B. J. LA MOINE & J. P. SHAFER.

WOOD BARKING MACHINE.

APPLICATION FILED DEC. 19, 1911.

1,043,608.

Patented Nov. 5, 1912.

4 SHEETS—SHEET 1.

Fig. 1.

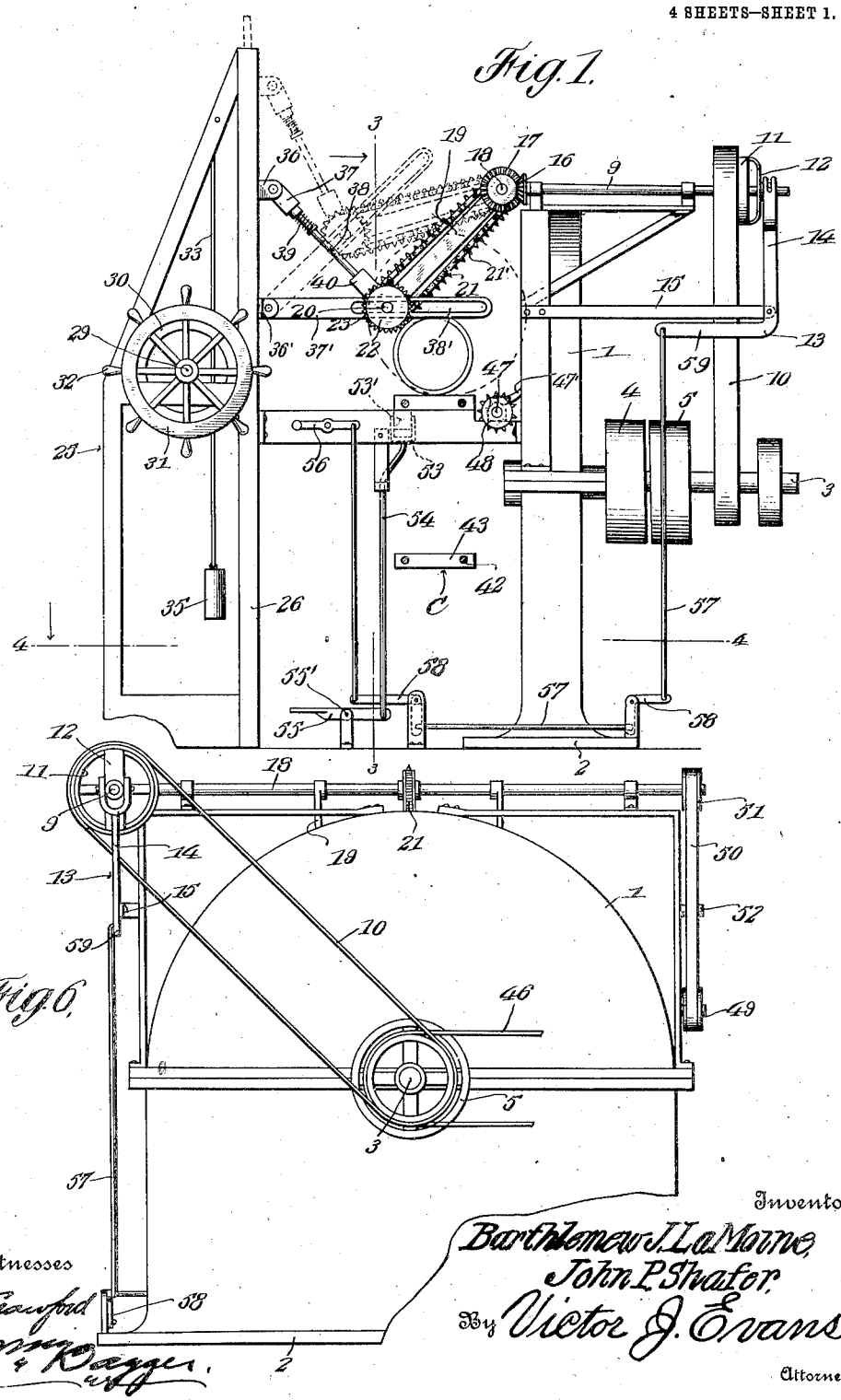

Fig. 6.

Witnesses

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4 SHEETS—SHEET 2.

Fig. 2.

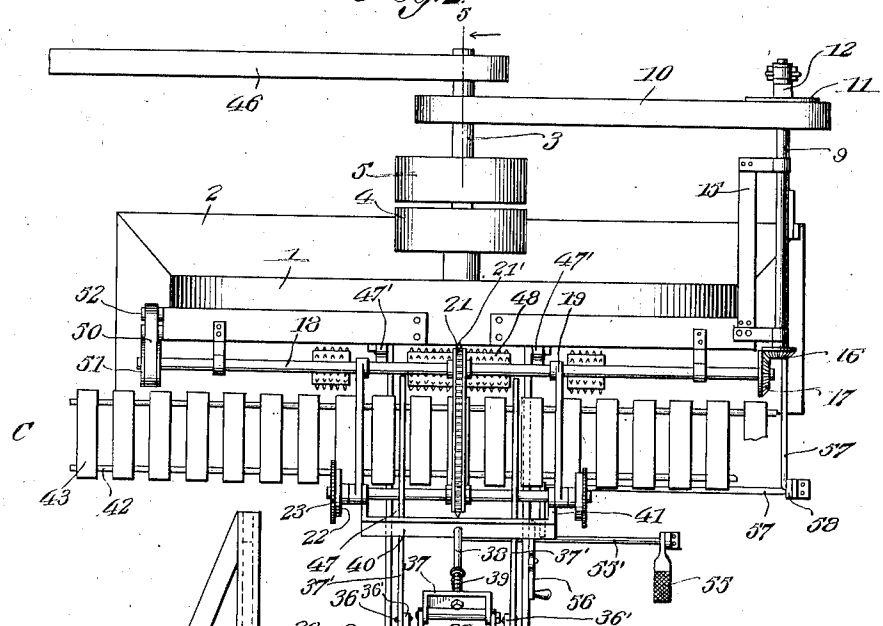


Fig. 10.

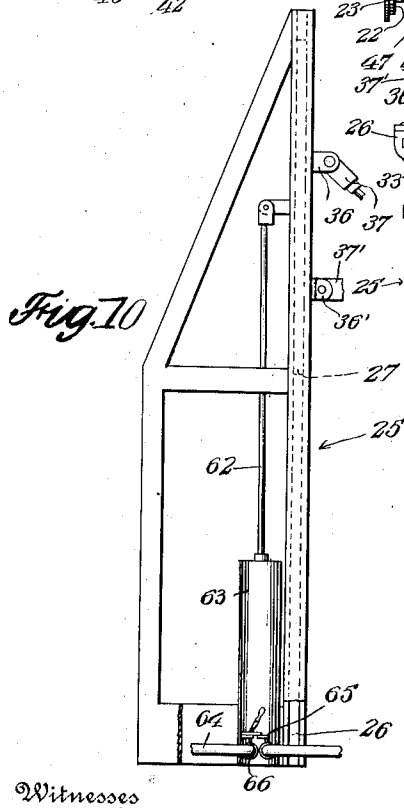
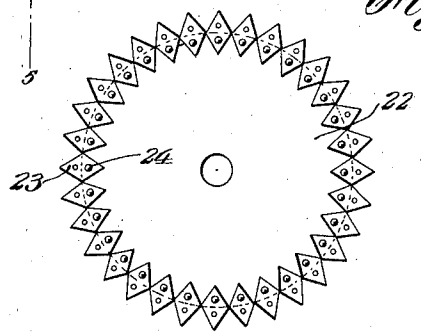


Fig. 8.



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4 SHEETS—SHEET 3.

Fig. 3.

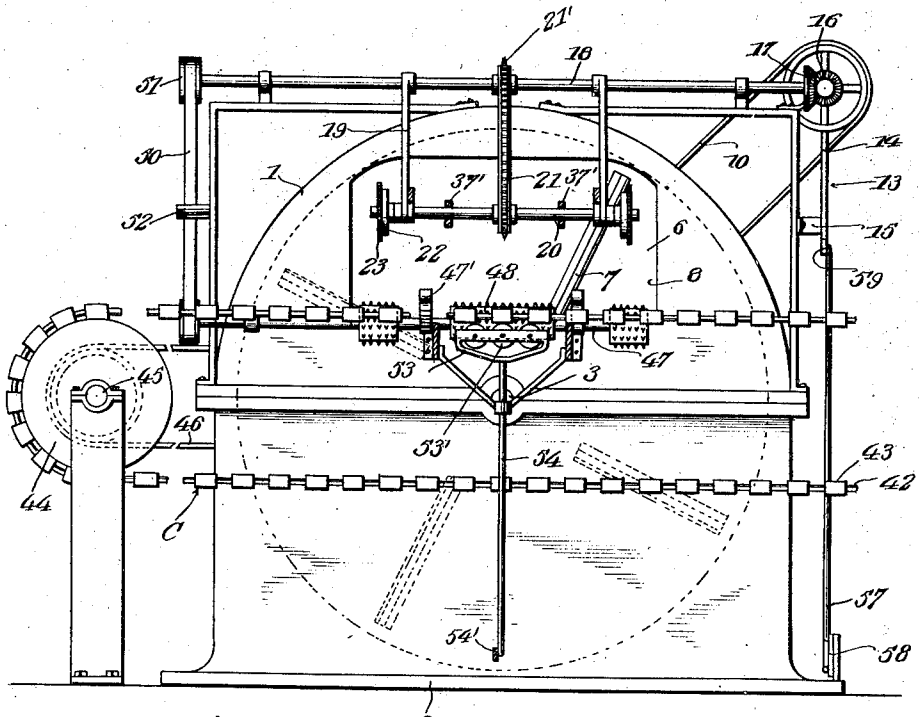
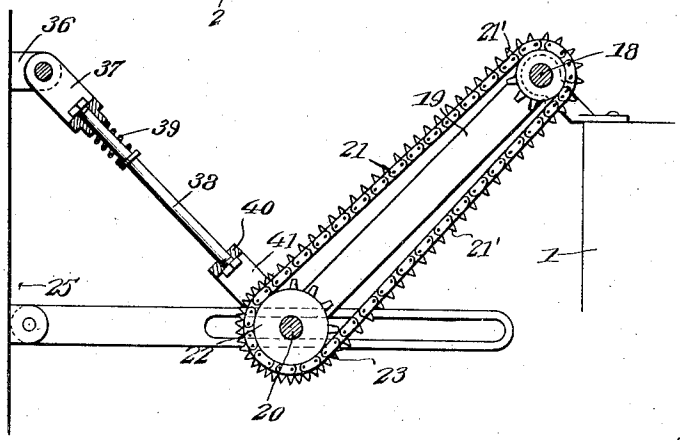


Fig. 7.



Witnesses

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4 SHEETS—SHEET 4.

Fig. 5.

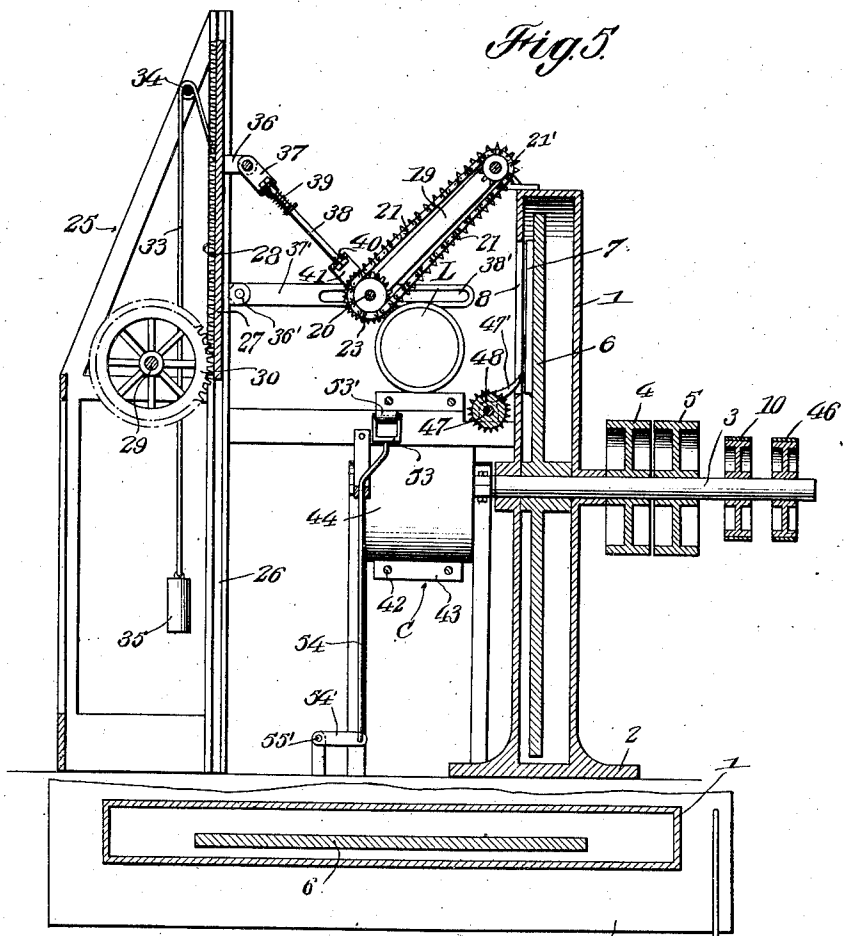
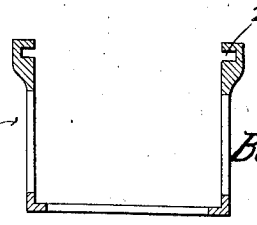


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

BARTHLEMEW JOSEPH LA MOINE AND JOHN P. SHAFER, OF NIAGARA, WISCONSIN.

WOOD-BARKING MACHINE.

1,043,608. Specification of Letters Patent. Patented Nov. 5, 1912.

Application filed December 19, 1911. Serial No. 666,666.

To all whom it may concern:

Be it known that we, BARTHLEMEW J. LA MOINE and JOHN P. SHAFER, citizens of the United States, residing at Niagara, in the county of Marinette and State of Wisconsin, have invented new and useful Improvements in Wood-Barking Machines, of which the following is a specification.

This invention relates to wood barking machines, and it has particular reference to that class of machines in which a disk mounted for rotation in a suitable casing is provided with radially disposed knives or cutters that engage the log through an opening in the casing for the purpose of stripping or removing the bark from the same.

The present invention has for its principal object to provide simple and improved means for holding the log in engagement with the cutter carrying disk and for slowly revolving said log about its axis so as to cause the bark to be removed from the entire circumference of the log.

A further object of the invention is to provide simple and improved means for holding the log with varying degrees of pressure in engagement with the cutter carrying disk.

A further object of the invention is to provide an improved means for feeding the log to the barking device and for carrying it away and for the removal of the bark.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a side elevation of a wood barking machine constructed in accordance with the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical sectional view taken on the line 3—3 in Fig. 1. Fig. 4 is a horizontal sectional view taken on the line 4—4 in Fig. 1. Fig. 5 is a vertical sectional view taken on the line 5—5 in Fig. 2. Fig. 6 is a rear elevation. Fig. 7 is a side elevation, enlarged, of the log turning and feeding device. Fig. 8 is a side view, enlarged, of one of the feed disks. Fig. 9 is a sectional detail view of the slide carrying frame 25. Fig. 10 is a detail side view of the said frame 25, showing a modified slide actuating means.

Corresponding parts in the several figures are denoted by like characters of reference.

A suitable casing 1 having a supporting base 2 is provided with bearings for the main driven shaft 3 having pulleys or band wheels 4 and 5, one fixed and the other loose for receiving motion from a source of power by means of a belt, not shown. The shaft 3 carries within the casing a disk 6 equipped with radially disposed knives or cutters 7 for the purpose of stripping the bark from the log L which is presented to the cutter carrying disk through the opening 8 in the front of the casing. A counter shaft 9 which is suitably supported in parallel relation to the main shaft 3 is driven from said main shaft by means including a belt 10 and a friction clutch comprising a loose pulley 11 and a clutch member 12, which latter is splined upon the shaft 9 for rotation therewith, said clutch member being movable into or out of engagement with the loose pulley 11 by means of a bell crank 13 having a forked arm 14 engaging the hub of the clutch member 12. The bell crank 13 is fulcrumed upon a bracket 15 which is associated with the frame or casing of the machine.

The countershaft 9 carries a bevel pinion 16 meshing with a bevel gear 17 on a shaft 18 which is supported for rotation in suitable bearings upon and transversely of the casing 1. Pivotally mounted upon the shaft 18 are two arms 19, the outer ends of which afford bearings for a shaft 20 which receives motion from the shaft 18 by a chain or link belt 21. The shaft 20 carries wheels or disks 22 which are equipped with teeth or spurs 23 of rhomboidal shape, said teeth being detachably secured by suitable fastening means, such as bolts 24, thus enabling

said teeth to be reversed or turned end for end. The links of the chain 21 are likewise provided with teeth or spurs 21′ which may be of the same general structure as that of the teeth 23 on the wheels or disks 22, and which may and are preferably secured detachably so as to be capable of being reversed when desired.

Arranged in front of the frame or casing 1 is an upright frame or casing 25, the front of which, facing the front of the casing 1, is equipped with grooved guide members 26 in which a slide 27 is supported for vertical movement, said slide being preferably provided with a rack 28 on the rear face thereof. The frame 25 affords bearings for a shaft 29 carrying a gear wheel 30 meshing with the rack 28. Said shaft is also equipped with a hand wheel 31 having spokes 32, whereby it may be conveniently turned or manipulated. The slide is connected by a flexible element, such as a cable 33, which is guided over a suitably arranged pulley 34 with a counterweight 35, whereby said slide is approximately balanced so that it may be moved upward or downward with little effort by rotating the shaft 29. The slide 27 is provided with lugs 36 affording bearings for a yoke 37 with which a rod 38 is slidably connected, said rod being actuated in an upward direction from the slide by a suitably arranged spring 39. The rod 38 carries at its outer end a yoke 40, the limbs or side members of which, 41, are pivotally mounted upon the shaft 20. It will be seen that the rod 38 and related parts and the arms 19, together with the shaft 20, combine to constitute a toggle structure, and that by moving the slide 27 upward or downward, the shaft 20 carrying the toothed wheels 22 may be raised or lowered and at the same time be moved outward from or inward in the direction of the face of the frame or casing 1.

The frame 26 is provided with suitably disposed lugs 36′ with which arms 37′ are pivotally connected, said arms being provided with slots 38′ engaging the shaft 20. The arms 37′ extend in the direction of the casing 1, and the purpose of said arms is to engage the log that is being operated upon for the purpose of preventing the latter from "jumping" or from being displaced while it is being subjected to the action of the barking machine.

Supported for movement transversely between the casings or frame structures 1 and 25 is an endless carrier or conveyer C which may be suitably constructed of wire cables 42 upon which flights 43 of hard wood are clamped or secured at suitable intervals, said cables being guided over suitably supported drums 44. One of said drums is mounted upon a shaft 45 which receives motion by means of a belt or band 46 from the driven main shaft of the machine. Clutch means of suitable construction may be employed to enable the conveyer C to be operated intermittently at the will of the operator, but such means are not absolutely essential, and being of ordinary and well known construction, it is not deemed necessary to particularly illustrate the same. The frame or casing 1 is provided adjacent to the conveyer C with means for supporting a shaft 47 carrying toothed or spiked rollers 48 adapted to support the log that is to be operated upon, said roller carrying shaft being provided with a pulley 49 which is connected by a belt or band 50 with a pulley 51 on the shaft 18 from which motion will thus be transmitted to the roller carrying shaft. The belt 50 is guided over idlers 52 upon the casing 1, one of said idlers being supported adjustably in order that the belt may be kept under proper tension.

Suitably mounted on the boxes or bearings of the shaft 47, or supported in any convenient manner, are skids 47′ which are inclined upwardly in the direction of the aperture 8 in the casing 1, said skids being preferably extended into said aperture. These skids constitute bridge pieces which by their presence prevent any possibility of the log that is being operated upon being stuck or caught back of the supporting rollers 48, assuming the log to be of such small diameter as to render such an accident liable to occur.

Supported beneath the upper lead of the conveyer C adjacent to the edge of the latter which is distant from the casing 1 is a vertically slidable yoke 53 having rollers 53′ engaging and supporting the underside of said upper lead so that by moving the yoke upward, the edge of the upper lead of the conveyer may be tilted in an upward direction, the portion of the lead which may thus be tilted being positioned adjacent to the roller carrying shaft 47. The slidable yoke 53 is connected by a rod 54 with an arm 54′ extending radially from a rock shaft 55′ equipped with a foot lever 55 whereby it may be actuated. A suitably supported hooked lever 56 is connected by means of rods 57 and bell cranks 58 with the arm 59 of the bell crank 13 by means of which the friction clutch member 12 is actuated.

In practice, a log placed on the conveyer C will be carried by the latter until it reaches a point adjacent to the roller carrying shaft 47 which is supported beneath and adjacent to the opening 8 in the casing 1. When the log reaches the proper position, the foot lever 55 is operated to tilt a portion of the upper lead of the conveyer, whereby the log will be caused to roll by gravity on to the spiked rollers 48 on the shaft 47, which latter at the same time is started in operation, together with the shaft

20 carrying the toothed wheels 22, both of said shafts 47 and 20 deriving motion from the shaft 18 which is geared to the countershaft 9 to which motion is imparted by means including the friction clutch 11, the movable member of which is actuated by the bell crank 13 which, as stated, is operated by the foot lever 55. At the same time, the operator by turning the hand wheel 31 lowers the slide 27, thus actuating the toggle mechanism whereby the toothed wheels on the shaft 20 are placed in engagement with the log which is thus forced in the direction of the cutter carrying disk through the opening 8 in the casing 1. Should the log be an exceptionally large one, as indicated in dotted lines in Fig. 1, it will be engaged directly by the toothed links of the chain 21, and it will thus be properly manipulated in the same manner as though engaged directly by the toothed wheels or disks 22. Said chains serving also to prevent the log from jumping or from being displaced upwardly by any cause. The log will be rotated by the joint action of the toothed rollers 48 on which it is supported and the toothed disks 22, or the toothed chains 21, as the case may be, and the bark will thus be gradually removed from the log. After the log has been peeled, the slide 27 is moved upward to disengage the toothed wheels 22 from the log which is now permitted to roll back upon the conveyer, whereby it is carried off, its place being taken by a fresh log.

Instead of actuating the slide 27 by means of the hand wheel 31 and related parts, the said slide may be connected by a link rod 62 with a piston movable in a cylinder 63 which is suitably connected by a valved duct 64 with a source of supply of compressed air, steam or other fluid under pressure, whereby the piston may be actuated. An exhaust valve 65 is also provided, the same being suitably connected with the inlet valve 66 on the duct 64 to be operated jointly therewith. By this simple mechanism the feeding device of the barking machine may be operated with practically no effort on the part of the operator. The modified construction just described has been illustrated in Fig. 10 of the drawings.

As will be seen from the foregoing description, taken in connection with the drawings hereto annexed, I have provided simple and improved means whereby logs may be conveyed to the barking machine and fed to the latter, the logs being held in engagement with the rotary cutter carrying disk with any degree of pressure which may be found most suitable to insure a successful operation.

Having thus described the invention, what is claimed as new, is:—

1. A casing having an opening, a cutter carrying disk supported for rotation in the casing, rotary log supporting means, rotary log engaging means, a toggle frame supporting the log engaging means, a log engaging arm supported pivotally at a distance from the toggle frame, said arm being actuated by the toggle frame to move it to and from a log engaging position, and means for actuating the toggle frame.

2. A casing having an opening, a cutter carrying disk supported for rotation in the casing, log supporting means adjacent to the casing, a frame structure in advance of and spaced from the casing, a vertically movable slide guided in said frame structure, means for actuating the slide, a rotary log engaging element, a toggle frame supporting said element, said toggle frame being composed of pivotally connected members, one of which is pivotally mounted upon the casing and the other upon the vertically movable slide, means for actuating said slide, and means for driving the rotary log engaging element.

3. A disk supported for rotation and having radially disposed cutters, and means for supporting a log adjacent to said disk in the path of the cutters, in combination with log engaging and turning means including a driven shaft, arms pivoted on said shaft, a second shaft journaled in said arms and deriving motion from the first mentioned driven shaft, a toothed log engaging element carried by said second shaft, a vertically movable slide, a link connecting said slide with the shaft carrying the toothed log engaging element, said link including a spring actuated rod, and means for actuating the vertically movable slide.

4. A disk supported for rotation and having radially disposed cutters, and means for supporting a log adjacent to said disk in the path of the cutters, in combination with log engaging and turning means including a driven shaft, arms pivoted on said shaft, a second shaft journaled in the arms and deriving motion from the first mentioned driven shaft by means including an endless toothed chain, a toothed log engaging element carried by said second shaft, a vertically movable slide, a casing supporting said slide, a link connecting said slide with the shaft carrying the toothed log engaging element, said link including a spring actuated rod, an arm pivotally connected with the slide supporting frame and having a slot engaging the shaft carrying the toothed log engaging element, and means for actuating the vertically movable slide.

5. A casing, a cutter carrying disk supported for rotation within the casing, means for supporting a log and for presenting the same to the cutter carrying disk through the casing, log turning means supported movably toward and from the log, an endless conveyer positioned transversely in front

of the casing, and means for tilting a portion of the upper lead of said conveyer.

6. The combination with bark stripping means, of log supporting means, and log conveying means including an endless carrier, and means for tilting a portion of the upper lead of said carrier in the direction of the log supporting means.

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

BARTHLEMEW JOSEPH LA MOINE.
JOHN P. SHAFER.

Witnesses:
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LOUISA WILSON.