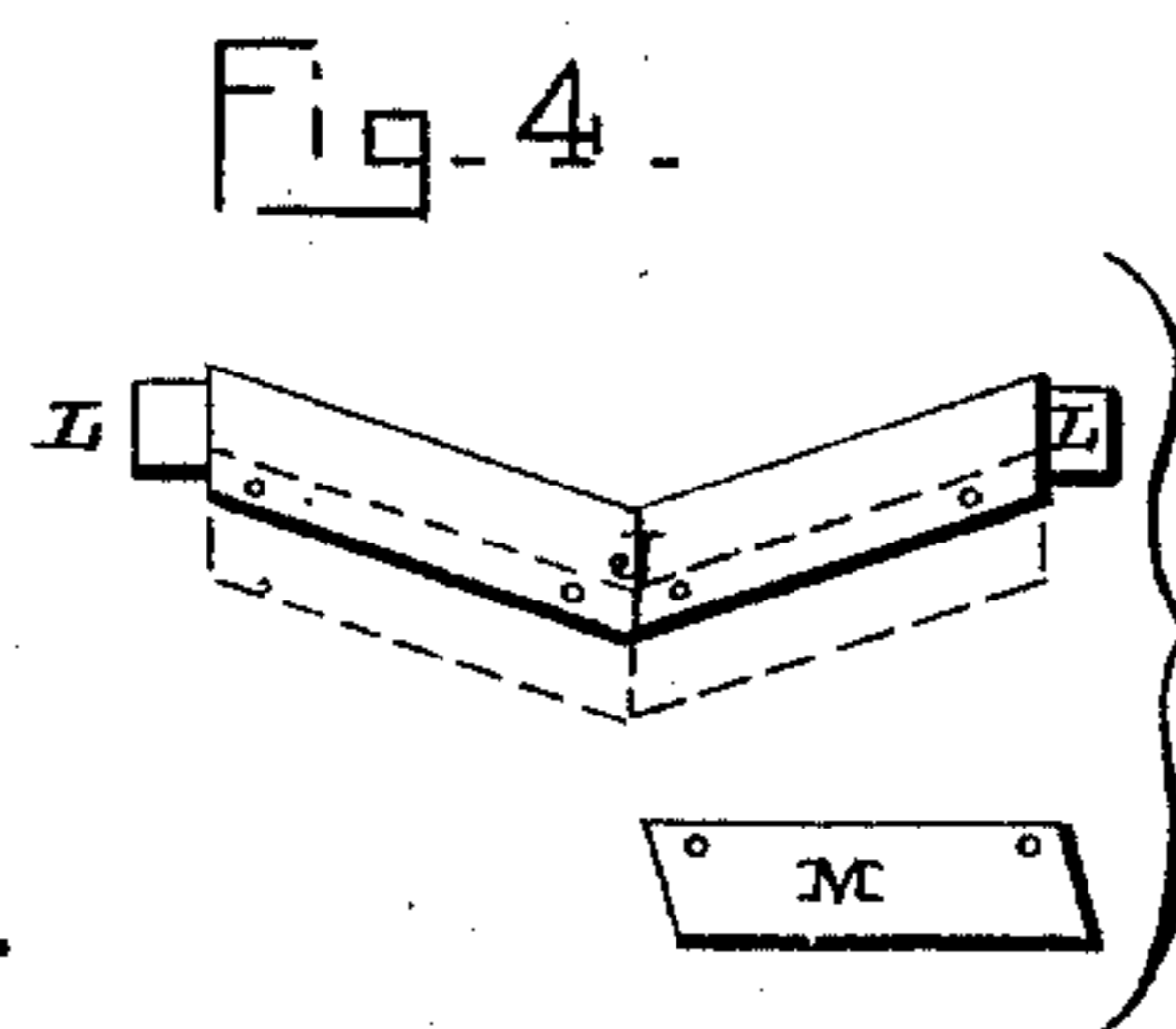
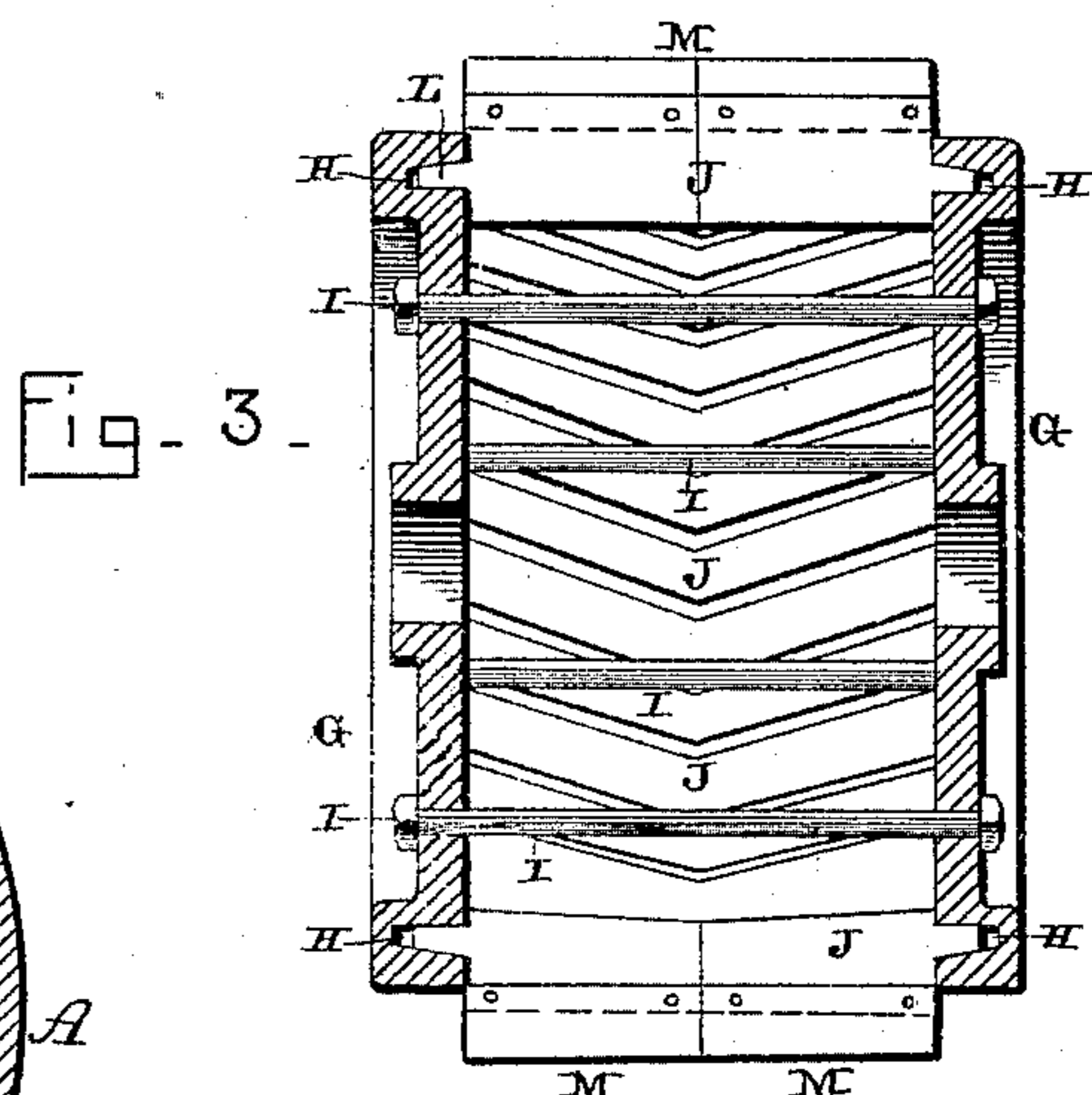
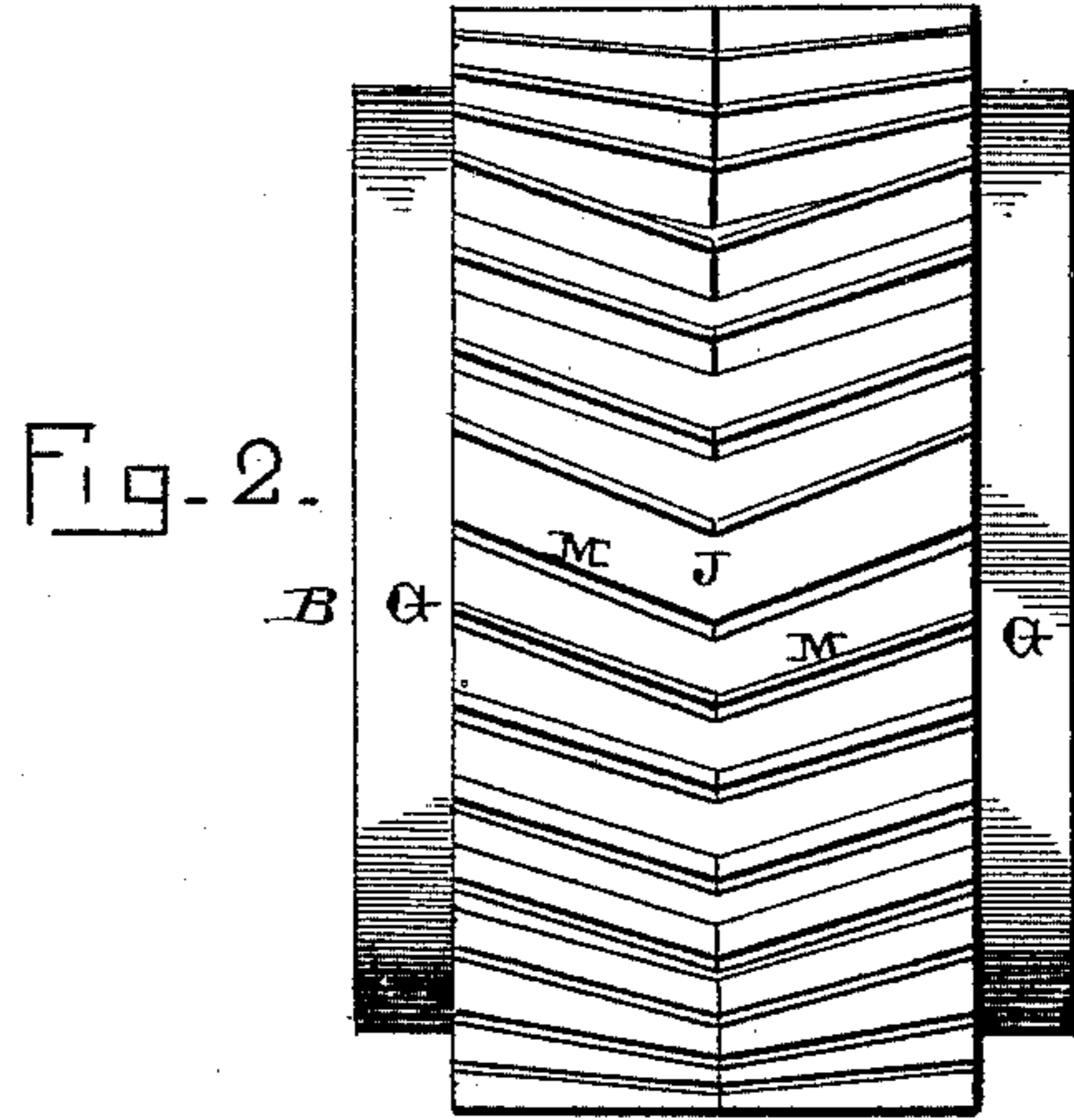
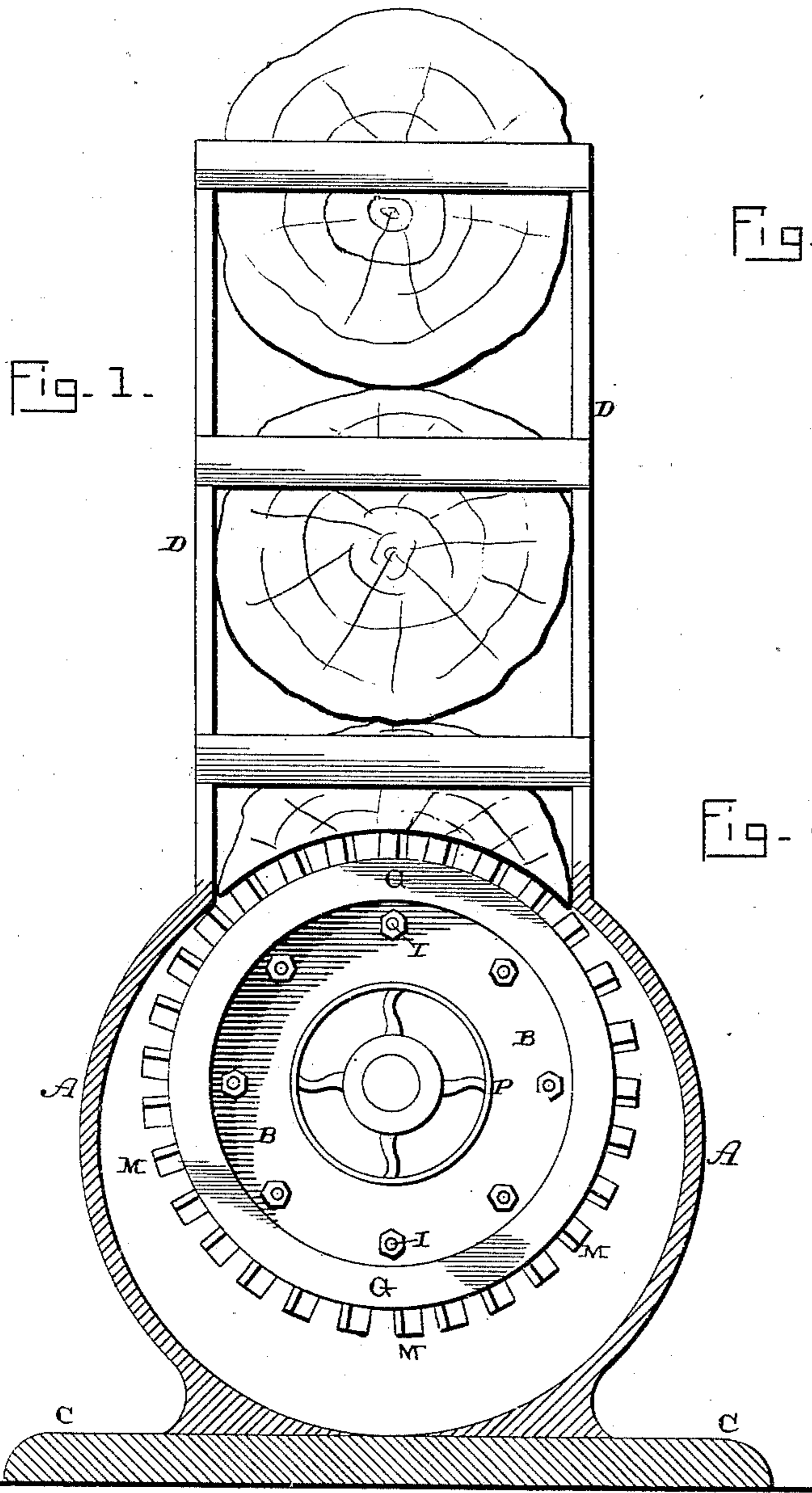


(No Model.)

J. B. CARTER & J. W. PERTZ.
MACHINE FOR GRINDING WOOD.

No. 413,024.

Patented Oct. 15, 1889.



Witnesses:

E. G. Ellis,
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Inventors.

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UNITED STATES PATENT OFFICE.

JOHN B. CARTER AND JOHN WM. PERTZ, OF KOKOMO, INDIANA, ASSIGNORS
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MACHINE FOR GRINDING WOOD.

SPECIFICATION forming part of Letters Patent No. 413,024, dated October 15, 1889.

Application filed March 23, 1889. Serial No. 304,452. (No model.)

To all whom it may concern:

Be it known that we, JOHN B. CARTER and JOHN WILLIAM PERTZ, of Kokomo; in the county of Howard and State of Indiana, have
5 invented certain new and useful Improvements in Machines for Grinding Wood; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in
10 the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improvement
15 in machines for grinding wood; and it consists in a grinder composed of grooved end plates held together by bolts, in combination with angular castings provided with tenons on their ends to fit in said grooves, and knives placed
20 diagonally across the grinder and made in sections and secured to and between the edges of the castings.

The object of our invention is to produce a rotary cutter for pulp-grinding machines of
25 the peculiar construction pointed out in the claim, whereby it is very effective in its operation, and in which the parts can be readily detached for any desired purpose.

Figure 1 is a side elevation of a machine
30 embodying our invention, the lower portion of the frame being shown in section. Fig. 2 is an edge view of the grinder. Fig. 3 is a vertical section of the same. Fig. 4 is a detached view of one of the grinder-castings
35 and a portion of one of the blades.

A represents a circular supporting-frame, in which the grinding-wheel B is journaled, and which is provided at its base with the flanges C for securing it to the floor by
40 means of bolts or screws. Extending upward from this circular frame A any suitable distance is the frame D, which forms a feed-box into which the timber to be reduced to pulp is placed. The feed-box D has its ends preferably formed as a part of the circular frame
45 A, as here shown, though it may be separated from it and secured thereto, if desired. By this construction the circular grinder-supporting-frame and the feed-box may be cast to-

gether, thus reducing the cost of the machine 50 and making a stronger and a more rigid and durable supporting-frame and feed-box than when made separate.

The grinder B is journaled in the circular frame A above its center, so that the upper 55 periphery of the grinder will extend into the feed-box, and in order that the periphery of the grinder will pass very near the junction of the feed-box and the frame A, as shown, the timber placed in the feed-box is necessarily reduced to a very thin portion at this 60 point. By journaling the grinder above the center of the frame A, so that its upper periphery will extend into the feed-box a suitable distance, and to bring its periphery in 65 proximity to the point at which the feed-box is joined to the frame A, the reduced portion of timber is not split off so as to either wedge in between the knives or between the knives and the junction of the feed-box and frame 70 A, as it otherwise would be likely to do, and thus chock the wheel or break the knives. This construction also prevents any small pieces of wood from passing through between the wheel and the frame; also, by journaling 75 the wheel in the frame, as above described, the space between the periphery of the wheel and the inner side of the frame A gradually increases from the cutting-point of the wheel, so that the pulp is not crowded between the 80 knives, but passes freely to the bottom of the casting and out of it through an opening made in the casting at its bottom at any desired point.

The grinder B consists of two circular end 85 plates G, which are provided with the two circular grooves H in their inner sides, and which have the castings J and sectional knives M clamped rigidly in position between them by the bolts I. The castings J are made slightly 90 V-shaped to correspond to the shape of the knives or cutters used, and are provided with the tenons L on their ends, so as to fit in the grooves H, and thus support the castings rigidly in position between the two plates. 95

Bolted to the edge of each casting J are the two sections of knives M, which meet at their inner ends at the center of the grinder, so as

to form a continuous knife, scraper, or cutter and project a suitable distance beyond the outer surface of the casting, as shown. These knives are made in sections for convenience 5 in handling and sharpening, and so that should one become injured or broken at any point it can be readily replaced by another without having to lose the other uninjured portion or section. The knives are intended to scrape 10 away the surface of the wood, and are arranged in an angular or slightly V shape, in order to bring each knife gradually into play, and thus equalize the strain brought to bear upon it, instead of bringing the whole strain 15 upon each knife at once. By bringing each knife gradually into play, the sections are much less likely to be broken than they would be if they extended straight across the grinder, and by placing them at the angles shown a 20 much greater amount of grinding-surface is obtained than if they were placed straight across, and the wood is not split from the logs, as would be done by straight knives, but a scraping action is produced, whereby the fiber 25 is rubbed off, the shaft N of the grinder is secured therein in any suitable manner, and provided with a driving-pulley P upon one end.

A grinder of the construction here shown enables any one or all of the knives or cast- 30 ings to be readily removed from the wheel when broken, or for the purpose of sharpening, by removing the bolts I, which clamp them between the end castings G.

In a machine of this construction the tim- 35 ber is held sufficiently in contact with the face of the cutter by its own weight to not require any additional device for forcing it down.

Having thus described our invention, we 40 claim—

In a grinder for pulp-machines, the combination, with the circular end plates provided with grooves or recesses on their inner faces near their peripheries, and angular centrally- 45 pointed castings having their ends placed in the recesses, and supported therein radially to the axis of the grinder, of the two knives which are secured to the said castings, substantially as described.

In testimony whereof we affix our signatures 50 in presence of two witnesses.

JOHN B. CARTER.

JOHN WM. PERTZ.

Witnesses:

O. L. MOULDER,

H. M. COOPER.