Oct. 19, 1954 A. C. CARLSON 2,691,995

MACHINE FOR PRECLIPPING VENEER SHEETS TO SIZE

Filed May 6, 1950 4 Sheets-Sheet 1

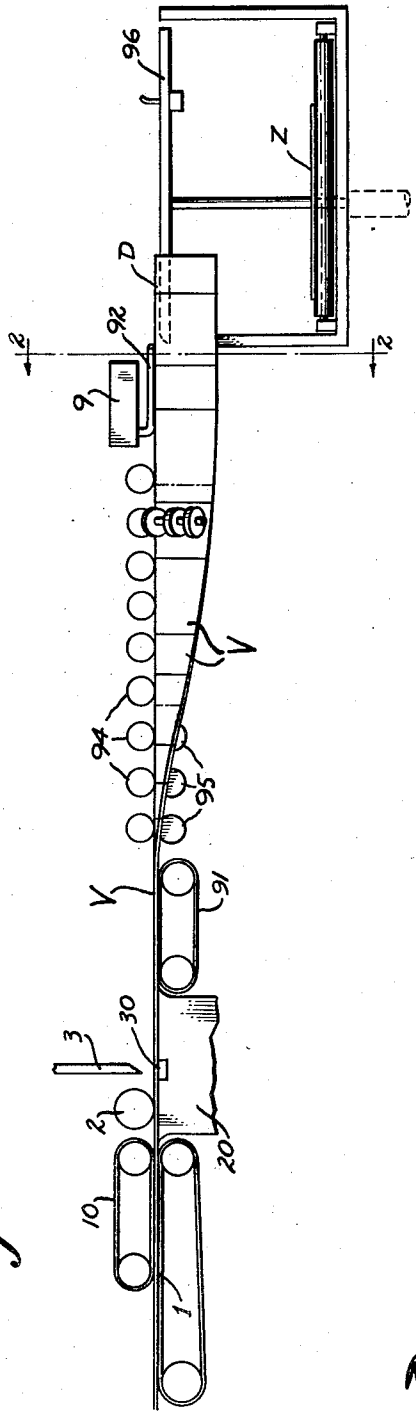


Fig. 1.

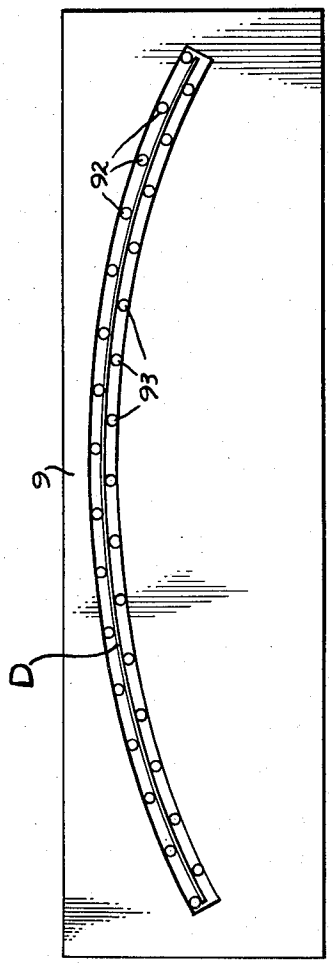


Fig. 2.

INVENTOR.
ARTHUR C. CARLSON
BY
Reynolds, Beach & Christensen
ATTORNEYS

Oct. 19, 1954 A. C. CARLSON 2,691,995

MACHINE FOR PRECLIPPING VENEER SHEETS TO SIZE

Filed May 6, 1950 4 Sheets-Sheet 2

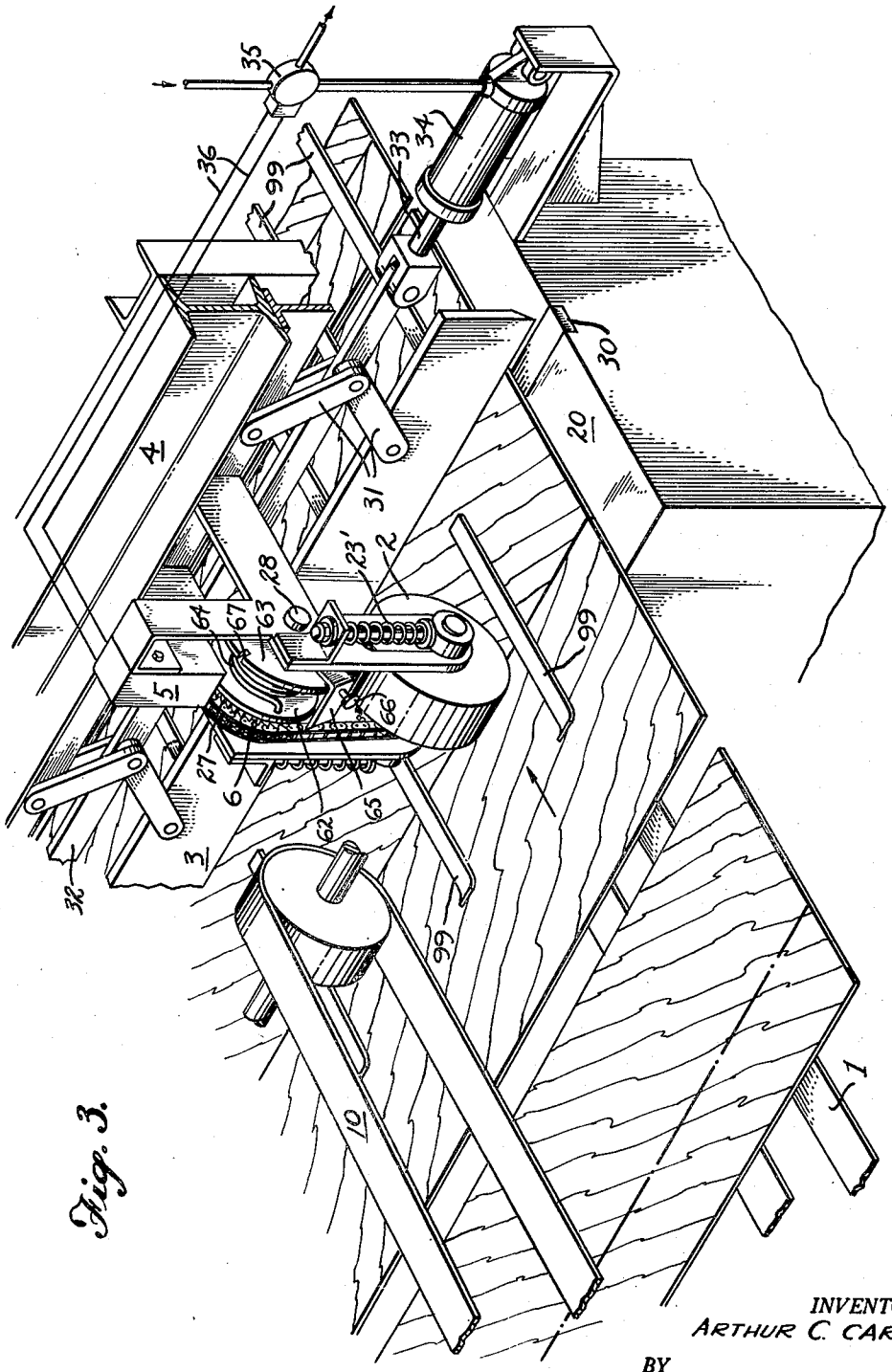


Fig. 3.

INVENTOR.
ARTHUR C. CARLSON

BY
Reynolds, Beach & Christensen

ATTORNEYS.

Oct. 19, 1954 A. C. CARLSON 2,691,995

MACHINE FOR PRECLIPPING VENEER SHEETS TO SIZE

Filed May 6, 1950 4 Sheets-Sheet 3

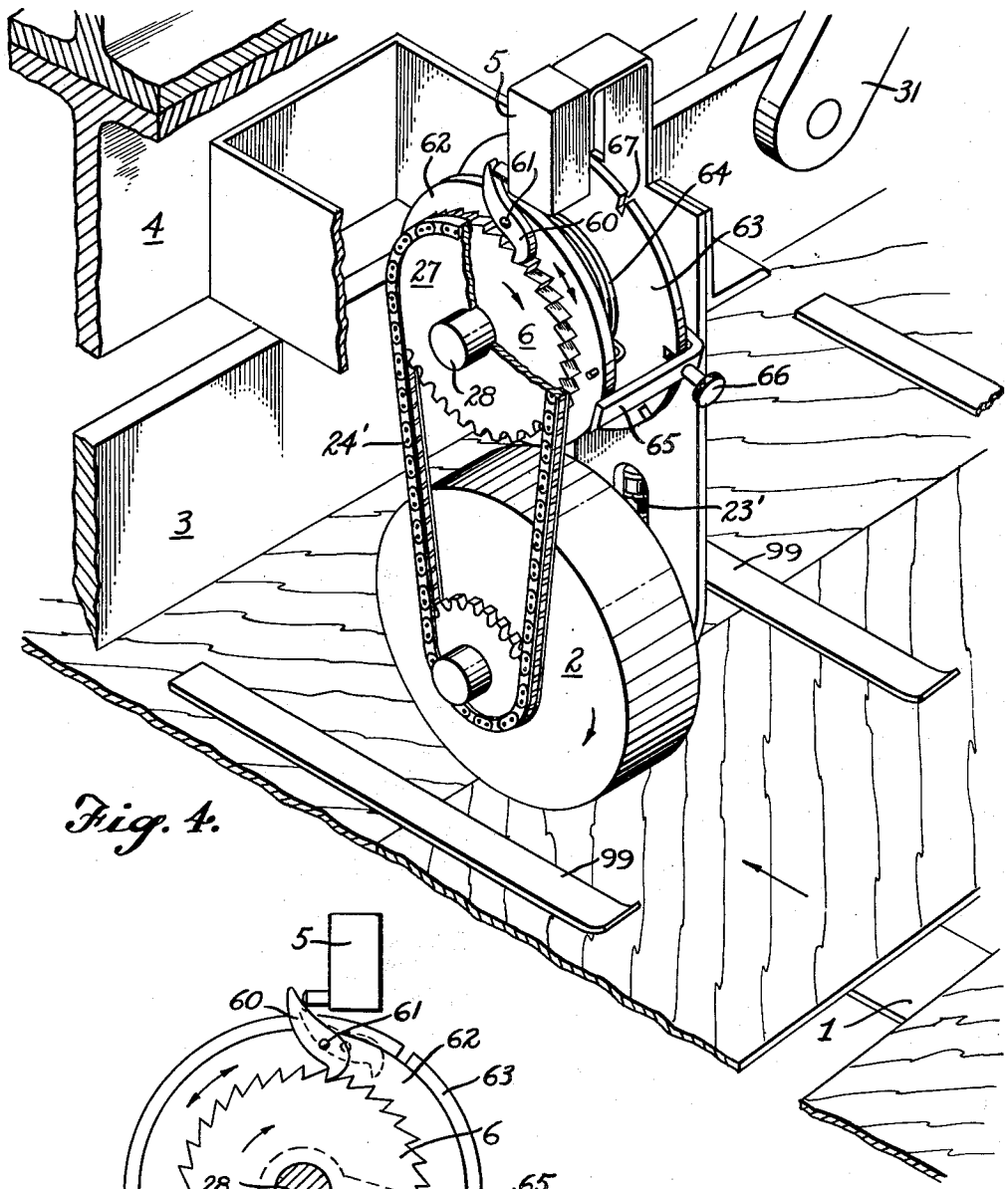


Fig. 4.

Fig. 5.

INVENTOR.
ARTHUR C. CARLSON

BY Reynolds, Bach & Christensen

ATTORNEYS

Oct. 19, 1954 A. C. CARLSON 2,691,995

MACHINE FOR PRECLIPPING VENEER SHEETS TO SIZE

Filed May 6, 1950 4 Sheets-Sheet 4

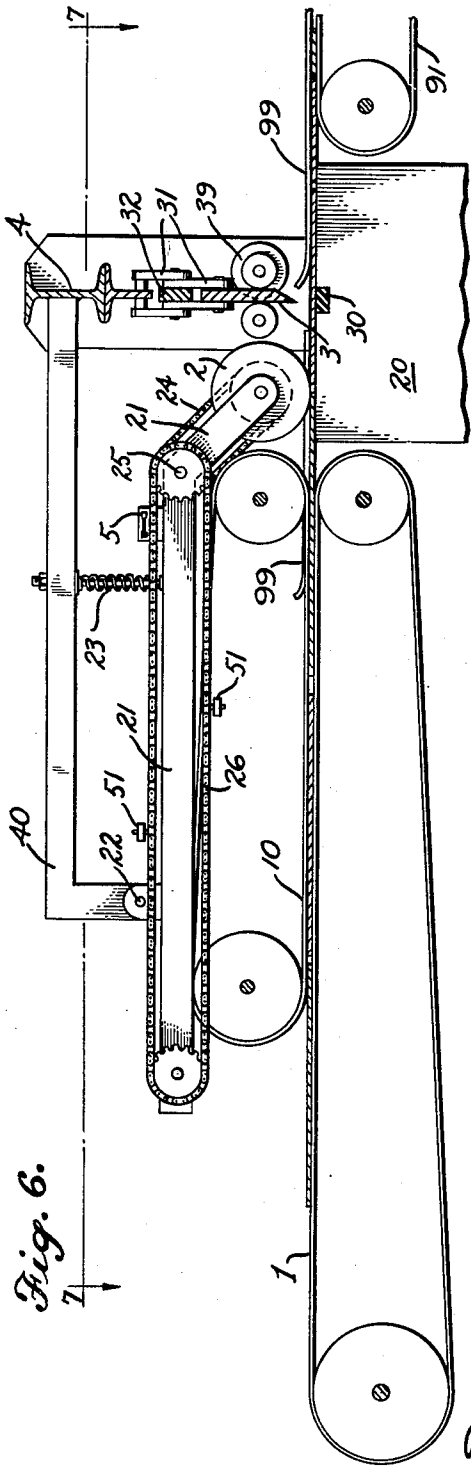


Fig. 6.

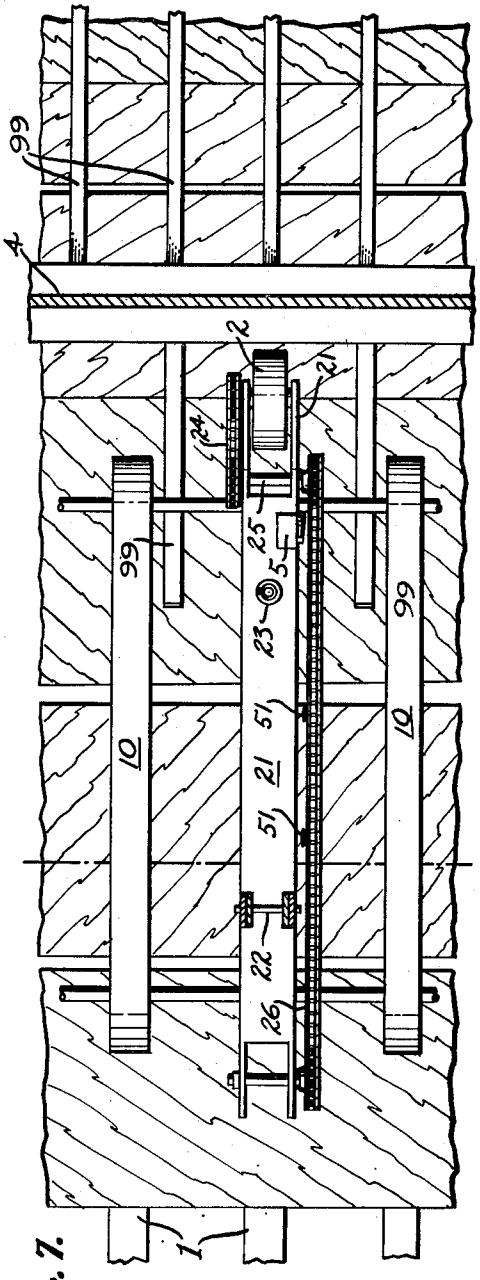


Fig. 7.

INVENTOR.
ARTHUR C. CARLSON

BY Reynolds, Beach & Christensen

ATTORNEYS

Patented Oct. 19, 1954

2,691,995

UNITED STATES PATENT OFFICE

2,691,995

MACHINE FOR PRECLIPPING VENEER SHEETS TO SIZE

Arthur C. Carlson, Anacortes, Wash., assignor, by mesne assignments, to American Manufacturing Company, Inc., Tacoma, Wash., a corporation of Washington

Application May 6, 1950, Serial No. 160,537

11 Claims. (Cl. 144—1)

1

In my Patent No. 2,544,133, issued March 6, 1951, is disclosed a process and a mechanism for the edge gluing or splicing of wood veneer strips into a continuous web of indeterminate length. This process is characterized by the bowing of the strips in the direction of their lengths and of their grain, hence transverse to the resultant web, while they are passing through the glue-setting station, the bowing being progressive leading to that station. Most veneer is employed in the manufacture of plywood panels of standard sizes, and webs heretofore formed by edge-gluing while the strips are flat can readily be subdivided or clipped into corresponding widths, but the curvature of the issuing web, as manufactured according to my patent above, introduces complications, and makes it difficult to clip off it the requisite panel widths.

In long-employed previous processes the veneer is kept substantially flat in a common plane while being spliced (see for example Weber Patent No. 1,702,185), or else is bent, about a long radius, about a large cylinder, say of six feet or more in diameter, stressing the wood in the strips and in the web in a direction transverse to the grain, but not longitudinally thereof (see the Miller Patents Nos. 2,290,761 and 2,290,762). In either case, upon completion of the setting of the glue—using the latter term generically—the web remains in or can be returned to planiform condition without appreciably stressing the veneer in a manner tending to split it, and it is a simple matter to perform the clipping operation at the desired spacings, and immediately beyond the glue-setting station, so as to clip out from the planiform web the veneer sheets of required width, and to stack them. Being planiform during clipping, no stresses tend to split the veneer lengthwise its grain. However, when the splicing is done in accordance with the process in my Patent No. 2,544,133, since the individual strips during glue-setting, and hence the completed web after glue-setting, are bent in the direction of the length of the grain, it has been found impracticable to clip the web upon its issuance from the glue-setting zone. The web is advancing at a speed of about 30 feet a minute, and is bowed to a chordal depth of perhaps one foot. Even if it be assumed that the entrance of a clipper knife at the middle of the bow (or at any other single

2

point) would not start a wild split in the veneer, but would make a clean straight cut the entire width of the web—a hardly valid assumption—no such knife could move down and back to a depth of a foot rapidly enough to avoid interrupting the advance of the veneer web, and causing it to pile up and split against the knife's breadth. Neither is it feasible to provide a knife curved correspondingly to the bow of the veneer web, so as to enter simultaneously at all points, and only to the depth of the veneer's thickness. It has proven wholly impracticable to clip the finished web while it is curved, yet it has been found impracticable to flatten it again, preparatory to clipping in the usual way.

For one thing, the flattening would have to be done very gradually, for otherwise stresses would arise in the veneer, between less curved and more greatly curved portions, for example, such as would split it at frequent intervals, nullifying the continuity which the edge-gluing operation is intended to produce. Such gradual flattening might theoretically be accomplished by a long off-bearing table, somewhat the reverse of the feed section of the veneer splicer, but much longer for the reason that it must flatten a continuous fragile web, wherein all strips are joined and react one upon the others, rather than being concerned only with the bowing of individual, unjoined strips as in the feed section. In practice such a long off-bearing flattening table would introduce further problems and disadvantages, not the least whereof is the extreme length and floor space it would require. Floor space is always lacking in a veneer plant, and such a long off-bearing table cannot be tolerated, even were it technically feasible.

Accordingly, it has been a problem to clip veneer, spliced according to my new process, into panel widths from a continuous web, with the requisite degree of accuracy and straightness of edge without entailing other problems, such as injury to the web, or the use of excessive space, and yet until the problem of clipping could be solved the advantages of the edge-gluing process of the patent could not be realized in commercial practice. It is the object of the present invention to provide a process and apparatus for carrying out the same which will effect the division of this type of web into sheets of the requisite and

minimum width while at the same time solving or avoiding the corollary problems involved.

Additionally, and as a direct result of the clipping process involved herein, it is an object to effect the flattening and off-bearing of the individual sheets after glue-setting in a novel and simple manner, likewise requiring a minimum of floor space and very simple mechanism.

With reference to the mechanism, it is an object of this invention to provide mechanism for carrying out the process indicated which can be operated under manual control, or automatically, to clip along a straight line, such as is necessary in the subsequent step of laying up a laminated plywood panel, and which, especially when operated automatically, will insure the clipping to panel widths that are the minimum, consistent with the degree of accuracy employed in laying up the laminated panels, and the necessity for effecting some trimming, while yet wasting a minimum of veneer.

It is also an object, in the mechanism, to provide in a preferred form a tactual element, such as a roller, contacting with the surface of the advancing veneer as a measuring element, and which is associated with actuating mechanism for the automatic operation of a clipper or the giving of a signal, and which actuating mechanism is adjustable or variable to vary the width of sheets to be clipped in accordance with the mill's needs from time to time, so that, for example, a standard forty-eight inch plus width may be clipped or, alternatively, the device may be set to clip forty inch plus or thirty-six inch plus sheets, or other sizes as the situation may require. The surplus width affords allowance for trimming to the stated sizes, and need be only a couple of inches or less.

Other objects of the invention will become apparent from a study of the attached drawings and of this specification and of the accompanying claims.

In the accompanying drawings the invention is shown embodied in mechanism for carrying out the process, the mechanism being illustrated in each of two alternative forms, at least insofar as the tactual element is concerned.

Figure 1 is a diagrammatic side elevational view of the complete mechanism for splicing veneer including both the feeding and the off-bearing ends, illustrating the relationship of the mechanism of the present invention to the veneer splicing mechanism of my prior application, and the relationship in point of priority as between the clipping and the splicing operation. Figure 2 is a cross-sectional view, the viewpoint being illustrated by the line **2—2** of Figure 1, illustrating the spliced veneer web issuing from the glue setting portion of the mechanism.

Figure 3 is an isometric view of the feeding and clipping mechanism and of the tactual measuring element in a preferred form of embodiment, and Figure 4 is a similar view, somewhat enlarged, of the tactual element, whereas Figure 5 is a side elevational view of that portion of the actuating mechanism which is adjustable for different sheet widths.

Figure 6 is a side elevational view illustrating a different form of actuating mechanism, such as is particularly desirable when indefinitely long runs of a single width are to be clipped, and adjustment for different widths is not necessary, and Figure 7 is in general a plan view of the same, the viewpoint being illustrated by the line **7—7** of Figure 6.

The veneer splicing machine is disclosed in detail in my Patent No. 2,544,133, and consequently the showing thereof in Figure 1 of this case is largely diagrammatic. In effect, the splicing machine includes mechanism such as tapes **91** to advance veneer strips V, each of which is disposed transversely of the direction of its advance, without interruption toward a high-frequency glue-setting platen indicated at **9**, and which includes upper fingers **92** and lower fingers **93** (see Figure 2) that engage closely the upper and lower faces of the veneer strips and which maintain them during the actual setting in an attitude wherein they are curved longitudinally, and are edge-abutted. Intermediate the feed devices at **91** and the platen at **9** are a series of upper and lower rollers **94** and **95**, respectively, each of which series, from the feed-on devices at **91** to the platen at **9** are arranged in arcs, transverse to the direction of advance, of increasingly lessening radius, until the final set of rollers conforms closely to the curvature of the platen at **9**. Tapes or chains **97** may run from each roller **94** to the next roller ahead. Thus the initial groups of rollers **94**, **95** or equivalent means receive the veneer strips V in a substantially flat condition and succeeding groups increasingly bow them and stress them lengthwise of the grain until, as explained more fully in my patent, all localized stresses are overcome and the abutting edges of the adjoining strips conform each to the other in curvature along their entire abutting edges. An adhesive has previously been placed between such abutting edges, so that when they pass the platen **9** and are there subjected to high-frequency current discharge the adhesive is promptly set, and the web issues at D as one continuous, but transversely curved, ribbon or web.

As has previously been indicated, it would be extremely difficult to effect clipping of this traveling web at all while it is in this curved condition, or to clip it along an accurately straight line, such as is required in laying up of laminated panels if large wastage is to be avoided, and it is equally obvious that it would require a very considerable length of off-bearing table to enable flattening again of the web without so stressing it as to split the veneer of which it is formed, which, in turn, would nullify the effect of edge-gluing or splicing the individual strips.

Therefore, instead of attempting to flatten out the continuous veneer web, or attempting to clip it while in its curved and stressed condition, and while it is advancing, I have provided for the clipping of the veneer while it is still in the form of flat separate strips V yet to be joined, and then, still retaining parts in their assembled relationship, the edge joints, between which the adhesive was previously applied, will be set and joined as they pass through the platen **9**, but the clipped joints, since they will have no adhesive between them, will not be edge-joined again, and the veneer will issue at the delivery point D in preclipped panel widths or "sheets." Each sheet is readily flattened, since it is unrestrained by connection to the issuing web, and no stresses are set up if, immediately upon issuance of each preclipped sheet, it is abruptly relieved of stress throughout its entire width, and thereby flattened. This procedure is preferred, and is a secondary feature of the process.

One such sheet is shown at Z, in Figure 1. It has issued beyond the platen **9**, has been supported while issuing upon a bar **96**, which is located centrally with respect to the ends of the

sheet Z, and this bar is in the nature of an elevator which lowers the sheet, and in the course of lowering it the air cushion tends to lift its drooping ends, and finally cooperating elements engage its ends to support them as the center continues downwardly, and thus to flatten the sheet, and means not shown effect the off-bearing and stacking of successive flattened sheets. This off-bearing mechanism and elevator per se constitutes the subject matter of a companion application, Serial No. 160,538, filed May 6, 1950, now Patent No. 2,649,976, wherein the same is more fully described.

To complete the description of Figure 1, traveling tapes 1 constitute feed means whereon individual strips of veneer, with their edges jointed true and with glue applied thereto, are laid up in slightly spaced relationship, each strip having its grain and itself as a strip extending transversely of the direction of advance, and are fed forward by these feed means 1 past a tactual element 2, which will be further described in detail, and then past a clipper blade 3 which is energized, either manually or automatically, to clip desired widths from the potential sheet constituted by the several individual strips as they pass beneath the clipper and are measured by the tactual element 2. These strips are pushed ahead, past the clipper, by on-coming strips engaging them from behind, and are picked up by the feed means at 91, and are then conveyed through the splicing machine, as previously described.

The feed rate of the splicing machine is governed primarily by the ability of the operator to feed properly into it the individual strips. With strips running from six to eighteen inches in width, such as is ordinarily the case, the machine is set to edge-glue strips at the rate of thirty linear feet of web a minute. If the strips are wider, the machine can be speeded up. The individual strips are laid up singly crosswise of the feed tapes 1, which travel at about the set speed. The individual strips are laid slightly spaced apart, say an inch or somewhat farther, and are shortly engaged from above by hold-down means such as the tapes 10, which travel at the same speed as the tapes 1. In this manner, or in any equivalent way, they are retained roughly in a common plane as they travel over what is in effect a feed table, although no attempt is made to flatten out their individual waves and kinks in this feed section. Eventually they pass beyond the ends of the tapes 1 and 10, and beyond this point they are supported upon a table 20. Since there is no means to feed them positively across the table 20, each strip as it arrives there under the influence of the feed means 1 and 10 pushes ahead of it the previously fed strips, and comes to a momentary halt just clear of the tapes 1 and 10, until the slight gap between it and the following veneer strip is closed, whereupon the advance resumes. The result thus accomplished is that each gap is closed, and each veneer strip is adjusted in its own plane if need be until it contacts along its entire leading edge with the trailing edge of the previously fed strip. The measuring element, which might be a visual scanning element, but which is preferably simply a tactual element, is represented by the roller 2, which rests in contact with the upper surface of the strips. This element measures accurately and cumulatively the individual strip widths, or perhaps more correctly, the potential sheet width, and there is no gap between sheets to constitute a source of potential error, for the location of the roller insures that the gaps are closed before the roller is required to function. When the cumulative measurement corresponding to a single sheet width is completed, the clipper blade 3 is actuated, descends and reascends rapidly, and in cooperation with the resilient cushion 30 (or in any other known manner) shears off the individual strip which is beneath it, and divides that individual strip into a leading portion which is to be adhered to the strip ahead of it, and a remainder or trailing portion which is to be adhered to the strip which follows it. The particular forms of the tactual element, of the actuating mechanism for the clipper, and of the energizing means which are under control of the tactual element, are not important to the process, and will be described in greater detail hereinafter.

The clipper's downward movement is followed immediately by its upward movement, the whole occurring with sufficient rapidity that the advance of the veneer strips already past the clipper is not appreciably halted. The remainder, in advance of the clipper, halts until it is advanced again by the oncoming strips behind it. A slight gap may open along the clipped line, but the edge-abutment of the strips which have already passed the clipper is not interfered with. These veneer strips, after passing the clipper blade at 3, continue onward, being picked up by the feed tapes 91, by which they are advanced through the splicer as previously described. In this connection the feed through the splicer is so arranged that the rearmost portions of a given sheet width, as also the forward portion of the following sheet width, are pushed against those ahead, to insure tightness of all joints, and there is no likelihood that any portion of a given sheet will lag behind or that it will fail to be edge-glued properly to the adjoining strips of its sheet.

The form of measuring roller or tactual element which is shown in Figures 6 and 7 is entirely suitable for use where the sheet width is not to be changed from time to time. The form shown in Figures 3, 4 and 5, on the contrary, is better suited for use where it may be necessary to clip varying sheet widths at different times, although it will be understood that the device is normally set for a run of some appreciable number of sheets of a single width, and is not intended to be changed during a run.

Describing the simpler form first, that of Figures 6 and 7, the roller 2 is journaled in an arm 21 which is pivotally mounted at 22 from a supporting frame element 40, and is urged downwardly against the top surface of the veneer strips with such force as may be necessary, by such means as the spring 23. A chain 24 transmits rotation of the roller 2 to a shaft 25 and, in turn, to a chain 26, likewise supported upon the arm 21, which chain carries trip elements 51 of an energizing or control means, at intervals corresponding to the required sheet widths. The complemental control or energizing element is in the form of a switch at 5, fixedly mounted upon the arm 21 and engaged, upon completion of a given travel of the chain 26 and consequently of a given rotation of the roller 2, with this energizing switch 5. The latter is operatively connected to control actuation of the clipper blade 3. For example, and as is shown in Figure 3, the clipper blade may be supported by toggle links 31 from a frame element 4, and these links 31 are maintained in angled position by means of a com-

mon actuating bar 32 connected to the plunger 33 of an air cylinder 34, or the like. A control valve 35, for the supply of air under pressure to the cylinders 34 and for the venting thereof, is electrically controlled from the switch 5, the circuit being indicated at 36. In consequence whenever the switch 5 is engaged by the passing complemental element 51, in the form of Figures 6 and 7, the control valve 35 is actuated, and the plunger is projected or retracted, as the case may be, to bring the toggle links 31 into alignment and then as part of the same movement to reverse their relative angular position, thus lowering the clipping blade 3, fixedly guided at 39, into and raising it immediately from its clipping position. This particular clipper is intended to be representative only, and any suitable form of clipper or clipper-actuating means may be employed in lieu thereof.

The form of the contact or measuring roller 2 and associated mechanism, such as is shown in Figures 3, 4 and 5, is better suited to adjustment for clipping different widths of sheets. The wheel is urged into contact with the strips by springs 23'. Through a chain 24' and an approximately three to one sprocket wheel reduction, a sprocket gear 27 and a ratchet wheel 6 on shaft 28 are rotated continuously, that is to say, whenever the veneer advances, which is substantially continuously, in the direction shown by the arrows in Figure 4. A dog 60 is pivotally or tiltably mounted at 61 upon a disk 62 which is rotative about the shaft 28, but independently of rotation of the ratchet wheel 6 and the sprocket gear 27. Moreover, this disk 62 is connected to a fixed disk 63, the connection between these two disks being a yieldable one, by such means as the torsion spring 64. The spring 64 exercises a constant tendency to rotate the disk 62 in the sense opposite to the rotation of disk 6, that is to say, back against the teeth of the ratchet disk 6. However, so long as the dog 60 is engaged with these teeth, and so long as the disk 6 is rotated with the sprocket wheel 27, the disk 62 must rotate also, in opposition to and in a manner to increase the force of the spring 64.

The switch 5 is located in such position with respect to the dog 60 as to be itself engaged by, and to offer such resistance to, the dog as to tilt it and disengage it from the teeth of the disk 6, as is illustrated in dotted lines at the top of Figure 5. When this occurs, the disk 62 will sharply reverse its sense of rotation, under the influence of the spring 64, and will return immediately towards its initial point, carrying with it the dog 60, frictionally held in its disengaged position. The angular amount by which the dog returns toward its starting point until it reengages the teeth of the ratchet wheel 6 determines the sheet width, for it determines how far the measuring wheel 2 must roll again before the switch 5 is again contacted and the clipper is actuated. This angular extent can readily be regulated by means of a stop bar 65 placed in the return path of the dog 60 in such manner as to tilt the dog back again into engagement with the teeth of the ratchet wheel 6, as it is shown doing, in dotted lines at the bottom of Figure 5. The position of this bar is regulated by means of the stop 66 engageable in selected and accurately located notches 67 in the periphery of the fixed disk 63.

Some slight error may be introduced by the time factor between disengagement and reengagement of the dog, while the disk 6 continues to rotate, but this is negligible, and can be largely compensated for in the design of the mechanism.

It is believed that the process is clear from what has already been said, and that it is unnecessary to repeat the description of the same. However, it is desired to emphasize that the basic novelty in the process resides in the preclipping of the veneer strips, especially whenever but not necessarily only when, the same are to be thus bowed during splicing, in advance of their edge-joining or splicing, and in accordance with measurements or indications derived from the individual strips, as by a tactual element. While the operation described is an automatic one, it is clear that the roller 2 and its associated mechanism might be arranged to give a visual or audible signal, and that the clipping might be effected under manual control of an operator, guided by such a signal.

If overlying chains or tapes 97 overlie the veneer strips during their bowing, these will hold down even slivers. While it is preferable to leave some margin—say a quarter inch or more—between a clipped line and a joint to be glued, the machine and the process will operate satisfactorily even on slivers, and such will be joined properly to the intended sheet edge. It is, therefore, quite unnecessary to pay attention to the closeness of the clip-line to a joining edge, or to avoid crossing a joining edge with a clip-line.

Indeed, the present machine and process possess the very distinct advantage, over all machines known to me as usable at commercial rates of feed, of eliminating the necessity for constant watchfulness against accumulated wedgelike strips, and of constant preparation for and immediate action to correct such distortion in the web as these accumulated "wedges" will produce. Any accumulation of wedges will tend to swing the web's longitudinal axis about an arc, so in a well-known and widely-used commercial edge-gluer, the feed operator must be alert to remove any badly wedged piece and substitute another less wedged, and he must provide himself with wedges, having glue upon their edges, ready to insert in the web to counteract any such distortional tendency which has gone too far for correction by removal of a strip; because the feed is positive and continuous from the feed station to and past the glue setting station, with little opportunity for catching up of a lagging strip, he must watch closely for any such tendency, and must act promptly, or a gap will open in the web, which can never be closed. There exists the same tendency to departure from a straight line, in the present machine, but whenever such a tendency develops, the feed operator can remove a badly wedged strip, or he can procure and insert a corrective wedge, and if the web has traveled on past the clipper, or into the platen, he knows that the gap opened by the removed wedge, or his corrective wedge, will close up or catch up correctly, and that no gap will remain, notwithstanding some delay. The potential web will not complete passage beyond the clipper until a full sheet width has passed therebeyond, since it must be pushed through from behind, and if there is no oncoming strip to push, the partial width will wait until the same arrives. Similarly at the platen; unless the web is complete, and is pushed through from behind, the advance halts until oncoming strips arrive to push. The operator is not working under pressure, yet each sheet is complete.

Hold-down bars and the like are illustrated at

99 to insure that the as yet unjoined strips are held in a common plane against overriding as they advance to the entrance of the splicing section of the machine, but these and similar mechanical details are not in themselves, or at least are not in their particular form, essential to the present invention, so long as the result indicated is accomplished.

The subsidiary feature, flattening of the sheet widths immediately upon their issuance from the plate 9 or other guide means that holds them bowed, is particularly related to the operations of edge-gluing the strips while they are bowed, and the preclipping to sheet widths. Were there no bowing, there would be less reason for preclipping, and if there were no preclipping there would be no reason nor opportunity for abrupt flattening from the bowed form. The process as a whole, including preclipping and final flattening, is part of the present invention, but the particular flattening mechanism is the subject matter of my companion case, referred to above.

I claim as my invention:

1. Mechanism for assembling wood veneer strips into sheets of predetermined width, preparatory to edge-joining them unitarily in such sheet widths, which comprises, in combination, means to advance individual strips laterally edgewise from a feeding station towards an edge-joining station, means to measure, and to accumulate the measurement of, the widths of successive strips so advancing, clipping means disposed in the path of advance of the strips, ahead of the edge-joining station, and means, operable in correspondence with the measurements of said measuring means, to clip a strip along a line intermediate its edges to form, with preceding strips and the previously clipped remainder, one complete sheet width when subsequently edge-joined.

2. Mechanism as and for the purpose set forth in claim 1, characterized by the provision of clipper-actuating means, of energizing means responsive to accumulation of each sheet-width measurement of said measuring means, and an operative connection therebetween for automatically actuating the clipper at the completion of each sheet-width accumulation.

3. Mechanism as and for the purpose set forth in claim 2, including means settable at will to vary the accumulation of individual strip-width measurements, and thereby to vary the sheet-width actuation of the clipper.

4. Mechanism as and for the purpose set forth in claim 1, wherein the strip-advancing means terminates ahead of the clipping station, and strips previously advanced to or beyond such terminus are edge-abutted by and advanced farther by newly advancing strips, successively, means to retain all such edge-abutted strips in a common plane, the measuring means including a tactual element located in contact with one surface of the strips, and beyond the line of their edge-abutment.

5. Mechanism as and for the purpose set forth in claim 1, characterized by the provision of clipper-actuating means, the measuring means including a roller located in contact with one surface of the strips, in their path of advance to the clipping means, energizing means including an element operatively connected to and for movement with said roller through a fixed closed path, and a relatively fixed element engageable by said movable element upon completion of predetermined extent of movement, and an operative connection between said energizing means and said clipper-actuating means, for automatically operating the clipper after a predetermined rotation of said roller.

6. Mechanism for assembling random-width veneer strips into sheets of predetermined width, preparatory to edge-joining them unitarily in such sheet widths, which comprises, in combination, a substantially horizontal table, means movable lengthwise of said table, from a feeding station towards an edge-joining station, to advance therealong individual veneer strips, while each is disposed transversely of and laid flat upon said table, a clipper directed transversely of the table, beyond the feeding station, and means to energize said clipper periodically to clip a passing strip, including a tactual element in measuring contact with the surface of advancing strips.

7. Mechanism for preclipping veneer strips into sheet widths, comprising a feed table, means to advance transversely disposed strips edgewise into edge-abutting relation, a clipper disposed transversely of the resultant continuous but unjoined web, and operable to clip the same at sheet widths, and mechanism to actuate said clipper automatically, comprising a roller bearing upon the surface of and rotated by the web, a ratchet disk connected for rotation in accordance with rotation of said roller, a concentric second disk, and a dog carried thereby in position for operative engagement with the ratchet disk, thereby to rotate said second disk, spring means resisting such rotation of the second disk and urging its return, clipper-actuating means positioned for operative engagement by said dog, to thereby disengage the dog from the ratchet wheel, and means disposed in the spring-urged return path of the dog, to engage the same and to reengage it with the ratchet wheel.

8. Mechanism as in claim 7, including means to adjust the position, in the dog's return path, of said dog-engaging means, to vary the extent of its return movement.

9. In combination with means at an edge-joining station to edge-join advancing strips of wood veneer which have been edge-abutted with an adhesive between their abutted edges into a composite sheet, a feed table having at least an initial feed station portion which is flat, whereon such strips are successively laid up in generally parallel, adjacent position, means to advance the strips so laid up from the feed station towards the edge-joining station, the newly laid-up strips at a rate such that they will catch up with and edge-abut strips of the assembly of previously laid-up strips, and urge the assembly forwardly, means located between the feed station and the edge-joining station to clip certain flat strips lengthwise during their advance, and means to measure the cumulative width of the strips and the trailing remainder of a previously clipped strip, as a gauge to determine the time of subsequent actuation of the clipping means with relation to the cumulative width of such passing edge-abutted but as yet unjoined strips, as they advance along the feed table.

10. The combination of claim 9, wherein the feed table is increasingly bowed, transversely of the direction of advance, beyond the initial flat feed station and towards the edge-joining station, and the edge-joining station is bowed cor-

responding to the maximum curvature of the feed table, the combination including means to bow the advancing strips, and to retain them thus bowed, in conformity to the bowing of the feed table, the clipping means being located intermediate the feed station and the initial point of curvature of the feed table, to clip the strips before they are bowed.

11. The combination of claim 9, including additionally off-bearing mechanism located immediately beyond the edge-joining station, said off-bearing mechanism including a bar located lengthwise the direction of advance at a level to underlie and support the crown of the bowed

sheet as it issues from the edge-joining means, and means to drop said bar to leave the sheet free to unbow and settle down, when clear of the edge-joining means.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,643,194	Black	Sept. 20, 1927
1,702,185	Weber	Feb. 12, 1929
2,317,281	Linquist	Apr. 20, 1943
2,457,498	Russell	Dec. 28, 1948
2,544,133	Carlson	Mar. 6, 1951