

Feb. 16, 1954

O. BOUCHARD
LOG-BARKING MACHINE HAVING A GIMBAL MOUNTING
FOR TOOTHED LOG-FEEDING WHEELS

2,669,266

Filed June 7, 1951

4 Sheets-Sheet 1

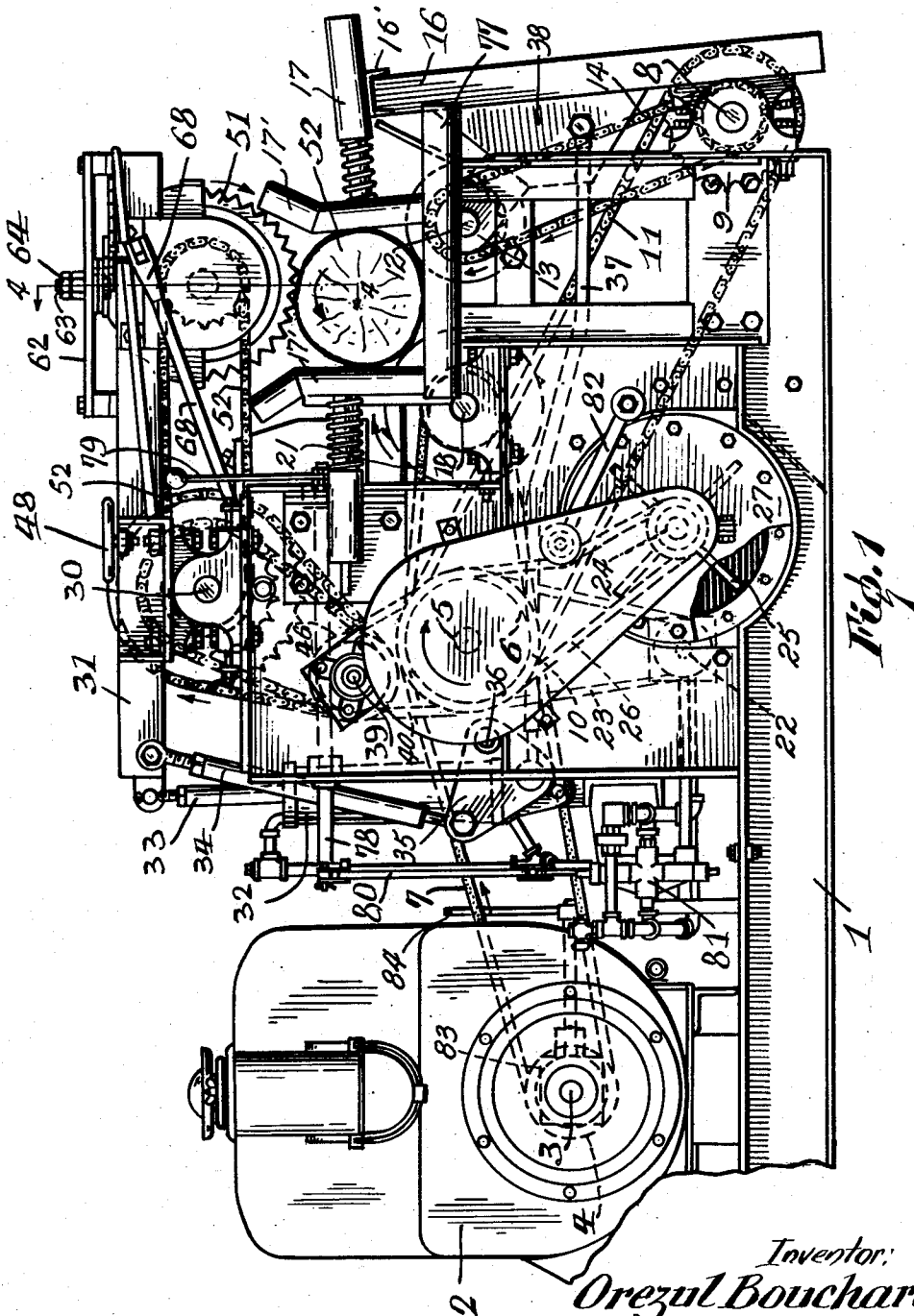


Fig. 1

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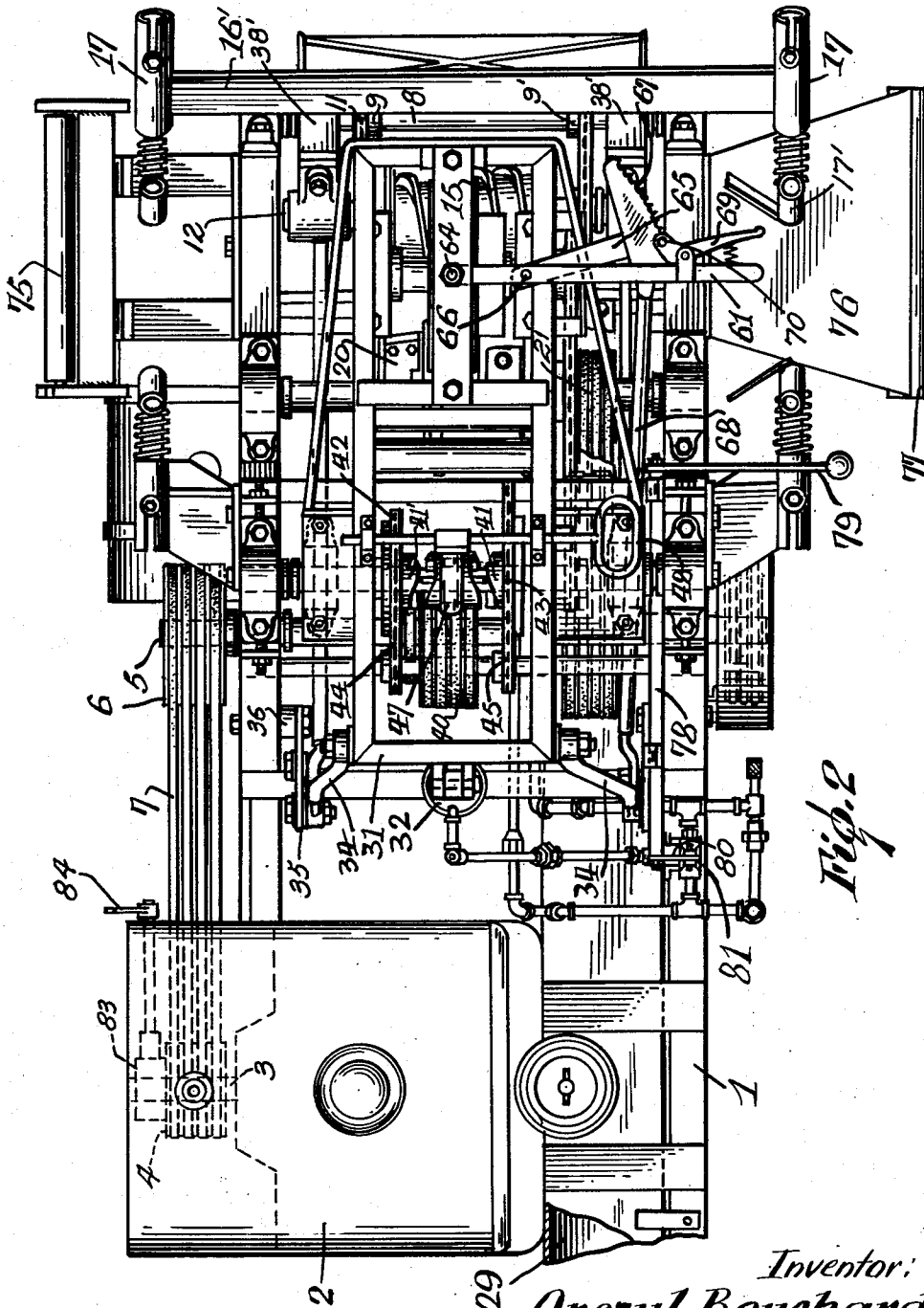


Fig. 2

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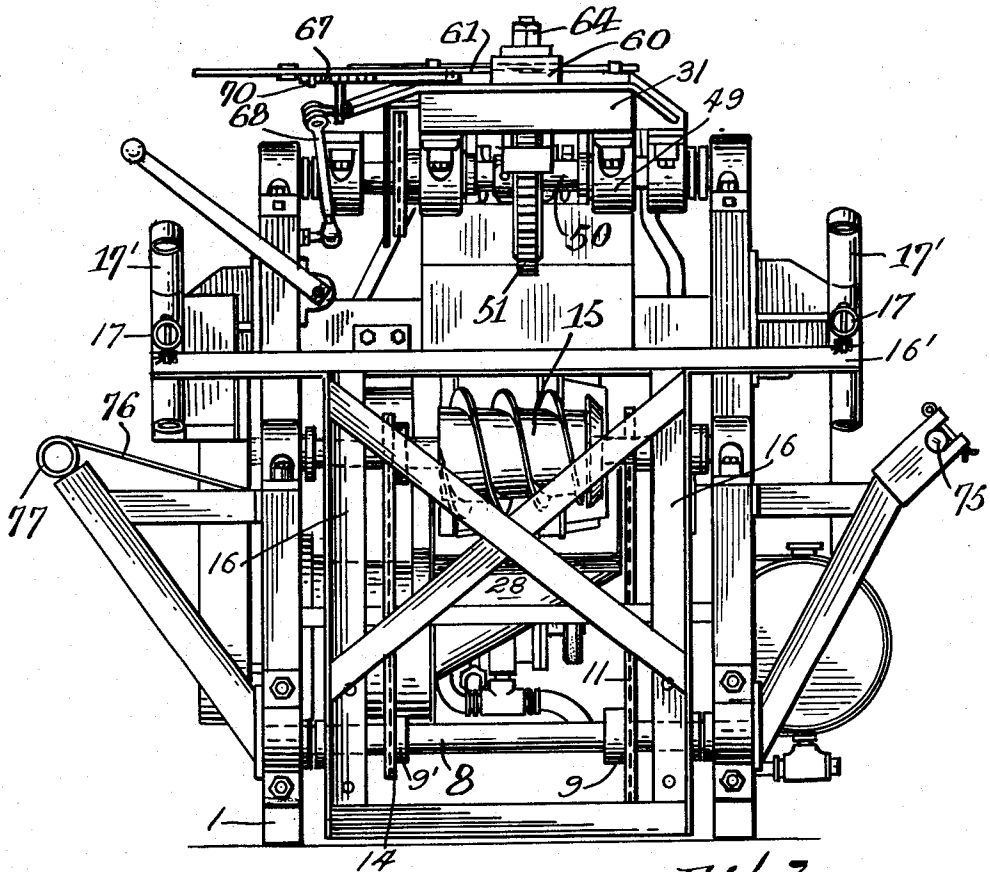


Fig. 3

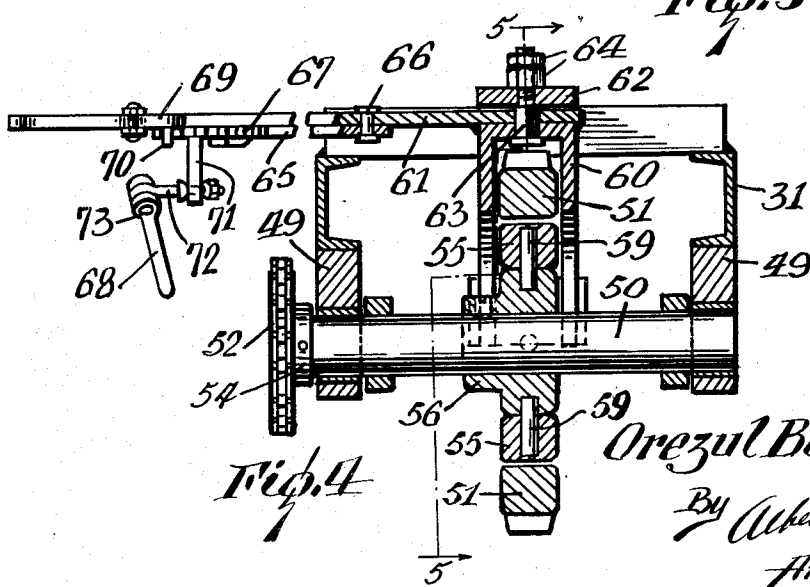


Fig. 4

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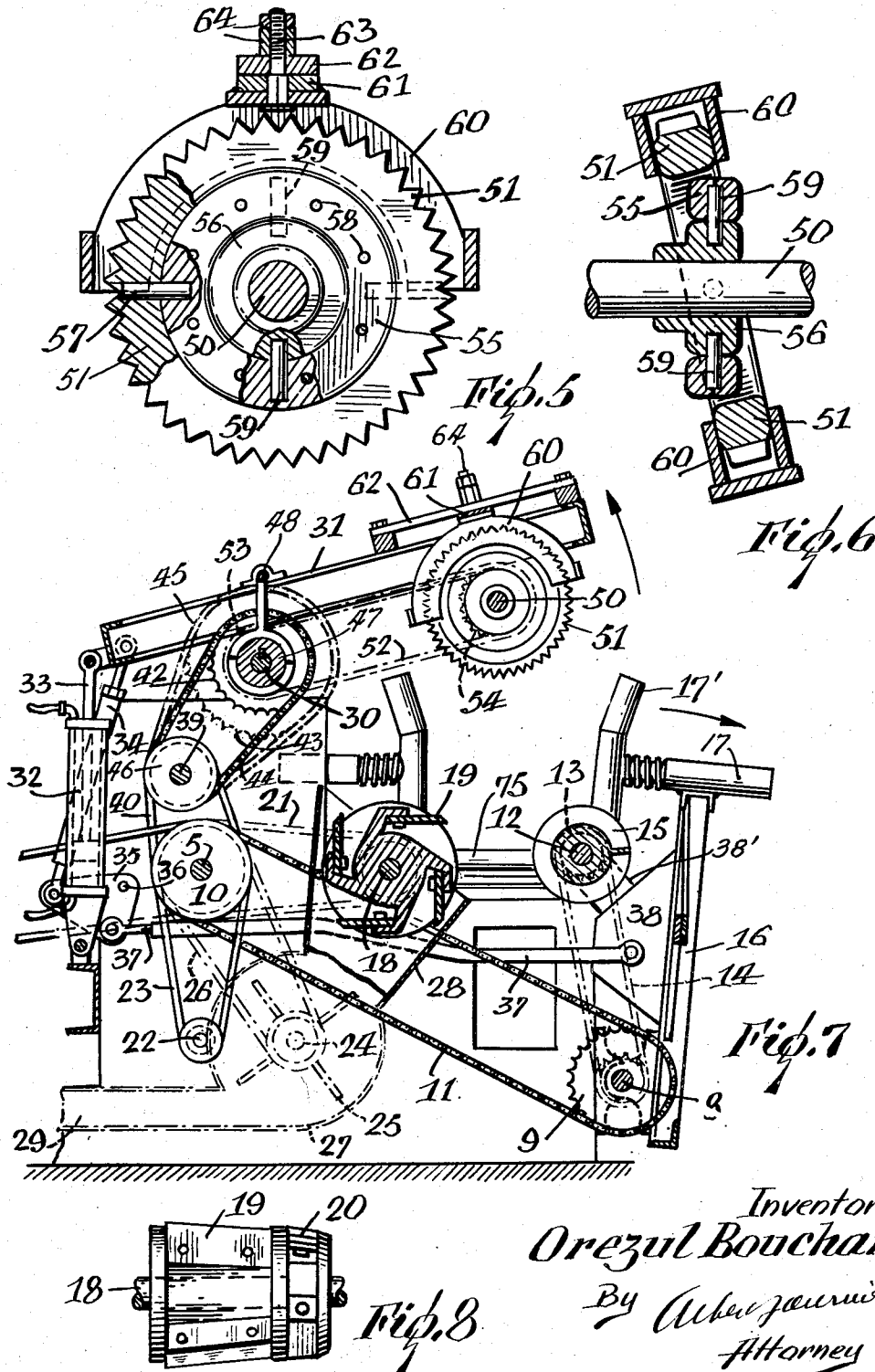
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UNITED STATES PATENT OFFICE

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LOG-BARKING MACHINE HAVING A GIMBAL
MOUNTING FOR TOOTHED LOG-FEEDING
WHEELS

Orezul Bouchard, Montreal, Quebec, Canada

Application June 7, 1951, Serial No. 230,290

4 Claims. (Cl. 144—208)

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The present invention pertains to a novel log barking machine for stripping bark from logs. My United States Patent No. 2,498,786 of February 28, 1950, discloses a machine of this general character, and the present invention resides in improvement and refinements of that machine.

The log is laid and fed transversely of the machine. It is propelled through the machine by means of a rotatable toothed ring which rotates on an axis non-perpendicular to that of the log and thereby has a screw action on the log. One of the objects of this invention is to provide a means for adjusting the plane of the ring in order to adjust correspondingly the rate of speed of the log through the machine.

For this purpose the supporting shaft for the toothed ring is carried by an auxiliary frame pivotally mounted on the main frame and movable toward the log. The ring is mounted on its shaft by means of two diametrical journal mountings perpendicular to each other, and the ring is turned on either one of these mountings.

A log-holding device is pivotally attached to the main frame for holding the log against a stripping knife. In this connection, another object of the invention is to provide a mechanism that simultaneously brings the toothed wheel and the holding means against the log.

As the log passes through the machine, its advanced end should be gradually raised in order to hold the unstripped part properly against the knife and the toothed feed wheel, since the stripped part is obviously of a smaller diameter. Another object of the invention is to provide a device for raising the advanced end of the log in the required manner. At the entrance side of the machine, the log rests on a roller, and at the outlet side the advance end of the log rides upward on a ramp provided at this location.

The invention is fully disclosed by way of example in the following description and in the accompanying drawings in which:

Figure 1 is a front elevation of the machine;

Figure 2 is a plan view;

Figure 3 is an elevation of the right hand end of Figure 1;

Figure 4 is a detail vertical cross section of a gimbal mounting for the log advancing and rotating wheel, as taken on the line 4—4 of Figure 1;

Figure 5 is a detail vertical cross section of Figure 4, as taken on line 5—5;

Figure 6 is a horizontal cross section of Figure 5, but shows elements of the gimbal mounting at different angular and phase relations;

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Figure 7 is a partial longitudinal section, and Figure 8 is a detail elevation of the cutter.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

In Figures 1, 2 and 3 the framework of the machine is designated by the numeral 1. At one end of the machine is mounted a motor 2 having a shaft 3 with a pulley 4 thereon. The frame 1 supports a transverse shaft 5 parallel to the shaft 3 and carrying a pulley 6 driven from the pulley 4 by belts 7.

In the lower corner of the forward end of the frame is journaled another cross shaft 8 (Figure 7) carrying a sprocket wheel 9 connected to a similar wheel 10 on the shaft 5 by a chain 11. Over the shaft 8 is a parallel shaft 12, supported as described below and carrying a sprocket wheel 13 joined to a wheel 9' by a chain 14. On the shaft 12 is a screw 15 for moving the inserted log lengthwise. On the shaft 8 is pivotally mounted a pair of upwardly extending arms 16 carrying at their upper ends a transverse bar 16'. On each end of the bar 16' is mounted a sleeve 17 which guides a spring-pressed T-shaped bar 17' that engages a log that lies against the screw 15, as will presently be shown.

Opposite the shaft 12 is parallel shaft 18 carrying a set of blades 19 for stripping the bark and a shorter set of blades 20 (Fig. 8) for cutting the knots. The shaft 18 is driven from the shaft 5 by a suitable chain or belt 21.

Still another shaft 22 lies below the shaft 5 and is joined thereto by a belt 23. The shaft 22 operates a hydraulic pump for a purpose that will presently be described. Adjacent to the shaft 22 is another shaft 24 carrying an impeller 25. The shaft 24 is also connected to the shaft 5 by a chain or belt 26. The impeller is enclosed in a blower housing 27 having its inlet in the form of a hopper 28 enclosing the blades 19 and 20 to receive the cuttings therefrom. The housing 27 has an outlet duct 29 as shown in Figures 2 and 7.

In the upper part of the frame 1 is mounted another transverse shaft 30 which supports a pivoted auxiliary frame section 31. The latter is adjusted from a hydraulic cylinder 32 which has a piston rod 33 pivotally attached to the frame section 31. An arm or link 34 extends from each rear corner of the frame section to a bell crank lever 35 pivotally mounted at 36 on each side of the main frame. The arm or link 34 is pivotally attached to both members 31 and 35. The members 35 are joined by links 37 to

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webs 38 on the members 16, as shown in Figure 7. Lugs 38' on the webs 38 support the shaft 12. The described mechanism closes the parts 16 and 31 upon a log inserted in the machine, as better shown in Figure 1.

A transverse shaft 39 is mounted over the shaft 5 and is driven therefrom by a belt and pulley connection 40. The shaft 30 carries opposed clutch elements 41' and 41 (center of Fig. 2) fitted with sprockets 42 and 43 of different sizes. These are chained at 44 and 45 to sprockets 46 on the shaft 39. The clutch elements 41' and 41 are loose on the shaft 30, and between them is a connecting member 47 slidably keyed on the shaft. By means of a shifter 48, the member 47 may be engaged with either of the members 41' and 41, whereby to apply a selected speed to the shaft 30.

At the forward end of the frame section 31 are bearings 49 (Fig. 4) in which is journaled a shaft 50. This shaft carries a toothed wheel 51 which engages and drives and rotates a log 52 inserted in the machine, as shown in Figure 1. The wheel is driven by a chain 52 and sprocket wheels 53 and 54 respectively on the shafts 30 and 50. The selected speed of the shaft 30 is applied proportionately to the work-rotating wheel 51.

The toothed member 51 is in fact a ring mounted over an intermediate ring 55 which in turn is mounted on a hub 56 on the shaft 50 as shown in Figure 4. The toothed ring 51 is pivotally mounted diametrically of the ring 55 by a pair of opposed pins 57 as shown in Figure 5. The ring 55 consists of a pair of coinciding sections fastened together by rivets 58. The ring 55 is pivotally mounted on the secured hub 56 by opposed pins 59 on a diameter perpendicular to the first named diameter.

The upper half of the wheel assembly is enclosed in a semi-cylindrical housing 60. An arm 61 is welded upon the housing, and over this is a plate 62 constituting a portion of the frame section 31. A bolt 63 pivotally joins the housing 60 to the plate 62 by passing through the arm 61 and is tightened by nuts 64.

An arm 65 is pivoted at 66 to the arm 61 and carries a rack 67 at its free end. The rack is joined to the main frame by a rod 68. On the arm 61 is mounted a bell crank lever 69 carrying a pin 70 (Figure 4) which acts as a pawl on the rack 67. Adjustment of the pin in the pawl changes the plane or slope of the toothed ring 51 so that it has an adjustable spiral action on the log and feeds it lengthwise at selected speeds.

The connection from the rack 67 to the rod 68 is in the nature of a universal joint shown in Figure 4. A finger 71 extends downward from the rack and has a pivotal mounting on another finger 72 which in turn is pivotally attached at 73 on a perpendicular axis to the member 68. Such a connection is necessary to maintain proper support of the rack 67 and pawl 69 in view of the tilting movement of the auxiliary frame 21.

The log 52 is inserted from the right hand side of the machine in Figure 3 and is laid on a roller 75 at the side. At the opposite side is mounted a ramp 76 with a fixed tube 77 at its higher end. After the log has progressed a distance through the machine, its forward and debarked end commences to ride up on the ramp 76. Due to the smaller diameter of the debarked portion, this lifting of the forward end of the log maintains the unstripped portion in proper contact with the blades 19 and 20.

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A shaft 78 (Figure 1) journaled longitudinally in the machine is rotated by a control lever 79 (Figure 2). The shaft 78 is linked at 80 to a four-way valve 81 which controls the fluid in the cylinder 32. As previously set forth, this cylinder is employed to elevate the frame 31 and at the same time to actuate the members 16 and 17 through the linkage 34-37.

A tensioning arm 82 is applied to the belt 26 (Figure 1). The drive on the belt 7 from the motor pulley 4 is controlled by a clutch 83 adjusted by a clutch arm 84 (Figure 2).

In the use of the device, the toothed ring 51 cooperates with the screw 15 in moving the log through the machine. The lengthwise speed of the log may be varied by changing the skew of the ring 51 by rocking its housing 60 in the manner already described. The ring 51 is lifted entirely from the log by operation of the cylinder 32 and otherwise rests by gravity on the log.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention as indicated by the appended claims.

What I claim is:

1. A log barking machine comprising a frame, a knife rotatably supported thereby, an auxiliary frame pivotally supported by the first frame, a rotatable shaft in said auxiliary frame, a toothed ring on said shaft, a mounting for said ring on said shaft, said mounting being diametrical to said shaft and ring and said ring being rotatable on said mounting, means for adjustably setting said ring on said mounting, a holding bar pivotally attached to the first frame and movable toward said knife, means for swinging said auxiliary frame downward toward said knife, and means connected to the last named means for swinging said holding bar toward said knife.

2. A log barking machine comprising a frame, a knife rotatably supported thereby, an auxiliary frame pivotally supported by the first frame, a rotatable shaft in said auxiliary frame, a ring on said shaft, a diametrical rotary connection between said ring and shaft, a toothed ring on the first ring, a rotary diametrical connection between said rings and perpendicular to the first connection, and means for adjustably setting said toothed ring on said connections, a holding bar pivotally attached to the first frame and movable toward said knife, means for swinging said auxiliary frame downward toward said knife, and means connected to the last named means for swinging said holding bar toward said knife.

3. A log barking machine comprising a frame, a knife rotatably supported thereby, an auxiliary frame pivotally supported by the first frame, a rotatable shaft in said auxiliary frame, a toothed ring on said shaft, said knife and shaft lying on parallel axes, means for moving said shaft toward said knives, log-holding means opposite and spaced from said knife, a log support at one end of said space and transverse thereof, an upwardly and outwardly inclined ramp at the other end of said space to lift the advancing end of a log moving through the machine, a screw rotatably mounted on said holding means so as to engage a log in the machine, and means for rotating said screw.

4. A log barking machine comprising a frame, a knife rotatably supported thereby, an auxiliary frame pivotally supported by the first frame, a rotatable shaft in said auxiliary frame, a toothed

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ring on said shaft, a mounting for said ring on said shaft, said mounting being diametrical to said shaft and ring and said ring being rotatable on said mounting, a housing over the upper part of said toothed ring and pivotally attached to said auxiliary frame, means for adjustably pivoting said housing to set said ring on said mounting, a holding bar pivotally attached to the first frame and movable toward said knife, means for swinging said auxiliary frame downward toward said knife, and means connected to the last named means for swinging said holding bar toward said knife.

OREZUL BOUCHARD. 15

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