Dec. 18, 1956 N. G. LEFFLER 2,774,397

BARKING MACHINE HAVING FEED ROLLER POWER-DRIVEN AT CERTAIN PERIPHERAL SPEED OR LOG-DRIVEN AT HIGHER SPEED

Original Filed Oct. 31, 1952 2 Sheets-Sheet 1

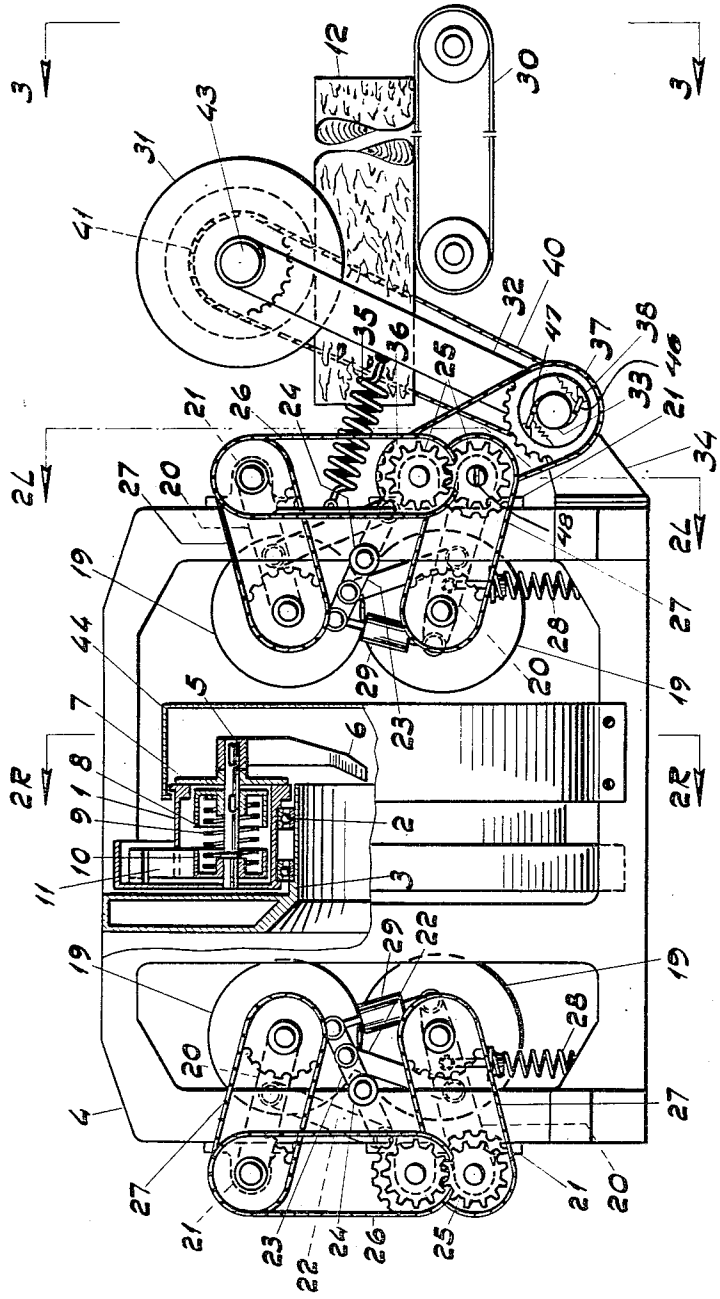


Fig. 1.

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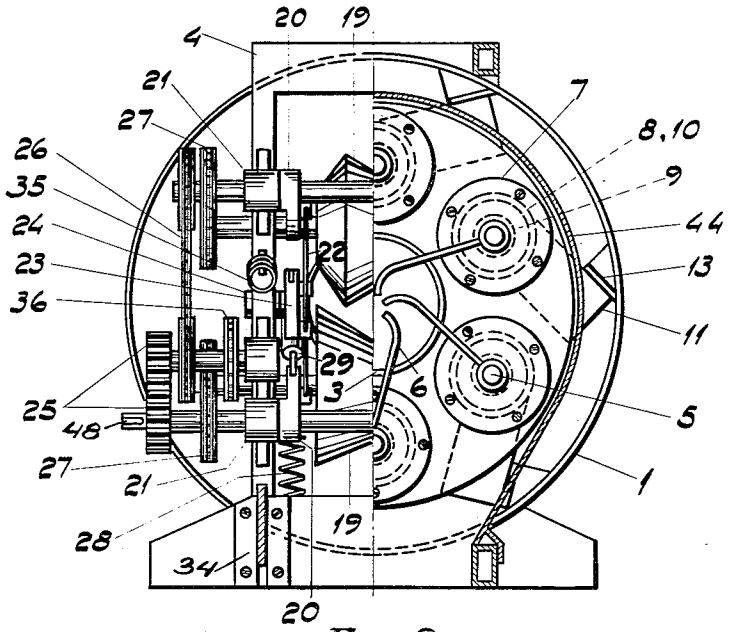



Fig 2

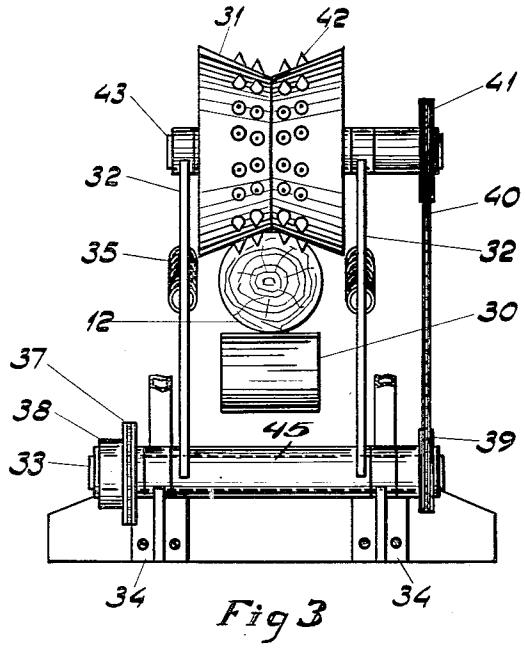



Fig 3

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# BARKING MACHINE HAVING FEED ROLLER POWER-DRIVEN AT CERTAIN PERIPHERAL SPEED OR LOG-DRIVEN AT HIGHER SPEED

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5 Claims. (Cl. 144—247)

This invention relates to improvements in barking machines of the kind having at least one barking member movable into and out of engagement with the log, said machines having at least one of the two elements, the barking member and the log, adapted to rotate relatively to the other. The invention consists mainly therein, that in the feeding path of the log there is rotatably provided at least one member connected to a driving mechanism and resting against the log being fed, said rotatable member being so arranged in supporting means swingable under the influence of the log, that its journal axis and the axis of the swinging shaft of the supporting means are situated on opposite sides of the axis of the log, the axis of said swinging shaft being spaced from the periphery of the log, and the rotatable member resting against the log with a pressure which not only depends on the feeding resistance but which will increase automatically with increasing feeding resistance.

An exemplary embodiment is shown in the accompanying drawings. Fig. 1 is a side elevation of the machine, a portion of the outer casing being broken away, and other parts being broken away and shown in section to better reveal the mechanism within it. Fig. 2 is a composite sectional view of the right hand end of the apparatus as shown in Fig. 1, as indicated by the section lines 2L—2L and 2R—2R. Fig. 3 is a detail elevation of the roller conveyor at the right hand end of the apparatus shown in Fig. 1, as indicated by the line 3—3.

Referring to the drawings, 1 is a rotary drum or the like (Fig. 1), which by means of bearings 2 is supported by a nonrotary tube 3 rigidly secured to a frame 4. In the drum 1 one or more, for example six, shafts 5 are turnably mounted. At one end of each shaft 5 there is secured a barking member 6 in the shape of a scraping element located within an annular stationary bark-collecting housing 44. Inside a bearing plate 7 there is secured to each shaft 5 a sleeve plate 8 actuated by one end of a helical spring 9, which at its other end is secured to a sleeve plate 10, which is adapted to turn on the shaft 5 and to which a centrifugal weight 11 is secured. In Figures 1 and 3 the log 12 is shown. For damping the movement of the weights 11 and, consequently, also of the barking members 6 rubber plates 13 are provided.

Upon rotation of the drum 1 the centrifugal weights 11 are thrown outwards, each weight actuating by way of the sleeve plate 10 the spring 9 and then also the barking member 6, which thus is pressed inwards ready for engagement with the log.

For feeding the logs the following means are provided. As will be seen from Figures 1 and 2, feed rollers 19 are mounted on arms 20, the latter being turnably mounted on brackets 21. In order that the log shall always be kept at the center the arms 20 are connected to an arm 23 by means of links 22, said arm being in turn mounted in a bracket 24 secured to the frame. The driving of the rollers may be provided for by a cylindrical gear 25 and a chain drive 26. The shaft of the gear 25 may be



driven from a power source (not shown) which is connected to the shaft by means of a key-groove 48. The drive between the two feeding mechanisms formed by the rollers 19 may be transmitted by means of a chain or, for example, by means of a horizontal shaft, two chain wheels being required in the former case and two mitre gears being required in the latter case. Said details are not shown in the drawings. The drive of the upper roller is effected by means of a chain 27. The contact pressure is obtained from a spring 28 and the bump arising when the log is leaving the rollers is damped by a shock absorber 29.

For feeding in the log to the fore feeding mechanism there may be provided a conveyor 30 and/or a roller 31. The conveyor may be made as a belt conveyor, as shown, or as a roller conveyor in a conventional manner and preferably it is driven at the same peripheral speed as that of the feeding mechanisms. The roller 31 is, however, arranged in a special way, bringing about considerable advantages.

As shown in the drawings the roller 31 is turnably mounted by a shaft 43 bearing in the free ends of two arms 32. Said arms 32 are attached at their lower ends (e. g. welded) to a sleeve 45 which is journalled on a shaft 33 between two brackets 34. The ends of the shaft 33 are turnably mounted by the brackets 34. The contact pressure of the roller is adjusted by means of springs 35 and the degree of compression of the springs should be so chosen that the roller will contact the log with a slight pressure.

The roller 31 may be driven by means of a separate motor or also, as shown in the drawing, from the fore feeding mechanism. A chain wheel 36 is provided on the gear 25 and drives the shaft 33 by way of a chain wheel 37, which may be connected to an overrunning clutch 38. The clutch illustrated has spring operated pawls 46 and cooperating shoulders 47. On said shaft 33 there is secured a chain wheel 39, which by way of a chain 40 and a chain wheel 41 drives the roller 31. The gear ratios may be chosen in such a manner that the roller 31 is driven at a somewhat lower but certain peripheral speed than are the rollers of the feeding mechanisms, and the overrunning member of the clutch should be arranged in such a manner that it will be in engagement when, by means of the chain driving means, the roller is driven at the abovementioned certain peripheral speed, but it should admit of the roller being driven at a higher peripheral speed by the log. It is not necessary in this connection to deal more particularly with the construction of the overrunning clutch, because the abovementioned condition will be obtained by any conventional one-way engaging clutch which automatically transmits torque in one direction of movement but not in the opposite direction.

If the driving of the roller 31 is arranged in this way, said roller will serve as an auxiliary roller, i. e. it will not feed the log except in case the speed of the latter should become reduced for some reason or other, so that its speed will become lower than the certain peripheral speed of the roller. Consequently, the feeding means of the machine will function in the following manner: By means of a device not shown in the drawing a log is placed on the conveyor 30 and by the latter is moved toward the barking members. The log will first meet the roller 31, and will then simultaneously swing it upward and toward the drum, so that the log is able to pass under the roller. Since the roller is partly balanced by the spring 35 the log and the conveyor will not skid relatively to each other. The roller 31 thus having been moved on to the surface of the log it will be driven by the log, because the speed of the log is greater than the certain peripheral speed at which the roller was driven when not in contact

with a log. The contact pressure of the roller against the log will of course also be very low and feeding spikes **42** of the roller will make no marks or markings in the wood that will cause the formation of splinters in the surface of the log, when the barking members are applied.

Next, the log meets the fore rollers **19** of the feeding mechanisms. If the log enters directly between the same then no change takes place in the mode of operation of the roller **31**. Should the log, however, be stopped by the rollers **19**, the roller **31** will take over the feeding and will cause the log to enter between the rollers **19**. The axial or feeding component of the contact pressure of the roller **31** on the log will then be dependent on the existing feeding resistance, and it is advantageous that the greater the feeding resistance, the greater will become the feeding component of the contact pressure. It is very easy to predetermine the relation between the horizontal feeding component and the vertical component by choosing a proper initial angle of inclination for the arms **32**. It is advantageous, too, for the contact pressure to increase when debarking thick logs, and this occurs because the arms **32** will be moved to a more vertical position than by thin logs and will correspondingly increase the compression of the spring **35**.

As soon as the log has entered between the fore rollers **19** it will be driven by said rollers at the higher peripheral speed. The feeding component of the contact pressure of the roller **31** on the log will then be reduced to zero or less, as before the introduction of the log between the rollers **19**, and the roller **31** will again be rotated by the log.

When the log then meets the barking members **6**, the same conditions arise as when it met the fore rollers **19**. If said rollers are able to press the log in between the barking members the roller **31** will not carry out any feeding work but it will begin to drive the log, if the log should slow down or stop. There is no risk of the feeding pressure of the roller **31** becoming so high that parts of the machine would be pressed asunder, because the feeding spikes **42** of the roller are not made so large that they will penetrate the wood, in case the resistance should become too large.

The roller **31** brings about considerable advantages. Thus the surface of the wood may easily become damaged by the fore rollers **19** whenever they have to be pressed against the log hard enough to cause a high feeding pressure, as when the log has to press the barking members and the back rollers **19** apart. Such damaged areas of the wood would subsequently be increased by the scraping action of the barking members. Furthermore, the log will skid sometimes on the conveyor **30** and will not enter between the fore rollers **19**. By the provision of the roller **31** the contact pressure of the rollers **19** can be low, namely, only such pressure as is required for the barking operation alone. Should the log be slowed down or stopped the roller **31** begins to drive the log in the manner previously mentioned. The damage to the wood which may be caused by said roller can be overlooked because this will only take place along very short parts of the length of the log.

Of course it is not necessary that the roller **31** be driven by means of an overrunning clutch. It may be driven directly by a chain drive and at the same peripheral speed as that of the conveyor **30** and of the feed rollers **19**. It will then be feeding all the time with a contact pressure that will be dependent on the feeding resistance.

This application is a division of my application Serial No. 317,980 filed Oct. 31, 1952.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An improvement in a barking machine of the kind having at least one barking tool movable into and out of engagement with an axially fed log, the barking tool and the log being relatively rotatable about a longitudinal axis of an axially fed log, and said machine having conventional means for feeding a log at a given axial speed, said improvement comprising at least one rotatably driven member located in a feeding path of an axially fed log, means connecting said member to a driving mechanism which rotates said member at a certain peripheral speed not exceeding said given axial speed of a log, means supporting said member for rotation about an axis transverse to and spaced from said longitudinal axis of a fed log, said supporting means being swingable about a second transverse axis spaced from that side of said longitudinal axis opposite to said first transverse axis and also spaced from said log-feeding path, an oncoming log engaging said member and swinging said supporting means about said second transverse axis until said member rests against a log, whereby said driving mechanism will cause said member to drive a log forward only when the axial speed of a log, because of too much feeding resistance, drops below said certain peripheral speed.

2. An improvement in a barking machine of the kind having at least one barking tool movable into and out of engagement with an axially fed log, the barking tool and the log being relatively rotatable about a longitudinal axis of an axially fed log, and said machine having conventional means for feeding a log at a given axial speed, said improvement comprising at least one rotatably driven member located in a feeding path of an axially fed log, means connecting said member to a driving mechanism which rotates said member at a certain peripheral speed which is less than said given axial speed of a log, means supporting said member for rotation about an axis transverse to and spaced from said longitudinal axis of a fed log, said supporting means being swingable about a second transverse axis spaced from that side of said longitudinal axis opposite to said first transverse axis and also spaced from said log-feeding path, an oncoming log engaging said member and swinging said supporting means about said second transverse axis until said member rests against a log, whereby said member is driven by a log at a peripheral speed which is higher than said certain peripheral speed whenever a log does not encounter too much feeding resistance, and whereby said driving mechanism will cause said member to drive a log forward only when the axial speed of a log, because of too much feeding resistance, drops below said certain peripheral speed.

3. An improvement according to claim 2, said machine including a spring for pressing said member against a log, the biasing force of said spring being greater for thick logs than for thin logs.

4. An improvement according to claim 2, said conventional feeding means including two driven rollers located between said barking tool and said member, and said driving mechanism for said member including motion-transmitting means connected to said driven rollers.

5. An improvement according to claim 4, and said driving mechanism including an overrunning clutch, whereby said member can be driven by a log at said peripheral speed which is higher than said certain peripheral speed.


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