Sept. 20, 1971 A. E. WILLIAMS ET AL 3,605,540

APPARATUS FOR DIMENSION CLIPPING OF VENEER

Filed July 24, 1969 2 Sheets-Sheet 1

Figure 1

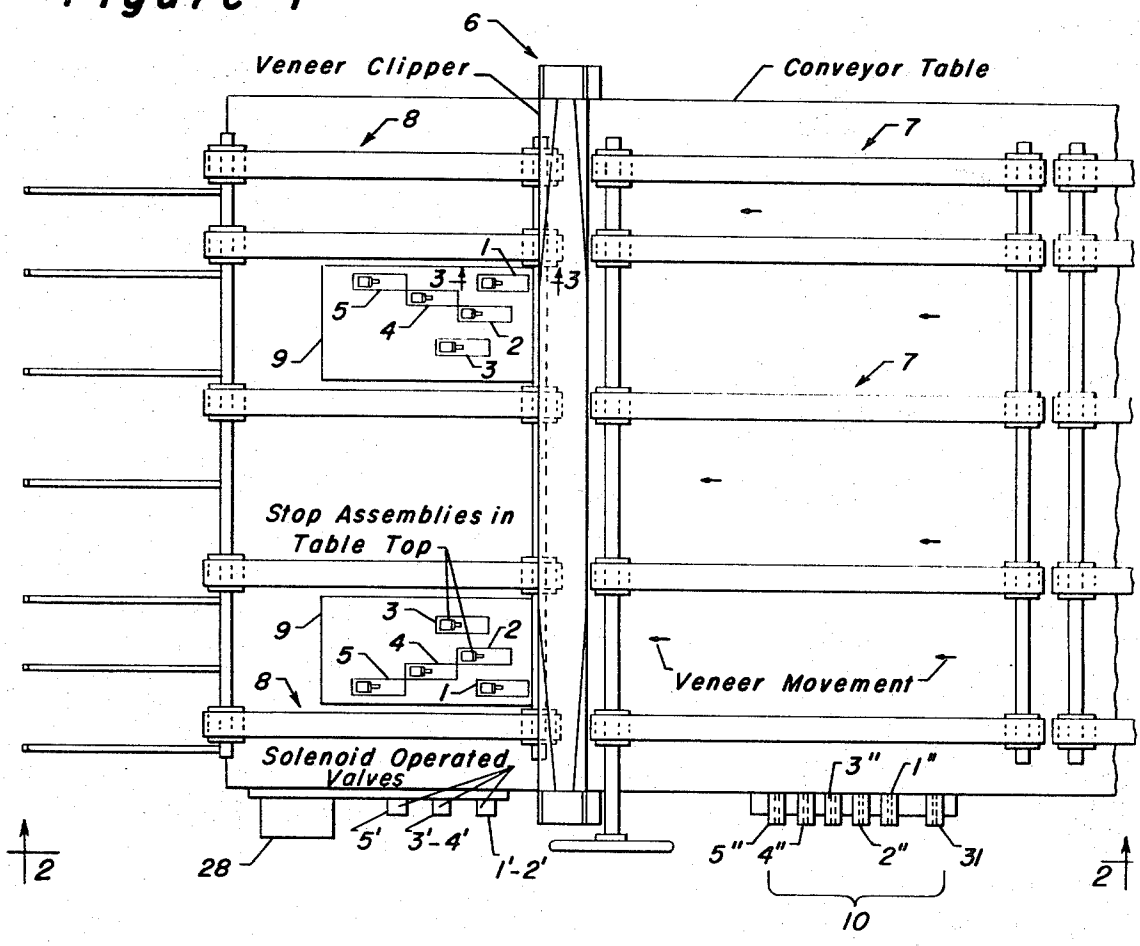
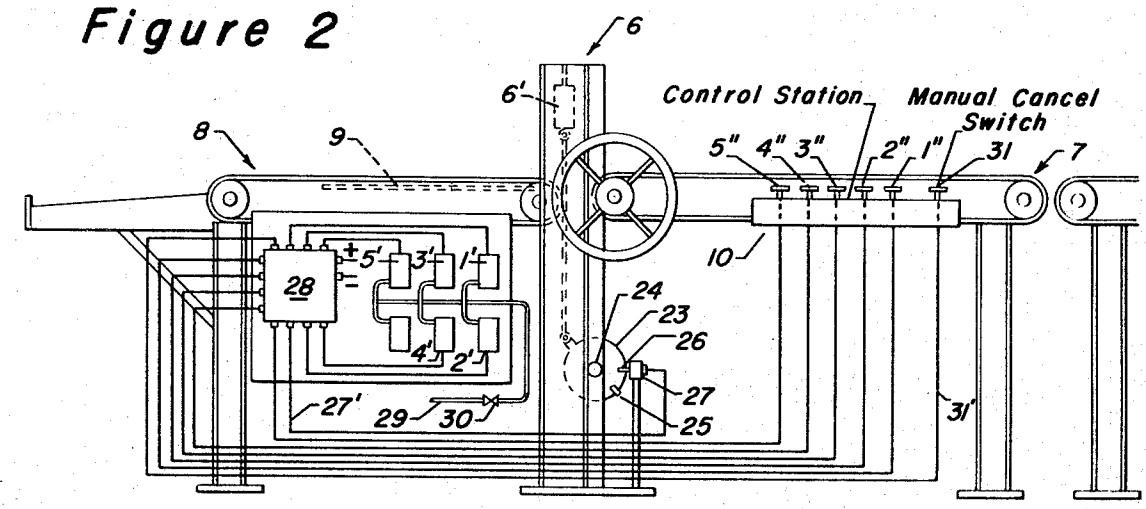


Figure 2



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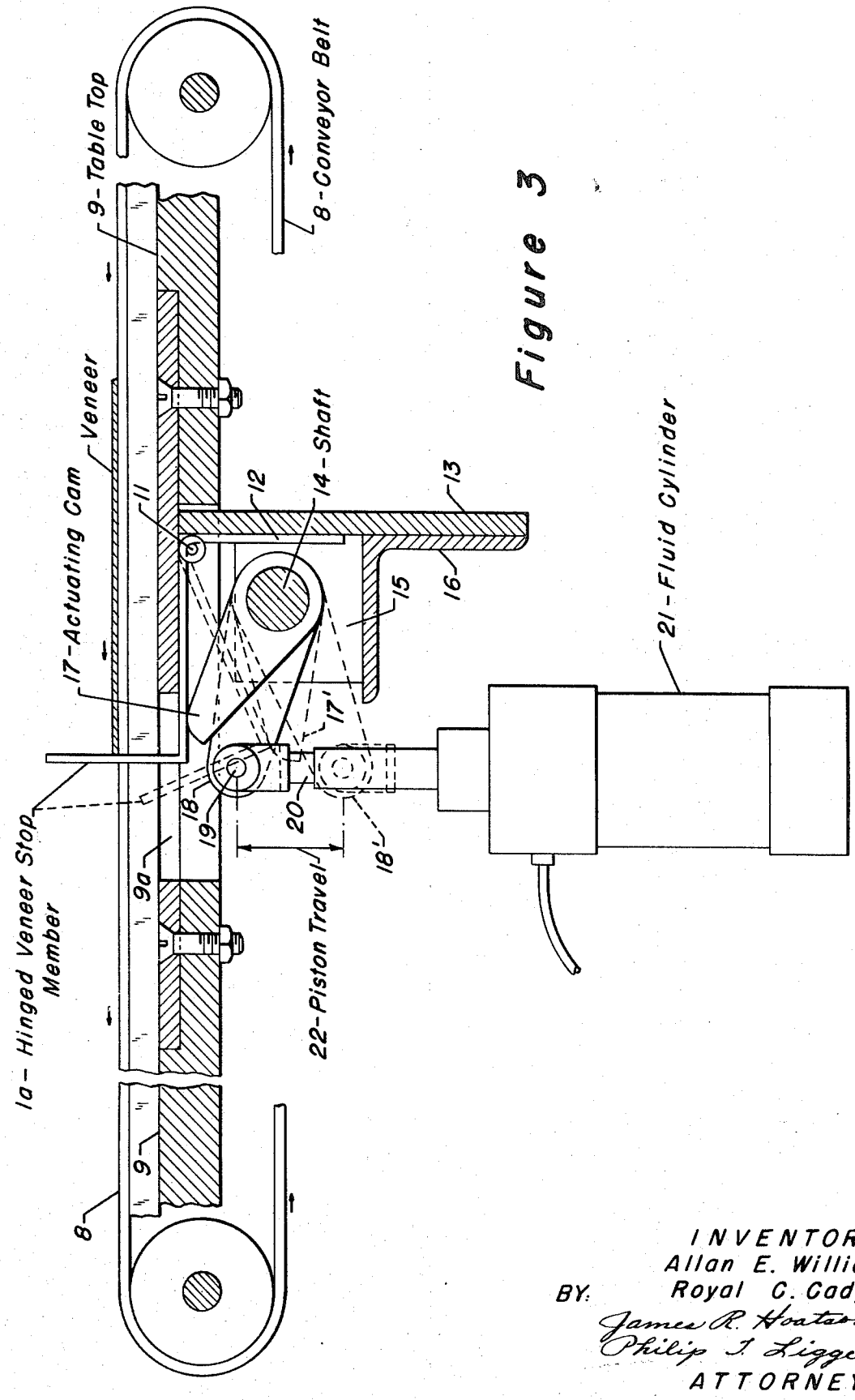


Figure 3

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APPARATUS FOR DIMENSION CLIPPING OF VENEER

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U.S. Cl. 83—241 3 Claims

ABSTRACT OF THE DISCLOSURE

A veneer clipping system providing a plurality of vertically movable stop means that are positioned at varying spaced distances beyond a veneer clipper so as to effect a cutting of veneer into desired lengths. Each of the stop means is power operated from an operator's switch control station and each is mounted at a level just below that of the veneer conveyor means to thus be movable from just below the level of the latter to above the conveyor means to thereby provide for stopping the travel of the veneer at a selected distance beyond the clipper blade.

The present invention relates to an improved apparatus arrangement for accomplishing the dimension clipping of desired lengths of veneer from a long strip of veneer being carried to the cutter apparatus by conventional conveying means.

More particularly, there is provided in combination with a conventional type of veneer cutter or "clipper" a plurality of movable veneer stop means that are spaced beyond the zone of the cutter blade so that varying lengths or dimensioned pieces of veneer may be cut from a long strip thereof.

In the production of high grade hard wood veneers, it is customary for an operator to use a standard form of clipper that has a power operated descending cutter blade to effect the cutting of a long strip of veneer into desired commercial lengths and, in addition, to cut out sections of veneer which have knots, blemishes, etc. In the latter instances, the cutting operations are generally carried out entirely by the judgment and skill of the cutter operator in making a visual decision of a dimension to be clipped. However, in some plant operations, there may be the use of projected shadow lines, measured spaced lines, or other known markings, along the conveyor means and ahead of the cutter such that there is some aid to the operator in judging the cut to be made in the moving veneer strip.

However, in order to accomplish a minimization of the wastage of valuable hard wood veneers, it is desired to obtain the accurate dimension cutting of the veneer strips and it may be considered a principal object of the present invention to have rapidly operating stop means for use adjacent a veneer clipper so that specific lengths of veneer may be obtained or undesirable pieces cut from a longer strip of veneer.

It may be considered a further object of this invention to provide a rapidly operating veneer stop and release system for the controlled movement of veneer through a cutter unit so that any one of a plurality of predetermined lengths can be cut from a veneer strip.

A still further object of the present dimension clipping system is to provide for an automatic release of all of a plurality of individually movable stop means upon the completion of a cutting operation such that the veneer will be free to continue movement on through the cutter from the accompanying conveyor means.

Broadly, the present invention provides a veneer clipper adapted to cut veneer passing therethrough from conveyor means and having a horizontal cutting blade operated by a rising and descending power driven means, the improved dimension clipping system, which comprises, mounting a plurality of vertically movable veneer stop means at varying spaced distances beyond the clipper with respect to veneer movement, with the mounting and connecting of said stops vertically with respect to the veneer conveyor means being at a level to have them liftable from just below the level of the latter when such stop means are in a lowered position, movable power actuated lifting means connected to each of the plurality of veneer stop means with sufficient motion provided to move each of said stop means from below the conveyor means to a position extending thereabove whereby conveyed veneer will be stopped from its horizontal travel through the clipper, and a separate control means connects with each of the different power actuated lifting means to provide for the lifting of a selected stop means at a desired spaced distance flom the clipper and thereby effect any one of several desired dimension cuttings of the veneer.

In a preferred arrangement each of the stop means will comprise a pair of stop members, with each being spaced from one another laterally across the conveyor table in order that the strip of veneer which is passing under and through the dimension clipper will be maintained in good alignment for accurate cutting by the clipping knife. In the event that a single stop means is utilized, then such stop means should be sufficient in width to provide the stoppage of moving veneer strip in a manner to attain a resulting straight or right angle cut by the dimension clipper.

Various methods may be used for lifting each of the stop means upwardly through the level of the conveyor table to catch the leading edge of the near strip as well as effect a retraction of the stop means by the operation of the clipper knife. For example, air cylinders or other fluid power cylinder means may be used to raise and lower each of the stop members, with their actuation being accomplished from solenoid valves in turn operated by switching means at a controlled station. Where the stop means are used in pairs, then the power operated lifting means will be operated so as to simultaneously move each of the stop members of the pair. Alternatively, there may be a common shaft for supporting or mounting each of the stop means of the pair and a single pneumatic cylinder or other lifting means is used to rotate the common shaft so as to make each of the stop means of the pair operate in unison.

A still further feature of the present improved system provides for the automatic lowering of all of the stop members after the cutter blade has descended and made a cut in the veneer. This action permits the elongated strip of veneer to continue on through the control zone until such time as the operator selects the actuation of one of the stop means to provide for a next dimension cutting. The automatic retraction of each of the stop means may, for example, be operated from switch means connected to the drive shaft for the cutter, or to the movable cutter knife itself, such that each stop means will immediately fall back through the conveyor table level after the cutting operation. A preferred system also provides that there be a manual control switch at an operator control station such that any one set of stop means may be retracted and another raised in the event that the operator decides to make a different dimension cutting after having raised a particular stop means.

Reference to the accompanying drawings and the following description thereof will serve to illustrate one embodiment of the improved dimension cutting system in combination with a veneer cutter or clipper, as well as point out additional advantageous features obtained by the system.

DESCRIPTION OF THE DRAWING

FIG. 1 of the drawing is a diagrammatic plan view indication a conveyor arrangement suitable for carrying a veneer strip to a veneer clipper and to a plurality of stop assemblies spaced at selected dimensions beyond the clipper zone.

FIG. 2 of the drawing is a diagrammatic elevational view of a veneer clipper and the control arrangement for effecting the clipping of varying predetermined dimensions of veneer strip, as indicated by the line 2—2 in FIG. 1.

FIG. 3 shows in a partial sectional elevational view one embodiment for effecting the raising and lowering of a hinged type of movable stop member from air cylinder operating means.

Referring now particularly to FIGS. 1 and 2 of the drawing, there is indicated the use of a conventional veneer cutter or clipper apparatus **6** and a conveyor arrangement **7** adapted to bring an elongated strip of veneer to the clipper from an unreeling zone. In the present drawing the arrangement is such that the veneer will move from right to left and thus pass onto another conveyor **8** which is provided in part with a fixed table top means **9** which in turn has a plurality of openings for movable stop means **1** through **5** that may be raised and lowered with respect to the table surface and the level of the conveyor means **8**.

In the present embodiment, the various spaced stops are provided such that they work in pairs at spaced distances beyond the clipper **6** with respect to veneer movement. For example, each of the laterally spaced stop means **1** will comprise a liftable member that will operate in unison with the other member of the pair to effect the stoppage of the travel of a veneer strip moving through and beyond the veneer clipper **6**. The raising of the stop means **1** is indicated to be controlled by the operation of solenoid valve means such as **1'** shown in FIG. 2, and actuated by a control switch **1''** at operator control station **10**. Similarly, each of the other sets of stop assemblies **2**, **3**, **4** and **5** will be capable of being actuated by an operator from the control station **10** by the respective solenoid valve means and control switching means. As to spacings, each of the stop members at point **1** will be at a predetermined fixed distance from the center line of the veneer clipper, such as **8** inches. The stop members at **2** will be at a different predetermined distance from the clipper, such as at 10 inches; the stop members at **3** will be at still another distance, such as 12 inches, and the stop members at points **4** and **5**, or at still further zones where desired, will be at different spaced distances from the clipper in order that other conventional cuts or predetermined dimensions of veneer may be made by the operator from a larger strip of veneer.

As noted hereinbefore, the particular dimension cutting of the veneer strip passing to the veneer clipper will be made upon the judgment of the operator although, as a means for assisting in estimating a dimension to be cut, there may be markings or shadow lines provided just ahead of the veneer clipper and ahead of the stop members whereby the eye of the operator will be able to prejudge a desired dimension of cutting to be made in the veneer traveling beyond the veneer clipper.

With particular reference to FIG. 3 of the drawing, there is indicated the upper conveyor belt means **8** at a level slightly above the table top **9** which has a plurality of openings, such as **9***a*, adapted to handle a hinged form of veneer stop. In this sectional view there is shown a hinged stop member **1***a* supported from a pin means **11** and support portion **12** which in turn is attached to a depending blade or bracket member **13**. When the hinged members such as **1***a* are operating in pairs spaced laterally across the conveyor means, there may be a shaft member **14** supported from bracket means **15** and support angle means **16** such that a cam arrangement may be provided to operate each of the hinged veneer stop members **1***a* in unison. In the present embodiment, shaft **14** will thus be provided with two cam members **17**, one for each of the hinge members **1***a*, and, in addition, will be provided with a short arm member **18** adapted for a pin connection at **19** to the end of a piston rod member **20** for a fluid power cylinder **21**. As shown by the full lines of FIG. 3, the power cylinder has been actuated to move cams **17** into an upward position in contact with the lower surface of hinged members **1***a* and thus have an upper leg portion of each stop member available to halt the movement of a strip of veneer being carried along on conveyor means **8**. Thus, upon effecting the stopping of the veneer travel, the operator will then actuate the veneer clipper **6** and make a cutting of veneer strip of a width as determined by the spacing of stop members **1***a* from the knife blade of the clipper unit **6**. Again, in a preferred system, as soon as the veneer clipping knife effects the cutting operation, there will be an actuating of the fluid cylinder **21** such that rod **20** moves downwardly for the full amount of the piston travel indicated at **22** whereby arm **18** moves into the dashed line position **18'** and each of the cam members **17** move into the dashed line position **17'** and the hinged member **1***a* moves to the position **1'***a*.

There is indicated diagrammatically in FIG. 2 of the drawing, a wheel member **23** connecting to a drive shaft **24** in turn being used by means not shown for the raising and lowering of the cutting knife portion **6'** of dimension cutter **6**. Also, there is indicated in association with the drive shaft **24** and the wheel member **23** the use of a striker member **25** positioned to periodically engage a switch arm **26** from micro-switch **27**, whereby there will be an automatic retraction of the stop means after each cutting operation. Diagrammatically, there is indicated a line **27'** leading from switch means **27** to a control box **28** and a plurality of wires or lines from the latter so that a line connects to each of the solenoid operated valves **1'**, **2'**, **3'**, **4'** and **5'**. There is also indicated an air line **29**, with valve means **30**, leading to branch lines that individually connect with these solenoid valves whereby there will be a control of air to each of the fluid power cylinders of the system. However, for simplicity, the various cylinders and the various air lines, or fluid lines, connecting to such cylinders from the solenoid valves, have not been shown in the present drawing.

With further reference to FIG. 2, it may be pointed out that each of the control station switches **1''** through **5''** connect to the control box **28** that in turn connects with each of the solenoid valve means **1'** through **5'** and that the operator may thus actuate any one of the pairs of movable stop members **1** through **5** at the table top means **9** in the same manner as has been described in connection with FIG. 3 for the hinged stop means **1***a*. Thus, there may be the selected dimension cutting of a piece of veneer by the operator actuating a desired switch for any one of the accompanying stop members through the switch control means and the connecting solenoid valve means and air cylinder means.

As a still further feature of the dimension clipping system, there is indicated at the control station **10** a manual "cancel" switch **31** which in turn connects through line **31** to the control box **28** whereby all of the solenoid valve means will be actuated to in turn effect a retraction of the connecting fluid power cylinders under the table top means **9**. In other words, the "cancel" switch **31** will serve as a manual means for accomplishing the same action that switch means **27** provides from the striker member **25** on the drive shaft portion of veneer clipper **6**. The switch means **31** is, however, used by the operator to cancel a particular setting of stop members prior to the operation of the clipper **6** and permit a different setting of stop members for a different dimension cutting then might have been originally selected by the operator.

It is to be noted that varying methods of raising and lowering a particular stop member may be utilized within the scope of the present invention and it is not intended to limit the improved system to the mere use of hinged form stop members or to their actuation by cam members from transverse shaft arrangements in turn operated by pneumatic cylinders. However, the power cylinder type of operation is of particular advantage in providing a desired reciprocating type of movement to one or more of a plurality of stop members such that they may be moved upwardly and downwardly with respect to a conveyor belt level and provide for the desired stopping of a moving strip of veneer. Still further, it is not intended to limit the present system to any predetermined number of stop members and to any predetermined dimensions with respect to their spacings beyond the cutting knife of the veneer clipper. Where desired, more than five stop members may be provided in this system and, as may be deemed necessary, there may be more than two stop members acting in union to effect the stoppage and alignment of the end of the veneer strip such that the clipper may be brought into action for the cutting of a desired length, or width, of veneer piece from the elongated strip. Also, though pneumatic cylinders have been indicated and described for use in the automatically operating system, it is to be noted that hydraulic cylinders or other fluid power cylinders may be used to advantage in providing for the cam movement or for a direct upward and downward motion of the stop means.

We claim as our invention:

1. In combination with a veneer clipper adapted to cut veneer passing therethrough from conveyor means and having a horizontal cutting blade operated by a rising and descending power driven connecting rod means, the improved dimension clipping system, which comprises, mounting a plurality of vertically movable veneer stop means at varying spaced distances beyond the clipper with respect to veneer movement, with the mounting and connecting of said stops vertically with respect to the veneer conveyor means being at a level to have them liftable from just below the level of the latter when such stop means are in a lowered position, each of said stop means comprising a pair of laterally spaced stop members mounted and connected to said control means to provide

simultaneous movement thereof, movable power actuated lifting means connecting to each of the plurality of veneer stop means with sufficient motion provided to move each of said stop means from below the conveyor means to a position extending thereabove whereby conveyed veneer will be stopped from its horizontal travel through the clipper, a separate control means connects with each of the different power actuated lifting means to provide for the lifting of a selected stop means at a desired spaced distance from the clipper and thereby effect any one of several desired dimension cuttings of the veneer, and a switching means connecting with a movable portion of said clipper and the power lifting means thereof whereby a completed cutting movement of said clipper actuates said control means so that each of the power actuated lifting means moves said stop means into a lowered position below the level of the conveyor means.

2. The improved dimension clipping system of claim 1 further characterized in that each stop means is mounted in a hinged manner and movable cam means contacts said means to effect the raising and lowering of the movable portion of the hinged stop means, whereby to provide their raising and lowering with respect to the upper level of the conveyor means.

3. The improved dimension clipping system of claim 1 further characterized in that an additional manual switch means connects with said control means and the power actuated lifting means to provide a manual retraction, whereby all stop means may be lowered below the level of the conveyor means to thus permit the raising of a stop means in lieu of a previously raised different stop means.

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U.S. Cl X.R.

83—269, 393, 467