March 12, 1957 G. HAUMANN 2,784,784

CLIPPER MACHINE

Filed Oct. 26, 1953 4 Sheets-Sheet 1

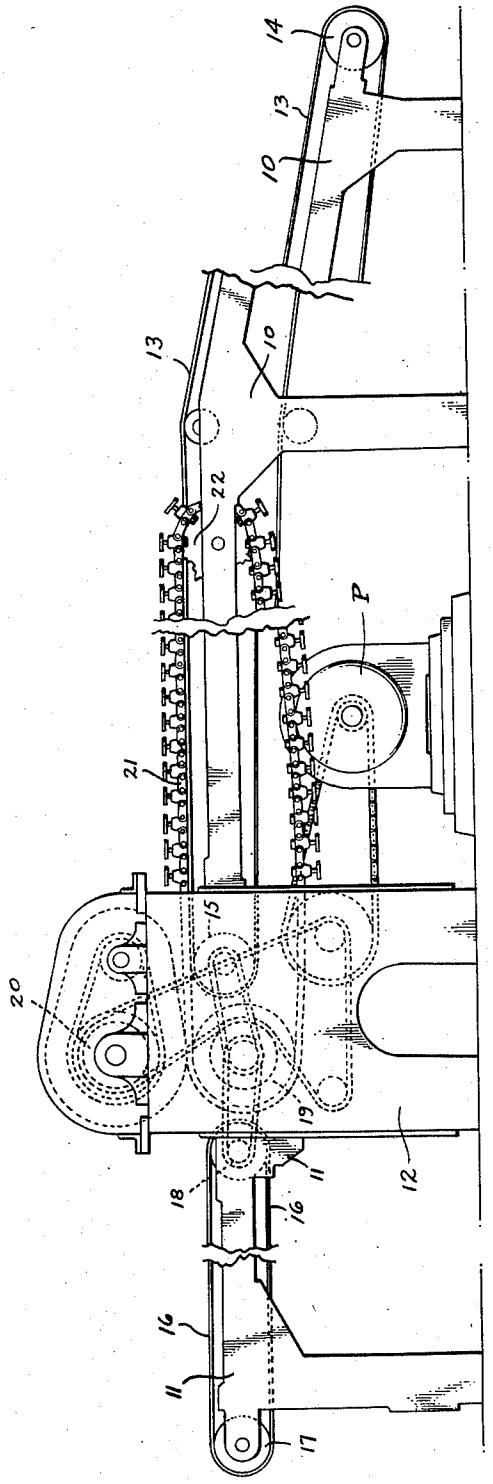


Fig. 1.

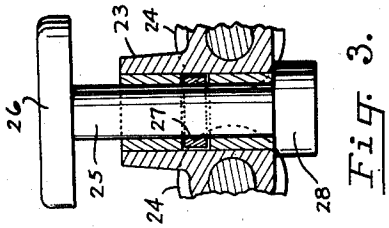


Fig. 3.

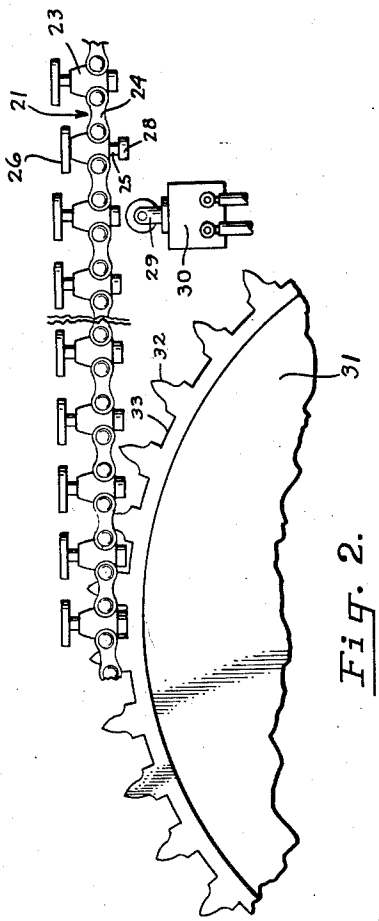


Fig. 2.

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CLIPPER MACHINE

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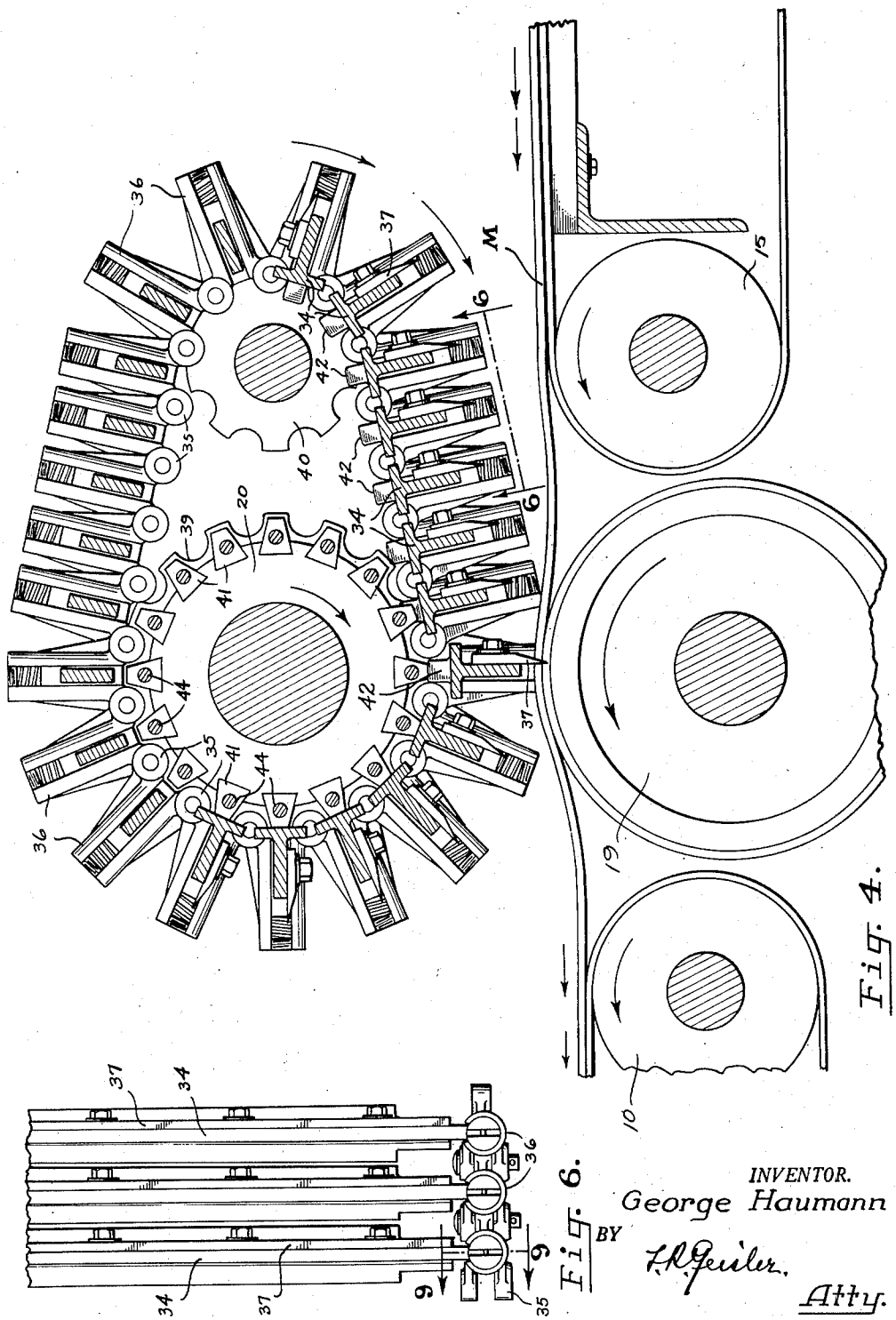


Fig. 4.

Fig. 6.

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CLIPPER MACHINE

Filed Oct. 26, 1953 4 Sheets-Sheet 3

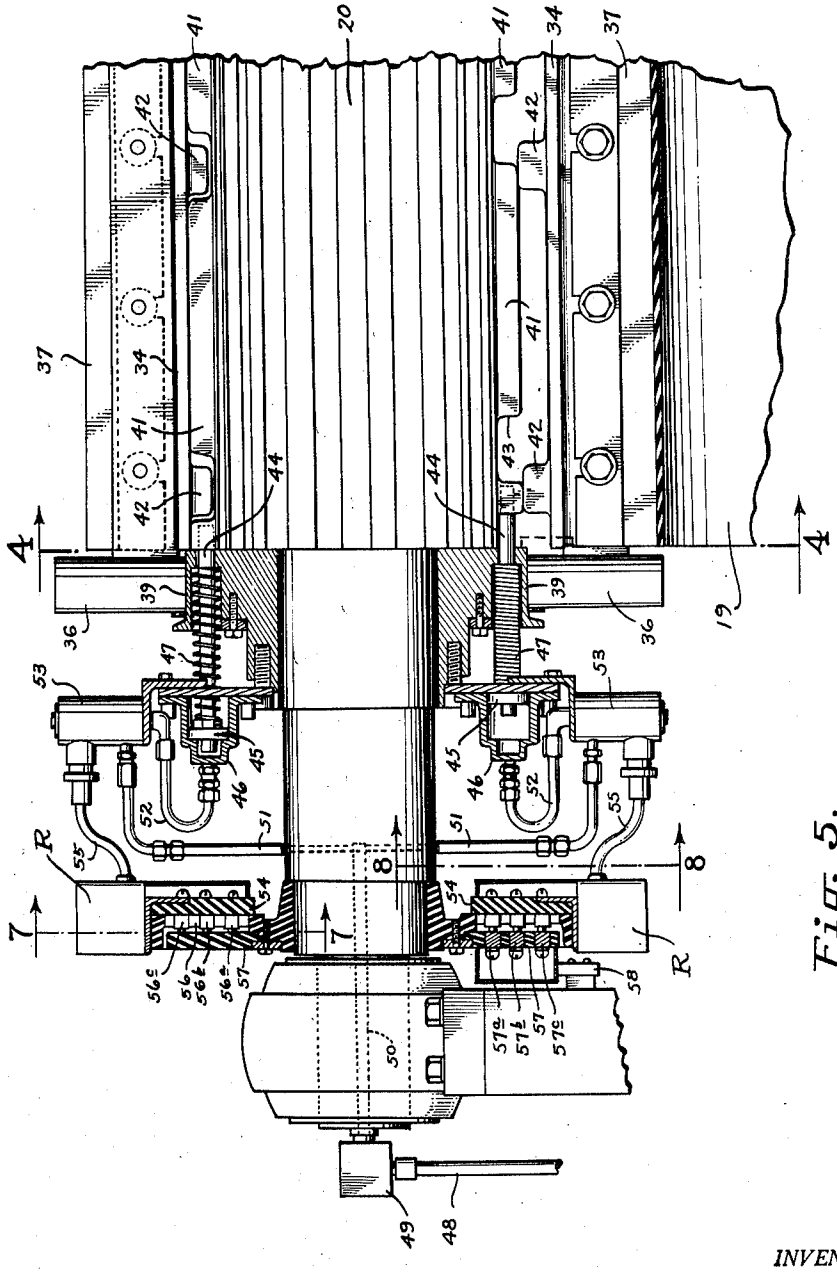


Fig. 5.

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CLIPPER MACHINE

Filed Oct. 26, 1953 4 Sheets-Sheet 4

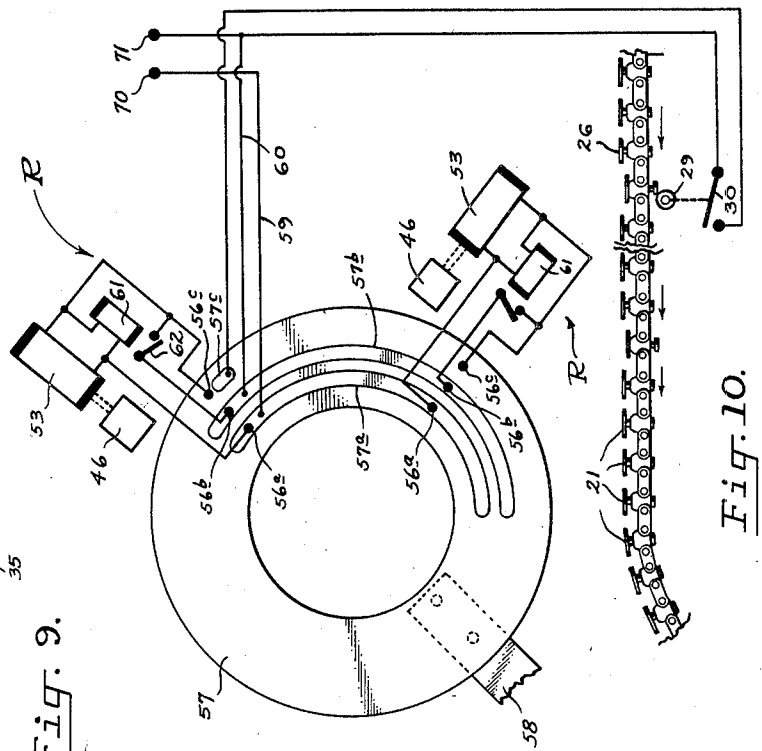


Fig. 10.

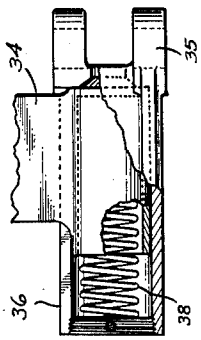


Fig. 9.

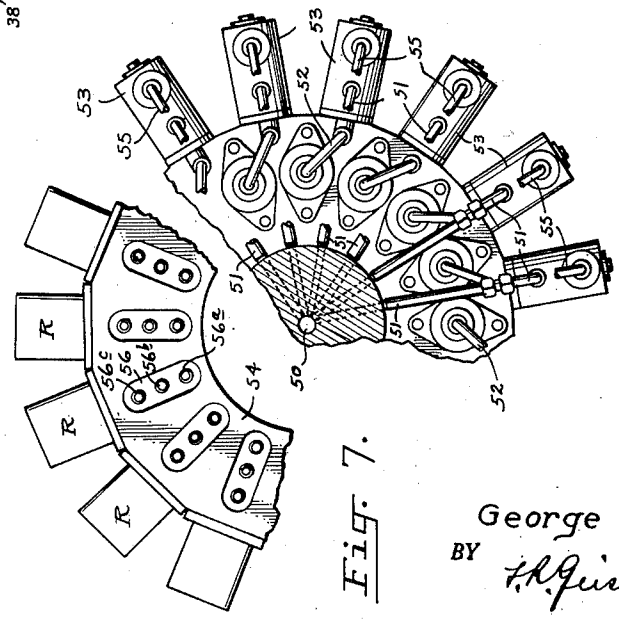


Fig. 7.

Fig. 8.

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United States Patent Office 2,784,784 Patented Mar. 12, 1957

2,784,784

CLIPPER MACHINE

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Application October 26, 1953, Serial No. 388,311

5 Claims. (Cl. 164—68)

This invention relates in general to machines for cutting or severing sheet material into strips of desired length, and, more specifically, relates to the cutting or so-called "clipping" of desired lengths from a continuous sheet of material, particularly wood veneer as the wood veneer sheet is received from the veneer lathe or log peeler.

As is well known, there are generally portions of the veneer sheet which are not suitable for ordinary use, due to knots or other defects, and the operator in charge of the cutting or clipping of the veneer sheet must, in addition to cutting the desired lengths from the sheet, also cut out unusable parts in order that the desired lengths as cut will meet requirements for use. Thus, the operator must watch the sheet constantly so that such unusable parts will be cut out and so that this will be done with as little waste as possible while the usable portions are cut into the desired lengths.

A general object of the present invention is to provide an improved clipper machine in which the work on the part of the operator will be facilitated and simplified.

A related specific object is to provide an improved veneer clipper in which the operator will have full and unobstructed view of the veneer as it is received and up to the point where the cutting or clipping occurs.

A further related object is to provide an improved veneer clipper wherein the control of the operation is carried out by the operator merely by the pushing down of control buttons, thus reducing to a minimum the amount of actual physical labor and strain imposed on the operator.

A further object of the invention is to provide an improved clipper machine through which the veneer or other material being cut can be moved and cut at any desired rate of speed, depending upon the nature of the material and the skill of the operator in directing the cutting and in selecting and eliminating unusable parts of the material.

Another object of the invention is to provide an improved clipper machine which will be lighter in weight and less expensive to manufacture than some of the veneer clippers now in current use.

An additional object of the invention is to provide an improved clipper machine requiring a minimum amount of expense and care in maintenance.

The manner in which these objects and other incidental advantages are attained, and the construction, arrangement, and method of operation of the machine and of the individual parts, will be readily understood from the following brief description with reference to the accompanying drawings.

In the drawings:

Fig. 1 is a fragmentary and more or less diagrammatic side elevation of the entire device;

Fig. 2 is a fragmentary longitudinal vertical sectional view, drawn to a larger scale, of a portion of the operating control chain, together with a portion of the driving sprocket over which the control chain passes;

Fig. 3 is an enlarged sectional elevation of one of the control button carrying members of the control chain;

Fig. 4 is a fragmentary longitudinal vertical section showing the clipper knife assembly and the supporting sprockets and knife-operating roll, and also illustrating the position of the knife assembly and knife blade with respect to the anvil roll, part of the section being taken on line 4—4 of Fig. 5;

Fig. 5 is a fragmentary transverse vertical section through the knife-operating roll assembly showing one end of the knife-operating roll and the mechanism for moving the knives into operative position;

Fig. 6 is a fragmentary plan view of the knife assembly taken on line 6—6 of Fig. 4;

Fig. 7 is a fragmentary section taken on line 7—7 of Fig. 5;

Fig. 8 is a similar fragmentary section on line 8—8 of Fig. 5;

Fig. 9 is an elevation of one of the special links of the knife assembly chains, with portion broken away and part shown in section, illustrating the mounting cylinder for one end of a knife-carrying member, the view being taken on line 9—9 of Fig. 6, but drawn to a larger scale; and

Fig. 10 is a schematic wiring diagram illustrating the operation of the control circuits for the device.

Referring first to Fig. 1, the device includes a rigid frame structure having a receiving and delivering portion, indicated in general by the reference character 10, a discharging portion, indicated in general by the reference character 11, and a central housing within which most of the operating mechanism is supported. The central housing has a pair of side members or standards 12, one of which is shown in Fig. 1, and these standards 12 provide journal supports for the shafts on which various sprockets and rolls or drums, hereinafter mentioned, are mounted. A plurality of endless conveyor belts 13 are mounted on the receiving and delivering portion of the machine. These conveyor belts 13 are spaced apart laterally and pass over sheaves 14 at one end, over intermediate supporting rollers, and over driven sheaves 15 at the other end. Similarly a plurality of conveyor belts 16 are mounted on the discharging portion of the machine, and the belts 16 pass over idler sheaves 17 and driven sheaves 18. The driven sheaves 15 for the conveyor belts 13 and the driven sheaves 18 for the conveyor belts 16 are driven in the same direction and at the same rate of speed through the intermediary of sprockets and sprocket chain connections.

The veneer or other material to be cut or clipped passes over a rotating anvil roll 19, after leaving the delivery conveyor belts 13, and thence passes on to the discharging conveyor belts 16.

While passing over the anvil roll 19, the material moves below a moving clipper knife assembly, which clipper knife assembly passes around a knife-operating roll 20. The axis of the roll 20 and the axis of the anvil roll 19 extend in the same vertical plane.

An endless control chain 21, to be presently described, located on the near side of the machine, as viewed in Fig. 1, passes over an idler sprocket 22 and over a driven sprocket 31 (Fig. 2) secured to and rotated with the anvil roll 19 (Fig. 1).

The anvil roll 19, the knife-operating roll 20, the sprocket for the control chain 21, and the driven sheaves 15 and 18 for the sets of conveyor belts 13 and 16, are all driven at the same peripheral speed by a motor P, which is connected up in the manner indicated by the broken lines in Fig. 1. Thus, the speed at which the entire machine operates can be varied by varying the speed of the motor P.

The control chain or knife-setting chain 21 (see Figs. 2 and 3) consists of a series of uniformly-spaced blocks or control button carrier members 23 which are connected

by pairs of links **24**. A cylindrical channel extends through each of the members **23**, the axis of the channel being normal to the direction of travel of the chain, and the shaft **25** for a control button **26** is mounted in each cylindrical channel for limited movement in an axial direction therein. A friction ring **27** (Fig. 3) in each cylindrical channel prevents any inadvertent movement of the shaft **25** in the cylindrical channel. A contact knob **28** is secured on the shaft on the opposite end from the control button **26** and is adapted to engage an element **29** (Fig. 2) of a spring-biased switch assembly **30** so as to cause momentary closing of the switch in the switch assembly when a control button **26** is pressed down manually into lowered position to cause the contact knob **28** to engage the element **29**. The control chain **21** passes around the driven sprocket wheel **31** and the sprockets **32** of this sprocket wheel are specially shaped and arranged so that they will engage the openings between the pairs of links **24** while the contact knobs **28** will be engaged by the pocket portions **33** between the sprockets, as shown in Fig. 2. As a result of the engagement of the chain **21** with the sprocket wheel **31**, any control buttons which have been pressed down in the chain, for operating the switch assembly **30**, will be returned to normal position when the chain encounters the sprocket wheel **31**.

Referring now to Figs. 4, 5, 6 and 9, the clipper knife assembly includes a series of transversely-extending T-shaped knife carriers **34** which are supported at their ends on conveyor chains. These conveyor chains are formed with special chain links **35** (see Fig. 9) which have hollow slotted cylindrical castings **36** into which the respective ends of the knife carriers extend. A knife blade **37** (Figs. 4, 5 and 6) is bolted on each knife carrier **34**. A coil spring **38** (Fig. 9) in each cylindrical casting **36** acts to hold the knife carriers **34**, and therewith the knife blades **37**, normally in inoperative position in which position the knife blades will not contact the material M passing over the anvil roll **19** and under the knife blades (see Fig. 4).

The conveyor chains of the knife assembly, having the special links **35** with the cylindrical castings **36**, are engaged by sprockets secured to each end of the knife-operating roll **20**, one such sprocket being shown at **39** in Fig. 5. These conveyor chains also pass over idler sprockets, one of which is shown at **40** in Fig. 4.

The knife-operating roll **20** carries a plurality of slide bars **41** (Figs. 4 and 5) which coincide with the knife carriers **34** respectively as the knife assembly passes around the roll **20**. Each of the knife carriers **34** has a plurality of spaced, inwardly-projecting lugs **42** and each of the slide bars **41** on the knife-operating roll **20** is formed with corresponding recesses **43** for receiving these lugs when the slide bars are in normal inoperative position. Each of the slide bars **41** has secured thereto a rod **44** which extends from one end of the slide bar (Fig. 5) in alinement with the slide bar and thus parallel to the axis of the roll **20**. Each rod **44** extends through an opening in the adjacent sprocket **39** for the knife assembly chain and is movable, by means later described, to produce slight sliding movement of the connected slide bar **41**.

Thus, as apparent from Fig. 5, when a slide bar **41** is moved from the normal inoperative position, shown by the upper slide bar **41** in Fig. 5, to the position shown by the lower slide bar **41** in Fig. 5, the lugs **42** of the knife carrier **34** will be engaged by the slide bar and the engaged knife carrier will be pushed radially outwardly, with respect to the roll **20**, against the force of the springs in the cylindrical castings **36**, and will move the attached knife blade **37** into cutting position. In Fig. 4 the lowest knife blade **37** is shown as having been moved outwardly (and consequently downwardly) into cutting position, and in such position cuts through the material M passing over the anvil roll **19** as the knife blade reaches the anvil roll.

An air piston **45** (Fig. 5) is mounted on the outer end of each slide bar rod **44** and is positioned within an air cylinder **46**. A spring **47**, carried on each rod **44**, is held under compression between the piston **45** and a shoulder in the aperture in the sprocket **39** through which the rod **44** passes. Thus each spring **47** exerts a force to move its corresponding piston **45**, rod **44**, and slide bar **41**, to the left as viewed in Fig. 5, and thereby maintains the slide bar **41** in the normal position illustrated by the upper slide bar in Fig. 5, until compressed air is allowed to enter the cylinder **46** and force the piston **45** to the right against the force of the spring **47** as illustrated by the lower piston and slide bar in Fig. 5.

Compressed air from a suitable source (not shown) is delivered to the knife-operating roll assembly through a pipe **48** (Fig. 5) and thence through a rotary joint **49** to a pipe **50** which extends a short distance axially within the shaft of the knife-operating roll **20**. Branch pipes **51** (see also Fig. 8) lead from the central pipe **50** and are connected with pipes **52** respectively, through the intermediary of solenoid-operated valve assemblies indicated in general by the reference character **53**. The air pipes **52**, in turn, connect with the air cylinders **46**, as shown in Fig. 5. Thus, the knife-operating roll assembly carries a plurality of slide bars **41**, an air cylinder and piston for operating each slide bar and a connection with a source of compressed air for each cylinder controlled by a solenoid-operated valve.

A disc **54** (Figs. 5 and 7) is keyed on the shaft of the knife-operating roll **20**. A plurality of relay switches, mounted in suitable housings and indicated in general by the reference character R, and corresponding in number to the solenoid-operated valves and air cylinders of the knife-operating roll are carried on the periphery of the disc **54**. Connecting wires from each relay switch lead to the solenoid for the corresponding solenoid-controlled valve **53** through a connecting tube **55**. A panel **56** containing 3 contact brushes *56a*, *56b* and *56c*, is provided for each relay R and is positioned on the disc **54** substantially in radial alinement with the relay, as indicated in Fig. 7. Each of the 3 brushes of the panel is connected with the relay in the manner explained later.

A stationary ring **57** (Figs. 5 and 10), mounted on a bracket **58** which is secured to a standard supporting the shaft of the knife-operating roll **20**, carries a pair of arcuate contact strips **57***a* and **57***b* and also a short contact strip **57***c*, which are positioned as shown in Fig. 10, and are so arranged as to be contacted by the brushes **56***a*, **56***b* and **56***c* respectively of each relay R during each rotation of the knife-operating roll assembly. The two main contact strips **57***a* and **57***b* are electrically connected by the wires **59** and **60** (Fig. 10) to electric supply lines **70** and **71** respectively. The short contact strip **57***c* is connected with supply line **71** through the intermediary of the spring contact switch **30** previously mentioned.

With reference to the diagram in Fig. 10, the electric control connection operates as follows:

When the brushes **56***a*, **56***b* and **56***c* of one of the relays R contact the strips **57***a*, **57***b* and **57***c*, respectively, as the knife-operating roll assembly rotates, assuming that the switch **30** is closed, the momentary contact of the brush **56***c* with the short contact strip **57***c* will energize a solenoid **61**, close the contact **62**, and close the relay circuit to the solenoid-operated valve **53**. This will cause the valve **53** to open and the opening of the valve **53** will result in compressed air passing into the air cylinder **46** (see also Fig. 5), resulting in the movement of the corresponding slide bar **41** on the knife-operating roll **20** and the moving of the corresponding knife blade out into cutting or clipping position.

As apparent from Fig. 10, once the contact is closed through the relay R to the solenoid-operated valve **53**,

the connection with the contact strips 57*a* and 57*b* will be maintained even though the brush 56*c* passes beyond the contact strip 57*c*, and the connection will continue until it is finally terminated by the passing of the brushes 56*a* and 56*b* beyond the end of the strips 57*a* and 57*b*. In other words, the cylinder 46 will continue to be connected with the source of compressed air, and the corresponding knife will be held in operating position, until the brushes of the corresponding relay R have passed beyond the contact strips 57*a* and 57*b*, at which time the knife will have completed the desired cutting or clipping of the material.

The fact that the contact strip 57*c* is so short prevents more than one relay R from being energized at the instant closing of the control switch 30, and at the same time enables successive relays R to be energized as desired by successive closings of the switch 30, the closing of the switch 30 being controlled by the control buttons 26 in the knife-setting chain 21, as previously described.

The spacing of the control buttons 26 in the knife-setting chain 21 corresponds exactly to the spacing of the clipper knives 37 in the knife assembly and the spacing of the slide bars 41 in the knife-operating roll 20. This spacing may be arranged at any desired equal intervals, such as the two inch intervals which recently have become more or less standard in veneer clipping machines. However, in the carrying out of my invention, I prefer to space the knives, and correspondingly the control buttons in the control chain 21, at intervals slightly in excess of the standard two inches, for example at intervals of two and one-eighth inches, with the excess one-eighth inch corresponding very closely to the amount of shrinkage which will occur in the veneer upon the drying of the same when the veneer is made from the type of wood at present extensively used in the plywood industry in the Northwest.

As is well known, the cutting or clipping of wood veneer takes place before the veneer has been dried, and with the preferred arrangement which I employ the veneer sheets will be of the uniform exact size desired after the cut sheets have dried.

The switch 30 and the short contact strip 57*c* are so located that the distance traveled by the veneer or other material from the point at which the switch 30 is engaged by a selected control button up to the point at which the veneer reaches the crest of the anvil roll 19 is equal to the distance traveled in the same period by a cutting knife from the moment the corresponding brush 56*c* contacts the strip 57*c* until this knife arrives at the top of the anvil roll. Since the control chain 21 moves along at the same rate of speed as the veneer or other material to be cut and is located close to and parallel to the edge of the material as it passes in front of the operator, while the knife assembly travels also at the same speed, the operator knows that the cutting or clipping of the material will occur in exact registration with the control button which he selects. Consequently, all that is required of the operator is to select and push down a particular control button. The operator at all times has full view of the on-coming material or veneer, and, by cutting out entirely unusable portions of the material, can get the most out of the material as it is delivered to the machine with a minimum amount of effort and strain on the part of the operator.

The anvil roll 19 (Figs. 1 and 4) in my improved machine preferably has resilient material vulcanized or otherwise secured on its periphery. While the peripheral speed of the anvil roll is the same as that of the knife-operating roll 20, and thus the same as the speed at which the knife assembly travels, I purposely make the anvil roll in my machine with a slightly greater diameter than the upper knife-operating roll 20. The particular advantage in this is that the knives can perform a great many cuts without striking the anvil roll a second time in exactly the same spot. This feature considerably increases the life of the resilient layer with which the anvil roll is surfaced.

As will be apparent from Fig. 4, the cutting edges or bottom edges of the knives 37 momentarily move with increased speed after leaving the anvil roll 19 due to the fact that the knife assembly curves around the roll 20 after leaving the anvil roll and the knife edges are spaced considerable distance radially from the roll 20. The temporary increase of speed by the outer or bottom edge of the knife blade aids in pushing the cut-off piece of material slightly ahead after its severance on the top of the anvil roll.

Since the slide bars 41, through the intermediary of which selected knives are moved into cutting position, are mounted on the roll 20 instead of being included in the knife assembly itself, fewer slide bars are required in my device. This is an economy in both weight and expense. It also enables longer or shorter knife assemblies to be used with the same knife-operating roll assembly if desired.

Various modifications and minor changes could be made in my machine without departing from the principle of the invention. While I have shown the preferred form in which my invention is carried out, it is not my intention to limit the same otherwise than is set forth in the claims.

I claim:

1. In a clipper machine of the character described, an anvil roll, feeding means for continuously moving sheet material over said anvil roll, a knife-operating roll located above said anvil roll and having its axis positioned in the same vertical plane with the anvil roll axis, an endless knife assembly including a pair of identical, laterally spaced, endless sprocket chains carrying knife-supporting elements and transversely extending, longitudinally spaced knives, means for moving said knife assembly at the same speed as said sheet material feeding means, said knife assembly passing around said knife-opearting roll, sprockets at opposite ends of said knife-operating roll engaging said sprocket chains respectively, means in said knife assembly normally maintaining said knives in inoperative position, slide bars mounted in the periphery of said knife-operating roll extending parallel to its axis, the spacing between said slide bars on said roll periphery corresponding to the longitudinal spacing between said knives in said knife assembly, engaging elements on said slide bars so arranged as to render said knives operative when said slide bars are moved into actuating position and contact said knives, means on said knife-operating roll normally holding said slide bars out of actuating position, an actuating rod secured to the end of each slide bar and extending through the adjacent sprocket on said knife-operating roll, rod-moving means for each rod on said knife-operating roll beyond said last mentioned sprocket for moving the corresponding slide bar temporarily into actuating position, electric control switch assemblies carried by said knife-operating roll and connected with said rod-moving means respectively, electric contact means for selectively energizing said control switch assemblies, an endless knife-settable sprocket chain moving in unison with said endless knife assembly, settable elements carried by said knife-settable chain and spaced apart longitudinally the same distance as said knives in said knife assembly, and a contact switch engageable by said settable elements when said settable elements are manually set in switch-engaging position, said last mentioned contact switch being electrically connected with said electric contact means whereby the setting of said settable elements for engagement with said last mentioned contact switch will cause corresponding knives in said knife assembly to be rendered operative through the medium of said slide bars and their control assemblies on said knife-operating roll.

2. In a clipper machine of the character described, an anvil roll, a knife-operating roll located above said anvil roll and having its axis positioned in the same vertical plane with the anvil roll axis, driving means rotating said anvil and said knife-operating rolls in opposite direction

at the same peripheral speeds, means for continuously moving sheet material over said anvil roll at the same speed as said peripheral speeds, an endless knife assembly including a pair of identical, laterally spaced, endless sprocket chains carrying knife-supporting elements and transversely extending, longitudinally spaced knives, said knife assembly passing around said knife-operating roll, sprockets at opposite ends of said knife-operating roll engaging said sprocket chains respectively, spring means in said knife assembly normally maintaining said knives in inoperative position, slide bars mounted in the periphery of said knife-operating roll extending parallel to its axis, the spacing between said slide bars on said roll periphery corresponding to the longitudinal spacing between said knives in said knife assembly, engaging elements on said slide bars so arranged as to render said knives operative when said slide bars are moved into actuating position and contact said knives, means on said knife-operating roll normally holding said slide bars out of actuating position, an actuating rod secured to the end of each slide bar and extending through the adjacent sprocket on said knife-operating roll, rod-moving means for each rod on said knife-operating roll beyond said last mentioned sprocket for moving the corresponding slide bar temporarily into actuating position, electric control switch assemblies carried by said knife-operating roll and connected with said rod-moving means respectively, electric contact means for selectively energizing said control switch assemblies, an endless knife-settable sprocket chain moving in unison with said endless knife assembly, settable push buttons carried by said knife-settable chain and spaced apart longitudinally the same distance as said knives in said knife assembly, and a contact switch engageable by said push buttons when said push buttons are manually set in switch-engaging position, said last mentioned contact switch being electrically connected with said electric contact means, whereby the setting of said push buttons for engagement with said last mentioned contact switch will cause corresponding knives in said knife assembly to be rendered operative through the medium of said slide bars and their control assemblies on said knife-operating roll.

3. In a clipper machine of the character described, an anvil roll, a knife-operating roll located above said anvil roll and having its axis positioned in the same vertical plane with the anvil roll axis, driving means rotating said anvil and said knife-operating rolls in opposite direction at the same peripheral speeds, means for continuously moving sheet material over said anvil roll at the same speed as said peripheral speeds, an endless knife assembly including a pair of identical, laterally spaced, endless sprocket chains carrying knife-supporting elements and transversely extending, longitudinally spaced knives, said knife assembly passing around said knife-operating roll, sprockets at opposite ends of said knife-operating roll engaging said sprocket chains respectively, spring means in said knife assembly normally maintaining said knives in inoperative position, slide bars mounted in the periphery of said knife-operating roll extending parallel to its axis, the spacing between said slide bars on said roll periphery corresponding to the longitudinal spacing between said knives in said knife assembly, cooperating elements on said slide bars and on said knife-supporting elements so arranged as to render said knives operative when said slide bars are moved into actuating position and contact said knives, means on said knife-operating roll normally holding said slide bars out of actuating position, an actuating rod secured to the end of each slide bar and extending through the adjacent sprocket on said knife-operating roll, rod-moving means for each rod on said knife-operating roll beyond said last mentioned sprocket for moving the corresponding slide bar temporarily into actuating position, electric control switch assemblies carried by said knife-operating roll and connected with said rod-moving means respectively, a stationary ring, contact

members on said ring, each of said switch assemblies including contact elements engaging said contact members of said stationary ring upon the rotation of said knife-operating roll, an endless knife-settable sprocket chain moving in unison with said endless knife assembly, settable push buttons carried by said knife-settable chain and spaced apart longitudinally the same distance as said knives in said knife assembly, and a contact switch engageable by said push buttons when said push buttons are manually set in switch-engaging position, said last mentioned contact switch being electrically connected with said contact members on said stationary ring, whereby the setting of said push buttons for engagement with said last mentioned contact switch will cause corresponding knives in said knife assembly to be rendered operative through the medium of said slide bars and their control assemblies on said knife operating roll.

4. In a clipper machine of the character described, an anvil roll, a knife-operating roll located above said anvil roll and having its axis positioned in the same vertical plane with the anvil roll axis, driving means rotating said anvil and said knife-operating rolls in opposite direction at the same peripheral speeds, means for continuously moving sheet material over said anvil roll at the same speed as said peripheral speeds, an endless knife assembly including a pair of identical, laterally spaced, endless sprocket chains carrying knife-supporting elements and transversely extending, longitudinally spaced knives, said knife assembly passing around said knife-operating roll, sprockets at opposite ends of said knife-operating roll engaging said sprocket chains respectively, spring means in said knife assembly normally maintaining said knives in inoperative position, slide bars mounted in the periphery of said knife-operating roll extending parallel to its axis, the spacing between said slide bars on said roll periphery corresponding to the longitudinal spacing between said knives in said knife assembly, cooperating elements on said slide bars and on said knife-supporting elements so arranged as to render said knives operative when said slide bars are moved into actuating position and contact said knives, spring means on said knife-operating roll normally holding said slide bars out of actuating position, an actuating rod secured to the end of each slide bar and extending through the adjacent sprocket on said knife-operating roll, an air piston on the end of each rod and an air cylinder for each piston on said knife-operating roll beyond said last mentioned sprocket for moving the corresponding slide bar temporarily into actuating position, electric control switch assemblies carried by said knife-operating roll and connected with said air cylinders respectively, a stationary ring, contact members on said ring, each of said switch assemblies including contact elements engaging said contact members of said stationary ring upon the rotation of said knife-operating roll, an endless knife-settable sprocket chain moving in unison with said endless knife assembly, said knife-settable chain passing around a sprocket wheel attached to said anvil roll, settable push buttons carried by said knife-settable chain and spaced apart longitudinally the same distance as said knives in said knife assembly, and a contact switch engageable by said push buttons when said push buttons are manually set in switch-engaging position, the contact of said knife-settable chain with said last mentioned sprocket wheel causing said push buttons to be placed out of switch-engaging position, said last mentioned contact switch being electrically connected with said contact members on said stationary ring, whereby the setting of said push buttons for engagement with said last mentioned contact switch will cause corresponding knives in said knife assembly to be rendered operative through the medium of said slide bars and their control assemblies on said knife operating roll.

5. In a clipper machine of the character described, an anvil roll, a knife-operating roll located above said anvil roll and having its axis positioned in the same vertical

plane with the anvil roll axis, driving means rotating said anvil and said knife-operating rolls in opposite direction at the same peripheral speeds, means for continuously moving sheet material over said anvil roll at the same speed as said peripheral speeds, the diameter of said anvil roll being greater than that of said knife-operating roll to provide greater distribution on the anvil roll periphery of the knife contacts with the anvil roll, an endless knife assembly including a pair of identical, laterally spaced, endless sprocket chains carrying knife-supporting elements and transversely extending, longitudinally spaced knives, said knife assembly passing around said knife-operating roll, sprockets at opposite ends of said knife-operating roll engaging said sprocket chains respectively, spring means in said knife assembly normally maintaining said knives in inoperative position, slide bars mounted in the periphery of said knife-operating roll extending parallel to its axis, the spacing between said slide bars on said roll periphery corresponding to the longitudinal spacing between said knives in said knife assembly, cooperating elements on said slide bars and on said knife-supporting elements so arranged as to render said knives operative when said slide bars are moved into actuating position and contact said knives, spring means on said knife-operating roll normally holding said slide bars out of actuating position, an actuating rod secured to the end of each slide bar and extending through the adjacent sprocket on said knife-operating roll, an air piston on the end of each rod and an air cylinder for each piston on said knife-operating roll beyond said last mentioned sprocket for moving the corresponding slide bar temporarily into actuating position, electric control switch assemblies carried by said knife-operating roll and connected with said air cylinders respectively, a stationary ring, contact members on said ring, each of said switch assemblies including contact brushes engaging said contact members of said stationary ring upon the rotation of said knife-operating roll, an endless knife-settable sprocket chain moving in unison with said endless knife assembly, said knife-settable chain passing around a sprocket wheel attached to said anvil roll, settable push buttons carried by said knife-settable chain and spaced apart longitudinally the same distance as said knives in said knife assembly, and a contact switch engageable by said push buttons when said push buttons are manually set in switch-engaging position, the contact of said knife-settable chain with said last mentioned sprocket wheel causing said push buttons to be placed out of switch-engaging position, said last mentioned contact switch being electrically connected with said contact members on said stationary ring, whereby the setting of said push buttons for engagement with said last mentioned contact switch will cause corresponding knives in said knife assembly to be rendered operative through the medium of said slide bars and their control assemblies on said knife operating roll.

References Cited in the file of this patent

UNITED STATES PATENTS

465,427	Cox	Dec. 15, 1891
1,703,962	Scholl	Mar. 5, 1929
1,753,967	Robinson	Apr. 8, 1930
1,781,900	Friede et al.	Nov. 18, 1930
1,965,523	MacFarren	July 3, 1934
2,005,824	Haumann	June 25, 1935
2,369,253	Robinson et al.	Feb. 13, 1945
2,666,484	Schubert	Jan. 19, 1954