

Nov. 13, 1956

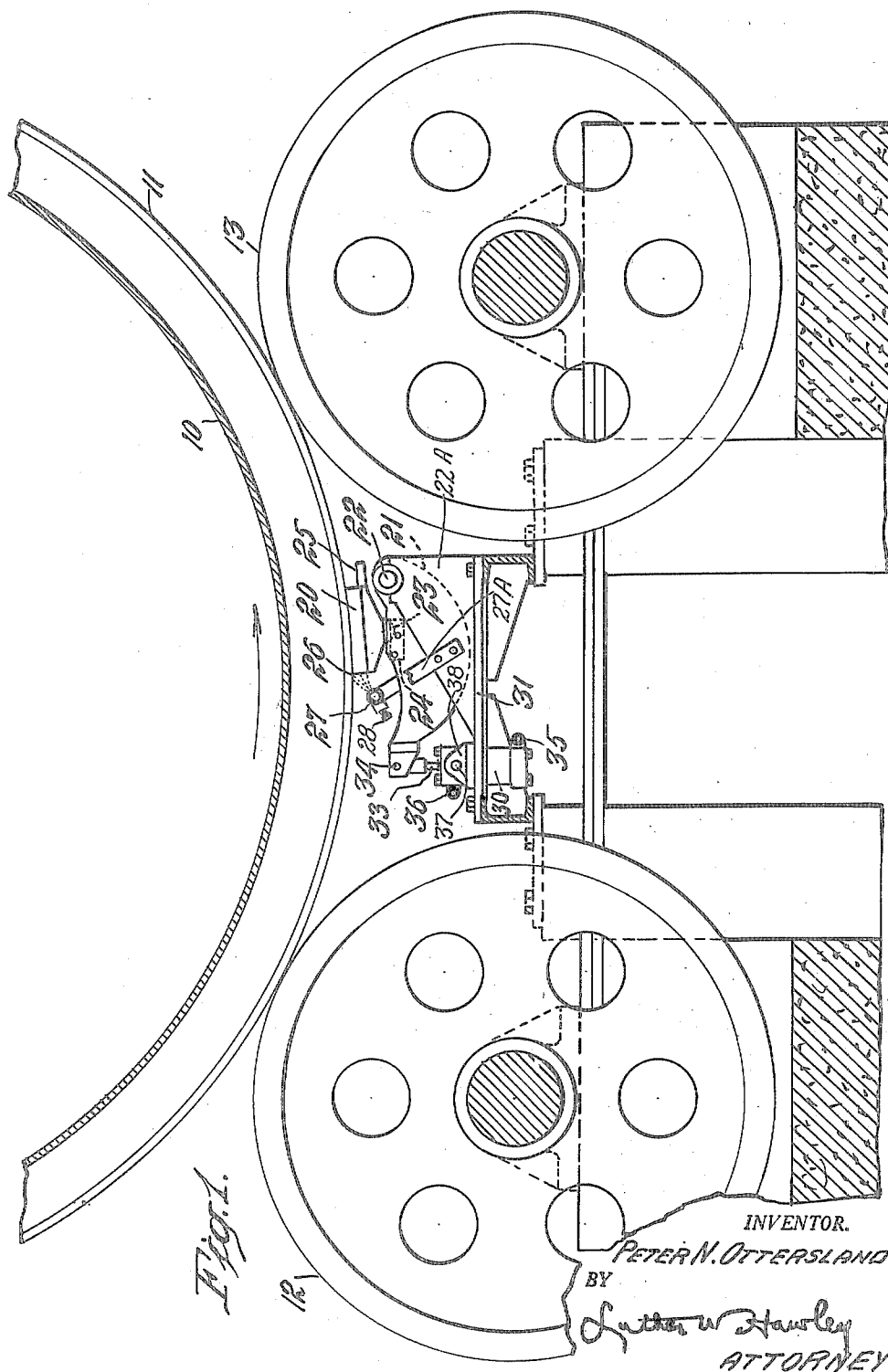
P. N. OTTERSLAND

2,770,270

SUPPORTS FOR ROTATING DRUMS

Filed March 30, 1954

3 Sheets-Sheet 1



Nov. 13, 1956

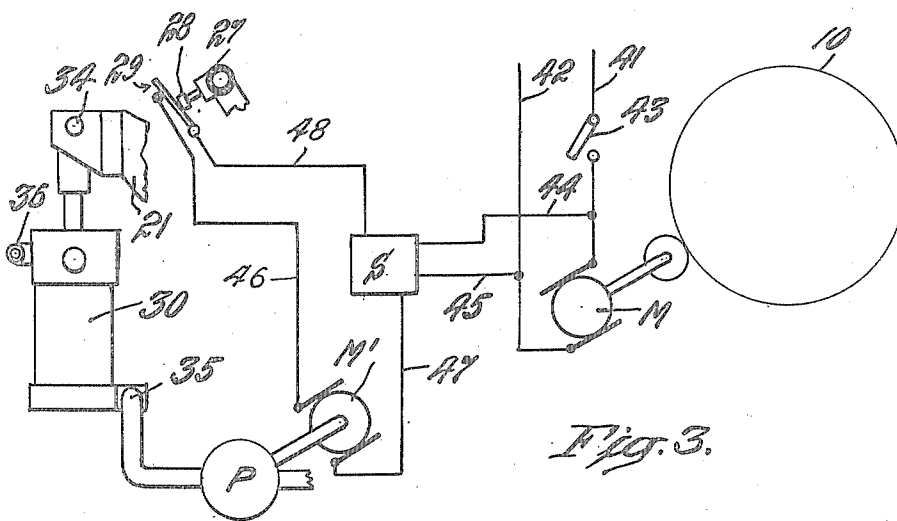
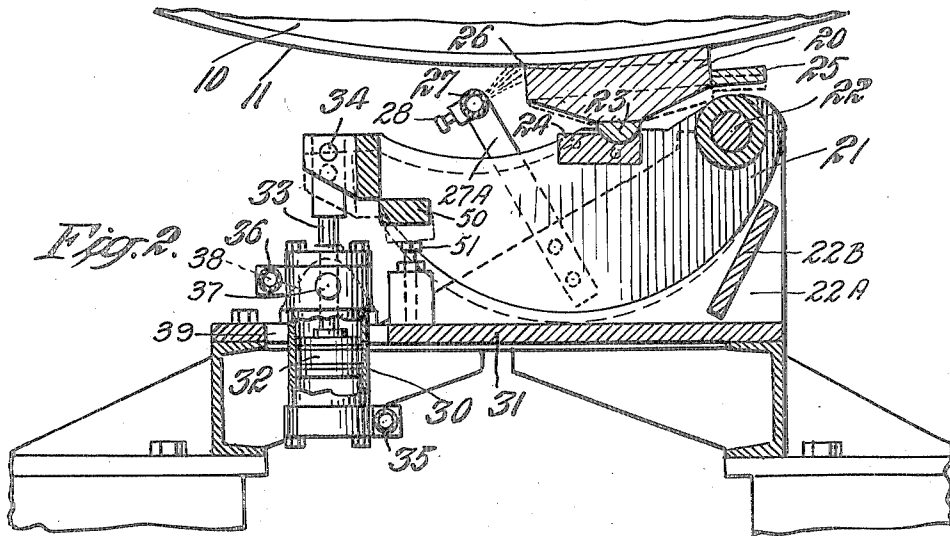
P. N. OTTERSLAND

2,770,270

SUPPORTS FOR ROTATING DRUMS

Filed March 30, 1954

3 Sheets-Sheet 2



INVENTOR.
PETER N. OTTERSLAND
BY
Luther W. Stanley
ATTORNEY

Nov. 13, 1956

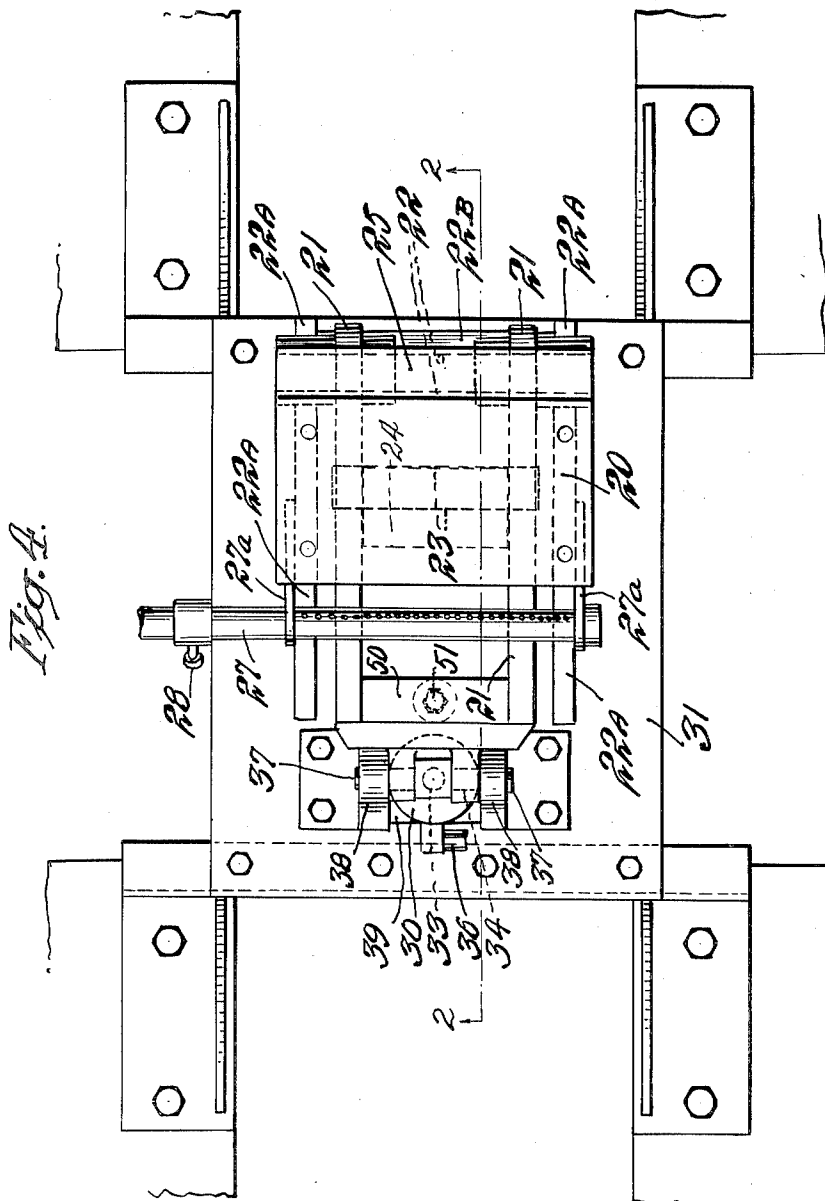
P. N. OTTERSLAND

2,770,270

SUPPORTS FOR ROTATING DRUMS

Filed March 30, 1954

3 Sheets-Sheet 3



INVENTOR.
PETER N. OTTERSLAND
BY
Luther W. Hawley
ATTORNEY

1

2

2,770,270

SUPPORTS FOR ROTATING DRUMS

Peter N. Otfersland, Watertown, N. Y.

Application March 30, 1954, Serial No. 419,815

6 Claims. (Cl. 144—208)

This invention relates to supports for rotating drums. The invention has been particularly worked out in connection with barking drums used for removing bark from logs, but it should be understood that it is not limited to this particular use or adaptation.

Such drums are usually rotatably supported on rollers which are engaged by rails or rings on the drum and permit the drum to rotate.

The movement of the logs in the drum during the drum rotation causes rapid and heavy wear on the trunnions on which the rollers are mounted and on the rings or rails on the drum.

This invention has for its salient object to alleviate this wear by providing supplemental drum supporting means operable during the rotation of the drum.

Further objects of the invention will appear from the following specification taken in connection with the drawings which form a part of this application, and in which

Fig. 1 is a vertical transverse section of a portion of a barking drum, the supporting rollers and the supplemental supporting means embodying the invention being shown in elevation;

Fig. 2 is an enlarged, fragmentary, vertical transverse section corresponding to Fig. 1, but taken on a plane which passes through the supplemental supporting means, as indicated by the line 2—2 in Fig. 4;

Fig. 3 is a diagrammatic view showing the electrical circuit and driving means for the drum and for operating the supplemental support or bearing; and

Fig. 4 is a plan view of Fig. 2 but omits the drum.

In the particular embodiment of the invention illustrated in the drawings, the invention has been shown in connection with barking drums and there is shown a portion of a barking drum 10 of the usual construction. This drum has a plurality of circumferential rails or tires 11 which engage the peripheries of a plurality of sets of supporting rollers 12, 13. The rollers are mounted in suitable bearings.

It has been found that the movement of the logs as they bounce around in the barking drum during the rotation of the drum places a heavy load on the supporting rollers 12 and 13, and on the bearings thereof, and causes rapid and heavy wear on the rails or tires 11.

In order to alleviate this heavy wear, supplemental bearing means is provided. This means may be mounted between the sets of supporting rollers and below the periphery of the drum, although, if desired, the supplemental bearing means could engage the drum wherever desired. This supplemental bearing means consists of a bearing block or shoe 20 having an arcuate upper surface conforming to the curvature of the drum or rail 11. The bearing block is mounted on a cradle 21 which is pivoted on a fixed support at 22 carried by brackets 22A. The block 20 is pivoted at 23 upon a bearing surface 24 fixed to the cradle, and the block 20 is counterbalanced by a weight 25 projecting from one end thereof and adapted to tilt the bearing block on the pivot 23 so

that the leading edge 26 of the bearing block will engage the periphery of the tire or rail 11 when the block is not raised upwardly into operative position. This engagement of the leading edge with the periphery of the tire or rail will scrape off any dirt or other foreign material adhering to the tire.

The bearing block 20 is preferably formed of material such as Ryertex or Micarta and a shower pipe 27, carried by an arm 27A mounted on one of the brackets 22A, sprays water or other lubricant on the tire and lubricates the bearing surfaces of the shoe and the tire of the drum. The brackets 22A are mounted on base 31 and are connected by a cross-brace 22B.

The shower or spray pipe 27 is preferably provided with a conventional check valve in the feed line and the check valve has an extended stem 28 adapted to operate a conventional switch 29 in the circuit of the pump motor M', as hereinafter explained. In this manner, if the water pressure and feed in the shower pipe 27 is interrupted, the pump motor circuit is opened and the bearing shoe 20 is lowered to inoperative position.

Operating means is provided for tilting the cradle 21 on its pivot 22 after the drum 10 has started to rotate. This is accomplished in the following manner. A hydraulic cylinder 30 has trunnions 37 pivoted in brackets 38 mounted on the base 31 on which the cradle 21 is supported. The cylinder 30 extends through an opening 39 in the base 31 and in the cylinder is a piston 32 having a piston rod 33 which extends upwardly and is pivoted at 34 to the cradle 21. Fluid under pressure is supplied to the cylinder through an inlet 35 and the cylinder has an outlet 36 at the upper end thereof.

Referring to Fig. 3, there is shown diagrammatically an electrical circuit and power driving means for the drum 10 and for operating the cradle to raise the bearing block or shoe into operative position. The drum 10, as in the usual construction, has a conventional peripheral ring gear secured thereto, which is engaged by a gear driven from a motor M.

The cylinder 30 is supplied with fluid under pressure by means of a pressure pump P which is driven by an independent motor M'. The leads to the power line are shown at 41 and 42, a switch 43 being interposed in the lead 41. The lead 41 is connected to one side of the motor M and the lead 42 is connected to the other side of the motor. Lead 41 is also connected by a wire 44 to one side of a time-delay switch S of any suitable construction, and the other side of this switch is connected by a wire 45 to the wire 42. The switch S is also connected by wire 47 to one side of the motor M'. The leads from the switch 29 are connected by wires 48 and 46 respectively to the switch S and to the other terminal of motor M'.

Thus, as the switch 43 is closed, the motor M starts immediately and drives the drum 10. The closing of the switch 43 also starts in operation the time-delay switch S, which is so constructed that power to the wires 46 and 47 will be delayed until after the drum 10 has started to rotate. Thereafter, the motor M' will be energized, the pump P will be operated, and fluid under pressure will be fed to the cylinder 30 and will thus raise the piston 32 and piston rod 33, tilting the cradle 21 and raising the bearing block or shoe 20 to operative position. However, if the flow of fluid in the spray pipe 27 is interrupted, the switch 29 is opened, thus opening the circuit of motor M' and lowering the shoe 20.

The lowering movement of the shoe 20 is limited by a cross-bar 50 that extends between the side plates of the cradle 21. The cross-bar 50 engages an adjustable stop 51 mounted on the base 31.

If desired, instead of using a pressure pump, cylinder,

3

and piston to raise the shoe, other means could be used, as, electrical operating means such as a solenoid.

Moreover, the necessary delay in the operation of the bearing shoe raising means could be accomplished without the use of a time-delay switch, as, for instance, by so regulating the length of travel of the piston that its delay in operation will be sufficient.

Although one specific embodiment of the invention has been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. In combination, a drum, means for rotatably supporting said drum, means for rotating the drum, and supplemental drum-supporting means normally disposed in inoperative position when the drum is at rest, and means controlled in its operation by the means for rotating the drum for automatically moving said supplemental supporting means to operative drum-supporting position after the drum has started to rotate for relieving pressure on the drum-supporting means as the drum continues to rotate.

2. In combination, a drum, means for rotatably supporting said drum, means for rotating the drum, and supplemental drum-supporting means consisting of a shoe normally disposed in inoperative position when the drum is at rest and means controlled in its operation by the means for rotating the drum for automatically moving said shoe to operative drum-supporting position after the drum has started to rotate for relieving pressure on the drum-supporting means as the drum continues to rotate.

3. In combination, a drum, means for rotatably supporting said drum, means for rotating the drum, a shoe mounted below the drum, means for pivotally supporting said shoe, said shoe being biased to tilt on its pivot in a direction to engage only a leading edge of the shoe with the drum, in the direction of rotation of the drum, when

4

the shoe is not disposed in drum-supporting position, and means for raising the shoe into operative, drum-supporting position.

4. In combination, a drum, means for rotatably supporting said drum, means for rotating the drum, a shoe mounted below the drum, means for pivotally supporting said shoe, said shoe being biased to tilt on its pivot in a direction to engage only a leading edge of the shoe with the drum, in the direction of rotation of the drum, when the shoe is not disposed in drum-supporting position, and means operative after the drum has started to rotate for raising the shoe into operative, drum-supporting position.

5. In combination, a drum, means for rotatably supporting the drum, means for rotating the drum, supplemental drum-supporting means consisting of a bearing shoe, means for lubricating the bearing surfaces of the shoe and the drum, means for moving the shoe into drum-supporting position after the drum has started to rotate, and means for rendering the shoe-moving means inoperative when the shoe-lubricating means is inoperative.

6. In combination, a drum, means for rotatably supporting the drum, means for rotating the drum, supplemental drum-supporting means consisting of a bearing shoe, means for lubricating the bearing surfaces of the shoe and the drums, means including a motor and pump for moving the shoe into drum-supporting position after the drum has started to rotate, and means for opening the motor circuit and rendering the shoe-moving means inoperative when the shoe-lubricating means is inoperative.

References Cited in the file of this patent

UNITED STATES PATENTS

759,939	Thomas	May 17, 1904
827,617	Carritte	July 31, 1906
1,698,347	Puening	Jan. 8, 1929
1,800,228	Pierce	Apr. 14, 1931
2,243,631	Johansson et al.	May 27, 1941
2,630,153	Dick	Mar. 3, 1953
2,703,916	Butler	Mar. 15, 1955