

(No Model.)

W. MERRILL.  
WOOD CUTTING MACHINE.

No. 526,044.

Patented Sept. 18, 1894.

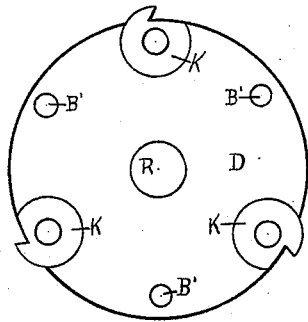


Fig. I.

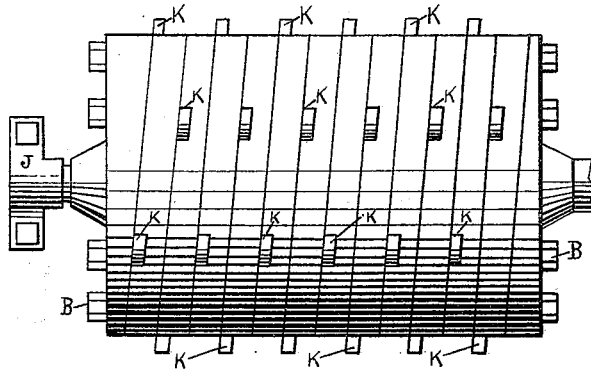


Fig. II.

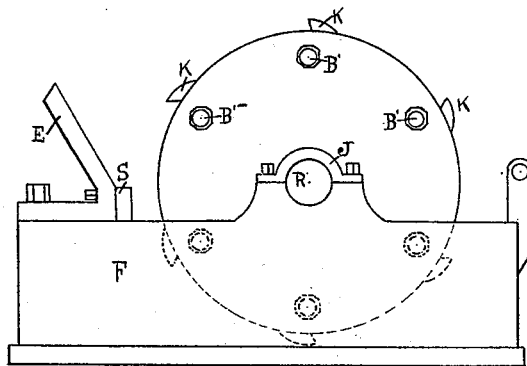


Fig. III.

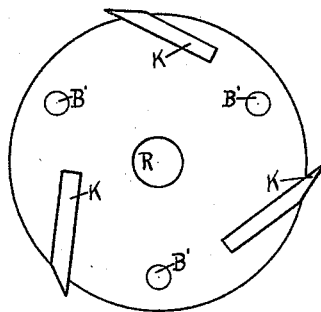


Fig. IV.

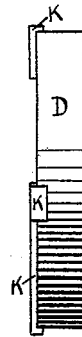


Fig. V.

WITNESSES:

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INVENTOR

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BY

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# UNITED STATES PATENT OFFICE.

WILLIAM MERRILL, OF SAGINAW, MICHIGAN, ASSIGNOR OF ONE-HALF TO  
SYLVANIS S. MITTS, OF SAME PLACE.

## WOOD-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 526,044, dated September 18, 1894.

Application filed January 25, 1894. Serial No. 497,960. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM MERRILL, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful improvements in Wood-Cutting Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in machines for cutting wood, which consist of a frame supporting a revolving cylinder carrying knives, in conjunction with a spout for receiving the material to be cut, and a throat plate or bed knife upon which the material rests while being cut.

My invention is somewhat similar in construction, and used for a similar purpose to the machines upon which United States Letters Patent were issued to Edward G. Pake, dated September 7, 1886, and other patents issued to myself, dated June 19, 1888, April 29, 1890, and May 31, 1892, and also machines described in my application, Serial No. 453,386, of November 28, 1892.

The objects of my invention are to provide an improved form of knives, and a better method of fastening them, whereby the machine is simpler in construction, and operates on the wood in a different manner, superior for some uses. The machines as formerly made and described in the patents above mentioned, using wide knives, cut chips of more uniform shape, while this improved machine, using a larger number of narrow knives, tears the wood into shreds, especially when operating on the side of the grain, in which way it will be principally used.

In the drawings, Figure I, is a side elevation of the disk carrying curved knives. Fig. II, is a top view of the knife carrying cylinder. Fig. III, is an end view of the same on its bed. Fig. IV, is a side and edge elevation of the disk showing another form of knife. Fig. V is an edge elevation of the disk.

C, is the knife carrying cylinder made up

of separate disks, D, D, clamped between two collars, C' and C'' by bolts B, B, passing through the cylinder lengthwise. One of the collars is secured to the shaft carrying the cylinder, the other being loose on the shaft.

D, are disks of the size of the end collars, C' and C''.

J, is the boxing for the shaft R.

S, is the bed knife.

B', are holes in the disk D, to receive the bolts B, clamping the disks and collars together.

E, is the feed plate or bottom of feed spout.

In the construction of a knife carrying cylinder C, one collar at one end may be fastened to the shaft and the collar at the other end of the cylinder arranged to move longitudinally on the shaft and so keyed that it can not turn on the shaft, and between these outside collars are any number of disks of same size as the end collars, and in all the spaces between the disks are placed knives, K, projecting beyond the surface of the cylinder formed by the disks. These knives, K, may be straight chisel shape, as shown in Fig. IV, fitting in suitably shaped recesses formed in the collars, or they may be round disks with one or more notches cut in the side, and with a hole in the center for the reception of the fastening bolts, B.

It is obvious that any ordinary saw might be put between these disks, the saws being either with solid teeth, or any kind of inserted teeth such as are in ordinary use, but the principal objection to the use of solid teeth saws is that they wear away very fast, and it becomes necessary to continually reduce the size of the disks, thus making it very expensive to maintain.

The objection to the ordinary inserted tooth saws is that the cavities or throats under the teeth, (when the saws are clamped between the disks, which reach nearly to the points of the teeth) become entirely choked up with chips so that they can not cut. A further objection is that that style of saw will not perform the very rough work the machine is intended to do, without too much expense for renewals of the teeth, while by the improved form of cutters as shown in the drawings, the cutting edge can be continually renewed by

grinding back, and the diameter of the cylinder remains constantly the same. The straight cutters can also be sharpened and set out to cut always on the same diameter.

5 It is obvious that I can use any convenient number of cutters and disks. I make the inner faces of the two outside collars C', and C'', consist of parallel planes not at right angles with the axis, thus tipping all the disks to the same angle, and causing the different  
10 teeth K, inserted between the disks to cut in different and separate planes of revolution, so that when all the teeth are in operation they will cut across the whole surface of the  
15 pieces being operated upon.

It is obvious that the bolts B, clamping all the disks together and fastening the knives, could be omitted and a large nut screwed on the shaft to clamp the disks together in the  
20 usual manner. If so constructed, the cutters shown would not need central holes and would be held in position by the recesses in the disks, which it is obvious are not as deep as the thickness of the knives. It is also obvious  
25 that projections on the faces of these disks could be used to hold the teeth if desired.

I admit that there is no novelty in using for other purposes the ordinary saws clamped between collars whose plane surfaces are not  
30 at right angles with the axis of revolution, my invention being simply confined to the novel construction and arrangement of the cutters and their combination with the other parts of the machine. It is my intention to  
35 use the style of cover shown and described in the application for Letters Patent, Serial No. 453,386, of November 28, 1892, and which I have omitted in the drawings for the sake of more clearly showing the other parts. I

can also use one or more bed knives, as described in the above application.

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

1. In a wood cutting machine of the class 45 described, the combination with two collars on a central shaft of a series of flat disks between the collars and on the same shaft, and a series of cutting surfaces clamped between the edges of the disks and projecting the  
50 proper distance therefrom, the whole being secured to the shaft at an oblique angle thereto, whereby the cutting surfaces will not cut in the same vertical plane, substantially as and for the purpose set forth.

2. In a wood cutting machine, the combination with two collars on the same shaft, the inner surfaces of the collars being parallel but at an oblique angle to the axis of revolution of the shaft, a series of flat disks of  
60 the size of the collars clamped between the collars by bolts, of a series of knives clamped between the disks by the disk clamping bolts, the knives projecting beyond the edge of the disks, the whole forming a cutting cylinder, 65 the knives cutting in different vertical planes by reason of the inner surfaces of the collars being at oblique angles to the shaft, one of the collars being secured to the shaft, the other capable of sliding on the shaft, substantially as and for the purpose set forth.

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

WILLIAM MERRILL.

Witnesses:

A. H. SWARTHOUT,  
FANNIE ROBBINS.