March 13, 1934. J. M. COUNCIL 1,951,084

DEVICE FOR REMOVING BARK FROM LOGS

Filed March 16, 1932 3 Sheets-Sheet 1

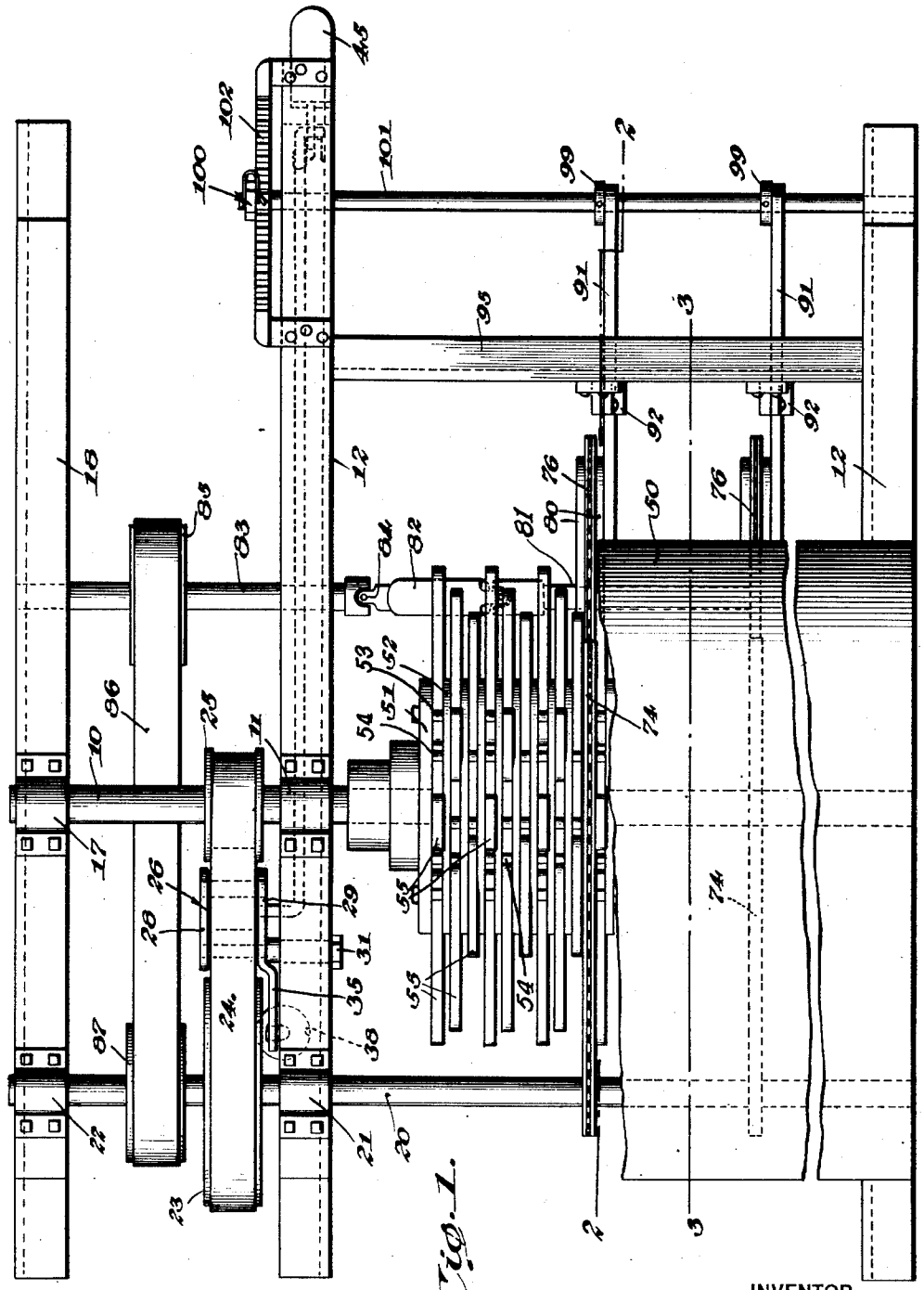

Fig. 1.

WITNESS

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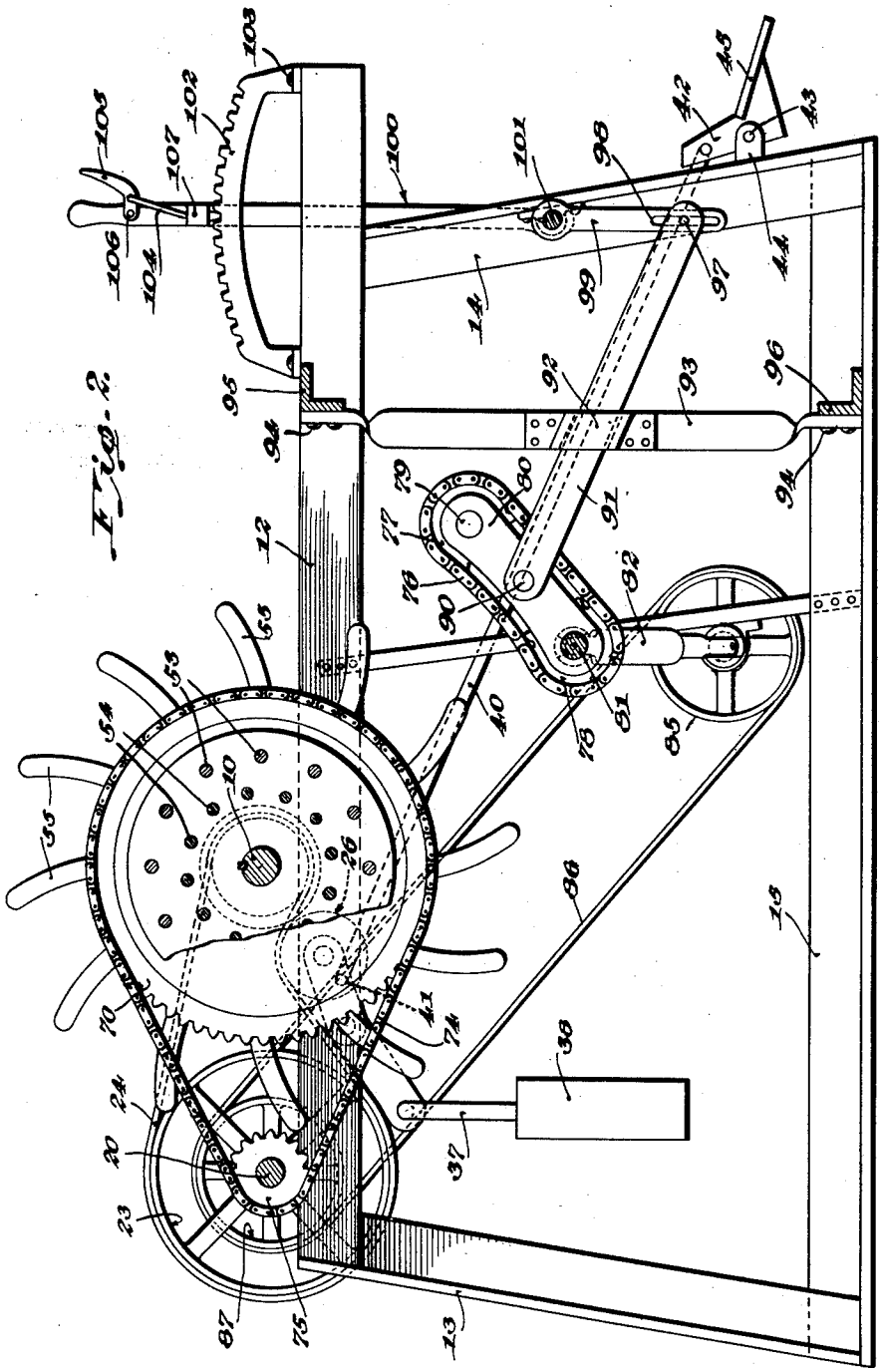

Fig. 2.

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Filed March 16, 1932 3 Sheets-Sheet 3

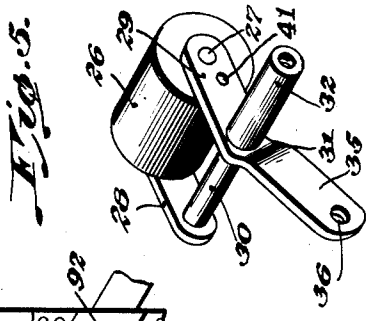

Fig. 5.

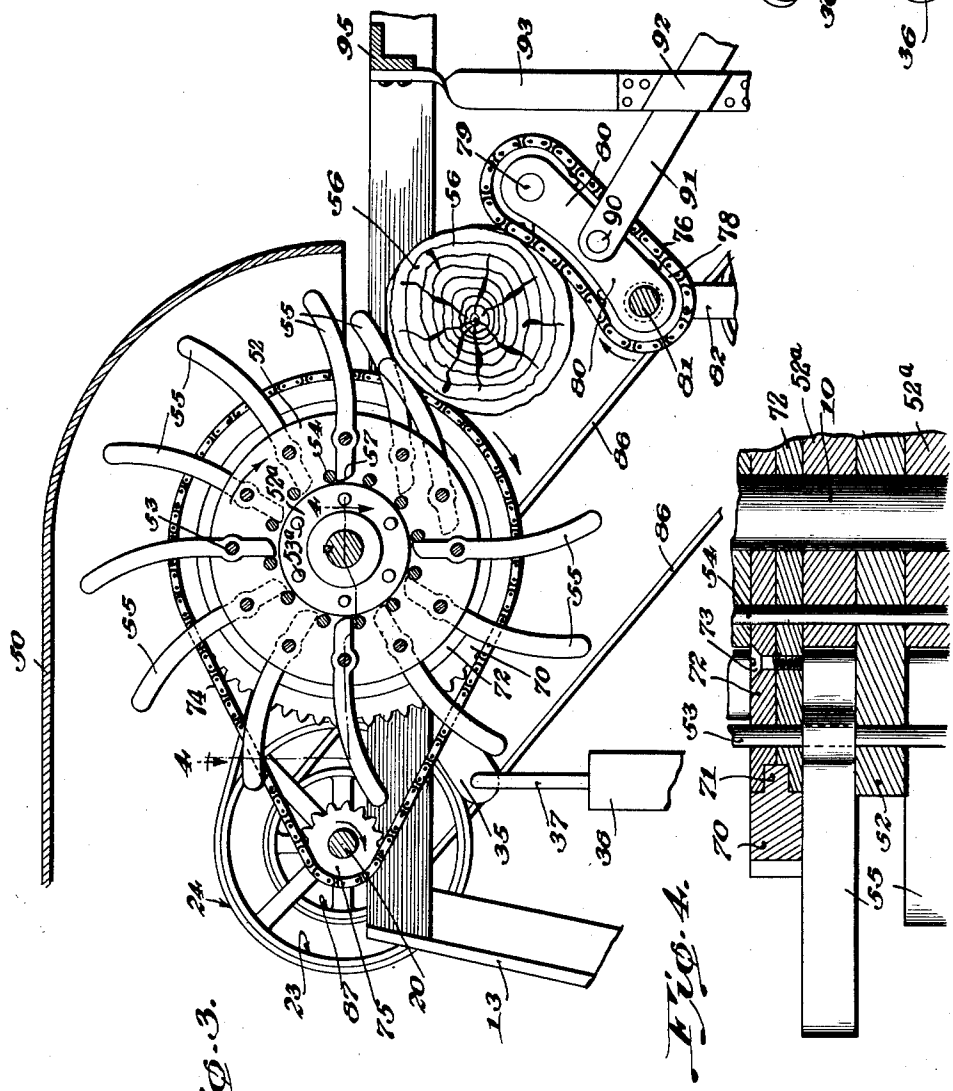

Fig. 3.

Fig. 4.

WITNESS

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UNITED STATES PATENT OFFICE

1,951,084

DEVICE FOR REMOVING BARK FROM LOGS

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Application March 16, 1932, Serial No. 599,244

8 Claims. (Cl. 144—208)

This invention relates to a device for removing bark from logs.

It has been found that bark is difficult to remove from the log wood used in pulp mills, veneer mills, crate and box factories during certain periods of the year so that during the other period it is necessary to remove the bark from the logs and store the logs for those periods when it has been found almost impossible to remove the bark.

It is an object of the present invention to provide a device which will remove bark from the logs in such an efficient manner that the bark may be removed throughout the various seasons of the year.

A further object of the invention is the provision of a device for removing bark from logs in which a plurality of hammers are adapted to give progressive blows to the bark as the log is being revolved and substantially in a spiral manner so that all parts of the bark on the log are subjected to continuous blows whereby the bark will be readily peeled or removed from the logs.

A further object of the invention is the provision of a device for supporting and revolving the logs during the bark removing process in which an arm is provided and adjustable towards or away from the hammers to compensate for various diameters of the logs, the arm being provided at its inner and supporting end with spaced rollers carried by links or brackets pivoted intermediate their ends on the arm so that when the logs are dropped into place the rollers will automatically fall into supporting position for the logs.

Another object of the invention is the provision of a device for removing bark from logs in which ring sprockets are rotatably supported on and independently of a revolving beater with a chain trained on the ring sprockets and driven for revolving said sprockets, with the chain engaging the log for aiding in rotating said log, a revolving chain being spaced from the first-mentioned chain and cooperating with said chain for supporting and aiding in causing rotation of the log.

A still further object of the invention is the provision of a device for removing bark from logs in which the log is revolved during the beating operation, means being employed for retaining the log against rotation to permit the beater arms to be applied to one portion of the log where the bark has resisted removal.

This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawings forming a part of the specification; nevertheless, it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications which shall define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a plan view of a device constructed in accordance with the principles of my invention,

Figure 2 is a transverse vertical section taken along the line 2—2 of Figure 1,

Figure 3 is a fragmentary transverse vertical section taken along the line 3—3 of Figure 1,

Figure 4 is a fragmentary horizontal section taken along the line 4—4 of Figure 3, and

Figure 5 is a view in perspective of a device for controlling the driving belt for the log-rotating means.

Referring more particularly to the drawings, 10 designates a shaft which is connected with a suitable source of power and is adapted to be continuously driven. This shaft is supported in bearings 11 supported by a cross beam 12 which in turn is carried by standards 13 and 14 mounted upon a base member 15. The shaft 10 is extended and is carried by a bearing 17 mounted on a bar 18 supported in a manner similar to that of the bar 12.

A shaft 20 is mounted in bearings 21 and 22 respectively carried by the bars or beams 12 and 18. This shaft is mounted in parallel relation with the shaft 10 and extends substantially the full length of the log-beating machine.

A pulley 23 is secured to the shaft 20 and is driven by means of a belt 24 from a pulley 25 secured to the shaft 10.

It will be noted that one portion of the belt 24 runs over an idler pulley 26 supported on an axle 27 carried by a pair of arms 28 and 29. A rod 30 extends through the outer free end of the bar 28 and through an intermediate portion of the bar 29 adjacent an offset portion 31 of said bar. The rod 30 forms a pivotal mounting for the bars 28 and 29 to permit swinging of the pulley 26 into and out of engagement with the belt 24. The outer end of the rod 30 is provided with a sleeve 32 which is secured, as shown at 33, to the beam 12.

The bar 29 is provided with an extension 35 beyond the offset portion 31 and has a perfora-

tion 36 to receive one end of a U-shaped member 37 carrying a weight 38.

A rod 40 is connected at 41 with the outer end of the bar 29 and extends downwardly at an angle where it is connected to the bell-crank 42 pivoted at 43 on ears 44 carried by the standard 14. The bell-crank 42 is provided with a treadle 45 which is adapted to be engaged by the foot of the operator for rocking the bell-crank, reciprocating the rod 40, and for oscillating the bar 29 to remove the pulley 26 out of engagement with the belt 24, thereby cutting off the power between the shaft 10 and the shaft 20.

A metal covering 50 is carried in any approved manner by the bars or beams 12 and is curved to provide a means for supporting the log before the same is dropped into operative relation with the beater.

The beater per se consists of a pair of end discs 51, a plurality of discs 52 and alternately disposed spacing discs 52ª. All of these discs 51 and 52 are provided with passages through which rods 53 and 54 are passed and nuts are provided at the ends for not only securing the rods in place, but for drawing the discs together as a unit. A plurality of arms 55 are carried by the rods 53 upon which they are pivotally mounted so that they will be swung outwardly by gravity and be forced into beating relation with the bark upon a log 56. The inner ends of the arms 55 are curved, as shown at 57, so that the rear end of the portions of the arms 55 will pass the rods 54 when said arms come in contact with the log 56, as shown in Figure 3. These rods 54, however, act as stops and will maintain the arms in the substantially horizontal position, as shown in Fig. 3, when the arms are descending towards the log 56; otherwise, these arms will drop rapidly and lose the force before they come in contact with the bark on the log. The discs 52ª are of less diameter than the discs 52. The spacing discs 52ª are secured to the discs 52 by bolts 53ª.

It will be noted that a certain number of arms 55 are associated with each disc 52. Each alternate disc, however, while having the same number of arms is advanced an angle of 30° so that the arms in coming in contact with the bark of the log throughout the length of the beater, will operate in a spiral manner.

Ring gears or sprockets 70 are spaced along the shaft 10 and are provided with an internal flange 71 which is received within a space between the cut-out portions of a pair of discs 72 which are secured together at 73. By this construction the ring gears or sprockets 70 revolve around the shaft 10 and independently of the shaft and the discs 51 and 52. A chain 74 is trained on the ring sprockets 70 and also on a sprocket 75 secured to the shaft 20. A plurality of the ring sprockets, chains 74, and sprockets 75 are spaced at intervals along the shafts 10 and 20.

Adjacent each sprocket 70 and in substantially the same vertical plane is a chain 76 trained on a sprocket 77 which is an idler and which is mounted on an axle 79 carried by a pair of plates 80. A sprocket 78 is driven by a shaft 81 which has a universal connection with a flexible shaft 82 which in turn is driven by a shaft 83 through its universal connection 84.

The shaft 83 is driven by a drum 85 and belt 86 and a drum 87 is secured to the shaft 20.

Both the shaft 81 and the axle 79 are supported by a pair of spaced plates 80 which are embraced by the chain 76. These plates carry a pin 90 supported by the end of a rod 91 which is slidably mounted in a guide 92 carried by a brace bar 93 which is secured at its opposite end, as shown at 94, to angle irons 95 and 96. The angle irons are secured to the beam 12 and the base member 15, respectively.

The outer end of the bar 91 is provided with a pin 97 received by a slot 98 in the lower end of a lever 99. This lever is keyed to a rod 101 which extends longitudinally of the device and is supported in bearings in the standard or legs 14.

A rack 102 is secured at 103 to the beam 12 and its teeth are adapted to be engaged by a pawl 104 operated by a handle 105 pivotally mounted at 106 on the upper end of a lever 100. This pawl is guided at its lower end by a U-shaped member 107 secured to said lever.

From an inspection of Figure 1 it will be seen that any number of levers 99, which are shorter than the lever 100, are keyed to the rock shaft 101 and these levers are provided with slots similar to the slots shown at 98 in Figure 2. A plurality of bars 91 are provided and each bar is located adjacent the supporting chain construction, as shown at 76. The lever 100 is secured to the shaft 101.

The operation of my device is as follows: Power is applied to the shaft 10 so that the discs 51, 52 and 52ª are revolved together with the beater arms 55 and these arms are brought into successive beating relation with the bark upon the log 86. The log is lowered over the top 50 and around the curved edge so that it may be dropped into position and will be supported by the chains 76 and the chains 74 which are likewise spaced in substantial vertical alignment with the chains 76 at intervals along the device.

As long as the treadle 45 is in the position shown in Figure 2, the weight 38 will maintain the idler pulley 26 in engagement with the belt 24 so that the belt will be held sufficiently taut that the shaft 20 may be driven through the pulley 23. As the shaft 20 is revolved the chains 74 will likewise be driven and since the belt 86 drives the shaft 83 from the shaft 20, the shaft 83 will be revolved as will be the sprocket 78 and the chain 76 will be moved in the direction indicated by the arrow in Fig. 3. Thus the log 56 will be constantly revolved during the beating operation.

If it be found that certain parts of the bark on the log resist removal by the continued and successive beating by the arms 55, the foot pedal 45 may be depressed, thereby releasing the idler pulley 26 from the belt 24 at the proper time to stop shaft 20 and the driving action of the chains 74 and 76 while shaft 10 continues to rotate. Thus the log will be maintained in position and the various beater arms 55 will be applied positively to that part of the bark which has been placed in position to receive the beaters. Thus it will be seen that time will be saved where the bark has failed to come off during the general beating action in view of the fact that the entire force and beating action of all of the arms may be applied to the strip of bark until it is released.

The chains 74 and 76 will engage the log and there will be a sufficient uneven surface on the chains to engage the log and maintain the log in revolving condition during beating action except when the log has been retained against rotation by the depression of the pedal 45.

I claim:

1. A device for peeling bark from logs comprising a driven shaft, a plurality of discs secured to the shaft, each alternate disc being of greater

diameter than the intermediately disposed discs, all of the discs having alined passages, bolts inserted through the passages for securing the discs together, hammers pivotally mounted intermediate the ends thereof between pairs of the alternate discs, means engaging the inner free ends of the hammers for limiting the movement of the outer free ends of the hammers in the direction of travel of the discs, spaced sprocket rings mounted for rotation on the shaft independently of the shaft, means for causing rotation of the rings, chains on the rings, means for driving the chains, means co-operating with the chains for supporting a log and causing rotation of said log independently of the rotation of the discs, and means operatively connecting the driving means for the chains with the last-mentioned means for causing simultaneous operation of the co-operating log supporting means.

2. In a device for peeling bark from logs, a plurality of hammers for progressively beating the bark on a log, means for supporting the log in operative relation with the beaters and comprising arms, plates pivotally mounted on the free ends of the arms, toothed wheels mounted at the opposite ends of the plates, a chain trained on each pair of the wheels, the chains being positioned in the path of the incoming log and adapted to aid in supporting the log, rotatable means associated with the beaters and co-operating with the chains for supporting a log, means rotating the wheels for driving the chains to maintain rotation of the log and for revolving the rotatable means.

3. In a device for peeling bark from logs, a plurality of hammers for progressively beating the bark on a log, a rotatable means carrying the beaters, means for rotating the last-mentioned means, means for aiding in supporting and rotating the log, a second means on the rotatable means that carries the beaters and co-operating with the first-mentioned means for aiding in supporting and rotating the logs, means connecting the rotatable means for the beaters with both the log-rotating means for causing actuation of the log-rotating means, and means for releasing the log rotating means for retaining the log in a predetermined position so that the moving beaters will be applied to a particular portion of the bark on the log.

4. In a device for peeling bark from logs, a plurality of hammers for progressively beating the bark on a log, a rotatable means carrying the beaters, means for rotating the last-mentioned means, a plurality of means for supporting and rotating the log, means connecting the rotatable means for the beaters with the log-rotating means for causing the actuation of the log-rotating means, and means for releasing the log-rotating means for retaining the log in a predetermined position so that the moving beaters will be applied to a particular portion of the bark on the log, the log-rotating and supporting means including a plurality of driven chains, one of said log rotating and supporting means being mounted on the rotatable means for the beaters.

5. In a device for peeling bark from logs, a plurality of hammers for progressively beating the bark on a log, a rotatable means carrying the beaters, means for rotating the last-mentioned means, a plurality of means for supporting and rotating the log, means connecting the rotatable means for the beaters with the log-rotating means for causing actuation of the log-rotating means, means for releasing the log-rotating means for retaining the log in a predetermined position so that the moving beaters will be applied to a particular portion of the bark on the log, the log-rotating and supporting means including a plurality of driven chains located in spaced relation upon opposite sides of the log, one of said log rotating and supporting means being mounted on the rotatable means for the beaters.

6. In a device for peeling bark from logs, a plurality of hammers for progressively beating the bark on a log, a rotatable means carrying the beaters, means for rotating the last-mentioned means, a plurality of means for supporting and rotating the log, means connecting the rotatable means for the beaters with the log-rotating means for causing actuation of the log-rotating means, means for releasing the log rotating means for retaining the log in a predetermined position so that the moving beaters will be applied to a particular portion of the bark on the log, the log-rotating and supporting means including a plurality of series of driven chains, the chains in one series being driven in an opposite direction to the direction of movement of the chains in the other series, a series of spaced sprockets, one series of the chains being trained on the spaced sprockets so that the log may rest on said chains intermediate the sprockets, certain of said sprockets being loosely mounted on the rotatable means carrying the beaters.

7. In a device for removing bark from logs, a plurality of spaced discs, beaters carried by certain of the discs, other discs having peripheral grooves, ring sprockets each having an annular flange received within a groove, means for securing together the discs which carry the beaters, means for rotating said connected discs and beaters, sprockets aligned with the ring sprockets, chains trained on the sprockets and engaging a log to be treated, a series of chains co-operating with the first-mentioned chains for aiding in supporting and rotating the log, and means for driving the last-mentioned chains.

8. In a device for removing bark from logs, a plurality of spaced discs, beaters carried by certain of the discs, other discs having peripheral grooves, ring sprockets each having an annular flange received within a groove, means for securing together the discs which carry the beaters, means for rotating said connected discs and beaters, sprockets aligned with the ring sprockets, chains trained on the sprockets and engaging a log to be treated, a series of chains co-operating with the first-mentioned chains for aiding in supporting and rotating the log, means for driving the last chains, and means for stopping the movement of the first-named chains and holding the log stationary so that the beaters may be applied to a particular portion of the log.

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