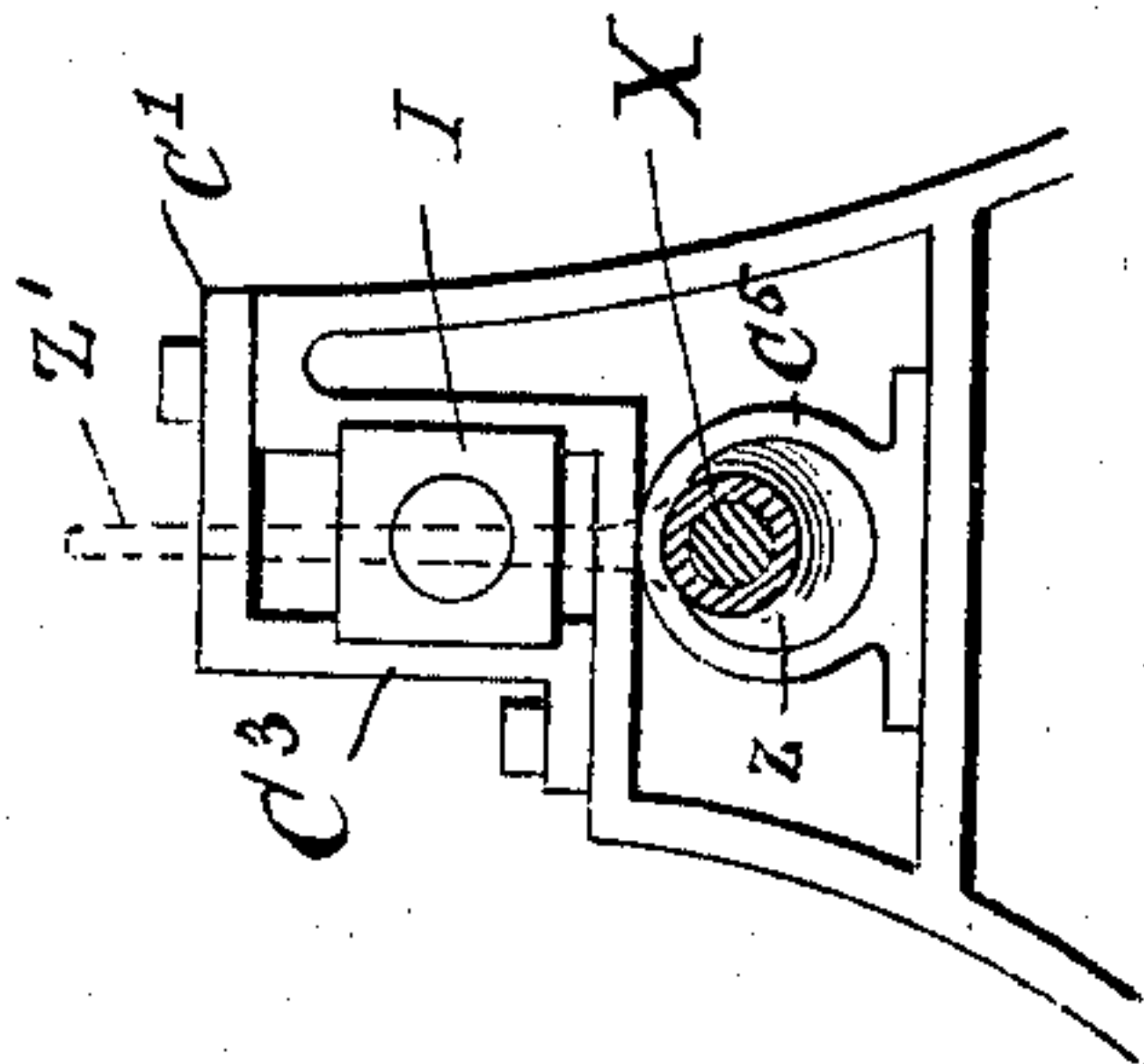
FIG. I.



WITNESSES:

D. W. Mott
M. V. B. good

FIG. II.



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HENRY J. HUGHES, OF BROOKLYN, NEW YORK.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 561,317, dated June 2, 1896.

Application filed April 24, 1895. Serial No. 546,961. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. HUGHES, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Grinding-Mills, of which the following is a specification.

My invention relates to an improvement in those grinding-mills which are provided with vertical stationary chasers and rotatable pans by which the chasers are rotated.

My improvement consists in novel features of construction hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure I is a vertical longitudinal section of my improved grinding-mill, parts being shown in elevation. Fig. II is a detail vertical transverse section taken on the line II II of Fig. I, looking inwardly. Fig. III is a detail section of the pan-centering device.

A represents two vertical reduction rolls or chasers mounted loosely upon a horizontal shaft B common to both rolls. The shaft B is held from lateral movement by means of standards or supports C C', mounted on a suitable bed-plate or platform C², and having detachable portions C³ to permit of the unshipping of the shaft B. The rollers are each provided with bushings D, by which they are supported rotatably on the shaft. The extreme ends of the shaft carry bearing-blocks I, fitting between the separable parts of the standards C C', being guided vertically in the latter. Surrounding the shaft and located on the inner side of the bearing-blocks are distance sleeves or thimbles H, and located on the shaft on the inner side of the sleeves are washers E, against which the rollers bear outwardly, while on the shaft on the inner side of the rollers are located locking-rings F, having screw-bolts G which extend there-through, and are held by friction against the shaft and thus keep the rollers from moving inwardly on the shaft, on which shaft the rollers rotate.

J is a horizontal rotatable pan in which the rollers with their shaft are supported.

K is a vertical centering-pin extending into

the hub L of the pan. Located over the hub and pin is a shield or bridge N, which constitutes the inner or central rim of the pan and prevents the contents thereof from gaining access to the working parts. The centering-pin K, which is shown in section in Fig. III, is adapted to be finely adjusted by means of screw-bolts M and follower-blocks O. The pan J can by these means be adjusted horizontally.

P is a beveled cog-wheel secured to a horizontal driving-shaft Q, mounted in bearings Q² secured to the bed-frame. The bed-frame has a step C⁴, in which is located a bearing box or sleeve K', in which turns the lower end of the centering-pin. Secured to the bottom of the pan is an outer annular ring R, having inverted annular bevel-gear R', with which the bevel gear-wheel P meshes. Mounted on the outer end of the driving-shaft Q is a band-pulley S, by which the driving-shaft is operated. On the inner portion of the annular ring is an upper annular bevel-track T. Mounted on the bed-plate and surrounding the step is a lower annular bevel-track complementary to the upper track. Between these two tracks are correspondingly - beveled antifriction-bearing rollers U, mounted on the outer ends of the radial arms V, extending from the step through a ring W. The standard C' has an intermediate bearing C⁵, located between the driving-shaft Q and the bearing-block I. Within the bearing C⁵ is an eccentric bearing-block Z, provided with a lever Z', by which it is oscillated to raise or lower the inner end of a drum-shaft X, carrying a hoisting-drum X'. The outer end of the drum-shaft is mounted in an elliptical bearing-block C⁶, mounted in a correspondingly-shaped bearing C⁷ of a short standard C⁸. The winding-drum X has a rim Y brought into contact with the friction-wheel Q', located on the shaft Q when the eccentric is oscillated to bring the rim into frictional contact with the friction-wheel, the elliptical bearing-block at the opposite end of the winding-drum permitting the inner end of the latter to be lowered so as to rotate the winding-drum.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

A grinding-mill comprising a bed-plate, the

standards having separable portions and supported on the bed-plate, the bearing-blocks adapted to slide freely in the standards, the horizontal roller-shaft mounted in the blocks, 5 the bushings mounted on the roller-shaft, the vertical rollers carried by the bushings on the roller-shaft, the distance sleeves and washers located between the bearing-blocks and the rollers, the locking-rings for securing 10 the rollers, the horizontal pan by which the rollers are rotated and are supported, the centering-pin for the pan, the outer annular ring having inverted bevel-gear, and upper bevel-track within the bevel gear-ring, the step for

the centering-pin, the bearing-sleeve within 15 the top, the lower bevel-track secured to the bed-frame, the ring having radial arms, beveled antifriction-bearing rollers journaled to the arms between the bevel-tracks, the shaft-bearings located on the bed-frame, and the 20 horizontal driving-shaft mounted in the shaft-bearings and provided with a bevel gear-wheel meshing with the bevel gear-ring; substantially as described.

HENRY J. HUGHES.

Witnesses:

M. V. BIDGOOD,
J. GREEN.