

Dec. 31, 1957

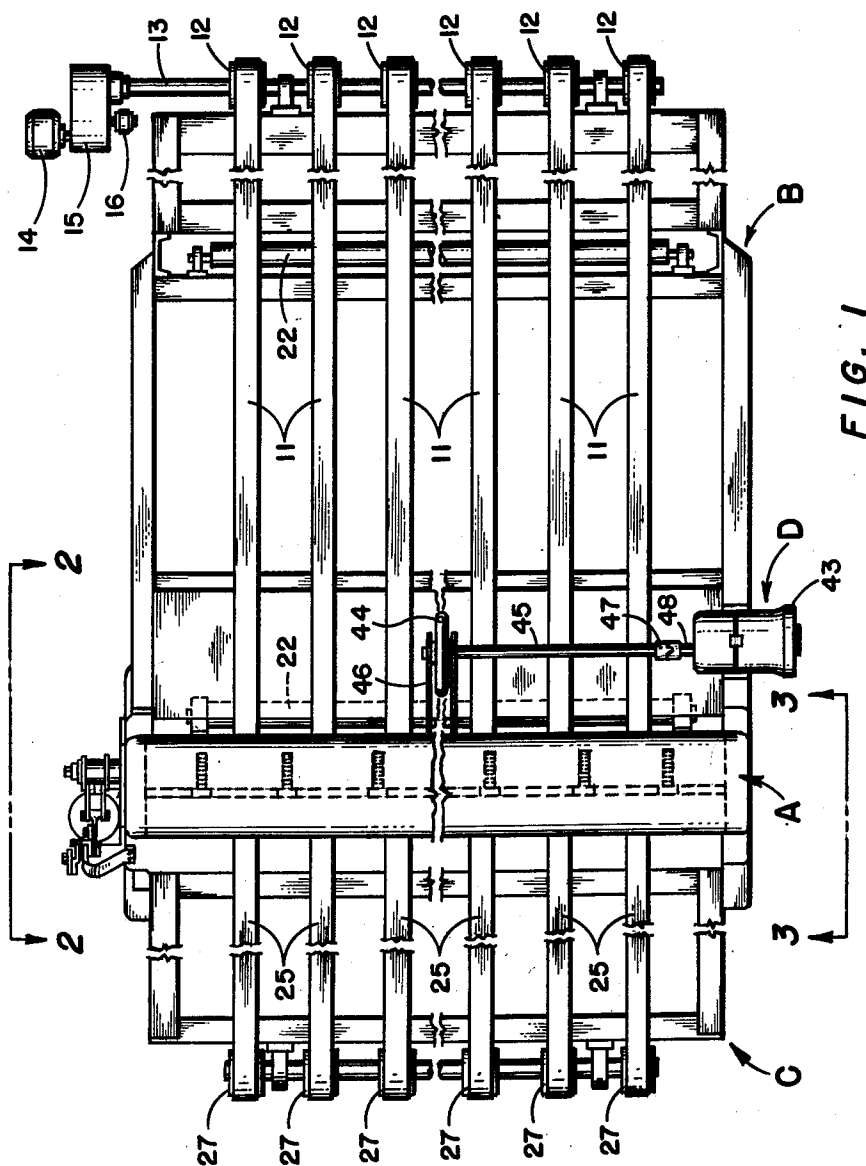
C. E. PARKER

2,818,115

VENEER CLIPPER

Filed Sept. 26, 1955

4 Sheets-Sheet 1



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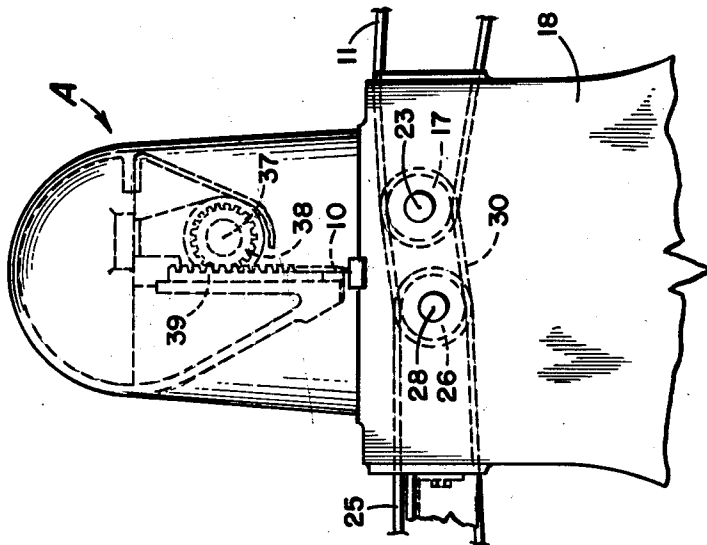
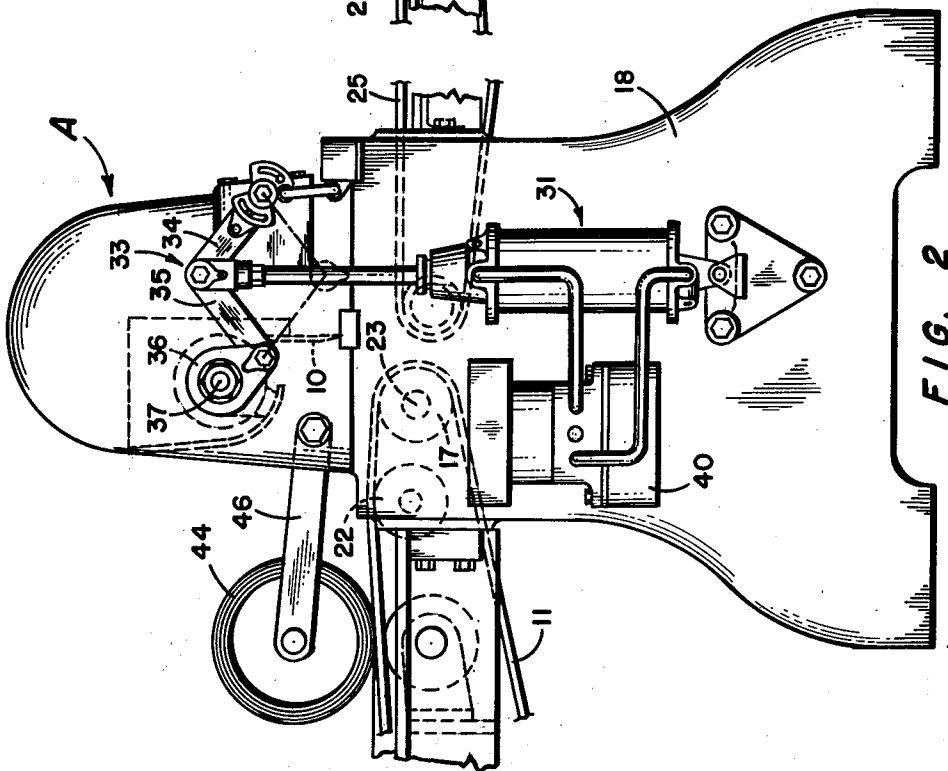
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4 Sheets-Sheet 2



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4 Sheets-Sheet 3

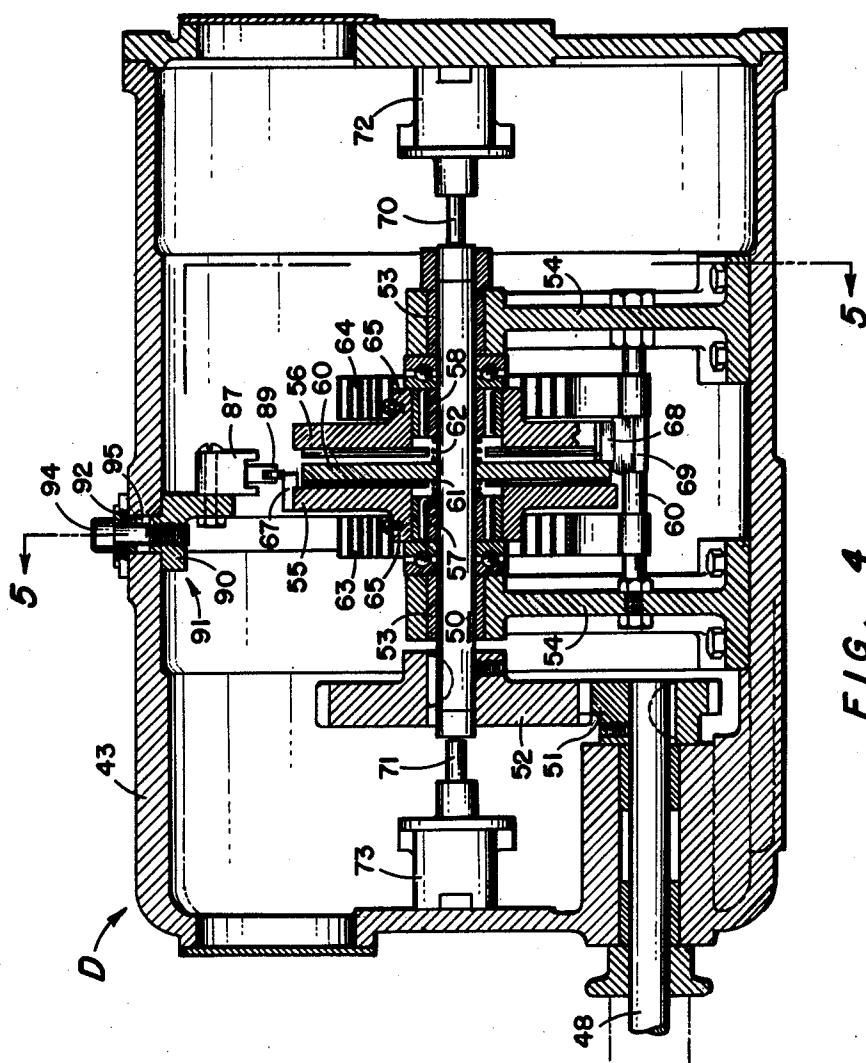


FIG. 4

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4 Sheets-Sheet 4

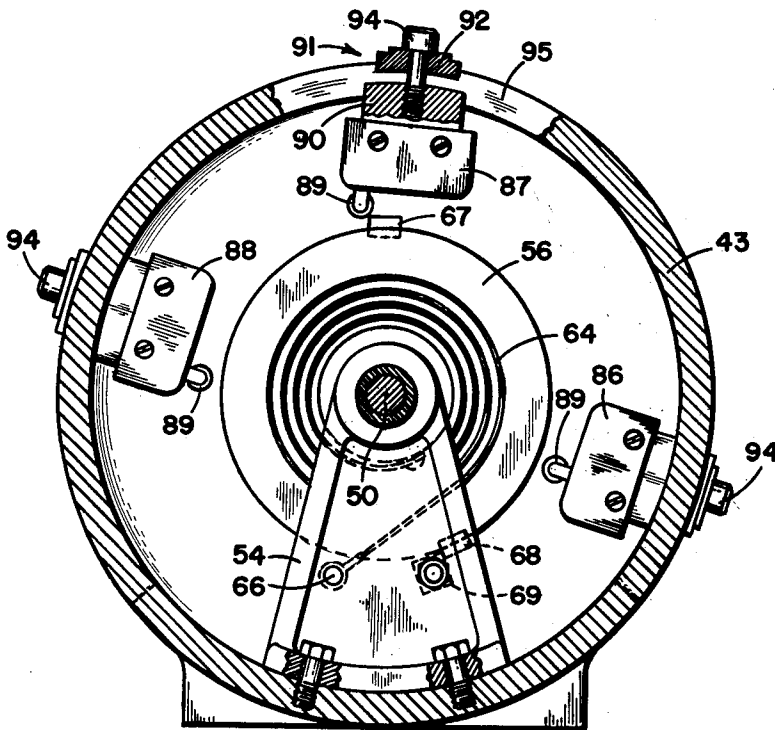


FIG. 5

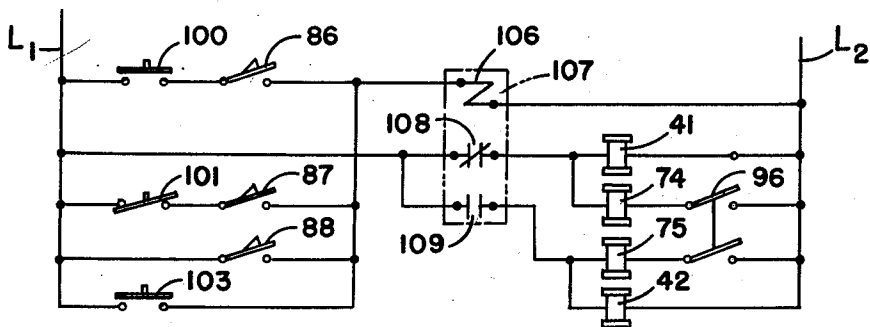


FIG. 6

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2,818,115

VENEER CLIPPER

Clarence E. Parker, Painesville, Ohio, assignor to The Coe Manufacturing Company, Painesville, Ohio, a corporation of Ohio

Application September 26, 1955, Serial No. 536,370

12 Claims. (Cl. 164—48)

The present invention relates to apparatus for cutting moving sheet material, such as veneer, into sections of predetermined length, and more particularly, to apparatuses of the character mentioned, having mechanism for actuating the cutting operation in relation to the feed movement of the sheet material through the apparatus.

The principal object of the present invention is the provision of a new and improved apparatus for cutting sheet veneer and the like into sections of predetermined lengths or widths, while the material is being fed through the apparatus at relatively high speeds.

Another object of the present invention is the provision of a new and improved apparatus for cutting sheet veneer or the like into sections of predetermined widths or lengths, the apparatus comprising a movable knife for severing the material in combination with means for feeding the sheet material past the knife, and mechanism for controlling the operation of the knife including a member rotated from an initial position in relation to the feed movement of the veneer or other material and which upon a predetermined movement initiates operation of the knife to cut a section of length or width from the sheet material and which is thereafter returned to its initial position and is so constructed and arranged that the accuracy of the mechanism is not affected by the time necessary to return the member to its initial position.

Another object of the present invention is the provision of a new and improved apparatus for cutting sheet veneer and the like into sections of predetermined length or width, the apparatus comprising a movable knife and control mechanism for actuating the movable knife to cut a sheet of veneer or the like being fed past the movable knife, the control mechanism including a plurality of movable members, each of which actuate the movable knife upon predetermined movement from an initial position to which they are returned after having initiated activation of the knife, in combination with means for alternately driving the members in relation to the feed movement of the sheet material, whereby the accuracy of the timing of the knife operation is not affected by the time required to return the members to their initial positions.

The invention resides in certain combinations and arrangements of parts and further objects and advantages will be apparent to those skilled in the art to which the invention relates from the following description of the preferred embodiment described with reference to the accompanying drawings forming a part of this specification and in which:

Fig. 1 is a plan view of an apparatus for cutting veneer which embodies the present invention;

Fig. 2 is a fragmentary elevational view of the clipper of the apparatus looking approximately as indicated by line 2—2 of Fig. 1;

Fig. 3 is an elevational view similar to Fig. 2, but looking approximately as indicated by line 3—3 of Fig. 1;

Fig. 4 is a longitudinal sectional view showing the con-

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trol mechanism for actuating the knife of the clipper in relation to the feed movement of sheet veneer;

Fig. 5 is a sectional view looking approximately as indicated by line 5—5 of Fig. 4; and

Fig. 6 is a simplified schematic control circuit for the apparatus shown.

While the present invention is susceptible of various modifications and constructions and of being embodied in various types of apparatuses wherein a control function is to be performed in timed relation to the rotation of a member or to movement of material, it has particular utility when embodied in a high speed apparatus for cutting sheet veneer into sections of predetermined lengths or widths.

Referring to the drawings, which show the invention as embodied in an apparatus for cutting veneer into desired lengths or widths, the apparatus shown therein comprises a clipper proper, designated by the reference character A, including a movable knife 10 and suitable power means to actuate the same to sever the sheet veneer fed thereby into sections; a feed table B positioned on the entrance side of the clipper A, that is, the right-hand side as viewed in Fig. 1, for feeding sheet material to the clipper A; a runout table C for receiving sections of severed veneer and moving the sections away from the clipper A; and a measuring or control mechanism D for operating the knife 10 in relation to the feed movement of the veneer.

The table B for feeding sheet material to the clipper A comprises a plurality of belts 11 having upper reaches which engage and move the sheet veneer to the clipper. The right hand end of the belts 11, as viewed in Fig. 1, passes over drive pulleys 12 connected to a drive shaft 13 driven by an electrical motor 14 through a variable speed drive 15, for example, a Reeves variable speed drive having a motor 16 for varying the speed of the drive. The left-hand end of each belt 11, as viewed in Figs. 1 and 3, loops a sheave or pulley 17 rotatably supported by the frame 18 of the clipper A and the upper reaches of the belts 11 pass over and are supported by an idler roller 22. The pulleys 17 are keyed or fixed to a shaft 23 rotatably supported in the frame 18 and the tension on the belts 11 is such that as the belts are driven by the pulleys 12 the shaft 23 is rotated.

The exit table C also comprises a plurality of belts 25 which pass around spaced pulleys or sheaves 26, 27 and which extend in a direction parallel to the belts 11. The pulleys 26 are drive pulleys and are fixed to a shaft 28 rotatably supported by the frame 18 of the clipper A, the shaft 28, in the illustrated embodiment, being driven from the shaft 23 by a belt drive 30 including pulleys or sheaves on each of the shafts 23, 28.

As veneer is fed under the knife 10 of the clipper A, the knife is operated to sever a section of material by suitable power means which, in the preferred embodiment, comprises a hydraulic cylinder 31 mounted on the side of the frame 18 and best shown in Fig. 2. The hydraulic cylinder 31 is connected to the knife through a toggle mechanism 33 comprising an arm 34 connected to the frame 18 and an arm 35 connected to a crank 36 mounted on a shaft 37, which shaft has fixed thereto a plurality of wheels 38 that mesh with individual racks 39 carried by the movable knife 10. The piston of hydraulic cylinder 31 is connected to the arm 34 and reciprocation of the piston operates the toggle mechanism to rotate the shaft 37 and cause vertical movement of the knife 10 through the action of wheels 38 and the racks 39. The construction of the toggle mechanism 33 and the crank 36 is such that when the piston of the cylinder 31 is moved from either one of its extreme positions to the other, the crank 36 is moved from its one extreme position shown

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in Fig. 2, to and through its other extreme position as the toggle mechanism 33 moves through dead center, and is returned to the position as shown in Fig. 2 as the piston and the toggle mechanism move to their other extreme position. The knife follows the movement of the crank and is moved from its non-severing to its severing and back to its non-severing position during the above-described cycle. If the piston is in its upper position, the toggle mechanism will be positioned as shown in solid lines in Fig. 2, and upon completion of a stroke, the position of the toggle mechanism 33 will be that indicated by the dot-dash lines in Fig. 2.

A solenoid valve 40 is provided for controlling the supply of fluid pressure to the hydraulic cylinder 31 and is movable between two positions. In one position the valve 40 connects the portion of the hydraulic cylinder 31 on one side of the piston to drain and the portion of the cylinder on the other side of the piston to a source of suitable pressure fluid to supply pressure to one side of the piston and when moved to the other position reverses the fluid pressure supply and drain connections to the cylinder. The solenoid valve 40 is moved to one of its positions upon the energization of a solenoid 41 and to the other of its positions upon the energization of a solenoid 42, the solenoids not being shown on the machine but being indicated in the circuit diagram of Fig. 6.

The hydraulic cylinder 31 for operating the movable knife 10 of the clipper A is under the control of a measuring or control mechanism D, which mechanism includes a housing 43 and a wheel 44 which rides on the sheet veneer being fed to the clipper A by the feed table B. The wheel 44 is fixed to a shaft 45 extending transversely of the feed table B, the shaft 45 being supported at its end adjacent to the wheel 44 by spaced arm members 46 connected to the frame 18 and bracketing the wheel 44. The shaft 45 is connected by a universal-type coupling 47 to a shaft 48 rotatably supported in the housing 43. Movement of the sheet veneer beneath the wheel 44 causes rotation of the wheel 44 and the shafts 48 and 50 and provides a drive means for the mechanism D.

The shaft 48 drives a shaft 50, rotatably supported in the housing 43, through gearing comprising, in the illustrated embodiment, a gear 51 fixed to one end of the shaft 48 and continuously in mesh with a gear 52 fixed to the shaft 50. The shaft 50 is supported in the housing 43 by bearings 53 mounted in spaced webs 54, which bearings permit limited axial movement of the shaft 50. The gear 52 is of sufficient width so that it does not lose meshing engagement with the gear 51 on axial movement of the shaft 50.

A pair of control members 55, 56 are rotatably supported on the shaft 50 by spaced needle bearings 57, 58 and are alternately rotated in relation to the feed movement of the sheet veneer by a clutch plate 60 fixed to the shaft 50 intermediate the members 55, 56, the clutch plate being frictionally and drivingly engageable with one or the other of the members 55, 56 by axial movement of the shaft 50, the members 55, 56 carrying friction material on their sides adjacent to the clutch plate. The shaft 50 and the clutch plate 60 are normally biased by springs 61, 62, coiled about the shaft 50 and positioned between the opposite sides of the clutch plate 60 and the adjacent needle bearings 57, 58, to a position where the clutch plate 60 is out of engagement with both of the timing members 55, 56.

The control members 55, 56 are biased to an initial angular position by torsion springs 63, 64, respectively, having their one ends connected to hub portions 65 of members 55, 56, respectively, and their other ends to a bar 66 supported in the housing 43 parallel to the shaft 50. The initial positions of the members 55, 56 are determined by the engagement of switch actuating members 67, 68 carried by the members 55, 56, respectively, with a stop bar 69 support adjacent to the members 55, 56 by

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webs 54 and located in the path of the members 67, 68. The springs 63, 64 are coiled so that the springs urge the switch actuating members 55, 56 into engagement with the stop bar 69 and so that rotation of the members by the clutch plate 60 winds the springs and increases the tension therein.

The shaft 50 is moved axially against the bias of the springs 61, 62 and into engagement with either one of the members 55, 56 by power-actuated plungers 70, 71 coaxially aligned with the shaft 50 at the opposite ends thereof. The plungers 70, 71 are respectively connected to the pistons of fluid pressure cylinders 72, 73 mounted on the opposite end walls of the housing 43. When fluid pressure is applied to either of the cylinders 72, 73, the corresponding plunger is moved axially to engage the end of the shaft and shift the shaft in the direction of movement of the plunger against the bias of springs 61, 62, thereby causing the engagement of the clutch plate 60 with one of the members 55, 56. The application of pressure fluid to cylinder 72 causes the plunger 70 to move the shaft 50 to the left as the shaft is viewed in Fig. 4 to engage the clutch plate 60 with the member 55, while the application of pressure fluid to the cylinder 73 causes the plunger 71 to move to the right, as viewed in Fig. 4, to engage the clutch plate 60 with the timing member 56.

The supply of pressure fluid to the cylinders 72, 73 is controlled by solenoid valves 74, 75, respectively, shown schematically in Fig. 6. When the valve 74 is deenergized, it is in a position connecting the cylinder 72 to drain and when the valve is energized, it is in a position connecting the cylinder 72 to the supply of pressure fluid. The valve 75 for controlling the operation of the cylinder 73 operates in a manner similar to valve 74.

The switch actuating members 67, 68 carried by the members 55, 56, respectively, are adapted to actuate a plurality of switches 86, 87, 88 upon a predetermined angular movement of the control members 55, 56 from their initial position. The switches 86, 87, 88 control the operation of the hydraulic cylinders 31 and, in turn, the knife 10, and are mounted in the housing 43 in spaced angular relationship about the periphery of the control members 55, 56, with the switch-operating members 89 of the switches in the path of the dog 67, 68. In the illustrated embodiment, the switches 86, 87, 88 are fastened to members 90 each constituting one clamp member of a plurality of clamp mechanisms 91 for adjustably connecting the switches to the housing 43. Each clamp mechanism 91 also comprises a second clamp member 92 and a bolt 94 for drawing the clamp members 90, 92 together. The clamp members 90, 92 of each mechanism 91 are positioned on the opposite sides of the side wall of housing 43, and the bolt 94 passes through an arcuate circumferential slot 95 in the housing. Tightening of the bolt 94 clamps the members of the clamp mechanism 91 against the inner and outer sides of the housing 43 to secure the switches 86, 87, 88 in the desired position with respect to the housing and to the members 55, 56. The slot 95 permits adjustment of the switches 86, 87, 88 about the periphery of the members 55, 56.

In operation, one of the switches 86, 87, 88 is conditioned, at any one time, to control the energization of the solenoid valves 40, 74, 75 and, in turn, to control the operation of the cylinders 31, 72, 73. In the preferred embodiment of the present invention, the circuits are such that the switch 87 is normally conditioned to control the operation of the solenoid valves and the cylinders, as will be described in detail hereinafter.

An automatic-manual selector switch 96 is provided to select the manner in which the veneer clipper is to be controlled and when moved to its "automatic" position, the clipper is placed under the control of the timing mechanism D and one of the solenoid valves 74, 75 will be energized immediately to move the clutch plate 60 into

engagement with one of the control members 55, 56. Assuming that the solenoid valve 74 is energized, the clutch plate will be moved into engagement with the control member 55. When the solenoid valve 74 is energized, solenoid 41 is also energized, as will be set out in detail hereinafter.

With the clutch plate 60 in engagement with the control member 55, movement of sheet veneer from the feed table B to the clipper A will cause rotation of the control member 55 through the operation of the wheel 44, shafts 45, 48, 50 and the clutch plate 60. When the control member 55 has been rotated a predetermined amount, the switch actuating member 68 on the control member will engage the switch operating member 89 of the switch 87 to actuate the switch. Actuation of the switch 87 now causes the deenergization of solenoid 41 and the energization of solenoid 42 to cause the hydraulic cylinder 31 to move through a complete stroke, and the deenergization of the solenoid valve 74 and the energization of solenoid valve 75 to cause the clutch plate 60 to move out of engagement with control member 55 and into engagement with the control member 56. The clutch plate 60 has a very short distance to travel between the control members 55, 56 and consequently no appreciable length of veneer passes under the wheel 44 before the clutch plate 60 engages the control member 56. The clutch plate 60 now rotates the control member 56 until the switch actuating member 68 thereon engages the switch operating member 89 for the switch 87 which now operates to deenergize solenoid valve 42 and energize solenoid 41 thereby causing the piston of the cylinder 31 to move through a stroke to actuate the movable knife 10 and sever a section of material, and to deenergize solenoid valve 74 and energize solenoid valve 73 to move the shaft 50 so as to engage the clutch plate 60 with the control member 55, the control member 55 having been returned to its initial position by the torsion spring 63 upon the previous disengagement of the clutch plate 60. The above cycle is continuously repeated as long as the clipper is under "automatic" control to measure and cut veneer into sections of predetermined widths.

While the clipper is operating under the control of the control members 55, 56 and the switch 87 to cut veneer sheets into sections of predetermined widths, the operator may notice that the condition of the veneer being fed to the clipper is such that a sheet of narrower or wider width should be cut. The operator may cut a section of a predetermined narrower width by depressing a push button switch 100 which will condition the control circuit so that the switch 86 will cause the actuation of the movable knife 10 when the switch is operated by either one of the dogs 67, 68. If the operator desires to cut a section of veneer having a width wider than that produced when the clipper is under the control of the switch 87, he opens a switch 101 connected in series with the switch 87 to remove the clipper from the control of the latter thereby conditioning the switch 88 for actuating the movable knife 10 upon operation of the switch by either of the dogs 67, 68. A push button switch 103 is also provided for making a random cut and when depressed by the operator will immediately cause actuation of the knife 10.

The operation of the switches for controlling the clipper may be better understood by reference to the circuit diagram of Fig. 6. As shown therein, the switch 87 has one side connected to L1 through the normally closed toggle switch 101 and the other side connected to L2 through a relay coil 106 of a ratchet type relay 107. The ratchet type relay 107 is a conventional type of relay which has two pairs of contacts 108, 109, respectively. The construction of the relay is such that when one of its pairs of contacts is closed, the other pair is open, and when the relay is energized, the closed pair is opened and the open pair is closed. The relay is held in its im-

mediate position upon deenergization of the relay coil until the coil is once again energized.

In the condition illustrated in Fig. 6, the contacts 108 of ratchet relay 107 are closed completing a circuit from L1 through the contacts 108 and through the solenoid 41 to L2. The solenoid 74 of solenoid valve 73, and the pair of contacts of switch 96 are also connected in parallel with the solenoid 41 and solenoid 74 of the valve 73 is consequently energized upon energization of the solenoid 41 as long as the switch 96 is in its closed position. When the solenoid 41 is energized, fluid pressure to one side of the cylinder 31 to actuate a complete stroke of the knife 10, and when the solenoid 74 is energized fluid pressure is supplied to the cylinder 72 to engage the clutch plate 60 with the timing member 55. Upon actuation of the switch 87 by the switch actuating member 68, the relay coil 106 will be energized and the ratchet relay 107 operated to open its contacts 108 and close its contacts 109. When the contacts 108 are opened, the solenoid 41 and the solenoid valve 74 are deenergized, and when the contacts 109 close, solenoid 42 and solenoid valve 75 are energized by an obvious circuit shown in Fig. 6 between L1 and L2. Energization of the solenoid valve 75 and the deenergization of the solenoid valve 74 causes the clutch plate 60 to move into engagement with the control member 56, and the energization of the solenoid valve 42 actuates a cutting stroke of the knife 10 by supplying fluid pressure to the side of the cylinder 31 previously connected to drain. The opening of the switch 87 upon the return of either of the members 55, 56 by the torsion springs 63, 64 does not affect the condition of the relay 107, as explained above.

When the clipper is to be placed under the control of the switch 86, the operator depresses the push button switch 100 which connects one side of the switch 86 to L1 so that when the switch is closed, it will complete a circuit, as shown in Fig. 6, for energizing the relay coil 106 of the ratchet relay 107. Inasmuch as the switch actuating members 67, 68 on the control members 55, 56 will actuate the switch 86 before the member is rotated sufficiently for the switch actuating members to actuate the switch 87, the clipper will be under control of the switch 86 as long as switch 100 is closed, even though the switch 87 is also conditioned to actuate the ratchet relay 107. Since the switch 86 is closer to the initial position of the switch actuating members 67, 68, the width severed by the movable knife 10 will be narrower than that when the clipper is under the control of the switch 87. When a section of veneer is to be cut which is of a width wider than that for which switch 87 is set, the operator opens the switch 101 connecting one side of the switch 87. This places the control mechanism under the control of switch 88 since both switch 100 and switch 101 are open. When either one of the control members 55, 56 have been rotated sufficiently to operate the switch 88, a circuit will be completed through the switch 88 to energize the ratchet relay 107 to cause actuation of the movable knife and the shifting of the clutch plate 60.

The random switch 103 is connected in parallel with the above described switches and when depressed immediately completes a circuit from L1 to the coil 106 of ratchet relay 107 to actuate the relay to cause operation of the movable knife and the shifting of the clutch plate 60.

The control or measuring mechanism D of the preferred and illustrated embodiment is so arranged that veneer sections of three different predetermined widths may be cut, with the mechanism being normally conditioned to automatically cut a section of intermediate width. It will be understood that the width of the section being cut can be varied by varying the position of the control switches from the initial position of the control members 55, 56 and that other switches may be added or some of

the switches may be removed from the control mechanism to increase or decrease the number of predetermined sizes which may be obtained without changing the position of the switches.

The control mechanism described, operates the movable knife 10 to accurately cut sections of veneer having a predetermined width, even though the veneer is fed to the knife at a high speed. By using the two control members 55, 56 which are alternately rotated in relation to the feed movement of the sheet material, the accuracy of the clipper is increased but yet the control mechanism therefor is extremely compact and simple.

It can be seen from the foregoing that the objects thereof enumerated and others have been accomplished and that the present invention provides a new and improved apparatus for cutting sheet veneer and the like, embodying control mechanism which is operable to accurately measure the sheet veneer being fed past the knife and to actuate the knife to sever sections of accurate predetermined width or length from the sheet veneer.

While the preferred form of the invention has been described in considerable detail, it will be apparent that the invention is not limited to the construction shown or to the uses referred to and it is my intention to cover hereby all adaptations, modifications, and changes which come within the practice of those skilled in the art to which the invention relates and the scope of the appended claims.

Having thus described my invention, I claim:

1. In an apparatus for cutting sheet material into sections, a movable knife, first power actuated means for operating said knife, second power actuated means for feeding sheet material to and by said knife, first and second control members, means supporting said first and second control members for independent movement from and to respective initial positions, drive means having first and second conditions for respectively driving said first and second control members in relationship to the movement of material to said knife, control means responsive to a predetermined movement of the control member being driven by said drive means to change the condition of said drive means and to effect operation of said first power actuated means, and means for returning each of said control members to its initial position after being driven by said drive means.

2. In an apparatus for cutting sheet veneer and the like, a movable knife, first power actuated means for moving said knife through a cutting stroke, second power actuated means for feeding sheet material to said knife, rotary drive means driven in relation to the feed movement of sheet veneer, first and second control members, bearing means supporting said control members for rotational movement to and from an initial position, clutch means for selectively connecting said rotary drive means to either one of said control members to rotate the member connected to the rotary drive means, actuatable means for operating said clutch means to disconnect the drive means from the control member being driven thereby and connect the same to the other of said control members, means responsive to a predetermined movement of the control member being driven by the rotary drive means for actuating said actuatable means and said first power actuated means for operating said knife, and spring means yieldably biasing said control members to their initial positions and for returning the rotated control member to its initial position.

3. In an apparatus for cutting sheet veneer and the like, a movable knife, first power actuated means for operating said knife through a cutting stroke, second power actuated means for feeding sheet material to and by said knife, first and second control members movable with respect to an initial position, a drive member driven in relation to the feed movement of sheet material to said knife, clutch means actuatable to connect said drive

member in driving relationship to either one of the control members to individually move the control members, actuating means for operating said clutch means to disconnect the drive member from the control member to which it is connected and to connect the drive member to the other control member to drive the latter, and control means responsive to a predetermined movement of the control member connected to the drive member for operating said actuating means to change the connection of the drive member to the other control member and for actuating said first power actuated means to operate said knife, and means for biasing said control members to their initial positions.

4. In an apparatus for cutting sheet veneer and the like, a movable knife, first power actuated means for operating said knife, second power actuated means for feeding sheet material to said knife, a drive member driven in relation to the feed movement of the sheet material, first and second control members, bearing means supporting said control members for rotation from and to an initial position, a clutch plate movable to a first position connecting said drive member in driving relationship to said first control member and to a second position connecting said drive member in driving relationship to said second control member, third power actuated means for shifting said plate between its respective positions, means responsive to the movement of the control member connected in driving relationship with the clutch plate a predetermined distance from its initial position for actuating said third power actuated means to shift said clutch plate from its immediate position to the other of its said positions, and means for returning each of said timing members to its initial position upon the disconnection of the drive from said drive member.

5. In an apparatus for cutting sheet veneer and the like, a movable knife, first power actuated means for operating said knife, second power actuated means for feeding sheet material to said knife, a shaft, bearing means rotatably supporting said shaft and permitting limited axial movement thereof, a clutch plate fixedly connected to said shaft, first and second control members supported for rotation with respect to said shaft from and to initial positions and disposed on opposite sides of said clutch plate, third power actuated means for axially moving said shaft in one direction to engage said clutch plate with one of said control members and in the opposite direction to engage the clutch plate with the other of said control members, means for rotating said shaft in relation to the feed movement of the sheet material, and means responsive to rotation of the control member immediately in engagement with the clutch plate a predetermined amount from its initial position for operating said third power actuated means to shift said clutch into engagement with a different control member and to operate said first power actuated means.

6. In an apparatus for cutting sheet veneer and the like, a movable knife, first power actuated means for operating said knife, second power actuated means for feeding sheet material to said knife, a shaft, bearing means rotatably and slidably supporting said shaft, a clutch plate fixedly connected to said shaft, spaced first and second control members rotatably supported on said shaft on opposite sides of said clutch plate, first spring means yieldably biasing said control members to an initial angular position, second spring means biasing said clutch plate and said shaft to a position with the clutch plate intermediate and spaced from said control members and yieldably opposing movement of said plate in either direction from its intermediate position, third power actuated means for axially moving said shaft in one direction to a first operating position to engage said clutch plate with one of said control members and in the opposite direction to a second operating position to engage the clutch plate with the other of said control members, means for rotating said shaft in relation to the feed move-

ment of the sheet material, and circuit means for controlling the operation of said third power actuated means for axially moving said shaft between said operating positions and including switch means adjacent to said control members effective to actuate said first power actuated means and to actuate said third power actuated means to shift the shaft from its immediate operating position to its other operating position, said switch means being actuated in response to a predetermined angular movement of the member being driven by said clutch plate.

7. In an apparatus for cutting sheet veneer and the like, a movable knife, first power actuated means for operating said knife, second power actuated means for feeding sheet material to said knife, a shaft, bearing means rotatably and slidably supporting said shaft, a clutch plate fixedly connected to said shaft, spaced first and second control members rotatably supported on said shaft on opposite sides of said clutch plate, first spring means yieldably biasing said control members to an initial angular position, second spring means biasing said shaft and said clutch plate to a position with said clutch plate intermediate and spaced from said control members and yieldably opposing movement of said plate in either direction from its intermediate position, third power actuated means for axially moving said shaft in one direction to a first operating position to engage said clutch plate with one of said control members and in the opposite direction to a second operating position to engage the clutch plate with the other of said control members, means for rotating said shaft in relation to the feed movement of the sheet material including a wheel engaged and rotated by sheet material being fed to said knife, and circuit means for controlling the operation of said third power actuated means for axially moving said shaft including switch means adjacent to said timing members and effective on actuation to operate said first power actuated means and to shift said shaft from its immediate operating position to its other operating position, each of said timing members carrying switch operating means for operating said switch means upon a predetermined angular movement of the member from its initial position.

8. In an apparatus for cutting sheet veneer and the like, a movable knife, first power actuated means for operating said knife, second power actuated means for feeding sheet material to said knife, a shaft, means rotatably and slidably supporting said shaft, a clutch plate fixedly connected to said shaft, spaced first and second control members rotatably supported on said shaft on opposite sides of said clutch plate, first spring means yieldably biasing said control members to initial angular positions, second spring means biasing said shaft and said clutch plate to a position with said clutch plate intermediate and spaced from said control members and yieldably opposing movement of said plate in either direction from its intermediate position, third power actuated means for axially moving said shaft in one direction to a first operating position to engage said clutch plate with one of said control members and in the opposite direction to a second operating position to engage the clutch plate with the other of said control members, means for rotating said shaft in relation to the feed movement of the sheet material, circuit means for controlling the operation of said first and third power actuated means for operating said knife and to axially move said shaft to an operating position including switch means adjacent to said timing members and actuable to operate said first and third power actuated means to operate said knife and to shift said shaft from its immediate operating position to its other operating position, each of said control members carrying switch operating means for operating said switch means upon a predetermined angular movement of the control member from its initial position and means supporting said switch means for movement about the periphery of said control members to vary the angular distance of said

switch means from the initial position of said control members.

9. In an apparatus for cutting sheet veneer and the like, a movable knife, first power actuated means for operating said knife, second power actuated means for feeding sheet material to said knife, a shaft, means rotatably and slidably supporting said shaft, a clutch plate fixedly connected to said shaft, spaced first and second control members rotatably supported on said shaft on opposite sides of said clutch plate, first spring means yieldably biasing said control members to initial angular positions, second spring means biasing said shaft and said clutch plate to a position with said clutch plate intermediate and spaced from said control members and yieldably opposing movement of said plate in either direction from its intermediate position, third power actuated means for axially moving said shaft in one direction to a first operating position to engage said clutch plate with one of said control members and in the opposite direction to a second operating position to engage the clutch plate with the other of said control members, means for rotating said shaft in relation to the feed movement of the sheet material including a wheel engaged and rotated by sheet material being fed to said knife, circuit means for controlling the operation of said first power actuated means and said third power actuated means to move said shaft between said operating positions and including switch means adjacent to said control members and actuable to effect operation of said first and third power actuated means to operate said knife and to shift said shaft from its immediate operating position to its other operating position, each of said control members carrying switch operating means for operating said switch means upon a predetermined angular movement of the control member from its initial position, and means supporting said switch means for movement about the periphery of said control members to vary the angular distance of said switch means from the initial position of said control members.

10. In a mechanism for continuously measuring material moving past a station and for performing a work function each time a predetermined length of material has passed the station comprising first and second control members, means supporting first and second control members for independent movement from and to respective initial positions, drive means having first and second conditions for driving said first and second control members respectively in relationship to the movement of material past the station, control means responsive to a predetermined movement of the control member being driven by said drive means to change the condition of said drive means, and means for returning each of said control members to its initial position after being driven by said drive means.

11. In a mechanism for continuously measuring material moving past a station and for performing a work function each time a predetermined length has passed the station comprising rotary drive means driven in relation to the movement of the material past the station, first and second control members, bearing means supporting said control members for rotational movement to and from an initial position, clutch means for selectively connecting said rotary drive means to either one of said control members to rotate the control member connected to the drive means, actuable means for operating said clutch means to disconnect the drive means from the control member being driven thereby and to connect the same to the other of said control members, means responsive to a predetermined movement of the control member being driven by said driving means for actuating said actuable means and for performing said work function, and spring means yieldably biasing said control members to their initial positions and for returning the rotated control member to its initial position upon disconnection from the drive means.

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12. In a mechanism for continuously measuring material moving past a station and for performing a work function each time a predetermined length of material has passed the station comprising a drive member driven in relation to the feed movement of the sheet material, first and second control members, means supporting said control members for rotation with respect to said drive member from and to an initial position, a clutch plate movable to a first position connecting said drive member in driving relationship to said first control member to move the latter from its initial position and to a second position connecting said drive member in driving relationship to said second control member to move the latter from its initial position, power actuated means for shifting said clutch plate between its respective positions, control means responsive to the movement of the control member being driven by the clutch plate a predetermined

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distance from its initial position to actuate said power actuated means to shift said clutch plate to its position to drive the other control member and for performing said work function, and means for returning the rotated control member to its initial position upon the shifting of the clutch plate to drive the other control member.

References Cited in the file of this patent

UNITED STATES PATENTS

10	1,259,389	Gebhart -----	Mar. 12, 1918
	2,140,755	Littell -----	Dec. 20, 1938
	2,298,492	Longfield -----	Oct. 13, 1942
	2,642,136	Burnett -----	June 16, 1953
	2,642,663	Long -----	June 23, 1953
15	2,689,610	Myers -----	Sept. 21, 1954
	2,734,571	Martell -----	Feb. 14, 1956