

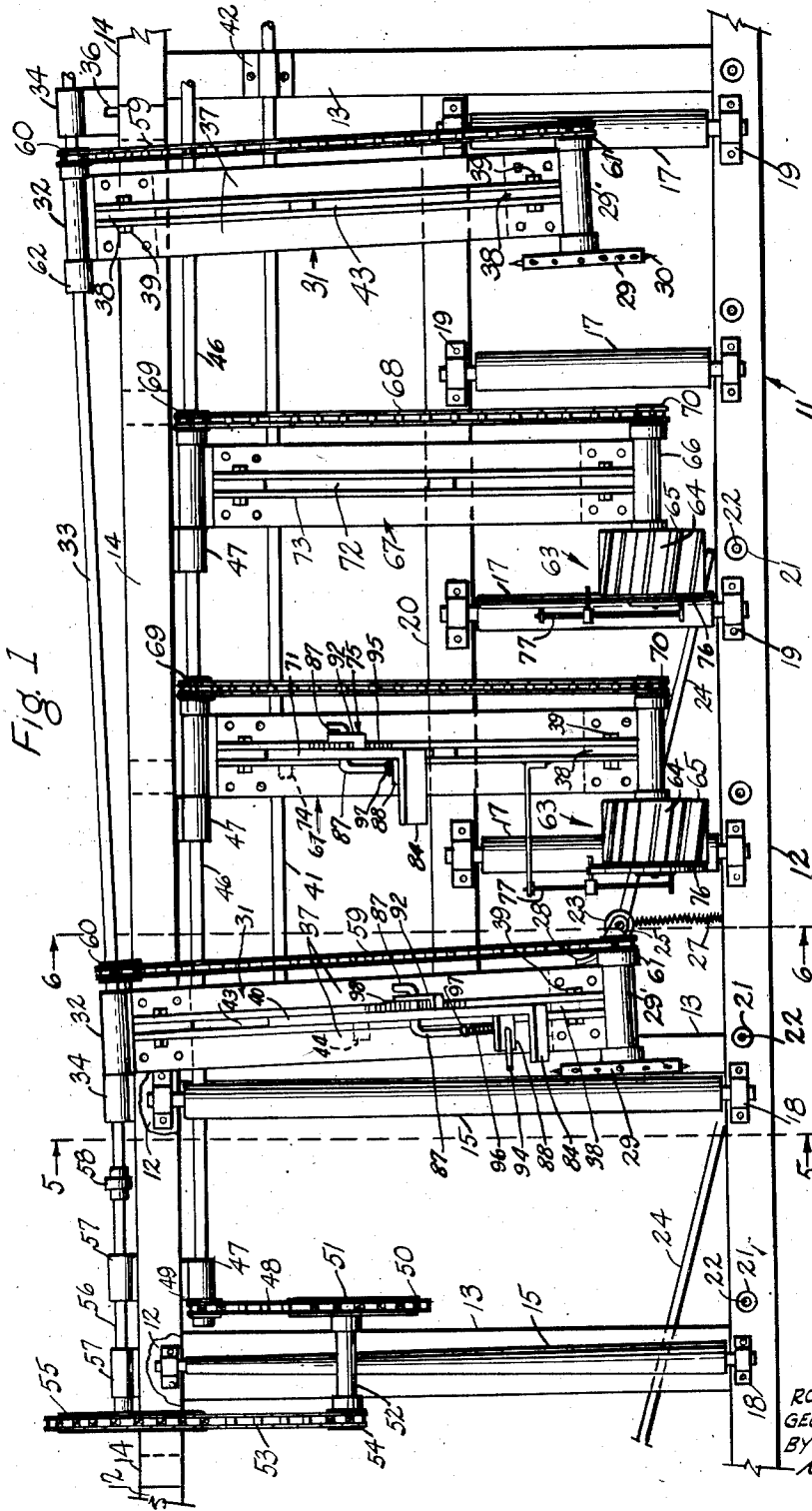
April 8, 1958

R. E. RAMSDALL ET AL
MACHINE FOR SIMULTANEOUSLY ROTATING
AND AXIALLY ADVANCING LOGS

2,829,687

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3 Sheets-Sheet 1



INVENTORS
ROBERT E. RAMSDALL
GEORGE W. LUCKMAN
BY *David K. Kilgore*
ATTORNEY

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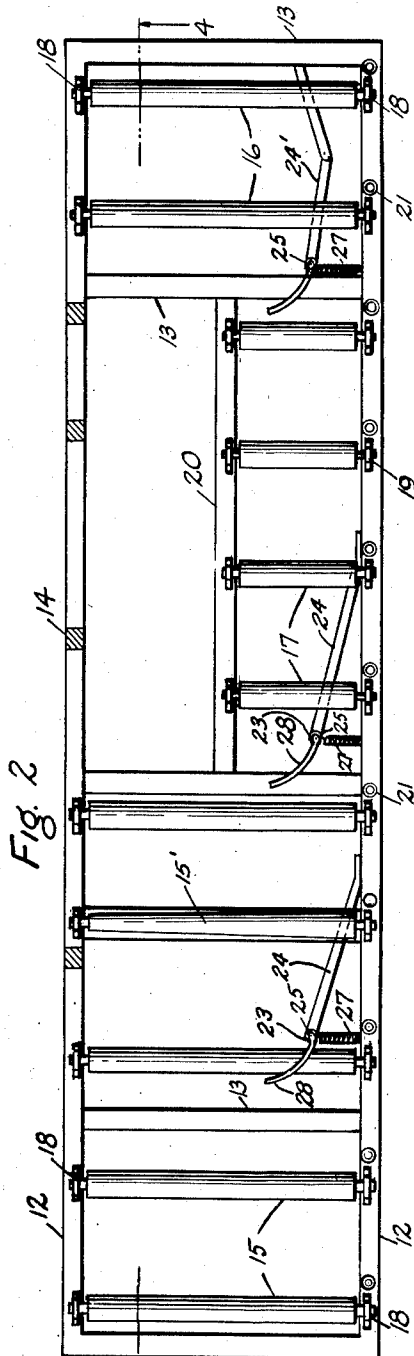


Fig. 2

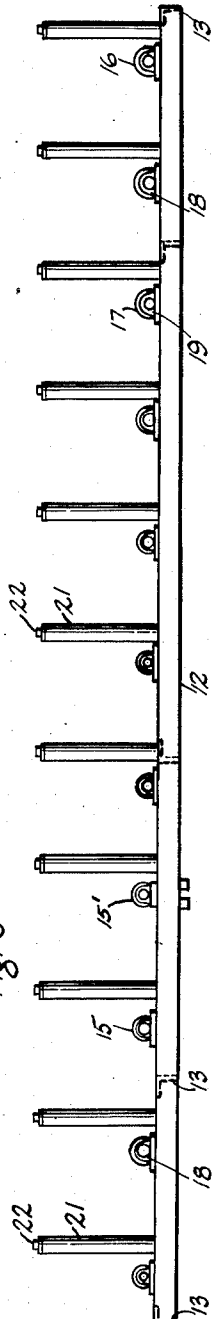


Fig. 3

Fig. 4

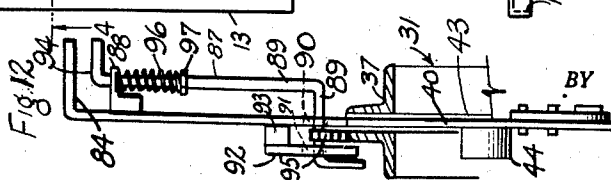
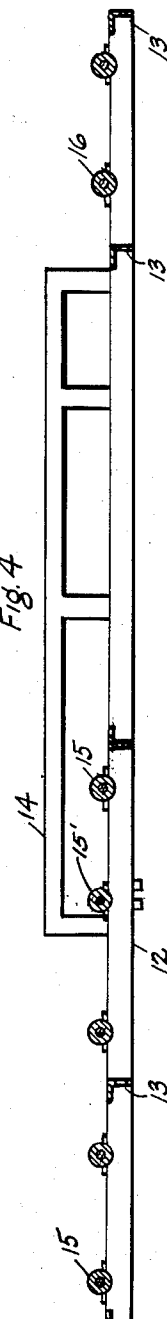


Fig. 12

INVENTORS
ROBERT E. RAMSDELL
GEORGE W. LUCKMAN

BY
David K. Kilgore

ATTORNEY

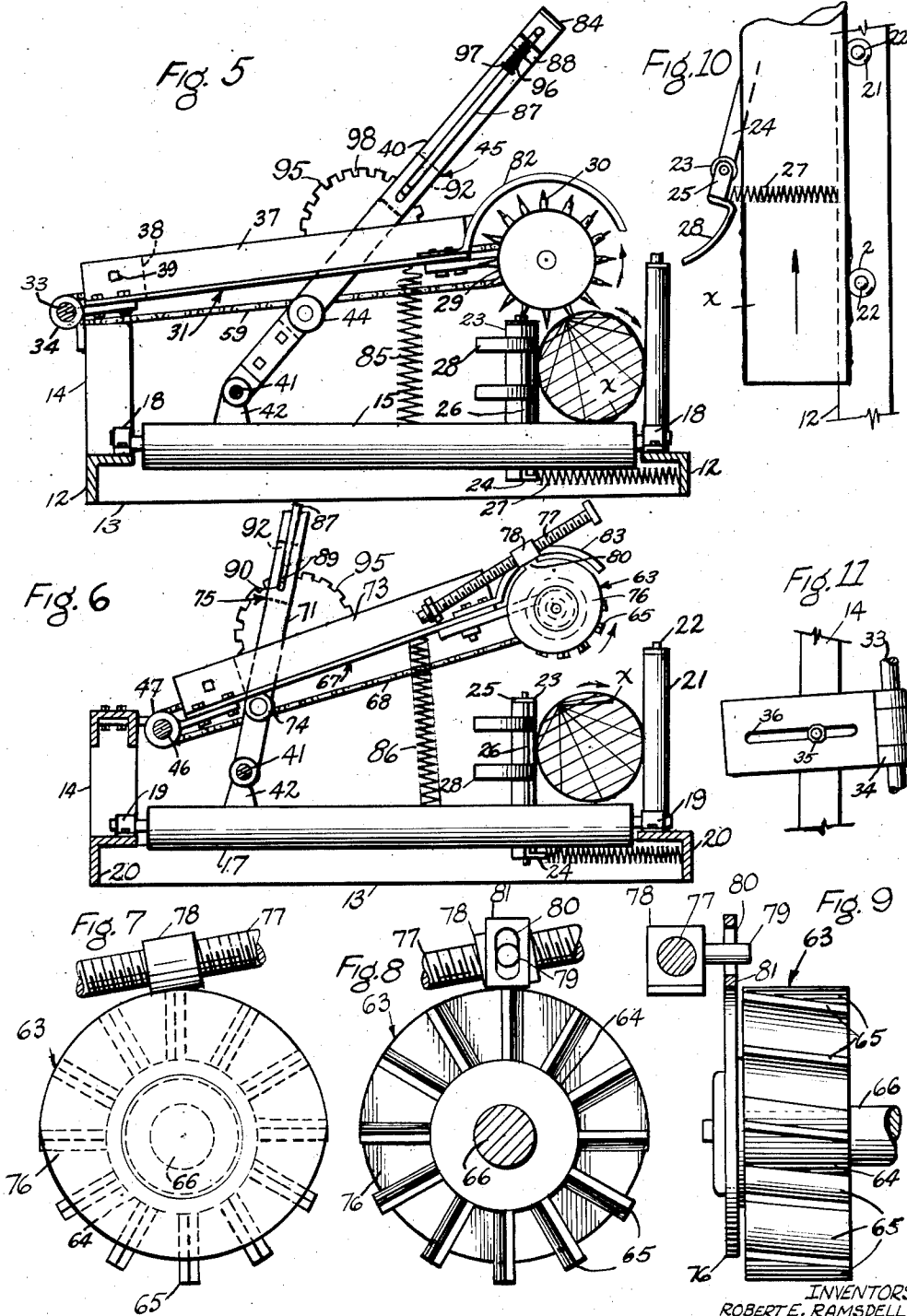
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INVENTORS
ROBERT E. RAMSDELL
GEORGE W. LUCKMAN
BY *David W. Halgren*
ATTORNEY

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2,829,687

MACHINE FOR SIMULTANEOUSLY ROTATING AND AXIALLY ADVANCING LOGS

Robert E. Ramsdell and George W. Luckman, Spooner, Wis., assignors, by direct and mesne assignments, to George E. Aldrich, Woodland Hills, Calif., and Mabel G. La Brash, New Richmond, Wis.

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3 Claims. (Cl. 144—208)

Our invention relates to improvements in machines for peeling bark from logs.

Our machine, the subject matter of this application, has been especially designed for use in removing bark from a small log, commonly called a stick, to be cut into lengths for fence posts and other objects.

An object of this invention is to provide novel means for imparting compound endwise and rotary movements to a log on rolls at a variable speed.

A further object of this invention is to provide novel means for guiding a log being moved endwise and rotated on rolls.

These and other objects will be apparent from the following description, reference being had to the drawings:

To the above end, generally stated, the invention consists of the novel devices and combination of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a fragmentary plan of the improved bark-peeling machine;

Fig. 2 is a plan on a reduced scale of the bed of the machine;

Fig. 3 is a front elevation of the parts shown in Fig. 2;

Fig. 4 is a view in horizontal longitudinal section taken on the line 4—4 of Fig. 2;

Figs. 5 and 6 are vertical transverse sections as taken on the lines 5—5 and 6—6 of Fig. 1, respectively;

Fig. 7 is a fragmentary elevation of the log-infeed side of one of the cutters on an enlarged scale;

Fig. 8 is a fragmentary elevation of the log-outfeed side of the same;

Fig. 9 is a fragmentary longitudinal vertical section and front elevation of the cutter shown in Figs. 7 and 8;

Fig. 10 is a fragmentary detail plan of the machine bed and a log thereon;

Fig. 11 is a fragmentary detail view of the frame and the rear end portion of the supporting arm of one of the rotors; and

Fig. 12 is a fragmentary vertical longitudinal section that shows a front elevation of the latch for each lever 40 and 71 that appear in the side elevation of Figs. 5 and 6, respectively, except that the relationship of certain parts has been reversed.

The bed of the machine includes a long rectangular horizontal main frame 11 made of two side bars 12 and a plurality of crosstie bars 13 rigidly connecting the side bars. Each bar 12 and 13 is, as shown, an angle bar. An upright secondary frame 14 extends longitudinally over an intermediate portion of the rear side bar 12 and is fixed thereto.

Further included in the bed of the machine are three groups of smooth and polished rolls 15, 16 and 17 that extend transversely of the frame 11. The rolls 15 and 16 are long and located at the front and rear end por-

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tions of the frame 11, respectively. The group of rolls 15 include a tapered roll 15' for a purpose later described. Rolls 17 are short and located between the two groups of rolls 15 and 16. The rolls 15 and 16 are journaled in bearings 18 fixed to the side bars 12 and the rolls 17 are journaled in bearings 19 fixed to the front side bar 12 and a longitudinally extending angle bar 20 fixed at its ends to two of the crosstie bars 13.

A plurality of upright guide rolls 21 are each journaled on a shaft 22 fixed at its lower end to the front side bar 12. These guide rolls 21 are spaced substantially the full length of the side bar 12. Logs, shown in vertical transverse section in Figs. 5 and 6, and longitudinally fragmentarily in Fig. 10 and designated by the letter x, are moved endwise and rotated on the rolls 15, 16 and 17, as will presently appear, and held for straight-line endwise movement against the guide rolls 21 by, as shown, three upright pressure rolls 23. Each of these pressure rolls 23 is journaled at its lower end in the outer end portion of a long horizontal arm 24 pivoted at its rear end to the front side bar 12. A right-hand arm 24' is pivoted at its rear end to the crosstie member 13. Each pressure roll 23 is journaled, at its upper end, in a bearing 25 integral with the upper end of an upright member 26 integral with the outer end of the arm 24 or 24'.

Each pressure roll 23 is yieldingly moved toward the plane of the guide rolls 21 by a coiled spring 27 anchored to the front side bar 12 and attached to the outer end portion of the respective arm 24. The springs 27 extend under the plane of the rolls 15, 16 and 17 and act, when fully compressed, as stops to limit the movements of the arms 24 toward the front side bar 12.

Fixed to each upright member 26 is a pair of forwardly projecting spring fingers 28. The fingers 28 of each pair are spaced edgewise, the one above the other and their outer end portions are rearwardly curved to be engaged by an endwise moving log on the rolls 15, 16 and 17 and thereby move the pressure rolls 23 out of the path of the endwise movement of the log. After a pressure roll 23 has been moved out of the path of a log, the respective spring 27 yieldingly holds the pressure roll 23 against the inner side of the log and thus urges the outer side of the log against the guide rolls 21.

A log on the rolls 15, 16 and 17 is moved endwise and at the same time turned about its longitudinal axis by a pair of rotators 29. Each rotator 29 is in the form of a disk-like wheel having fixed on its periphery circumferentially spaced radially projecting teeth in the form of sharp short pins 30. The rotators 29 are each fixed to a short shaft 29' journaled in the outer end portion of an arm 31. Each arm 31, at its inner end, is pivoted at 32 to a driven shaft 33 journaled in two bearings 34 that are secured to the secondary frame 14. Each bearing 34 is adjustably secured to the secondary frame 14 by a bolt 35 that extends through a slot 36 in said bearing.

The bearings 34 are adjusted to hold the shaft 33 in rearwardly spaced and nonparallel relation to the secondary frame 14, the outfeed end of shaft 33 lying at a greater distance from the back of the frame 14 than the infeed end. The arms 31 extend forwardly over the main frame 11 and, since they extend perpendicularly from the angularly positioned shaft 33, they slant forwardly from the secondary frame 14 toward the outfeed end of the main frame 11. Each arm 31 is formed of two parallel angle bars 37 arranged with one of their flanges upstanding and with their other flanges turned outwardly. At each end portion of the angle bars 37 a thin spacer 38 is inserted therebetween. A nut-equipped bolt 39 extends through aligned holes in the upturned flanges at each end portion of the angle bars 37 and the

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respective spacer 38 and rigidly hold the spacers 38 and the angle bars 37 in assembled relation.

The arms 31 hold the rotators 29 transversely oblique to a log on the rolls 15, 16 and 17 and said rotators while in operation floatably rest on the log as the pins 30 engage and rotate the log. When the rotators 29 are not in use, they are each held raised by a lever 40. The levers 40, at their lower end portions, are pivoted on a shaft 41 that extends longitudinally of the frame 11 over the rolls 15 and 16 and are journaled in bearings 42 fixed to certain of the crosstie bars 13. Each lever 40 extends upwardly through a slot 43 between the angle bars 37 of each arm 31. A roller 44 is journaled on each lever 40 on which the respective arm 31 rests when its rotator 29 is held raised in an inoperative position. Each lever 40 is provided with a latch 45, as will presently appear.

Obviously, the speed at which a log may be moved endwise on the rolls 15, 16 and 17 may be varied, at will, by adjusting the bearings 34 to increase or decrease the divergence of the shaft 33 relative to the secondary frame 14 and hence change the transverse angle of the rotators 29 to the axis of the log.

The following described mechanism is provided for rotating the rotators 29 in a direction for moving logs endwise on the rolls 15, 16 and 17 and for turning the same downwardly against the guide rolls 21.

A long shaft 46 that extends close to the rear side bar 12 and parallel thereto is journaled in bearings 47 fixed to said side bar. This shaft 46 is driven by any suitable means, not shown. A sprocket chain 48 runs over a small sprocket wheel 49, fixed to the left-hand end portion of the shaft 46, and a large sprocket wheel 50. This sprocket wheel 50 is fixed to the right-hand end portion of a short shaft 51 that extends transversely over two of the crosstie bars 13, that are closely positioned and the short shaft 51 is journaled in bearings 52 fixed to said crosstie bars. A sprocket chain 53 runs over a small sprocket wheel 54 fixed to the opposite end portion of the shaft 51 from the sprocket wheel 50 and a large sprocket wheel 55 fixed to the left-hand end portion of a short shaft 56. This shaft 56 extends parallel to the secondary frame 14 and is journaled in bearings 57 fixed to said frame. The shaft 56 is substantially aligned with the shaft 33 and connected thereto by a universal joint 58.

Obviously, the sprocket wheels 49, 50, 54 and 55 afford a speed-reduction unit.

Continuing the description of the driving connections for operating the rotators 29, each is turned from the shaft 33 by a long sprocket chain 59 that runs over a small sprocket wheel 60 fixed to said shaft and a like sprocket wheel 61 fixed to the opposite end of the shaft 29' from the respective rotator 29.

The arm 31 at the outfeed end of the frame 11 is held between a collar 62 fixed to the shaft 33 and the adjacent sprocket wheel 60, from axial movement on said shaft. The other arm 31 is likewise held between the adjacent bearing 34 and the sprocket wheel 60.

Referring again to the two closely positioned crosstie bars 13 on which the shaft 51 is mounted, it will be noted that the overlying roll 15' is tapered to extend under said shaft.

Bark is peeled from a log, while being moved endwise and turned on the rolls 15, 16 and 17, by the rotators 29, by a pair of axially spaced cutters 63 between the rotators 29 and laterally spaced therefrom. Each cutter 63 is in the form of a wide drum 64 having fixed to its periphery a plurality of circumferentially spaced radially projecting blades 65 that extend obliquely completely across the drum 64.

Each cutter 63 is fixed to a short shaft 66 journaled in the outer end portion of an arm 67 like one of the arms 31. The arms 67 are pivoted on the shaft 46 to swing in a vertical path. Each cutter 63 is rotated from the shaft 46 by a long sprocket chain 68 that runs over a small sprocket wheel 69 fixed to said shaft and a like

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sprocket wheel 70 fixed to the opposite end portion of the shaft 66 from the cutter 63. Each arm 67 is held between the adjacent bearing 47 and the sprocket wheel 69 to prevent axial movement on the shaft 46.

Each arm 67 is held raised with its cutter 63 in an inoperative position by a lever 71 pivoted on the shaft 41 and extending upwardly through the slot 72 between angle bars 73 of the respective arm 67. A roller 74 pivoted on the lever 71 supports the arm 67 when raised. A latch 75, similar to the latch 45, locks the lever 71 to the arm 67, as will presently appear.

The depth to which the cutter blades 65 cut is controlled by an adjustable cam 76 at the face of each cutter 63 and pivoted to said cutter to turn about its axis. This cam 76 is adjusted by a long screw rod 77 from a position in which its blades 65 make no cut to positions in which they make cuts of variable depths. The screw rod 77 has threaded engagement with a nut-acting member 78 provided with a pin 79 that projects through a slot 80 in a lug 81 fixed to the periphery of the cam 76.

Each rotator 29 is provided with a guard 82 fixed to its arm 31 and each cutter 63 is provided with a guard 83 fixed to its arm 67. Each lever 40 and 71, at its upper end portion, is bent laterally to afford a hand piece 84.

The arm 31 for each rotor 29 is yieldingly pulled downwardly by a coiled spring 85 to press the pins 30 into the log *x* as a purchase in moving the log endwise and in turning the same. Each spring 85 is anchored at one end to one of the crosstie bars 13 and attached at its other end to the respective arm 31.

The arm 67 for each cutter 63 is yieldingly pulled downwardly by a coiled spring 86 to feed the cutter 63 to its work. Each spring 86 is anchored at one end to one of the crosstie bars 13 and attached at its other end to the respective arm 67.

The tension of the spring 85 is such as to exert a much greater pull on the arm 31 than that of the spring 86. The weight of the arms 31 and 67 together with the rotors 29 and the cutters 63 materially assist the springs 85 and 86 in feeding said rotors and cutters to their work.

The latches 45 and 75 correspond in structure and function, and hence the description of one will suffice for the other. As Fig. 12 is a detail of the lever 40 and the latch 45 shown in Fig. 1, the same will be described in detail.

The numeral 87 indicates a ratchet rod parallel to the lever 40 with its upper end held in a guide 88 fixed to said lever. This ratchet rod 87 is bent laterally to afford a pawl 89 that extends through a slot 90 in the lever 40 and a slot 91 in a plate 92 fixed to a spacer 93 secured to the lever 40. The ratchet rod 87 at its upper end portion is bent laterally under the hand piece 84 to afford a handle 94. A ratchet 95 is fixed to the up-turned flange of one of the angle bars 37 of the arm 31. A coiled spring 96, encircling the ratchet rod 87, is compressed between the guide 88 and a collar 97 fixed to the ratchet rod 87 and yieldingly holds the pawl 89 in one of the lock notches 98 in the ratchet 95.

While there are herein disclosed but a limited number of embodiments of the structure, process and product of the invention herein presented, it is possible to produce still other embodiments without departing from the inventive concept herein disclosed, and it is desired, therefore, that only such limitations be imposed on the appended claims as are stated herein, or required by the prior art.

What we claim is:

1. In a machine of the class described, a bed including a plurality of horizontal laterally spaced supporting rolls, a plurality of upright guide rolls at one side of the bed, means for pressing a log on the horizontal rolls toward the guide rolls, means for turning a log about its longitudinal axis on said horizontal rolls, said pressure means being a horizontal pivoted arm having an upstanding roll, and a spring secured to the bed and

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attached to the arm for yieldingly holding the arm with its roll against the opposite side of a log from the guide rolls.

2. In a machine of the class described, a bed including a plurality of horizontal laterally spaced supporting rolls, a plurality of upright guide rolls at one side of the bed, means for pressing a log on the horizontal rolls toward the guide rolls, means for turning a log about its longitudinal axis on said horizontal rolls, said pressure means being a horizontal pivoted arm having an upstanding roll, a spring secured to the bed and attached to the arm for yieldingly holding the arm with its roll against the opposite side of a log from the guide rolls, and an outwardly and inwardly projecting finger fixed to the arm to be engaged by a log being moved endwise on the horizontal rolls to operate the arm and move its roll out of the path of such log.

3. In a machine of the class described, means for moving a log endwise and turning the same about its longitudinal axis, including an arm pivoted at one end portion to swing about a horizontal axis oblique to the longitudinal axis of such log, and a driven toothed wheel

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journalled on the outer end portion of the arm so as to rotate on a horizontal axis oblique to the horizontal axis of such log while engaging such log, said arm having a longitudinal slot, and further including a pivoted lever extending upwardly through said slot and having a roll engaging the under side of the arm, said lever being operable to raise and support said arm and the toothed wheel in an inoperative position.

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