(No Model.) 2 Sheets—Sheet 1.

F. DILTS.

WOOD PULP MACHINE.

No. 403,653. Patented May 21, 1889.

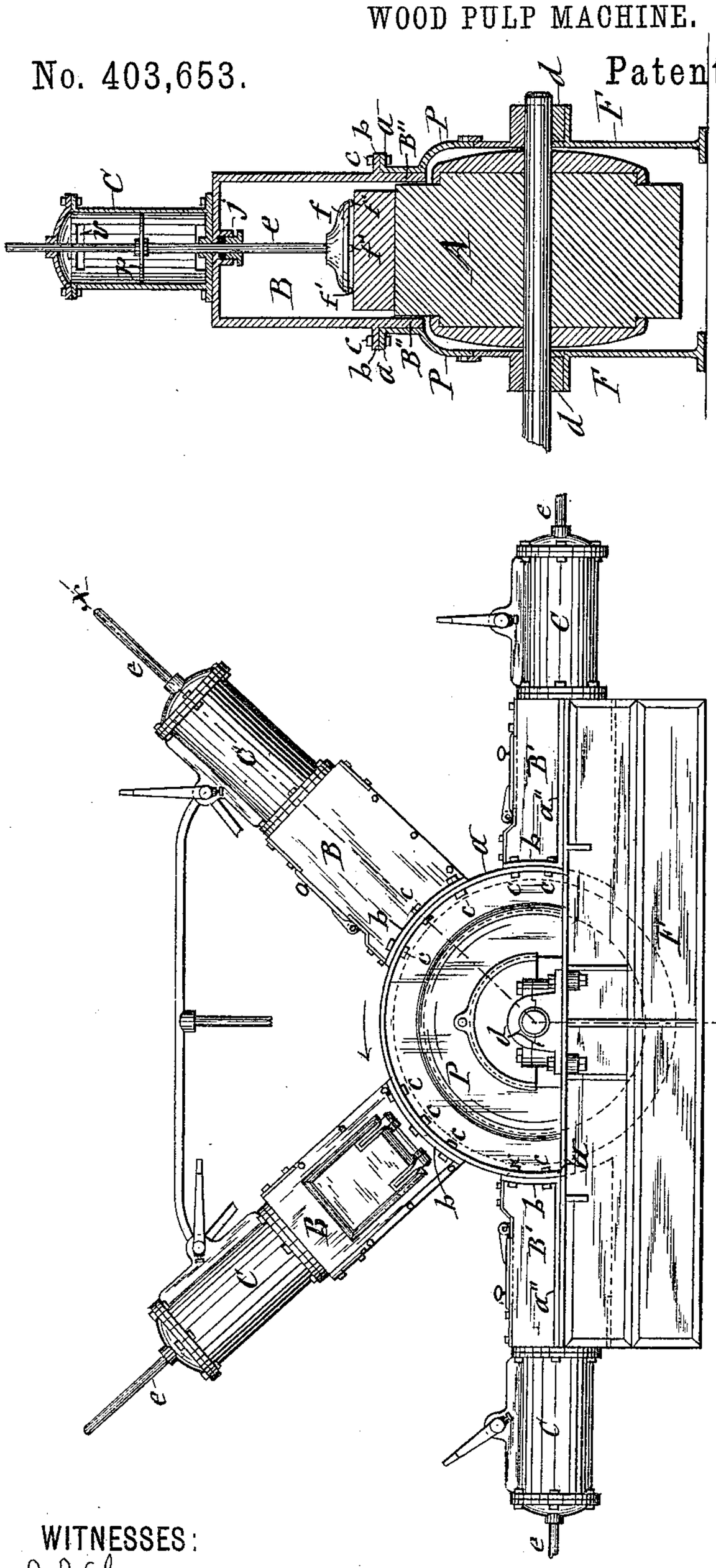

Fig. 2.

Fig. 1.

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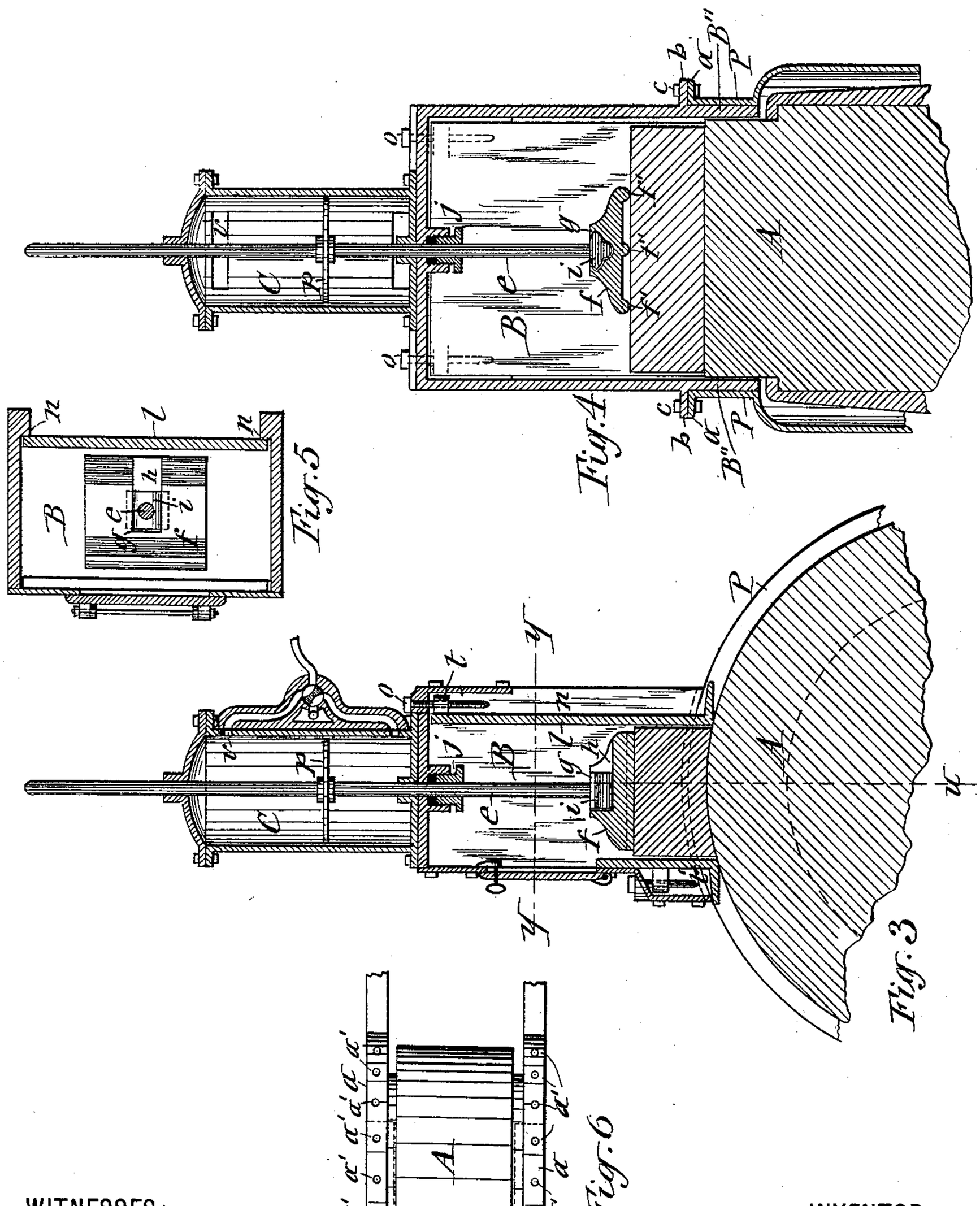

Fig. 4

Fig. 5

Fig. 3

Fig. 6

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UNITED STATES PATENT OFFICE.

FRANK DILTS, OF FULTON, NEW YORK.

WOOD-PULP MACHINE.

SPECIFICATION forming part of Letters Patent No. 403,653, dated May 21, 1889.

Application filed June 30, 1888. Serial No. 278,668. (No model.)

To all whom it may concern:

Be it known that I, FRANK DILTS, of Fulton, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Wood-Pulp Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

In said drawings, Figure 1 is a side elevation of a machine embodying my improvements. Fig. 2 is a vertical transverse section on line *x x*, Fig. 1. Figs. 3 and 4 are enlarged transverse sections, taken in planes at right angles to each other, of one of the wood-holding boxes with the adjacent portion of the stone or grinder and the cylinder and piston by which the wood is held against the grinder. Fig. 5 is a transverse section on line *y y*, Fig. 3; and Fig. 6 is a top plan view of the side plates upon which the wood-holding boxes are mounted, and showing the series of perforations in the flanges of said plates which permit the said boxes to be adjusted in their positions.

Similar letters of reference indicate corresponding parts.

The object of my invention is to render each of the wood-holding pockets adjustable independently of the others to conform to the wear and diminution of the diameter of the grinder without necessitating the adjustment of the entire box; and the object of the invention is also to allow the boxes to be shifted on the periphery of the plates which inclose the grinder and support said boxes, said shifting of the boxes being designed to equalize the wear on the axial bearings of the grinder; and to that end my invention consists in the improved construction and combination of parts, as hereinafter more fully described, and specifically set forth in the claims.

F represents the main supporting-frame of the machine, which frame is of rectangular form or elongated and secured in a horizontal position. To the top of the side walls of said frame, at the center thereof, are secured the pillow-blocks *d d*, in which is journaled the shaft of the grinder or abrading-stone A. From the central portion of the aforesaid side walls rise two segmental plates, P P, which are concentric with the axis of the grinder or stone A and have a radius only slightly greater than that of the latter, so that peripheries of the plates are in proximity to that of the grinder. Said plates are provided with outward-projecting flanges *a a* on their peripheries, and these flanges are each provided with a series of perforations, *a' a'*, as shown in Fig. 6 of the drawings, for the purpose hereinafter explained.

B B and B' B' designate the boxes in which is deposited the wood to be ground to pulp by the stone A. These boxes I mount on the flanges *a a* of the plates P P, so as to project radially outward therefrom, as best seen in Fig. 1 of the drawings. Said boxes being provided near their bases with flanges *b b*, by which they are seated on the flanges *a a*, and by means of bolts *c c*, passing through the flanges *a*, the boxes are secured in their respective positions. The latter flanges, being provided with a series of said perforations, as hereinbefore stated, allow the boxes B B to be shifted to different positions on the peripheries of the plates P P, and thus the directions of the pressure of the wood in the boxes against the stone A can be changed to change the location of the wear on the axial bearings of the stone or grinder accordingly.

In order to better sustain the boxes against lateral displacement, I form the side walls of the boxes with extensions B'' B'', which rest against the inner sides of the plates P P, as shown in Fig. 2 of the drawings.

The two boxes B' B', I provide also with longitudinal flanges *a''*, by which I mount them on the top of the end portions of the frame F, and thus dispose said boxes nearly or quite horizontally and diametrically opposite each other, as shown in Fig. 1 of the drawings. By this arrangement the pressure upon the stone A from opposite directions is equalized and the downward pressure upon the stone from the wood in the said two boxes is obviated. Each of said boxes I preferably set with their longitudinal central line a short distance back of and parallel with a radial line extending from the axis of the stone A, as indicated by the dotted line *u* in Fig. 3 of the drawings. Said position of the box obviviates the danger of the wood becoming wedged between the transverse edge of the box and face of the stone A.

Inasmuch as the grinder A is subjected to

wear and abrasion and consequent diminution of its diameter, and it being essential to maintain the wood-supporting boxes in close proximity to the periphery of the grinder, I render each box adjustable independently of the other boxes and without disturbing the entire box. This I accomplish by providing each box individually with gates *l l'*, which are maintained parallel to each other throughout their adjustment by being seated adjustably longitudinally on parallel guides *n n* on opposite sides of the box and being passed through the end of the box and engaging screw-threaded eyes in lugs *t*, rigidly attached to or formed on the gates, as illustrated in Fig. 3 of the drawings.

C represents a cylinder firmly secured to the free end of the box and axially in line therewith, said attachment causing the cylinders to be moved with the wood-holding boxes B B in the adjustment of the latter around the peripheries of the plates P P, as before stated.

p is a piston in said cylinder and rigidly attached to the piston-rod *e*, which passes through a stuffing-box, *j*, on the box and into the interior of said box, and in the latter is a follower, *f*, attached to the piston-rod and bearing on the wood to be ground. The pressure required for holding the wood against the stone so as to be ground thereby is obtained by water forced into cylinder through a port, *v*, in the latter back of the piston in the usual and well-known manner.

In order to allow the follower to obtain a perfect bearing on the wood, and also obviate torsional strain on the piston-rod *e* in case the wood grinds away faster on one side than on the other, I provide the face of the follower with feet or projections *f' f'* and connect the piston-rod *e* to the follower by a knuckle-joint consisting of a head, *i*, which is attached to the end of said rod and formed with a pivotal bearing and seated movably in a corresponding socket, *g*, in the back of the follower. A lateral groove, *h*, leading to said socket, allows the head *i* to be introduced therein.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the grinder A, the segmental plates P P, provided with flanges *a a* on their entire peripheries, the wood-holding boxes B B, mounted on said flanges and adapted to be shifted in the direction of the length of the flanges and adjustably secured thereto, and the cylinders C C, secured directly to said boxes, substantially as described and shown.

2. In combination with the grinder A and segmental side plates, P P, the wood-holding boxes B B, mounted on the peripheries of said plates and extending outward therefrom, and provided with the gates *l l'*, adjustable toward and from the grinder and maintained parallel throughout their adjustment, as set forth.

In testimony whereof I have hereunto signed my name, in the presence of two witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 28th day of June, 1888.

FRANK DILTS. [L. S.]

Witnesses:
C. H. DUELL,
J. J. LAASS.