United States Patent

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[54] **APPARATUS FOR DETECTION OF OBSTRUCTION BETWEEN LOG AND ROLLER BAR ON VENEER LATHE ASSEMBLY**
4 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **144/213**
[51] **Int. Cl.** **B27l 5/04**
[50] **Field of Search** 144/213, 209

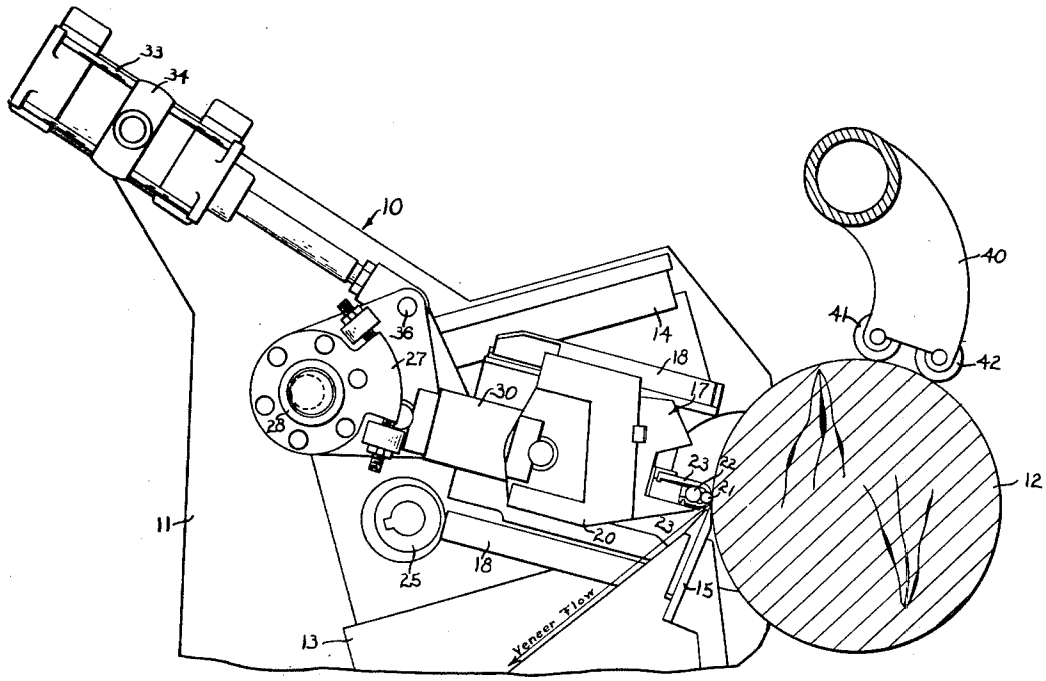
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ABSTRACT: A detection system is included ii the control circuit for sensing the current flowing to a roller bar drive motor on a veneer lathe assembly. The detection system causes the roller bar to be moved away from the log when the current load exceeds a prescribed value indicating that an obstruction is wedged between the roller bar and the log being peeled.



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SHEET 1 OF 2

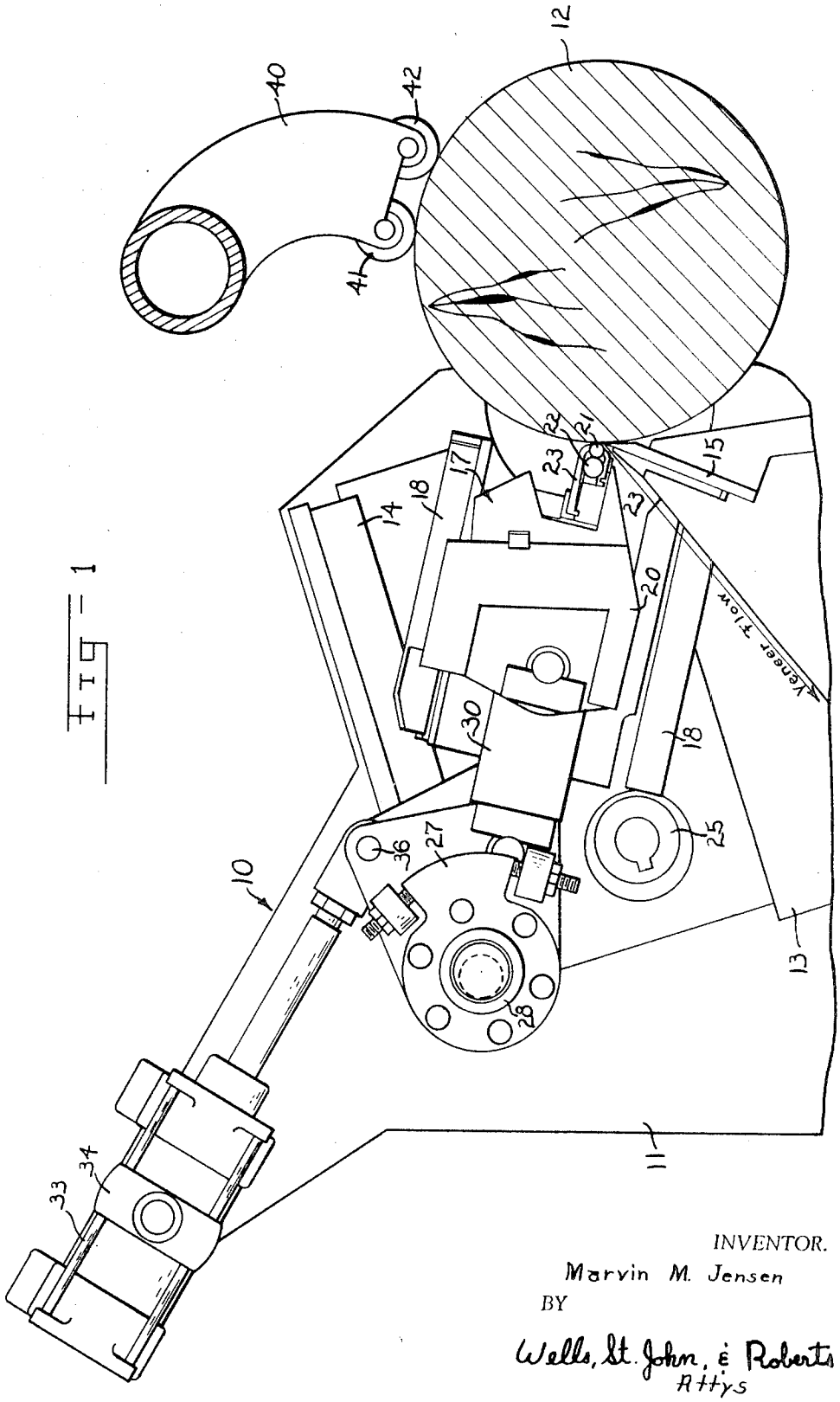


FIG - 1

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Fig - 2

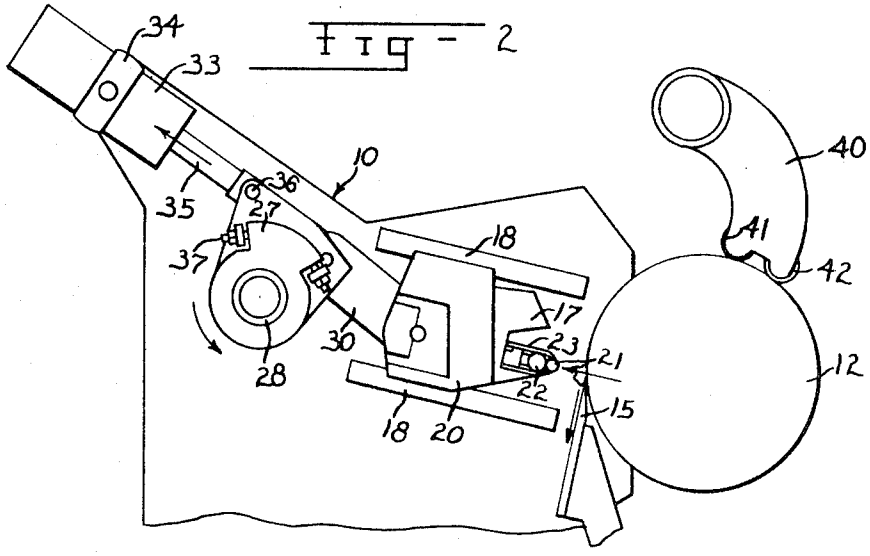
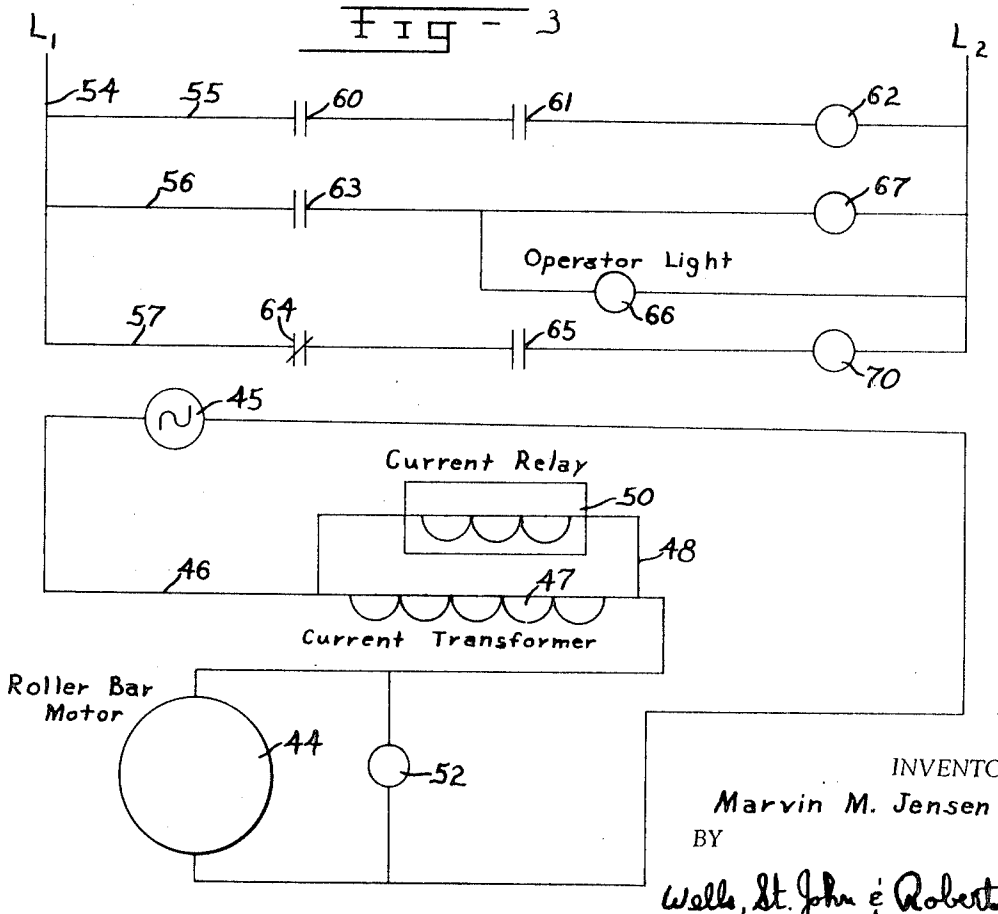


Fig - 3



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APPARATUS FOR DETECTION OF OBSTRUCTION BETWEEN LOG AND ROLLER BAR ON VENEER LATHE ASSEMBLY

BACKGROUND OF THE INVENTION

This invention relates to veneer lathe assemblies and more particularly to the roller bars on the assemblies.

During the peeling of veneer from a log, a roller bar is pressured against the log adjacent to the point of contact by a veneer knife for preventing the plywood or veneer from cracking as it is being peeled from the log. Occasionally a piece of wood will be broken off and become wedged between the roller bar and the log, scoring the veneer that is being peeled. Even through the operator may be quite observant, it generally takes a period of time before the obstruction is noticed and the roller bar backed away from the log to permit the piece of wood or obstruction to flow between the roller bar and the log. By this time a substantial length of the veneer has been scored. The operator then moves the roller back into engagement with the log to continue the ordinary operation.

One of the principal objects of this invention is to provide a detection system that senses the presence of an obstruction between the roller bar and the log and to automatically move the roller bar from the log to permit the obstruction to pass between the log and the roller bar without scoring the veneer being peeled.

An additional object of this invention is to provide a detection system for sensing the presence of an obstruction between the log and the roller bar which can be easily adapted to presently used assemblies at a minimum of cost.

A further object of this invention is to provide such a detection system that is inexpensive to manufacture and easy to maintain.

These and other objects and advantages of this invention will become apparent upon the reading of the following detailed description of a preferred embodiment.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of this invention is illustrated in the accompanying drawings, in which:

FIG. 1 is a fragmentary vertical cross-sectional view of a conventional veneer lathe having a veneer knife mounted on a veneer knife carriage for moving to and from a log and a roller bar that is mounted on a movable roller bar assembly for movement to and from the exterior of the log adjacent to the point of which the log is being peeled to form veneer;

FIG. 2 is a view similar to FIG. 1 except showing the rearward movement of the roller bar assembly to remove the roller bar from the log to permit an obstruction or piece of wood to move past the roller bar; and

FIG. 3 is an electrical schematic view of a portion of the control circuit for the veneer lathe embodying the invention for sensing the presence of the obstruction and operating the rearward movement of the roller bar.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

A conventional veneer lathe apparatus designated by the arrow 10 comprising an assembly frame 11 that is reciprocated back and forth in a substantially horizontal direction for moving the veneer lathe to and from a log 12 that is being supported and rotated between opposing veneer lathe chucks (not shown).

The veneer lathe apparatus includes a veneer knife carriage 13 that is reciprocally mounted on the apparatus in ways 14 for adjusting the position of a veneer knife 15 on the veneer lathe apparatus to adjust the thickness of the veneer.

A roller bar assembly 17 is mounted on the veneer knife carriage and includes ways 18 for movably supporting a roller bar carriage 20 that may be reciprocated back and forth. A roller bar 21 is rotatably mounted on the front of the carriage 20 in roller bar bushings 23. Immediately behind and engaging the roller bar 21 is a drive bar 22 for rotating the roller bar 21.

The veneer knife carriage 13 is adjusted on the assembly frame 11 by an eccentric cam 25. The movement on the eccentric cam 25 adjusts the bite of the veneer knife 15 to vary the thickness of veneer as desired.

The roller bar assembly 17 includes a drive mechanism reciprocating a roller bar carriage 20 to move the roller bar into and from contact with the exterior of the log adjacent to the point where the veneer is being peeled by the veneer knife 15. The drive mechanism for the carriage 20 includes a pivot crank frame 25 that is rotatably mounted on a shaft 28 that extends across the rear of the veneer lathe apparatus 10. A link 30 pivotally interconnects the pivot crank frame 27 and the roller bar carriage 21.

A piston cylinder 33 is connected to the crank frame 27 for pivoting the crank frame about the shaft 28 to reciprocate the roller carriage back and forth. The piston cylinder 33 is mounted in a pivot bracket 34 that is secured to the veneer frame 11. The piston rod of the piston cylinder 33 extends to a pin 36 that is affixed to the crank frame 27. Adjustment screws 37, affixed on the crank frame 27, adjust the movement of the carriage 20 with respect to the movement of the piston rod 35.

The conventional lathe apparatus also includes a backup frame 40 that overhangs the log for engaging the opposite side of the log by backup rollers 41 and 42 to keep the log from bowing by the pressure exerted by the veneer knife. The backup rollers 41 and 42 are moved into and out of contact with the exterior of the log by a suitable mechanism.

A roller bar motor 44, illustrated in the electrical schematic FIG. 3, is mounted on the roller bar carriage 20 for rotating the drive bar 22 which in turn rotates the roller bar 21. The roller bar motor 44 is driven from an electrical source 45 through a circuit 46. A current transformer 47 is mounted in the circuit for generating a proportional current in an auxiliary circuit 48. As part of the invention, a current relay 50 is mounted in the auxiliary circuit 48. The current relay 50 is sensitive to the magnitude of the current flowing to the motor 44 and is operated when the current exceeds a preset value. By monitoring the current, the current relay in effect is a load detection or monitoring device. A startup time delay relay 52 is mounted in the primary circuit 46.

As part of the invention a control circuit 54 is illustrated in FIG. 3 for controlling the piston cylinder 33. The control circuit has three parallel lines 55, 56 and 57. The current relay 50 has a normally open set of contacts 60 positioned in the line 55 which closes when the current relay 50 senses the current in the primary circuit exceeds the prescribed value. The time delay relay 52 has a normally open set of contacts 61 that is also positioned in the line 55 in series with contact 60. A second time delay relay 62 is positioned in the line 55 and is energized when the contacts 60 and 61 close. The time delay relay 62 has a normally open set of contacts 63 in line 56 and a normally closed set of contacts 64 and a normally open set of time delay contacts 65 in line 57. When the set of contacts 63 closes it energizes a solenoid 67 that automatically operates the hydraulic system actuating the piston cylinder 33 to contract the piston rod to pull the roller bar from engagement with the log. A light or illuminating device 66 is mounted in parallel with the solenoid 67 and is located on the operator's table to indicate to the operator the presence of an obstruction or a piece of wood between the roller bar and the log.

A second solenoid 70 is mounted in line 57 for activating the hydraulic system to extend the piston rod 35 to move the roller bar into engagement with the exterior of the log. The set of contacts 65 does not close immediately upon the energization of relay 62, but closes after a few seconds. In this manner there is a time interval before the piston cylinder 33 is energized to move the roller bar 21 back into engagement with the log after the obstruction has passed.

In operation the roller bar motor 44 rotates the drive bar 22 which in turn rotates the roller bar 21 which is in pressure engagement with the exterior of the log. When a piece of wood or obstruction becomes wedged between the roller bar and the exterior of the log, the resistance to rotation increases, demanding a higher current to the roller bar motor. The additional current energizes the current relay 50 which in turn closes contacts 60. The set of contacts 61 is normally closed when the roller bar motor is in operation. Thus on the closing of the set of contacts 60 the time delay relay 62 is energized. The energization of the time delay relay 62 closes the set of contacts 63 and opens the set of contacts 64. The closing of the set of contacts 63 energizes the solenoid valve to move the roller bar carriage rearward to permit the obstruction to pass between the roller bar and the periphery of the log to prevent scoring. As the roller bar moves from engagement with the periphery of the log on the motor 44 decreases causing the current relay to deenergize to open the set of contacts 60 which deenergizes the time delay relay 62. Instantaneously the set of contacts 64 closes and the set of contacts 65 closes a few seconds later, so that there is a few seconds delay between the deactivation of the solenoid valve 67 and the activation of the solenoid valve 70.

The obstruction sensing device can also be used for setting the correct pressure of the roller bar on the exterior of the log by moving the veneer lathe apparatus forward until the current relay 60 is activated. The operator then knows that the correct pressure of the roller bar on the log has been exceeded by a small amount. The operator then operates the veneer lathe apparatus 10 to move the carriage frame rearward a small distance to obtain the correct pressure during the operation of the veneer lathe apparatus.

It should be noted that the control system is extremely simple and uncomplicated. The detection system can be manufactured at a very reasonable price and adapted to existing systems.

I claim:

1. In a veneer lathe assembly having:
   a. a carriage frame with a veneer knife mounted thereon for peeling logs mounted between rotating lathe spindles to form wood veneer;
   b. a roller bar rotatably and reciprocably mounted on the carriage frame;
   c. a motor mounted on the carriage frame for rotating the roller bar;
   d. a drive means mounted on the carriage frame for reciprocating the roller to and from the log adjacent to the veneer knife;
   e. a control means for controlling the motor and drive means; and
   f. wherein the control means includes the improvement of a detection means operatively connected to the motor for sensing the load on the motor and for sensing when the load increases above a prescribed value indicating that an obstruction exists between the roller bar and the log.

2. In a veneer lathe assembly as defined in claim 1 wherein the detection means operates the illuminating device when the load on the motor exceeds the prescribed value to indicate to an operator that an obstruction exists between the roller bar and the log.

3. In a veneer lathe assembly as defined in claim 2 wherein the motor is an electrical motor and wherein the detection means includes a current relay that is sensitive to the electrical current to the motor and is operated when the electrical current to the motor exceeds the prescribed value.

4. In a veneer lathe assembly as defined in claim 1 wherein the control means operates the drive means to reciprocate the roller bar from the log when the load on the motor increases above the prescribed value.