No. 670,223. Patented Mar. 19, 1901.

J. A. E. CRISWELL.

WOOD CUTTING MACHINE.

(Application filed Aug. 29, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

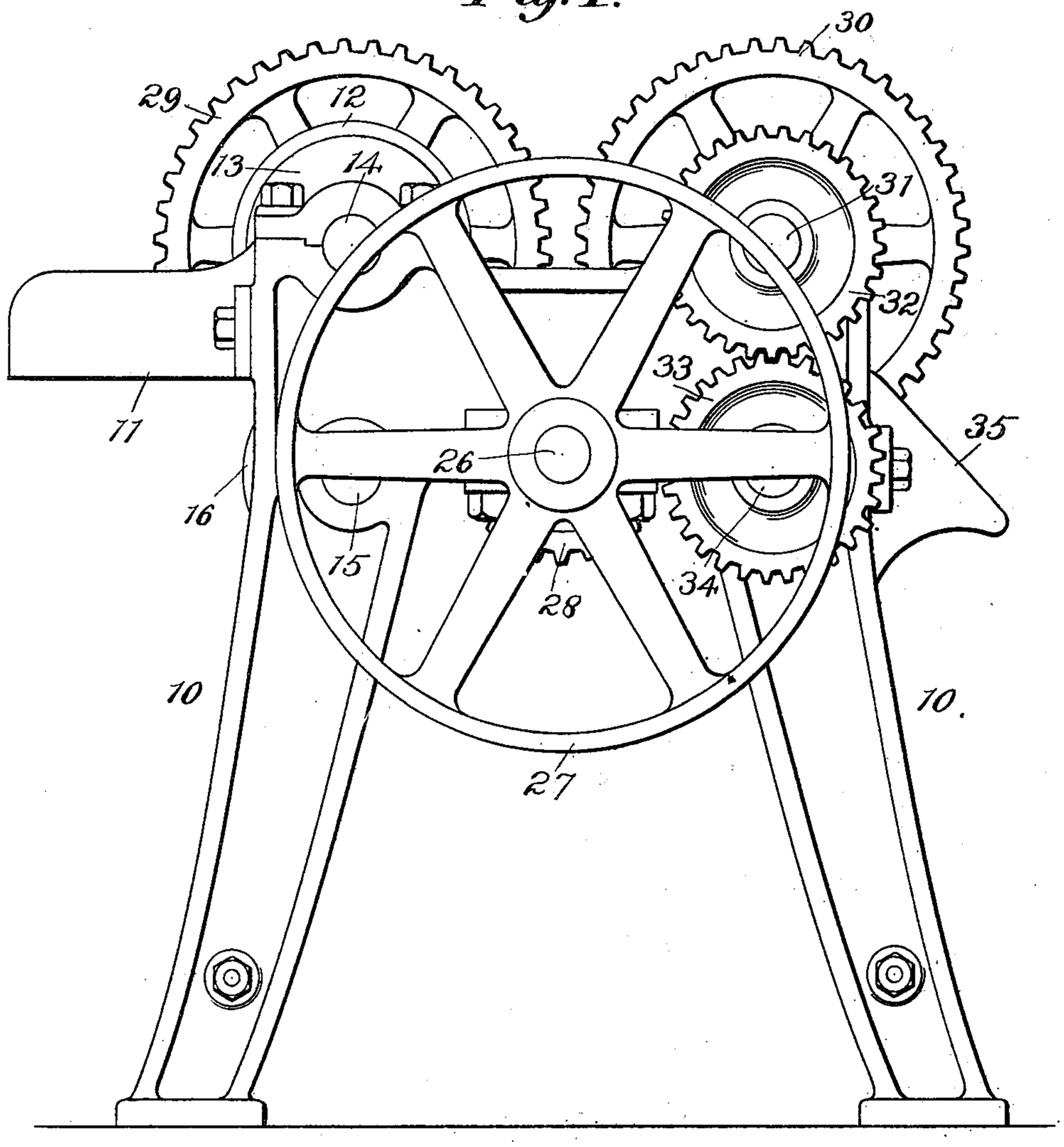

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Fig. 2.

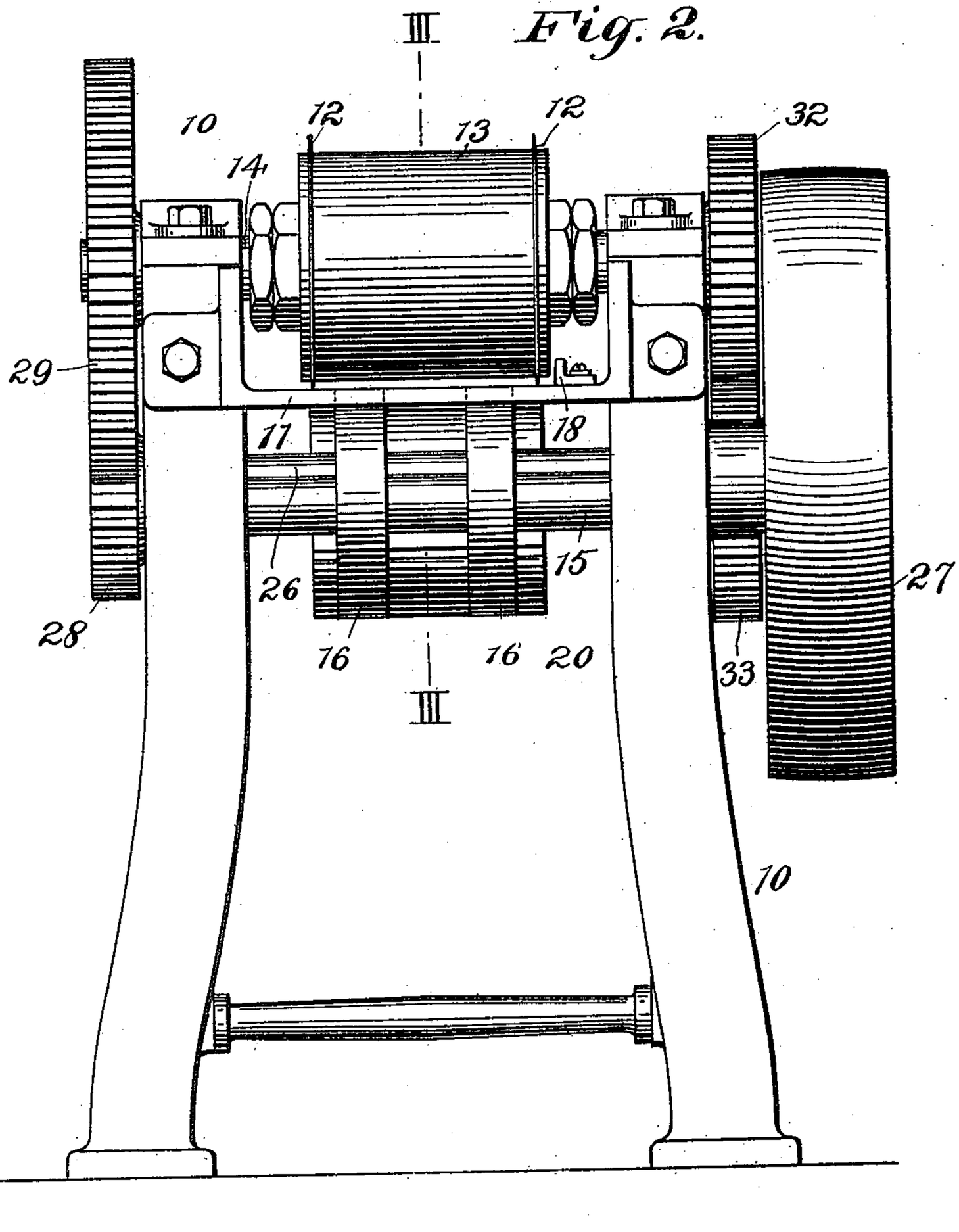

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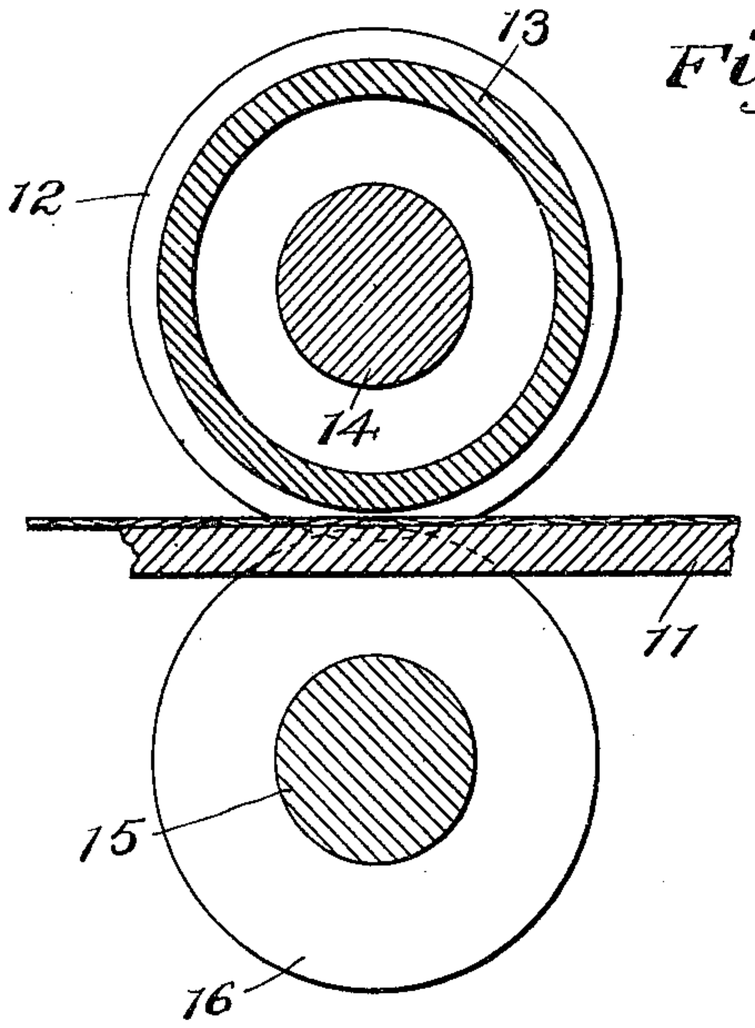
Fig. 3.



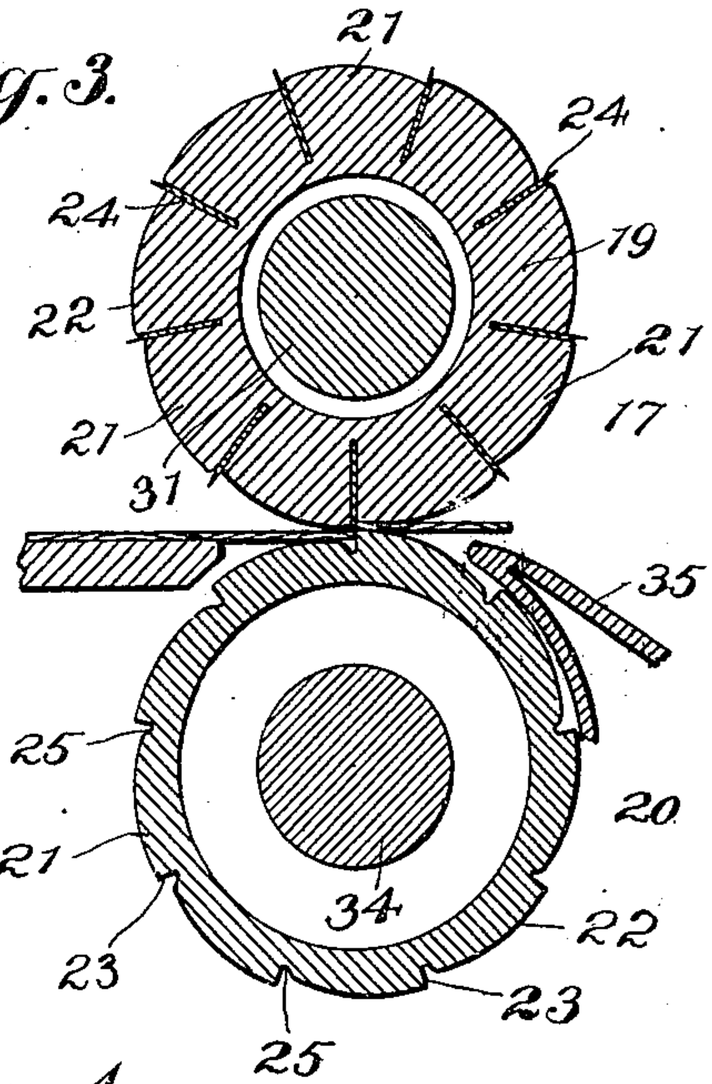


Fig. 4.

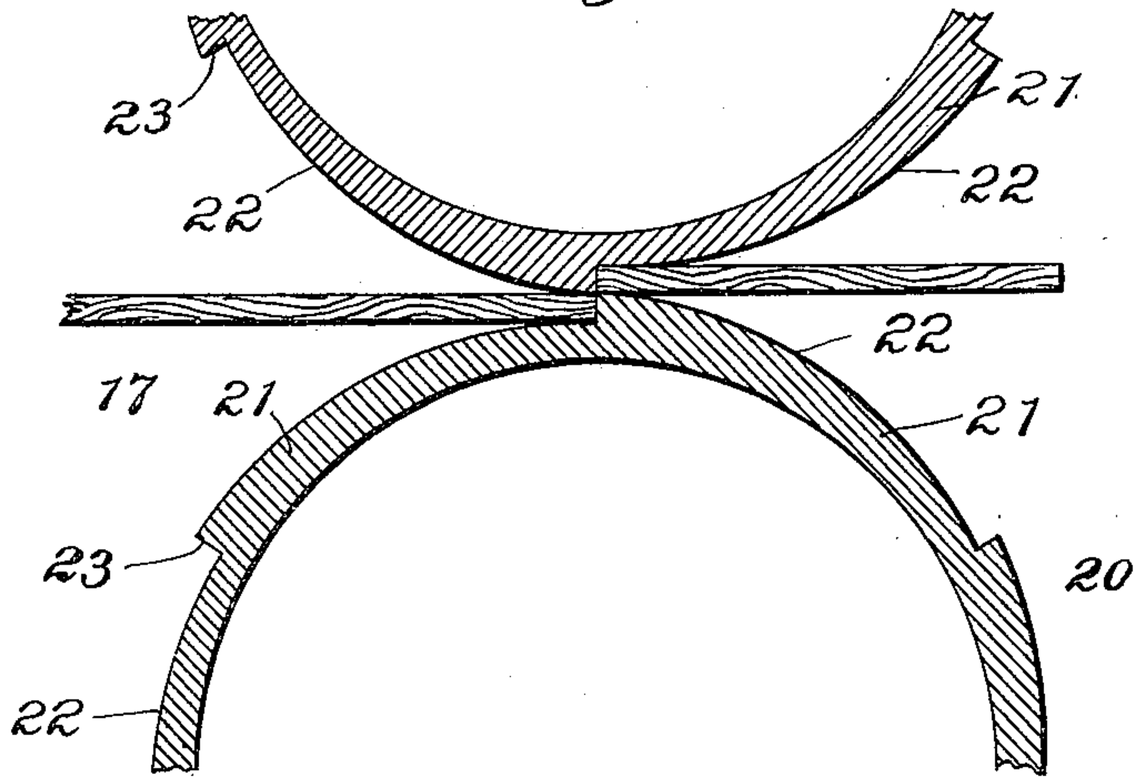
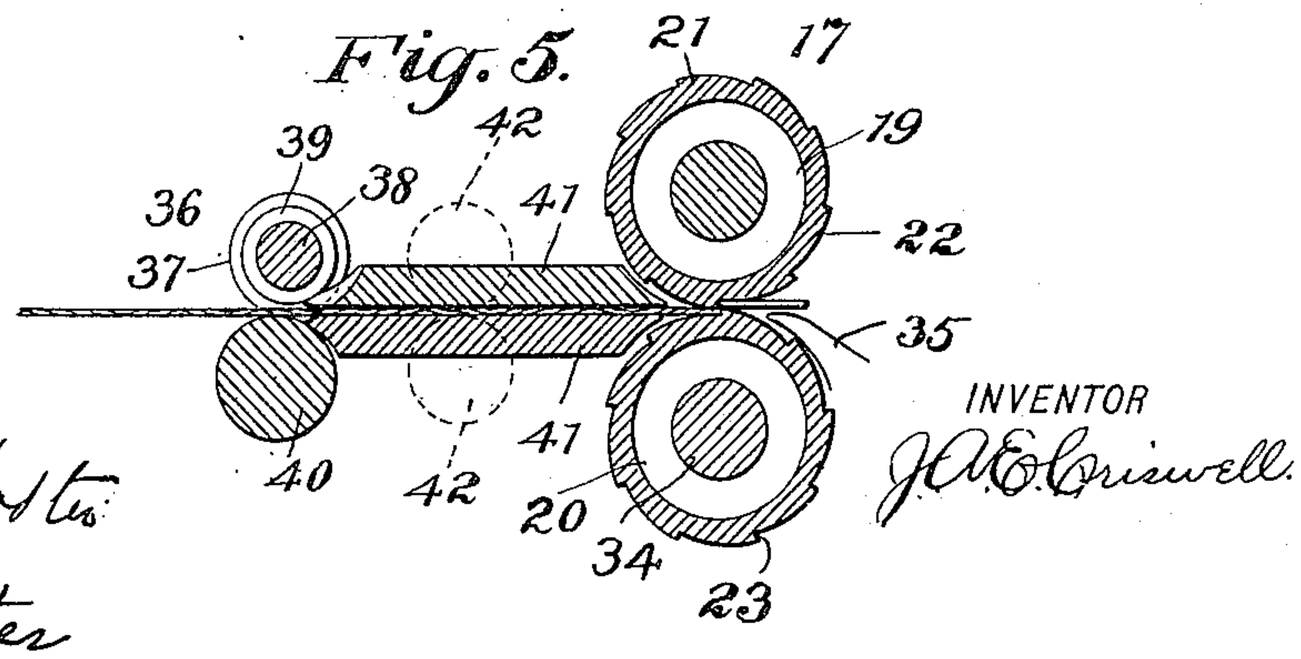


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES A. EKIN CRISWELL, OF NEW YORK, N. Y.

WOOD-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 670,223, dated March 19, 1901.

Application filed August 29, 1900. Serial No. 28,465. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. EKIN CRISWELL, of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Wood-Cutting Machines, of which the following is a full, clear, and exact description.

This invention relates to machines for cutting wood, but more particularly to machines for cutting up veneer in the manufacture of matches.

The primary object of the invention is to provide simple and efficient means by which cards or blanks may be made for use in machines such as disclosed in my Patent No. 656,014, dated August 14, 1900, for a match-making machine.

A further object of the invention is to provide simple and efficient means by which the veneer may be first cut into long splints and the latter then cut transversely to form complete splints.

The invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and then pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a side elevation of one form of machine embodying my invention. Fig. 2 is a front elevation. Fig. 3 is a fragmentary vertical section, on an enlarged scale, taken on the line III III of Fig. 2. Fig. 4 is an enlarged fragmentary section of a slightly-different transverse cutting device, and Fig. 5 shows how the veener may be cut into splints.

The frame 10 may be of any desired construction, and on said frame is a suitable table 11, along which the sheets or strips of veneer are fed. The sheets or strips of veneer are trimmed at their edges to the proper width by the rotary cutters or knives 12, though any suitable form of cutting or trimming device may be employed for cutting the material lengthwise. These knives or cutters 12 are spaced apart by the drum or collar 13 and are securely held to a shaft or spindle 14, that is journaled transversely of the frame. A shaft 15 is journaled in the frame beneath the shaft 14, and on said shaft 15 are the feed-rolls 16, which, together with the collar 13, assist in forcing the material inward over the table 11 to the transverse cutting device 17, one or more guides, as 18, Fig. 1, being provided on the table to aline the material as its edges are cut.

The cutting device 17 comprises two drums or cylinders 19 and 20. Each cylinder is provided with teeth 21, the length of which correspond to the length of the cards. The teeth 21 extend lengthwise of the cylinders and have their outer peripheral surfaces 22 eccentric to the cylinders and are so arranged that in operation and while acting on the material the greatest projecting portion of the teeth of one cylinder or drum will be opposed to the depressed or least projecting portion of the teeth of the other cylinder, thus serving as a continuous bearing and feeding surface for the material and in operation forcing the material from one drum or cylinder toward the other. The teeth 21 have their peripheral surfaces terminating in straight radial edges 23, which may serve as means to cut the material transversely, as in Fig. 4, or knives or cutters 24 may be provided on one of the cylinders, as the cylinder 19 of Fig. 3. These knives 24 are secured radially in the cylinder 19 and project outward from and beyond the surface of the cylinder, and said knives are spaced apart corresponding to the length of the pieces to be cut. The knives have the teeth 21 between them, and each knife forms a straight radial surface to give a smooth cut, and adjacent to the straight surface 23 of the cylinder 20 are recesses 25 as clearance for the cutting edges of the knives. By this means besides serving to cut and feed the material the teeth form eccentric thrust and ejecting means for the cut pieces, thus dispensing with independently-movable ejecting devices.

Any desired form of driving mechanism may be employed to impart motion to the several parts. As shown, the main driving-shaft 26 has a pulley 27 at one end, and on the other end of said shaft is a gear 28. This gear meshes with the gear 29 on the shaft 15 and with the gear 30 on the shaft 31 of the cylinder 19. The other end of the shaft 31 is provided with a gear 32, which meshes with a gear 33 on the lower cylinder-shaft 34. As the main driving-shaft is rotated the gear 28 will rotate the shafts 15 and 31 through the

gears 28, 29, and 30, and the gears 31 and 32, the trimming-cutters 12, and the cutting device 17 will be operated. The material as it passes between the cylinders 19 and 20 will be forced by the teeth 21 of the cylinder 20 past the cutting edges of the knives 24 toward the cylinder 19. The straight radial edge 25 of each tooth of the cylinder 20 will as each is successively brought into operative position serve as an abutment for the edge of the strip or sheet of material, and the cards as they are cut from the material will be fed forward over an inclined table 35, to be deposited in any suitable receptacle or handled as found most convenient.

In Fig. 4 the construction is substantially the same as in the other views, except that the knives 24 are dispensed with and the straight radial surfaces or edges 23 are made to cut the material.

The cutting device 19 shown in Fig. 5 is the same as in Fig. 4 and would be the same as in Fig. 3 if the knives 24 were provided. In advance of the cutting device 19 is another cutting device 36, which is substantially the same in construction as that disclosed in my patent already referred to. A number of cutters 37 are arranged on a spindle 38 and are spaced apart equal to the width of the splints by washers 39, and beneath the cutters is a preferably metallic roll 40. This roll has its axis in advance of the axis of the cutter-spindle to more readily take the thrust of the cutters. The material is cut into long splints or splint-strips and pass between the guide-plates 41 to the cutting device 19, where they are cut transversely into complete splints in a manner similar to that in which the cards are cut in the other views.

From the foregoing it will be seen that simple and efficient means are provided by which large numbers of cards or splints are readily made by rotating or continuously-moving cutting devices.

It will be understood that the cutting device 19 may be used by itself or in connection with any suitable cutting or other mechanism. The cylinders may be solid instead of hollow or otherwise constructed, and instead of the cutting device 36 and suitable guides being in advance of the transverse cutting device they may be placed so that after the cards are cut the latter by a suitable cutting device are then cut into splints. In this case suitable feed-rolls 42, as shown in dotted lines in Fig. 5, may be employed to feed the material to the transverse cutting device, or the trimming and feeding device shown in Fig. 3 might be used.

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

1. In a machine of the class described, a cutting device comprising two rotary cylinders or drums, each provided with opposed eccentric thrust and ejecting peripheral surfaces which in operation force the material from one cylinder toward the other, and means carried by the cutting device for cutting the material transversely for the purpose set forth.

2. In a machine of the class described, a cutting device comprising two rotary cylinders, each provided with eccentric thrust peripheral surfaces which in operation force the material from one cylinder toward the other, and spaced cutting means for cutting the material transversely.

3. In a machine of the character described, a cutting device comprising two rotary cylinders having teeth extending lengthwise thereof and each provided with eccentric peripheral surfaces forming thrust and ejecting means for the material, and cutting means for cutting the material transversely.

4. In a machine of the character described, a cutting device comprising two rotary cylinders having teeth each provided with eccentric peripheral surfaces forming thrust and ejecting means for the material, and knives spaced apart and carried by one of the cylinders to cut the material transversely.

5. In a machine of the class described, a cutting device, comprising two opposed rotary cylinders having their axes parallel and each provided with teeth extending lengthwise thereof, said teeth having their outer peripheral surface eccentric to the cylinders and so arranged that in operation and while acting on the material the greatest projecting portion of the teeth of one cylinder will be opposed to the depressed or least projecting portion of the teeth of the other cylinder thus forcing the material from one cylinder toward the other, and means for cutting the material transversely as it passes between the cylinders, substantially as described.

6. In a machine of the character described, the combination with a cutting device cutting the material lengthwise and with the grain, of a second cutting means comprising two rotary cylinders each provided with opposed eccentric thrust peripheral surfaces which in operation force the material from one cylinder toward the other and means carried by the second cutting means for cutting the material transversely for the purpose set forth.

7. In a machine of the character described, the combination with a cutting device comprising two rotary cylinders having teeth extending lengthwise thereof and each provided with eccentric peripheral surfaces forming thrust and ejecting means for the material, and knives spaced apart and carried by one of the cylinders to cut the material transversely, and a second cutting device for cutting the material at right angles to the direction of cut of the first-mentioned cutting device.

8. In a machine of the character described, the combination with a cutting device comprising two opposed rotary cylinders having their axes parallel and each provided with teeth extending lengthwise thereof, said teeth

having their outer peripheral surface eccentric to the cylinders and so arranged that in operation and while acting on the material the greatest projecting portion of the teeth of one cylinder will be opposed to the depressed or least projecting portion of the teeth of the other cylinder thus forcing the material from one cylinder toward the other, and knives for cutting the material transversely to the plane of feed, and a second cutting device cutting the material in the plane of the feed, substantially as and for the purpose described.

JAMES A. EKIN CRISWELL.

Witnesses:
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E. J. FOSTER.