

Feb. 1, 1944.

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2,340,532

VENEER LATHE

Filed June 25, 1941

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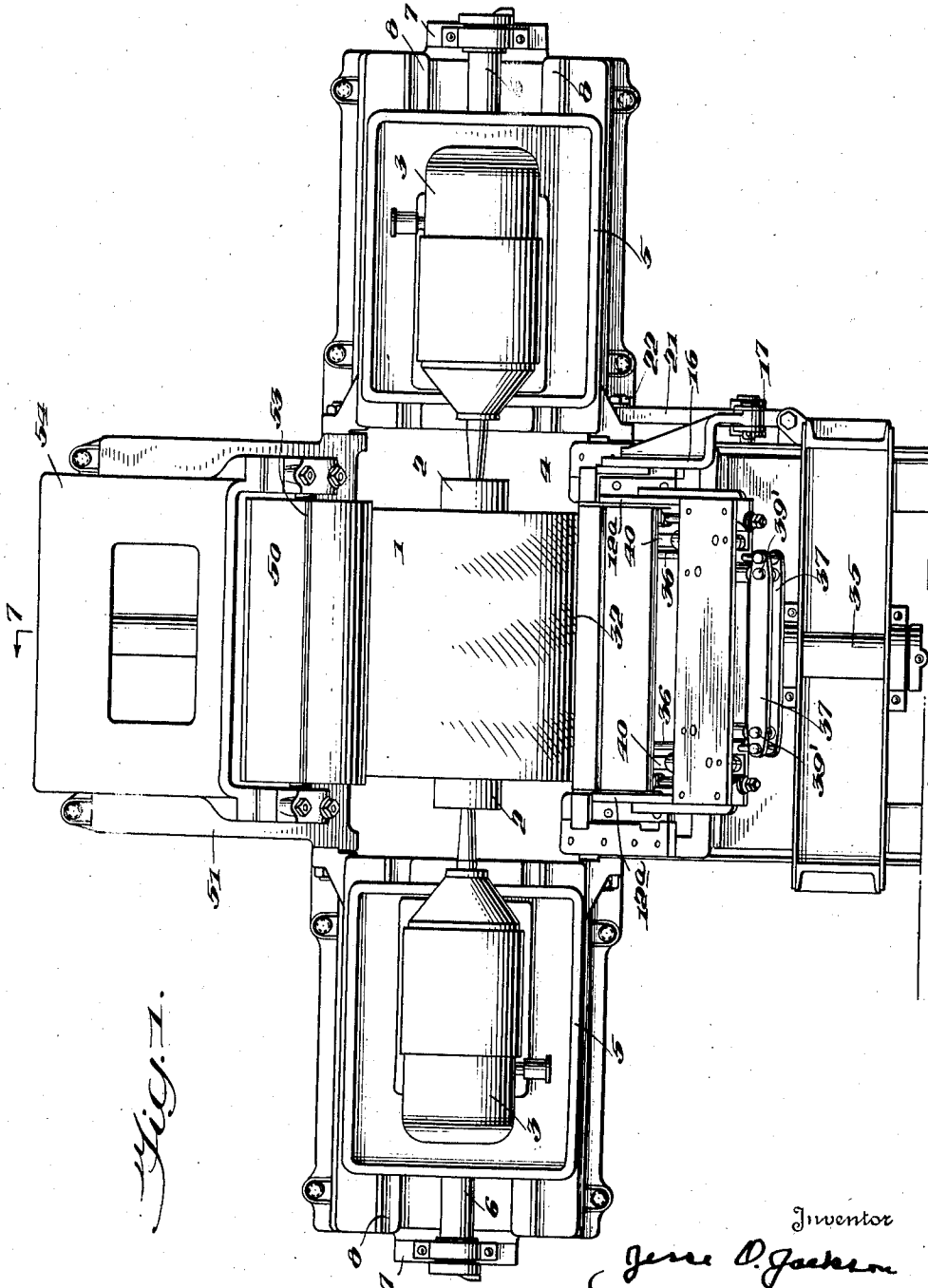


Fig. 1.

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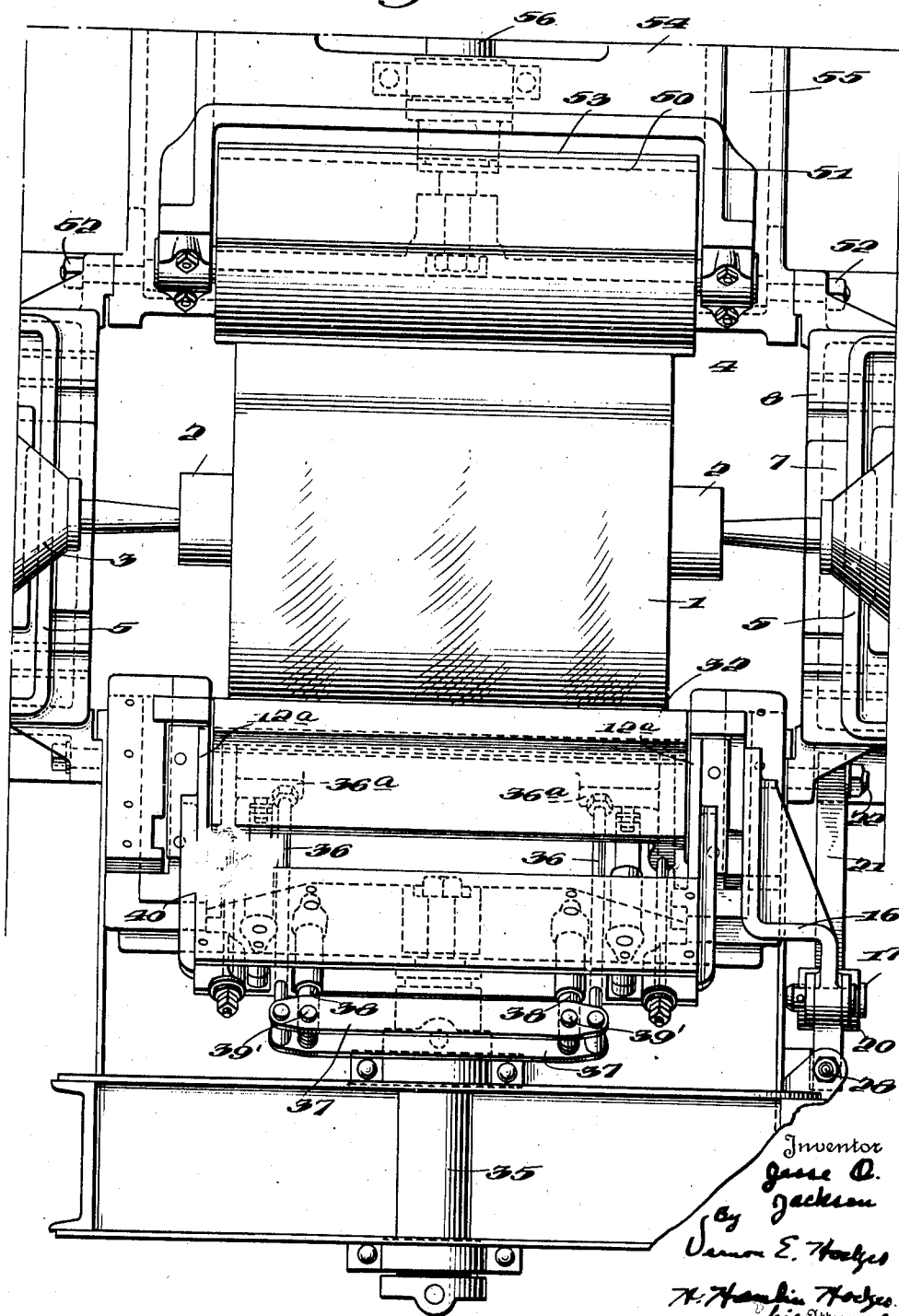
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VENEER LATHE

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Fig. 2.



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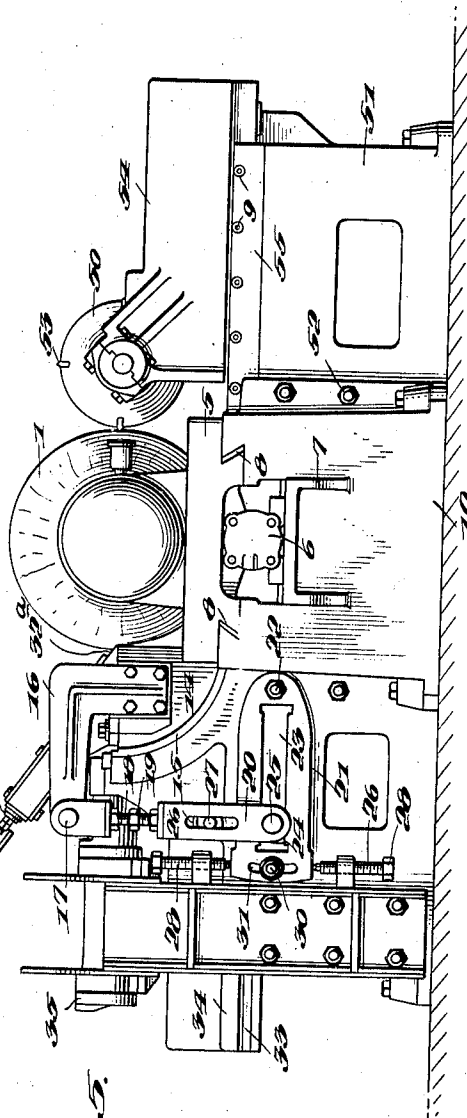
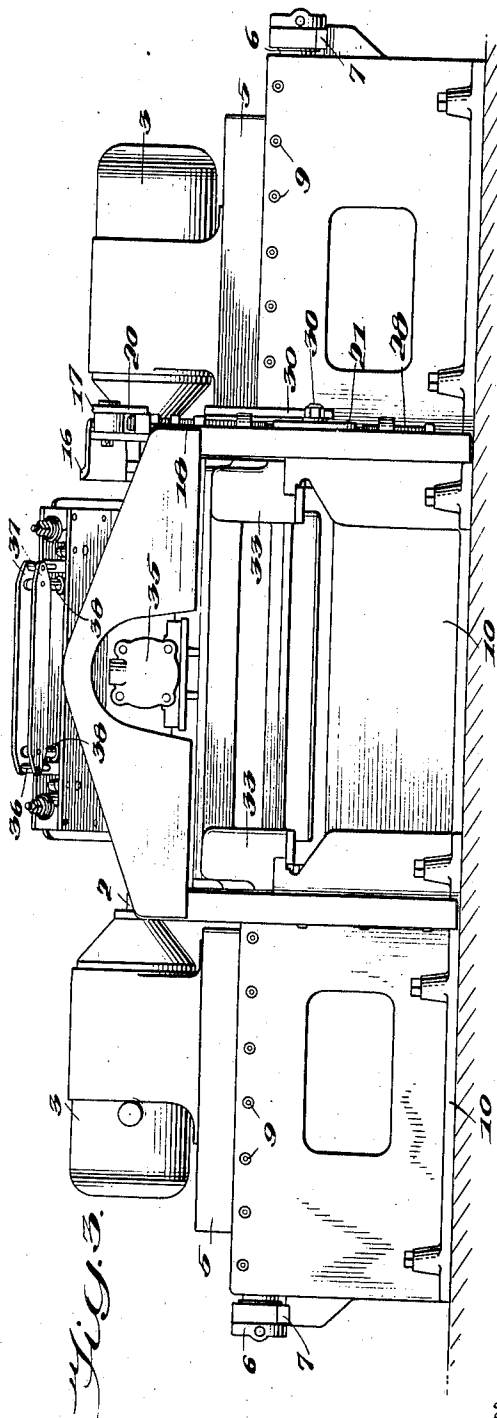
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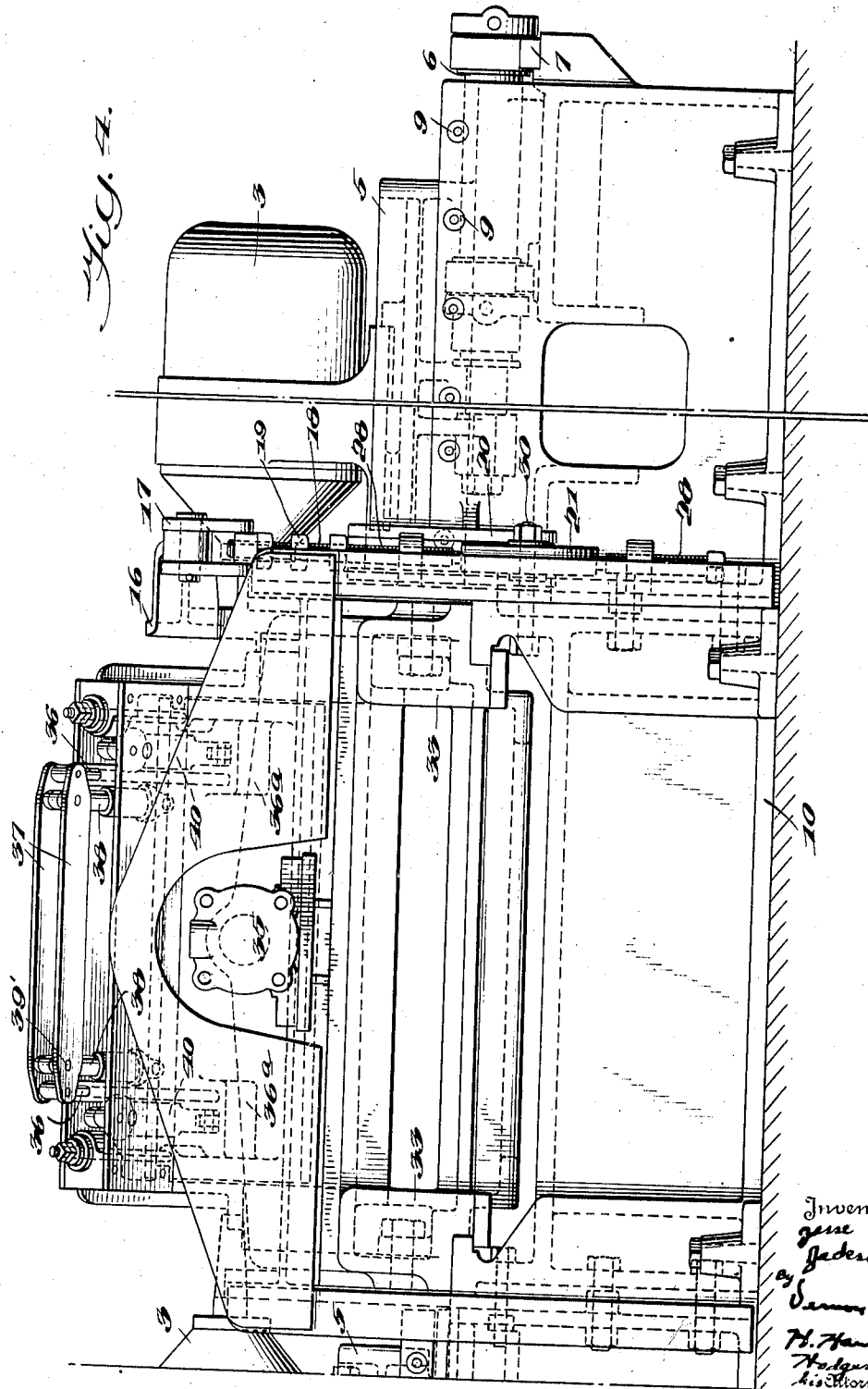
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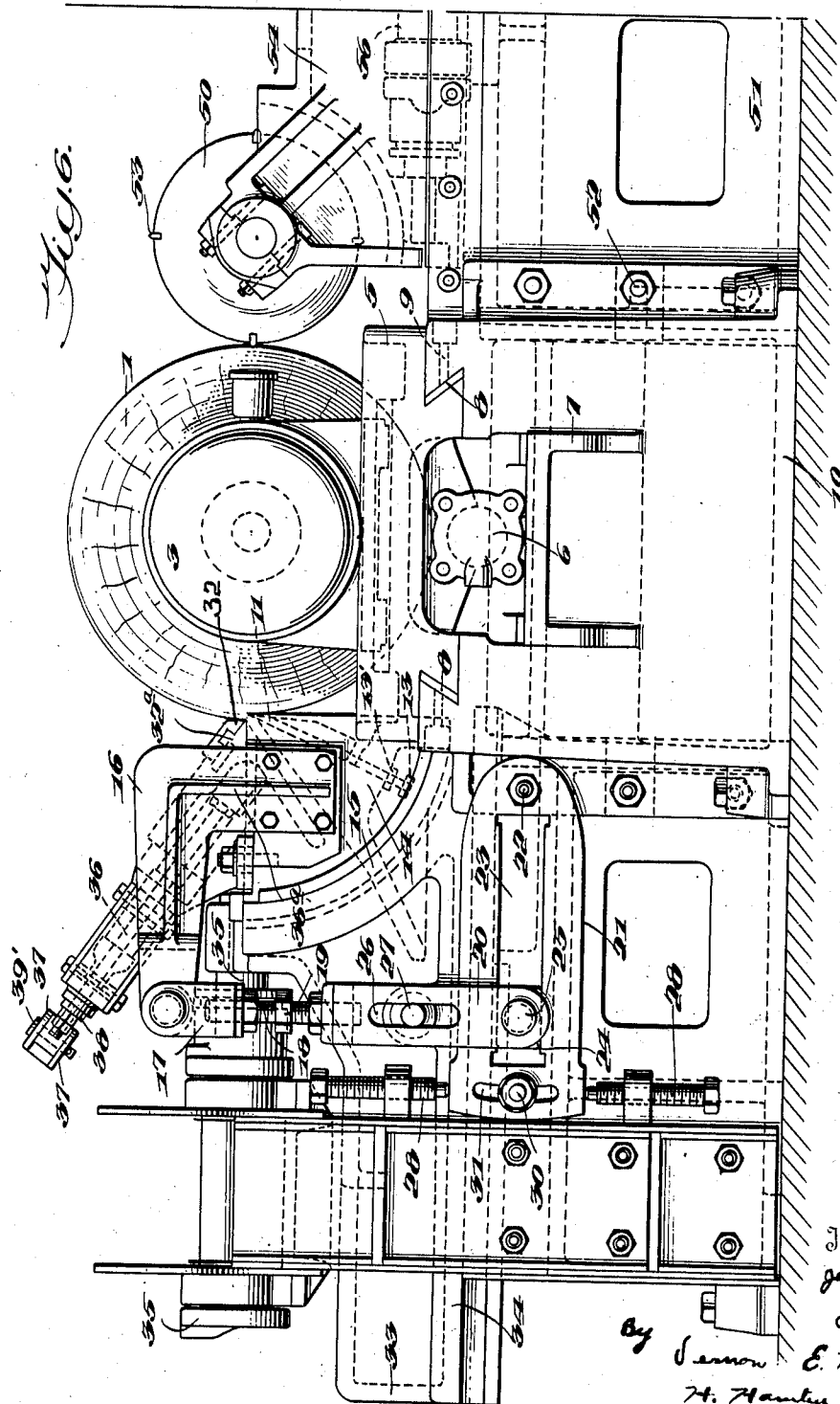
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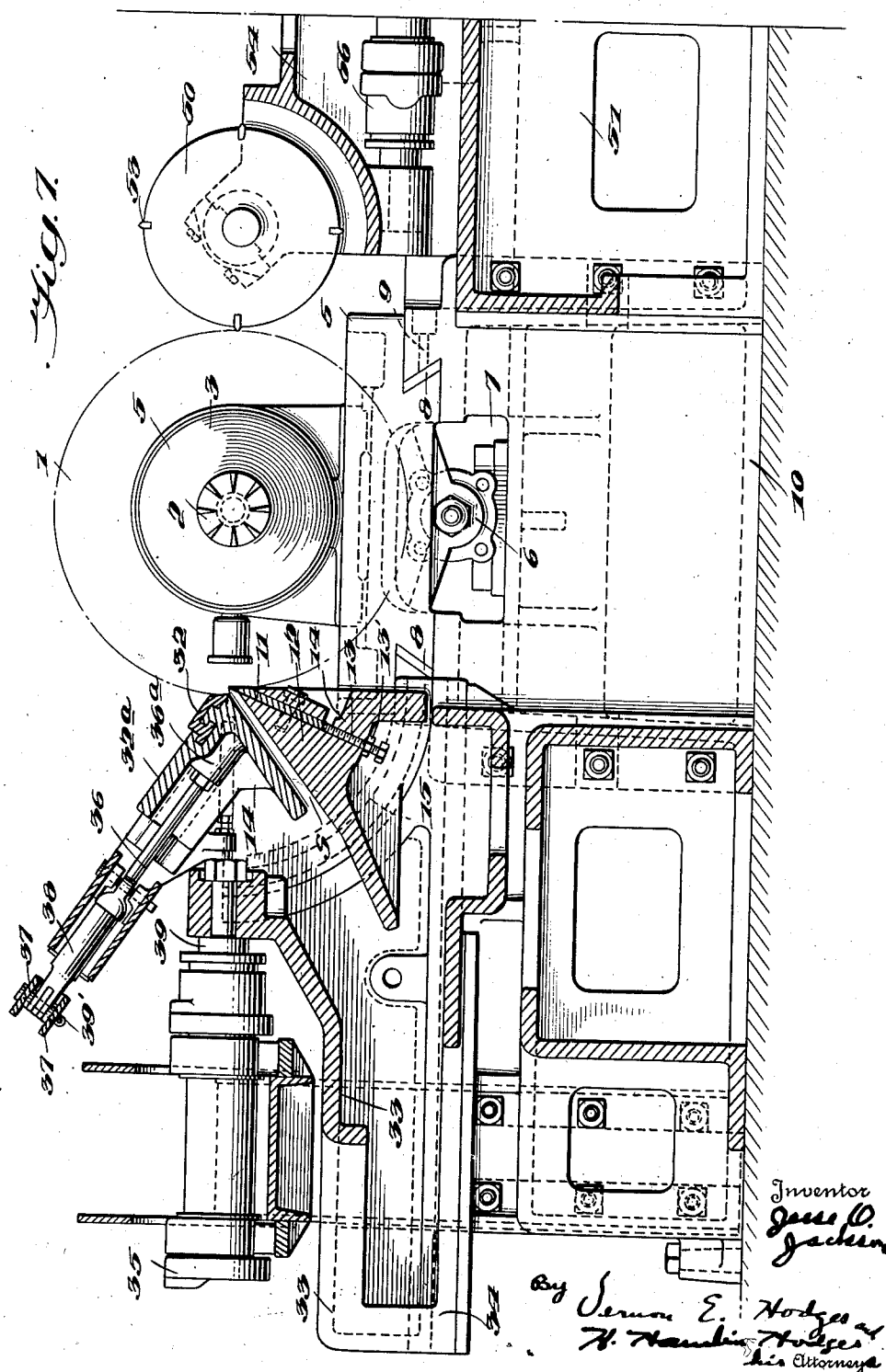
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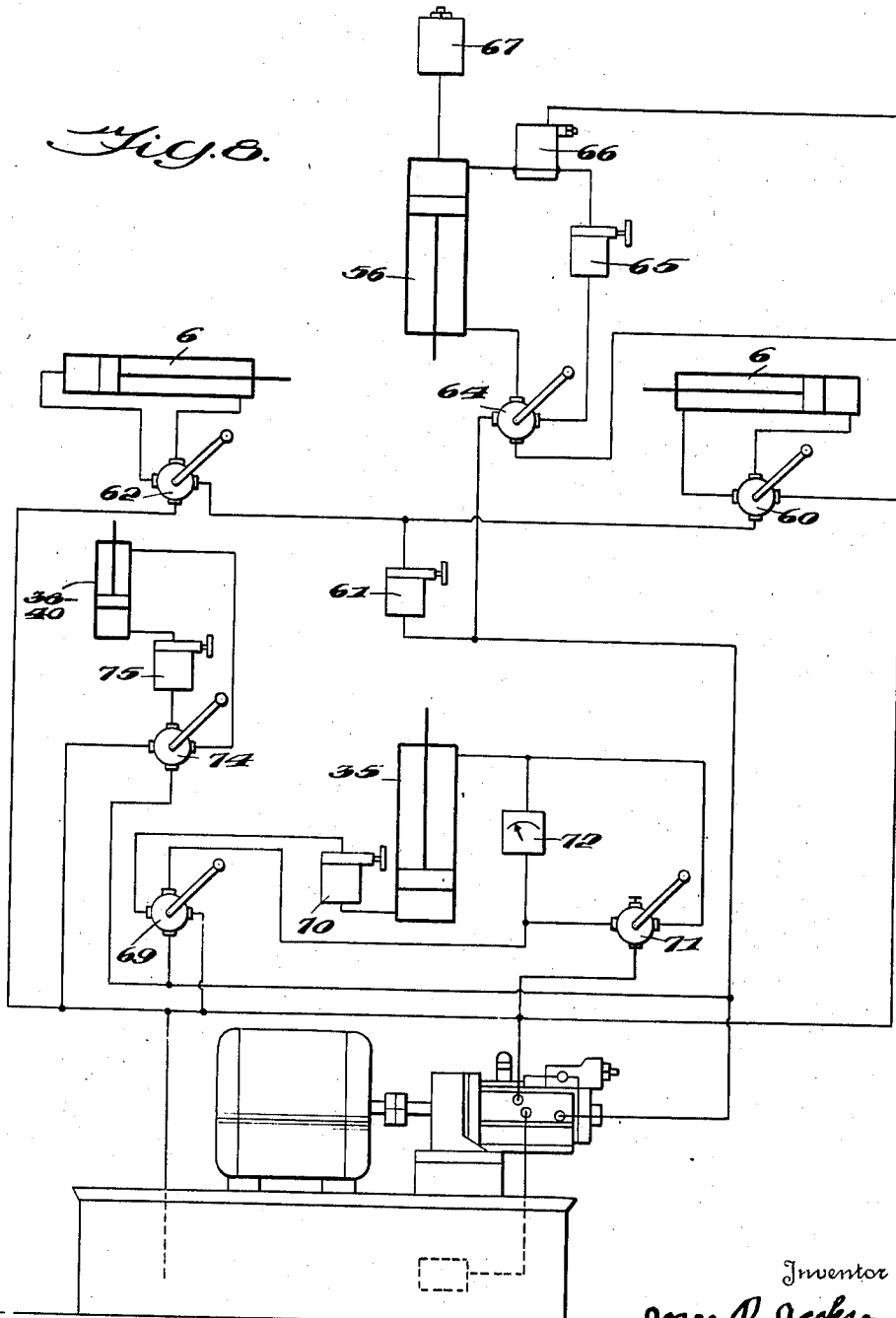
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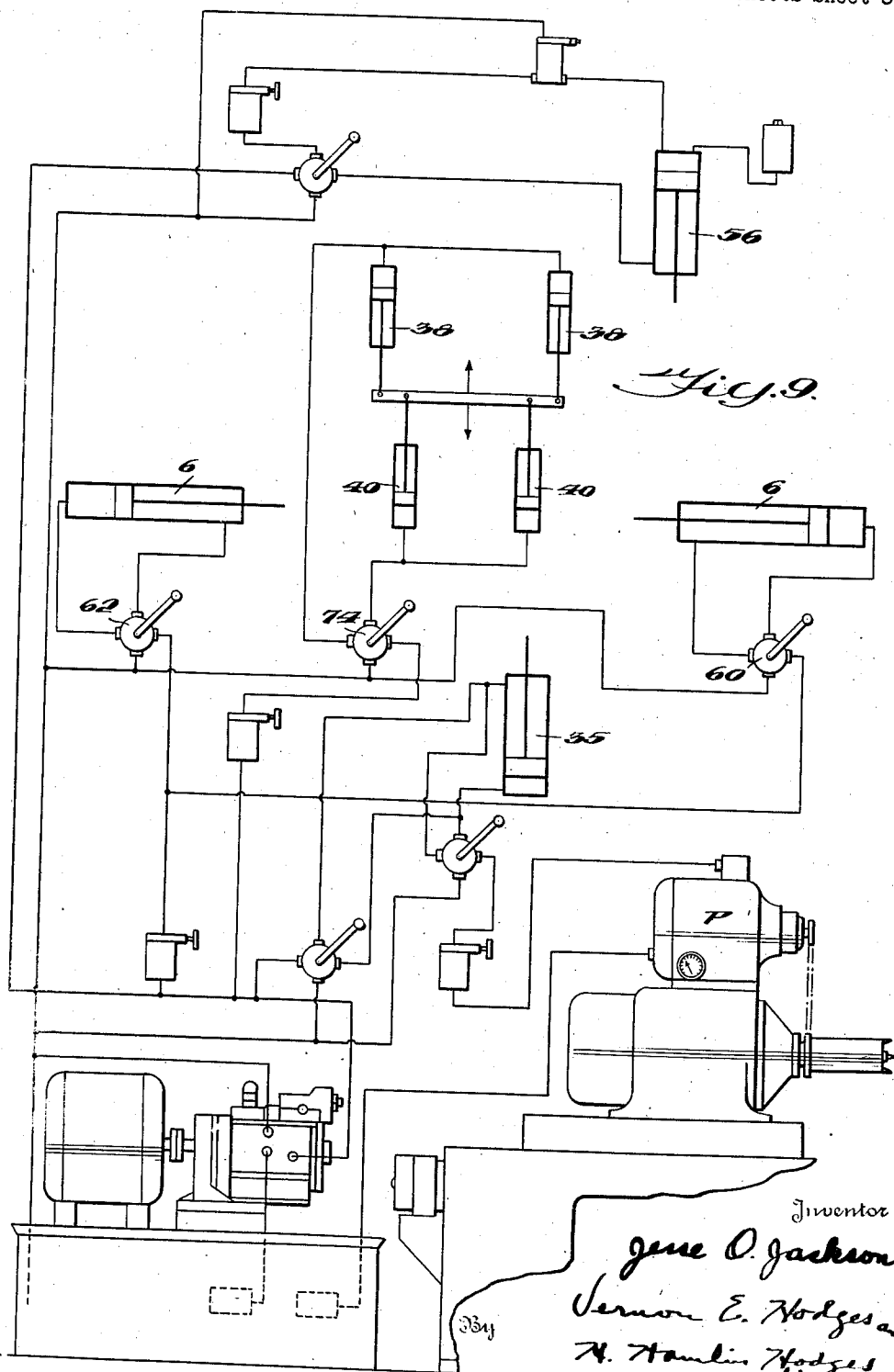
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VENEER LATHE

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UNITED STATES PATENT OFFICE

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VENEER LATHE

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Application June 25, 1941, Serial No. 399,721

18 Claims. (Cl. 144—209)

This invention relates to an improvement in veneer lathes.

The object is to provide a lathe for cutting veneers with mechanism for operating the various movable parts by hydraulic means, thus dispensing with the use of the time-honored feed-screws, chain sprockets, change gears for changing thickness of veneers, and/or gear-boxes and the like.

By the use of this improved mechanism, it is possible to accurately speed up the veneer cutting operation and to provide automatic control of the various moving parts by the use of hydraulic cylinders, hydraulic pumps, a system of piping, and valves within the reach and control of an operator.

This mechanism makes it possible to greatly increase the speed of positioning a log to be held between the hydraulically operated chucks, which may be driven by suitable electric or other means at any desired speed. The chucks being hydraulically operated make it possible to operate one or both chucks either by one control valve or by separate valves, which valves may be located at any convenient place within easy reach of an operator. A constant hydraulic pressure may be maintained on the chucks, and that pressure may be changed to suit log conditions. For example, large logs require more pressure than small logs just as hard logs require more pressure than soft logs. Constant hydraulic pressure on the end of the chucks prevents logs from getting loose between chucks and prevents what is commonly called "wring outs." Also better quality veneer is produced by hydraulic chucking because no log wobbling results to cause varying thickness of the veneer being cut. In using conventional chucks a certain amount of loosening of the chuck will result when actual cutting begins and during the cutting operation. This loosening is eliminated with hydraulic pressure constantly on the chucks.

By the use of this improved mechanism it is possible to accurately control the advance of the cutting knife and to adjust that advance so that it will cut any predetermined thickness of veneer with great accuracy.

Because of the possibility of fast adjustment and positively controlled knife advance to insure veneer thickness accuracy, it is possible to cut veneer much more rapidly than it has been cut in the past.

By the use of this mechanism a new and novel type of direct drive is afforded by means of fluid, electric or other motor which rotates the log at either constant or variable speed, and eliminates many parts, thus requiring less space and being more efficient.

With the foregoing and other objects in view, the invention consists broadly in hydraulic

chucks for holding the log, hydraulic means for moving the chucks, cutting-knife and pressure plate hydraulically controlled, a back-roll attached, and hydraulic means for moving the back-roll in and out of contact with the periphery of the log when it is desired to cut the veneers into strips as they come off the log.

In the accompanying drawings:

Fig. 1 is a plan view;

Fig. 2 is also a plan view on an enlarged scale confined to the central portion of the lathe;

Fig. 3 is a view in front elevation;

Fig. 4 also shows the right-hand end of the lathe in front elevation on an enlarged scale and part of the right-hand end broken out;

Fig. 5 is a view in end elevation;

Fig. 6 is a view in end elevation of a portion of the lathe shown on an enlarged scale;

Fig. 7 is a vertical transverse section on the line 7-7 of Fig. 1, looking in the direction of the arrows;

Fig. 8 is a hydraulic circuit diagram including valves, motor, hydraulic pump, flow control valves, etc. for constant speed drive; and

Fig. 9 is an entire hydraulic circuit diagram similar to the view shown in Fig. 8, but adapted for a variable speed drive.

The log 1 is held between two chucks 2, which hold the log at opposite ends as is customary, and either or both of which are adapted to be driven at a desired revolution per minute.

As illustrated in the drawings, both of these chucks are rotated, preferably by electric motors 3, although not necessarily since fluid or other means might be employed. Space 4 is provided for the accommodation of a log, and this is of sufficient width to afford ample clearance space at the ends of the log 1.

The motors 3 are supported on carriages 5, and these carriages are moved in and out by hydraulic cylinders 6 mounted on supports 7, the carriages being constructed on their lower sides to slide in and out between the ways 8, which latter are capable of lateral adjustment to take up for wear, by the bolts 9. These ways 8 are located on the central portion of the main frame or base 10 of the machine.

The veneer cutting knife 11, shown in dotted lines in Fig. 6, and in section in Fig. 7, is bolted in a knife table 12 in which screws 13 are provided for adjusting it to the correct point, and each screw has a lock nut 13' on it to hold it in proper adjustment. The knife table 12 includes a segment 14, one edge of which is in the form of an arcuate curve with the cutting edge of the knife as a center as shown in Figs. 6 and 7, and this curved surface operates in connection with a correspondingly curved guide 15, which construction is provided to change the tangential position of the cutting knife. An L-shaped arm

16 is bolted fast to the segment 14 and the adjustment of the knife-table 12 is made through an extensible connecting rod assembly. This assembly is preferably made up of the part 17; the screw 18 which has right and left threads, a centrally located nut 19 thereon by means of which the screw is turned, to lengthen or shorten the connecting rod assembly and thereby adjust the angle of the cutting knife 11 and the position of the slotted connecting rod proper 20. A link 21 is pivotally mounted on the frame or base by means of a bolt 22 at one end, and it is provided with a slot 23 extending longitudinally thereof; and a slide block 24 held by the bolt or rivet 25 to the connecting rod proper 20 is fitted to slide in the slot 23. The connecting rod proper 20 is provided with a slot 26, and a stud 27, secured to and extending outwardly from the knife carriage, guides the endwise movement of the connecting rod proper 20. The assembly as a whole, is pivotally connected at its upper end to the arm 16 and at its lower end pivotally and slidably connected to the link 21.

Besides the screw 18 for lengthening and shortening the connecting rod assembly, an adjustment of the slotted link 21 is provided through the set-screws 28. A bolt 30 extending through the arcuate slot 31 in the link 21 locks the link in adjusted position.

The two above-described adjustments are provided first for adjusting the pitch of the knife 11, and the second, for the automatic change of that adjusted pitch as the log is cut.

To get any desired angle of the knife, it is merely necessary to adjust the length of the connecting rod assembly by either lengthening or shortening it through the adjustment of the right and left setting screw 18 and its associated lock-nuts.

To prepare the machine for automatic change of pitch of the knife as the log is cut, it is merely necessary to adjust the slant of the link 21 a proper amount to effect a desired degree of change of pitch as the log is cut. This is done by adjusting the set-screws 28, and then tightening the locking bolt 30.

If veneer is to be cut without automatically changing the pitch of the cutting blade 11, the link 21 will be secured in a horizontal position so that the adjusted pitch of the blade will remain the same as the knife carriage advances.

If a changing angle or automatic pitch is desired, the link 21 will be set at the desired angle which will cause the knife table 12 to tilt and change the pitch of the blade 11 as the knife carriage and table are moved in.

For example, when a 24" log is chucked into place the link 21 may have its adjusting screw end raised from horizontal. Then, as the machine is started and the knife 11 is fed into the log, the slide block 24 in the slot 23 will pull down on the knife table 12 through the arm 16 and the connecting rod assembly, and will automatically cause the angle of the knife to be decreased as the log diminishes in diameter.

The pressure plate 32 (shown in Figs. 6 and 7) is located above and between the sides of the knife-table 12, and is held on the support 32a. The entire unit is mounted on the carriage 33 slidable in the ways 34 on the main frame 10, which carriage with the connected parts is moved in and out by the piston rod 39 in the hydraulic cylinder 35. At the ends of the knife-table 12, guides 12a are provided to slidably hold the support 32a for the pressure plate 32.

Since the pressure plate 32 must be held in close contact with the surface of the log and in close proximity to the veneer cutting knife, hydraulic means is provided for automatically maintaining this contact of the pressure plate as well as the quick withdrawal of the pressure plate when desired.

Rods 36 extend from lugs 36a on the back of the pressure plate to a pair of equalizing bars 37, and the hydraulic pistons 38 are connected with these equalizing bars by pins 39', and these hydraulic pistons are the means for withdrawing the pressure-plate 32 from its position against the log 1. Another pair of hydraulic pistons 40 are employed to maintain the contact of the pressure-plate against the log. This pressure may be adjusted to suit requirements.

Hydraulic knife feed

By means of a hydraulic cylinder or cylinders 35 and a flow control valve 72 hereinafter referred to, the rate of speed is controlled by which the knife 11 is fed into the log, cutting a predetermined thickness of veneer, and it is a very important feature of this invention that this means can be adjusted to provide a variation in the thickness as thin as three or four-thousandths ($\frac{3}{1000}$ or $\frac{4}{1000}$) of an inch.

The distance between the cutting edge of the knife 11 and the pressure plate 32 always equals the thickness of the veneer being cut, and the space between the table 12 and the pressure plate support 32a, indicated by the letter S, forms the outlet for the veneer as it is cut. The flow control valve 72, later to be described, functions as a veneer thickness selector, the thickness of the veneer being determined by the rate of flow, that is to say, the rate of advance feed of the knife is controlled by the rate of flow.

The hydraulic pressure plate permits the operator to move the plate in or retract it to permit cleaning of the knife and the plate which are held in position against the log by the aid of the hydraulic cylinder or cylinders, the operator being able to give any desired pressure by means of a pressure regulating valve, to be hereinafter described. The quality of the veneer is determined very largely by the amount of pressure applied to the pressure plate and the pressure it exerts against the log, all of which is determined by the different types of woods, more pressure being employed for certain types of woods and less pressure for others, and/or the diameter of the logs.

It will be seen that with the above-described mechanism that it will be possible to apply any desired amount of pressure to the pressure plate when the lathe is in operation. The pressure plate assembly is carried directly by the carriage 33, which also carries the knife, but since the pressure plate has independent means for applying a desired amount of pressure against the log, it will be seen that the pressure plate may be moved independently of the knife, although its advance will also be simultaneous with the knife advance.

The numeral 50 indicates a back-roll, which is rotatably supported on a carriage 54, which carriage moves in ways 55 on the frame or base 51 so that the roller can be applied to the log at any time when the log shall have been partially or entirely trued up to a cylindrical form. The back-roll is shown in Figs. 1, 2, 5, 6 and 7 in operative position. The frame 51 is conveniently fastened to the main frame 10 when the back-

roll 50 is used, by bolts 52 which afford an easy and simple means for attaching and detaching the back-roll frame 51.

The back-roll is provided with knives 53 at intervals to suit the size of strips into which the veneer is to be cut if and when used for boxes or crates. The back-roll itself is directly supported on a carriage 54 which is mounted to slide in ways 55 and the roll is fed to the log with the required pressure by the hydraulic cylinder or cylinders 56.

Hydraulic control constant speed drive

The cylinder 6 that moves the right-hand power unit or motor 3 in and out and holds pressure on the end of the chuck is controlled by the 4-way valve 60. The amount of pressure to be applied can be regulated to suit conditions by adjusting the pressure regulating valve 61 shown in the piping diagram disclosed in Fig. 8. This same pressure regulating valve 61 also controls the pressure on the left-hand cylinder 6 through the 4-way valve 62. The function of this left-hand cylinder is the same as the right-hand except that it controls the left-hand chuck unit.

The cylinder 56 controls the movement in and out of the back-roll through the operation of a 4-way valve 64. In this circuit a pressure regulating valve 65 is used, making it possible to give the desired amount of pressure of the back-roll against the log, which may be adjusted for different types of wood, hard or soft, and for cutting different thicknesses of veneer. Less pressure is applied when the back-roll knife cuts only $\frac{1}{16}$ " and likewise more pressure is applied when the back-roll cuts $\frac{1}{4}$ " thick veneer. As the circumference of the log is usually not round, a provision is made for the back-roll to follow the contour of the log, which means that this back-roll cylinder must be arranged so that the oil can be relieved from the back end of the piston. This is done in either one of two ways which are shown in Fig. 8 of the drawings: A relief valve 66 may be used to let the oil go back to the main oil supply tank, or a spring-loaded or air-charged compensator 67 may be used. This acts as an air chamber on a pump does. The oil is forced back into this cylinder 67 moving a piston against a spring (not shown), or if air-charged, simply compresses the air in the chamber 67.

The advantages of a hydraulic back-roll are that the pressures may be adjusted as explained above, and, too, that the back-roll can be applied to the log at any time desired, when cutting is first started or after the log is partially trued up, or after the log is completely trued up to an approximate cylinder before the back-roll is applied.

Heretofore in commercial practice practically, all back-rolls have been on feed-screws which were made right and left-hand. The veneer knife table worked on one side of the feed-screw and the back-roll table worked on the other. They both moved toward the center of the log at the same time and there was no separate control of each, with the result that the back-roll was applied at practically the same instant that the knife was applied, and in this case the back-roll is subjected to severe shock and vibration, which shock is conveyed throughout the lathe.

The cylinder 35 controls the movement of the knife or knife table. In this circuit there is a 4-way valve 69 which controls the forward and backward movement. This valve 69 supplies oil directly from the main hydraulic supply through

a pressure regulating valve 70 to the cylinder 35. A four-way valve 71 is also used in this circuit and is designed particularly to by-pass oil around the flow control valve 72 so that the knife-table and pressure plate may be brought in, and retracted from the log quickly when desired. The flow control valve 72 determines the speed of advance of the knife, and consequently the thickness of veneer cut. This flow control valve 72 is effective only when oil passes through it in one direction, while the flow in the other direction is unrestricted.

In operation the valve 69 is turned to allow oil to flow into the piston end of the cylinder 35 (through the pressure regulating valve 70) but this oil can enter the cylinder only as fast as oil on the other side of the piston is allowed to be discharged through the flow control valve 72, the 4-way valve 71 being not then used to by-pass this oil. After the cut is completed, the valve 69 is reversed and the knife table is brought out fast, the valve 72 being ineffective in the reverse direction. The rate of flow through the valve 72 is readily changed to permit cutting any thickness of veneer within the range of the valve, usually from $\frac{1}{400}$ " to $\frac{3}{8}$ " thick. The use of this control 72 does away with feed-screws to move the knife table, all change sprockets for various thickness of veneer or gear boxes that may be used for this purpose, clutches, etc.

The cylinder 40, or cylinders 38—40 provide the control of the pressure plate. In this particular lathe two small cylinders 38 for raising the plate and two small cylinders 40 for lowering and holding pressure on the plate are used. This circuit includes a 4-way valve 74 for controlling the direction in which pressure is applied, and a pressure regulating valve 75 is included to give any predetermined pressure desired on the plate. Different pressures are required for different thicknesses of veneer and the pressure plate is an important part of a veneer lathe. The quality of veneer is determined by applying even, and the correct, pressure on the pressure-plate which is well done hydraulically.

In Fig. 8, an electric driven hydraulic pumping unit of conventional design is shown, and which pump is piped to an oil tank which is the main hydraulic oil supply to all of the above equipment. This pump, of course, may be driven by some other motive power than electricity if desired.

Variable speed drive

The variable speed lathe is the same as the one above except that the main drive is variable speed instead of constant speed. A variable speed drive is used in order to keep a more constant peripheral speed of the log and consequently a more constant footage per minute of veneer being cut. As the diameter of the log decreases, the main drive speed increases and this calls for a different method of feeding the knife to the log. The functions of cylinders 6, 6, and 56 are all the same as above; as are cylinders 38—40, except on this variable speed piping diagram (Fig. 9) there are two cylinders 38 to raise the pressure bar and two cylinders 40 to lower it.

In this circuit the oil under pressure comes from the main hydraulic pumping unit and is distributed to all of the cylinders except the knife table cylinder 35, for which oil is metered through a variable volume pump P which is synchronized with the rotation of the drive power. This variable volume pump is driven by

the main motive power, either electric motor or fluid motor, or other means, so that the volume of oil which regulates the movement of the knife table cylinders is in direct relation to the speed of the main drive power. As the speed of rotation of the log increases or decreases, the speed of movement of the knife table increases or decreases, giving a uniform thickness of veneer.

A conventional form of variable volume pump is used, and it has a wheel or a slide control which varies the stroke of the pump which in turn determines the volume of oil that passes therethrough. The thickness of veneer is determined by the setting of this pump. Otherwise, the circuit on the knife-table is the same as on the constant speed drive piping diagram (Fig. 8).

The machine described in the specification is the same whether variable speed drive or constant speed drive is applied. With the constant speed drive a flow control valve 72 must be used, whereas with a variable speed drive a variable volume pump may be utilized to insure proper knife advance to compensate for the change in peripheral speed of the log as it diminishes in size.

By the use of a variable speed drive, a constant peripheral speed of the log and a constant, or nearly so, footage per minute of veneer is assured by using a variable volume pump which varies the rate of feed of the knife to the log as the main drive or revolution of the log increases or decreases.

I claim:

1. In a veneer lathe, the combination of chucking means for holding a log, motors for rotating the chucking means, carriages for the motors, hydraulic means for moving the carriages, a pressure-plate, and hydraulic means for applying pressure to the pressure-plate and for quickly removing the pressure and withdrawing the plate, constituted by a frame, rods secured to the plate, equalizing bars connecting the rods, and hydraulic cylinders connected to the bars and frame.

2. A veneer lathe including a main frame, means for chucking a log, a knife table, a knife carried thereby, a carriage slidable on said main frame and pivotally supporting said knife table, an arm connected to said knife table, a link pivotally connected to the main frame, an extensible connecting rod pivoted to said arm and slidably connected to the link, and means for adjusting the slant of the said link whereby the pitch of the knife is automatically changed with its progressive movement into the log.

3. In a veneer lathe, the combination of chucking means for a log, a knife-table and knife held therein, means for swinging the knife-table in the arc of a circle with the cutting edge of the knife as the center of the arc, said means including an extensible assembly pivotally connected with the knife-table, means for varying the length of the assembly whereby to regulate the tangential position of the knife, and a link adjustably connected to the frame of the lathe and to which link the assembly is pivotally and slidably connected.

4. In a veneer lathe, the combination of chucking means for a log, a knife-table and knife held therein, means for swinging the knife-table in the arc of a circle with the cutting edge of the knife as the center of the arc, said means including an assembly pivotally connected with the knife-table, means for varying the length of the assembly, a link adjustably connected to the

frame of the lathe and to which link the assembly is connected, means for adjusting the link and with it the position of the knife-table, and means for locking the link in the adjusted position.

5. In a veneer lathe, the combination of chucking means for a log, a knife table and knife held therein, means for swinging the knife-table in the arc of a circle with the cutting edge of the knife as the center of the arc, said means including an adjustable support attached to some part of the frame of the lathe, means for adjusting said support, an assembly pivotally connected with the table and to the support, and means for varying the length of the assembly, and fluid pressure mechanism for controlling the movement of the knife-table.

6. In a veneer lathe, the combination of chucking means for a log, a knife-table and knife held therein, means for swinging the knife-table in the arc of a circle with the cutting edge of the knife as the center of the arc, said means including an adjustable support on some part of the frame of the lathe, means for adjusting said support, an assembly pivotally connected with the table and to the support, and means for varying the length of the assembly, a slidably mounted carriage on which the knife-table is carried, and fluid pressure means for moving the carriage and knife-table.

7. In a veneer lathe, the combination of chucking means for a log, a knife-table and knife held therein, means for swinging the knife-table in the arc of a circle with the cutting edge of the knife as the center of the arc, said means including an adjustable support located on some part of the frame of the lathe, means for adjusting said support, an assembly pivotally connected with the table and to the support, means for varying the length of the assembly and fluid pressure mechanism for controlling the movement of the knife-table, a pressure plate located above and between the sides of the knife-table, a slidably mounted carriage on which the knife-table and pressure plate are carried, and fluid pressure means for moving the carriage with the knife-table and pressure plate.

8. In a veneer lathe, the combination of chucking means for a log, a knife-table and knife held therein, means for swinging the knife-table in the arc of a circle with the cutting edge of the knife as the center of the arc, fluid pressure mechanism for controlling the movement of the knife table, a pressure plate located above and between the sides of the knife-table, a slidably mounted carriage on which the knife-table and pressure plate are carried, fluid pressure means for moving the carriage with the knife-table and pressure plate, and fluid pressure means for actuating the pressure plate independently of the knife table.

9. In a veneer lathe, the combination of chucking means for a log, a knife-table and knife held therein, means for swinging the knife-table in the arc of a circle with the cutting edge of the knife as the center of the arc, said means including an adjustable support supported on some part of the frame of the lathe, means for adjusting said support, an assembly pivotally connected with the table and to the support, means for varying the length of the assembly, fluid pressure mechanism for controlling the movement of the knife-table, a pressure plate located above and between the sides of the knife-table, a slidably mounted carriage on which the knife-table and pressure plate are carried, fluid pressure means for moving

the carriage with the knife-table and pressure plate, and fluid pressure means for actuating the pressure plate independently of the knife-table.

10. In a veneer lathe, the combination of chucking means for a log, a knife-table and knife held in the latter, means for swinging the knife-table in the arc of a circle with the cutting edge of the knife as the center of the arc, said means including an extensible assembly pivotally connected with the knife-table, a link pivotally supported at one end on some part of the lathe, a slide block slidably connected with the link and to which block one end of the assembly is pivoted, means for moving the link on its pivot, and means for locking the link in the adjusted position whereby the pitch of the knife is automatically changed with its progressive movement into the log.

11. In a veneer lathe, the combination of chucking means for holding a log, motors for rotating the chucking means, a pressure-plate, hydraulic means for applying pressure to the pressure-plate and for quickly removing the pressure and withdrawing the plate, constituted by a frame, rods secured to the plate, equalizing bars connecting the rods, and hydraulic cylinders connected to the bars and frame.

12. A veneer lathe including a main frame, means for chucking a log, a knife-table, a knife carried thereby, an arm connected to said knife-table, a link pivotally connected to the main frame, an extensible connecting rod pivoted to said arm and slidably connected with the link, and means for adjusting the slant of the said link whereby the pitch of the knife is automatically changed with its progressive movement into the log.

13. In a veneer lathe, the combination of driving mechanism for turning a log, a knife-table, a knife carried thereby, a pressure plate assembly, a carriage which carries the knife-table and pressure plate assembly, fluid pressure means for moving the carriage, fluid pressure means for moving and applying pressure to the pressure plate independently of the movement of the knife-table, a rod controlling the movement of the knife-table, a fluid circuit, a four-way valve in this circuit which controls the movements of the knife-table by supplying fluid directly from a main fluid pressure supply through a pressure valve to the cylinder, a flow-control valve and a second four-way valve in this circuit adapted to by-pass fluid around the flow control valve so that the knife-table and pressure plate may be brought in contact with and withdrawn from the log quickly when desired.

14. In a veneer lathe, the combination of chucking means for a log, movably supported motors for rotating said chucking means, fluid pressure means for forcing the motors toward the log, whereby to apply pressure to the chucking means, a knife-table carrying a knife, a pressure plate independent of the knife-table and cooperating therewith and constructed and arranged to move with, or independently of, the knife-table, a variable speed drive for the motors, and a variable volume pump synchronized with the drive which varies the rate of feed of the knife to the log as the main drive or revolution of the log increases or decreases in order to maintain a constant peripheral speed of the log resulting in a constant or nearly constant footage per minute of veneer.

15. In a veneer lathe, the combination of

chucking means for a log, motors having shafts projecting therefrom approximately in alignment with the axis of the log and adapted to extend directly to the chucking means, means for applying pressure to the chucking means, a knife-table carrying a knife, a pressure plate, said pressure plate independent of the knife and cooperating therewith and constructed and arranged to move with or independently of the knife, a variable speed drive for the motors, and a variable volume pump synchronized with the drive which varies the rate of feed of the knife to the log as the main drive or revolution of the log increases or decreases in order to maintain a constant peripheral speed of the log resulting in a constant or nearly constant footage per minute of veneer.

16. In a veneer lathe, the combination of chucking means for a log, motors providing a direct drive for the log, carriages for said motors, fluid pressure means for moving the carriages, a knife-table carrying a knife, a carriage on which the knife table is mounted, a fluid pressure cylinder for moving the table, a pressure plate, fluid pressure cylinders for moving said pressure plate, a piping circuit, the several cylinders in said piping circuit, controlling valves in said circuit, a variable volume pump synchronized with the drive and connected with the piping circuit, which pump varies the rate of feed of the knife to the log as the main drive or revolution of the log increases or decreases in order to maintain a constant peripheral speed of the log resulting in a constant or nearly constant footage per minute of veneer.

17. In a veneer lathe, the combination of chucking means for a log including slidably mounted motors, each having a shaft extending to the chucking means, a movably supported back roll having cutting blades thereon, fluid pressure cylinders for the motors and back roll, a piping circuit in communication with these cylinders, and a pressure regulating valve which renders it possible to give the desired amount of pressure to the chucks, a valve for controlling the movement and pressure exerted by the back roll, the valve for the back roll adapted to be adjusted for different types of wood and for cutting different thicknesses of veneer.

18. In a veneer lathe, the combination of chucks adapted to receive and hold a log therebetween, movably supported motors the shafts of which are attached to the chucks and provide a direct feed thereto, a movably supported knife-table and pressure bar, the knife-table carrying a knife, means for adjusting the knife-table together with the angle of the knife, independent fluid pressure cylinders for shifting the position of the motors which rotate the log, for feeding the knife-table forward and backward and for moving the pressure plate in and out, a piping circuit connected with the several independent cylinders, valves therein for supplying and regulating the flow of fluid therethrough, and for determining the direction of movement of the several parts of the mechanism which these cylinders control, a main fluid pressure pumping unit for supplying the fluid pressure to all the cylinders except that actuating the knife-table, and a variable volume pump synchronized with the drive of the log for supplying the fluid pressure to the cylinder actuating the knife-table.

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