W. E. BEADLE.

BARK ROSSING MACHINE.

APPLICATION FILED DEC. 31, 1913.

1,139,012.

Patented May 11, 1915.

3 SHEETS—SHEET 1.

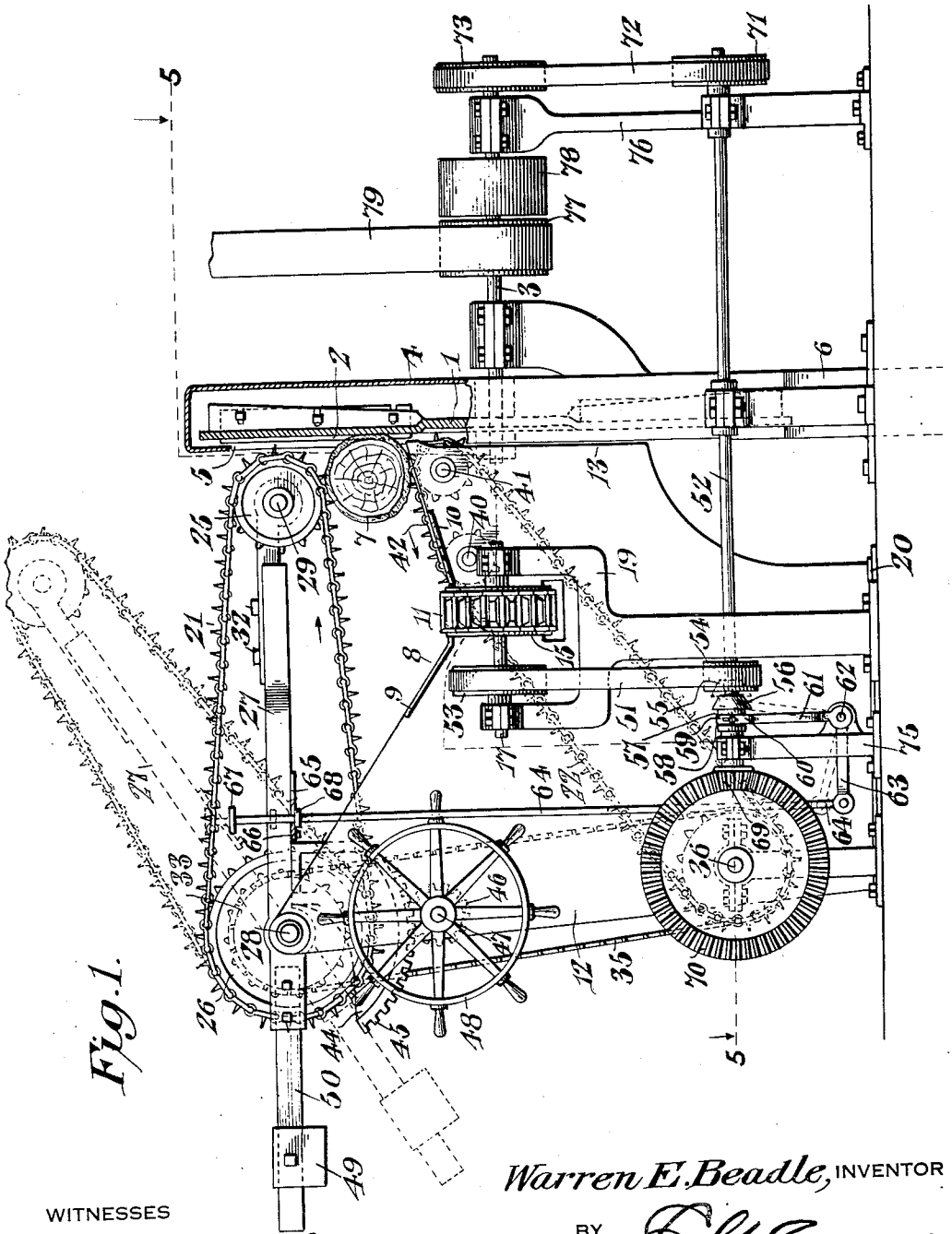


Fig. 1.

WITNESSES

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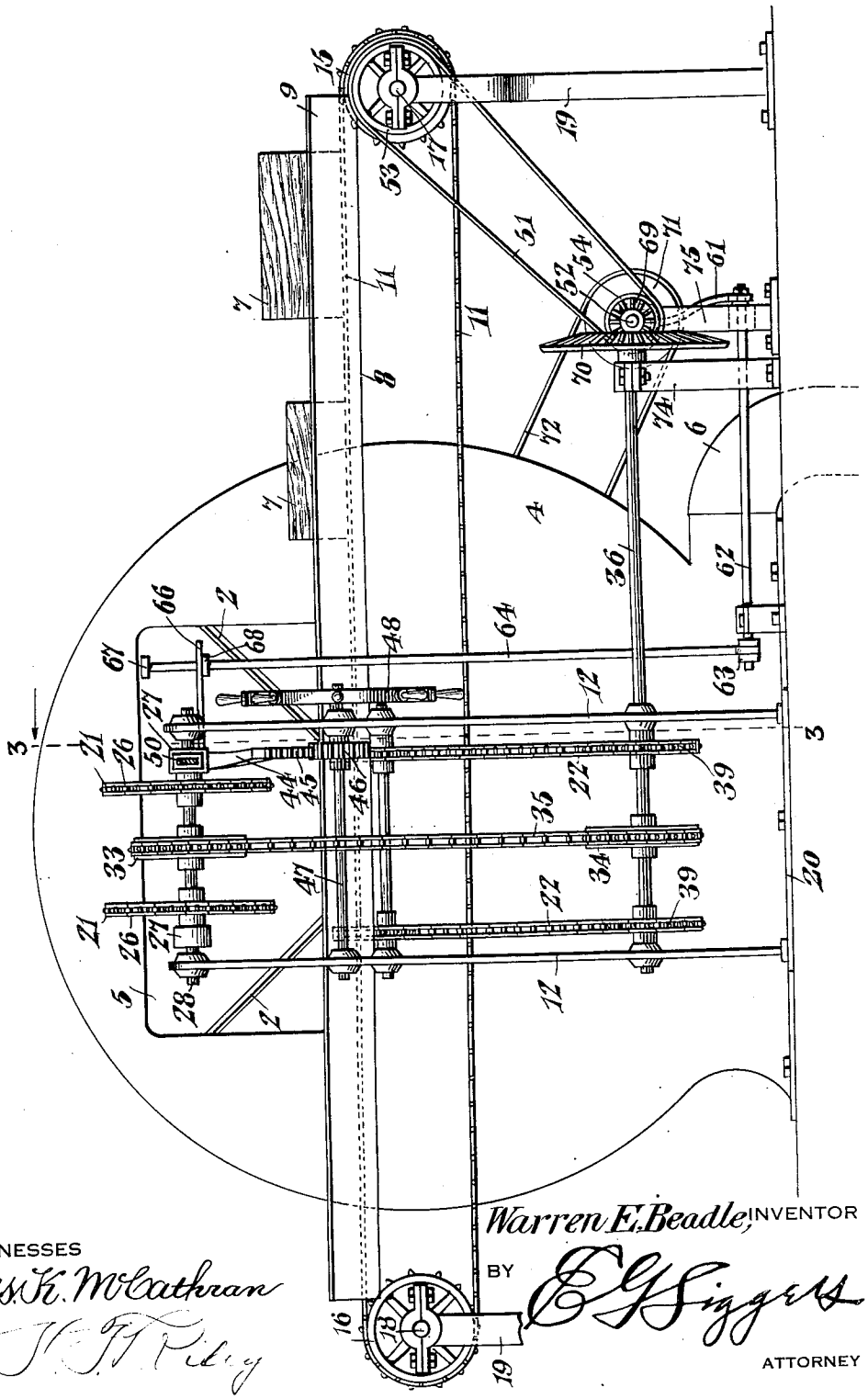


Fig. 2.

WITNESSES

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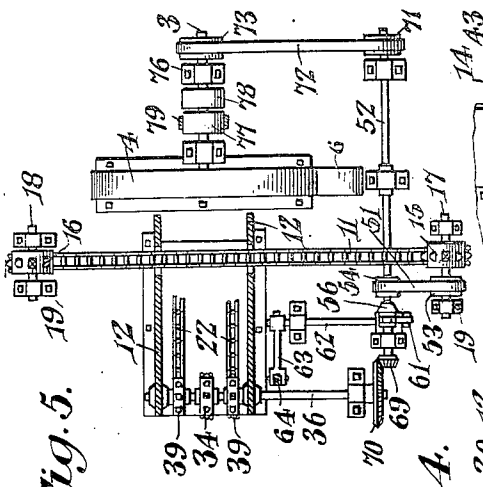


Fig. 5.

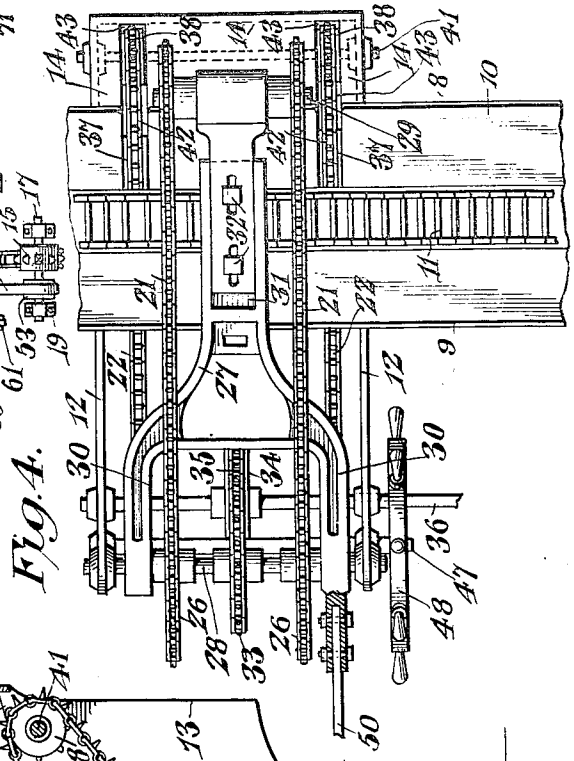


Fig. 4.

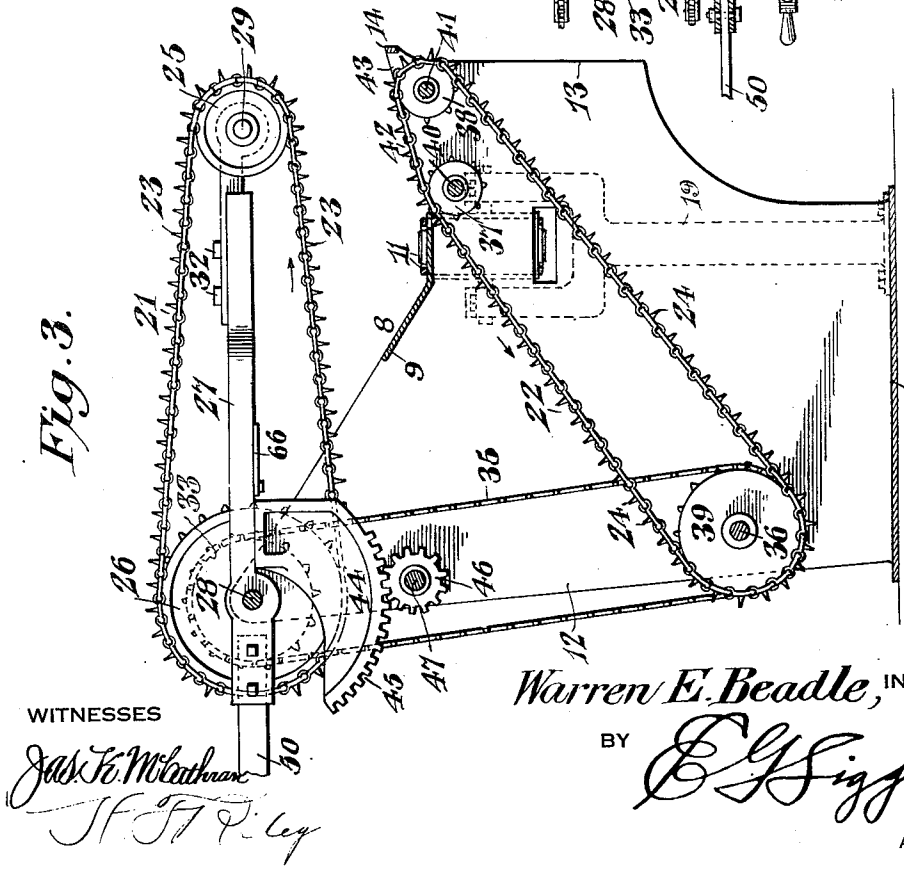


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

WARREN E. BEADLE, OF GRAND RAPIDS, WISCONSIN.

BARK-ROSSING MACHINE.

1,139,012. Specification of Letters Patent. Patented May 11, 1915.

Application filed December 31, 1913. Serial No. 809,668.

To all whom it may concern:

Be it known that I, WARREN E. BEADLE, a citizen of the United States, residing at Grand Rapids, in the county of Wood and State of Wisconsin, have invented a new and useful Bark-Rossing Machine, of which the following is a specification.

The invention relates to improvements in bark rossing machines.

The object of the present invention is to improve the construction of bark rossing machines, and to provide a simple, inexpensive and efficient construction in the form of an attachment designed for use in connection with various rotary cutters, and capable of feeding logs to a rotary cutter and of pressing them against the same and of also rotating the logs, so that all of the bark will be removed.

A further object of the invention is to provide feeding mechanism capable of positively engaging a log at both the top and bottom thereof and of effectually preventing the log from moving while in contact with the rotary cutter, whereby all liability of slabbing the log and wasting the material is effectually eliminated.

Another object of the invention is to provide a bark rossing machine, capable of affording the operator a full and clear view of the log, and equipped with means for automatically throwing the conveying mechanism out of and into operation when the log is carried therefrom to the cutter and is returned to the conveying mechanism after rossing.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a side elevation partly in section of a bark rossing machine, constructed in accordance with this invention. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 2, the rotary cutter being omitted. Fig. 4 is a plan view of a portion of the machine. Fig. 5 is a horizontal sectional view, taken substantially on the line 5—5 of Fig. 1.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the accompanying drawings in which is illustrated the preferred embodiment of the invention, 1 designates a vertical cutter disk provided with knives or cutters 2 and mounted on a horizontal cutter shaft 3 and arranged within a casing 4. The casing 4, which incloses the rotary cutter formed by the disk and the knives, is provided at its upper portion with the usual opening 5 through which logs are presented to the rotary cutter. The casing is also provided at the bottom with an outlet 6 for the shavings. Any preferred form of rotary cutter may be employed, and the present improvements about to be described are in the nature of an attachment adapted for use in connection with various rossing or bark cutters.

The logs 7 are carried to a point opposite the rotary cutter by means of a longitudinal conveyer 8, preferably in the form of a trough having inclined side walls 9 and 10, located at opposite sides of a conveyer chain 11. The trough of the conveyer is supported intermediate of its ends by means of a frame composed of spaced sides 12, located at the outer side of the trough and extending beneath the same and provided with inner extensions 13, having inclined upper edges and connected by an inclined table or log support 14, located between the conveyer and the rotary cutter and extending upwardly from the adjacent side of the conveyer to the said opening 5 of the casing 4. The conveyer chain, which is horizontally disposed, is arranged on vertical sprocket wheels 15 and 16, mounted on shafts 17 and 18 journaled in suitable bearings of posts 19 or other suitable supports. The posts, which are provided at their lower ends with suitable attaching flanges, are bifurcated at their upper ends to receive the wheels 15 and 16 and having bearings at the opposite sides of the bifurcations for the ends of the shafts 17 and 18. The conveyer chain, however, may be mounted and operated in any other suitable manner. The frame is arranged transversely with relation to the conveyer, and the casing of the rotary cutter is at a point opposite the center of the latter, as clearly illustrated

in Fig. 2 of the drawings, and the sides of the frame are connected by a horizontal base portion 20, which is suitably secured to the floor or foundation upon which the machine is mounted. The upper portions of the said sides of the frame are preferably tapered, as shown, the upper or inner edges of the tapered portions inclining upwardly and outwardly in the opposite direction from the inclined table of the log support. By this construction, the machine is open at the log support and a clear view of the log is afforded the operator, who stands at one side of the frame.

The machine is equipped with upper and lower feeding chains 21 and 22, arranged in pairs and provided with spikes 23 and 24 projecting from the links of the chain and adapted to engage the logs 7. While feeding chains are shown and described, yet it will be readily understood that belts or similar flexible connections may be employed. The upper feeding chains 21 are arranged on inner and outer sprocket wheels 25 and 26, arranged at the ends of an oscillatory arm 27, extending inwardly from the frame to a point over the table of the log support and pivotally connected to the top of the frame by an upper shaft 28. The outer sprocket wheels 26, which are of greater diameter than the inner sprocket wheels 25, are mounted directly on the shaft 28 and are keyed or otherwise secured to the same, while the inner sprocket wheels 25 are loose on a shaft 29, projecting laterally from the free end of the arm 27. The arm 27, which is forked or bifurcated at its inner end at 30 to straddle the sprocket wheels 26, is composed of two longitudinally adjustable sections adapted to increase the length of the arm for tightening the upper feeding chains. One of the sections of the oscillatory arm is provided with a recess 31 to receive the other section, the two sections being adjustably connected by bolts 32 or other fastening means operating in suitable slots of the arm.

Rotary motion is communicated to the upper shaft 28 and to the upper feeding chains through gearing comprising an upper sprocket wheel 33, a lower sprocket wheel 34 and a sprocket chain 35. The upper sprocket wheel 33 is keyed or otherwise secured to the shaft 28, and the lower sprocket wheel 34 is suitably fixed to a lower horizontal shaft 36. The upper and lower shafts 28 and 36, which are journaled in suitable bearings of the frame at the top and bottom thereof, are disposed longitudinally thereof with relation to the conveyer and the casing of the rotary cutter. The lower feeding chains 22, which are located at opposite sides of the log support, are arranged on upper sprocket pinions 37 and 38 and lower sprocket wheels 39. The upper sprocket wheels 37 and 38 are arranged in pairs and are mounted on shafts 40 and 41 at the upper and lower portions of the inclined table of the log support, the said upper sprocket pinions 37 and 38 forming intermediate inclined runs or stretches 42 of the feeding chains 22. The active runs or stretches 42 are arranged in substantially the plane of the inclined table of the log support and operate in openings 43 of the same, the spikes 24 of the lower feeding chains projecting above the upper face of the table so as to engage the underside of a log resting upon the log support. The lower active runs of the upper feeding chains travel in the direction of the arrows in Figs. 1 and 3 of the drawings and move inwardly toward the rotary cutter in substantial parallelism with the table, while the upper runs of the lower feeding chains move downwardly and outwardly, as indicated by the arrows in the said figures. The outer sprocket wheels 26 of the upper feeding chains are of greater diameter than the lower or outer sprocket wheels 39 of the lower feeding chains, so that the upper feeding chains travel at a higher rate of speed than the lower feeding chains. By driving the upper feeding chains faster than the lower feeding chains, the upper feeding chains are adapted to engage a log and carry the same up the inclined table of the log support to the rotary cutter, where through the action of the chains, the log is pressed against the cutter and is positively and continuously rotated while in engagement with the cutter. The spikes enable the chains to positively engage the log and by continuously turning or rotating the log while the same is in engagement with a rotary knife, the log is effectually prevented from being slabbed and there is no liability of material being wasted in such manner. Also the positive and continuous turning of the log enables the bark to be entirely removed therefrom.

The oscillatory arm is swung upwardly and downwardly from the full line position shown in Fig. 1 to the dotted line position illustrated in the said figure, and it is equipped at its pivoted end with a depending toothed segment 44, having an arcuate series of teeth 45 arranged concentric with the shaft 28 and meshing with a spur pinion 46 suitably fixed to an operating shaft 47. The operating shaft 47 is journaled in suitable bearings in the sides of the frame, and it has one end extended and carrying a hand wheel 48 arranged in convenient position for use by the operator while standing at the adjacent side of the frame. The toothed segment is connected at the top with the oscillatory arm and it extends downwardly and outwardly beneath the shaft 28, as clearly illustrated in Fig.

3 of the drawings, and when the operating shaft 47 is rotated by the hand wheel, the arm 27 is oscillated on its pivot and the upper feeding chains are adapted to be carried into and out of engagement with a log. When the upper feeding chains are engaged with a log on the conveyer, the log is carried up the inclined support to the rotary cutter, and when the upper feeding chains are lifted out of engagement with the log, the latter is returned to the conveyer by the lower feeding chains. The oscillatory arm is equipped with a counterbalancing weight 49 slidably mounted on an arm 50 suitably secured to the pivoted end of the oscillatory arm 27 and extending outwardly therefrom. The counterbalancing weight 49 is slidable inwardly and outwardly on the arm 50 and is secured in its adjustment by a set screw or other suitable fastening means.

The conveyer is connected by a belt 51 with a countershaft 52, the belt 51 being arranged on suitable pulleys 53 and 54 mounted, respectively, on the front end shaft 17 of the conveyer and on the countershaft 52. The countershaft 52 is arranged at a point intermediate of the ends of the conveyer and is located beneath the same, the belt 51 extending upwardly and outwardly from the lower pulley 54 to the upper pulley 53. The lower pulley is automatically clutched to the countershaft 52 when the oscillatory arm 27 is swung upwardly to the dotted line position shown in Fig. 1, and is freed from the countershaft when the said arm 27 is swung downwardly. The pulley 54 is provided with a cone face 55, which is engaged by a friction cone 56 of the clutch section or member 57, slidably interlocked with the shaft 52 and provided with an annular groove 58 engaged by projections 59 of a forked upper portion 60 of an arm 61 of a rock shaft 62. The rock shaft 62, which is journaled in suitable bearings, extends from a point beneath the clutch mechanism within a short distance of the approximate side of the frame, and it is provided thereat with a substantially horizontal arm 63 to which is pivotally connected the lower end of a substantially vertical shifter rod 64. The shifter rod 64 extends through an opening 65 in a laterally projecting plate or portion 66 of the arm 27. The plate 66 is preferably secured to the underside of the arm and the shifter rod is provided with upper and lower stops or tappets 67 and 68, adapted to engage with the projecting plate or portion 66 at the limits of the upward and downward movements of the oscillatory arm. When the arm 27 is swung downwardly to engage a log, the horizontal arm 63 of the rock shaft is depressed and the upwardly extending arm 61 of the said rock shaft is swung outwardly to carry the slidable clutch section or member out of engagement with the lower pulley 54. The upward movement of the arm 27 slides the clutch section or member inwardly into engagement with the lower pulley 54 and starts the conveyer to carry away the rossed log operated on and to bring into position the next succeeding log to be operated on by the rotary cutter.

The countershaft 52 has keyed or otherwise fixed to its front end a pinion 69, which meshes with a relatively large gear wheel 70. The rear end of the countershaft carries a pulley 71, which is connected by a belt 72 with a pulley 73 of the cutter shaft. The outer end of the lower longitudinal shaft 36 and the cutter shaft are journaled in suitable bearings of short posts or standards 74 and 75, but they may be mounted in any other suitable manner, and the cutter shaft 3 is journaled in suitable bearings of the casing 4 and a post or standard 76, and has mounted on it fast and loose pulleys 77 and 78 adapted to receive a driving belt 79. Any other suitable arrangement of belts or gearing may be employed for actuating the rotary cutter, the conveyer and the feeding chains.

What is claimed is:—

1. A machine of the class described including a table, a cutter, a lower feeding chain having an active run located at the upper face of the table, an upper feeding chain having an active run arranged in substantial parallelism with the table, said feeding chains being movable in opposite directions and through such movements operating to carry the log to and from the cutter and also to continuously turn the log while the same is operated on by the cutter, and means for movably mounting the upper feeding chain to permit the same to be carried downwardly and upwardly to and from the said position of its active run.

2. A machine of the class described including a table, a cutter, a lower feeding chain having an active run traveling at the surface of the table, an upper feeding chain having an active run arranged in substantial parallelism with the table, the active runs of the said feeding chains engaging a log at the top and bottom thereof and movable in opposite directions to carry the log to and from the cutter and for turning the log while the same is being operated on by the cutter, one of the said active runs of the feeding chains moving toward the cutter and traveling at a higher rate of speed than the other run, whereby the log is continuously pressed toward the cutter while being turned against the same, and means for movably mounting the upper feeding chain to carry its active flight to and from the said position thereof.

3. A machine of the class described including a table, a cutter, a lower feeding

chain having an active run traveling away from the cutter at the surface of the table, an upper feeding chain having an active run arranged in substantial parallelism with the table and traveling toward the cutter, said active runs of the feeding chains engaging a log at the top and bottom thereof and operating to carry the log to and from the cutter and to continuously turn the log while the same is being operated on by the cutter, and means for movably mounting the upper feeding chain to carry its active run to and from the said position thereof.

4. A machine of the class described including a table, a cutter, a lower feeding chain having an active run traveling away from the cutter at the surface of the table, an upper feeding chain having an active run arranged in substantial parallelism with the surface of the table and traveling toward the cutter at a higher rate of speed than the active run of the lower chain, said upper and lower chains operating to carry a log to the cutter and to continuously rotate the log while the same is in engagement with the cutter, and means for movably mounting the upper feeding chain to carry its active run to and from the said position thereof, the upper feeding chain, when raised, permitting the log to be carried away from the cutter by the lower feeding chain.

5. A machine of the class described comprising a cutter, a conveyer, means for actuating the conveyer including a clutch, and feeding mechanism for carrying the logs from the conveyer to the cutter, said feeding mechanism having a pivotally mounted arm and a feeding chain carried by the arm to move it into and out of engagement with the log, a shiftable rod having spaced tappets arranged to be engaged by the said arm, and means connected with the rod for operating the clutch.

6. A machine of the class described comprising a cutter, an inclined log supporting table arranged adjacent to the cutter, a conveyer located at the lower end of the table, a lower feeding chain having an active run traveling away from the cutter at the surface of the table, an upper feeding chain having an active run in substantial parallelism with the table, said chains being adapted to engage a log at the top and bottom thereof and through their movements to carry the log to and from the cutter and rotate the log against the cutter, a pivotally mounted arm supporting the upper feeding chain, and means for oscillating the arm to carry the upper feeding chain into and out of engagement with the log.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WARREN E. BEADLE.

Witnesses:
EDW. HORGEN,
A. J. HASBROUCK.