

VENEER MANUFACTURING PROCESS

This invention relates to a process for manufacturing veneers, particularly on a commercial scale, for use in the manufacture of plywood or other products which utilise veneers.

A veneer is a thin layer of timber of uniform thickness which is often produced from fine grained timbers for decorative purposes. Indeed, veneers are often attached to other, cheaper, timbers to create an appearance that the cheaper timbers are themselves of the type of wood of the veneer.

Veneers are also commonly used in the manufacture of plywood which is a board consisting of a number of thin layers of wood (of which one outer layer is in this case, the veneer) glued together so that the grain of each layer is at a right angle to its neighbour.

A traditional process for manufacturing veneers is a process similar to wood turning where a complete log is loaded between the chucks of a lathe-like machine so that the log may be rotated about its axis. A cutting blade is located along the full length of the machine, the cutting blade being capable of being introduced to the log as it rotates to cut a thin layer of timber, usually in a continuous sheet, from the surface of the log along its full length. This operation is sometimes referred to as 'shaving' the log.

However, this process is limited by the diameter of the chucks as to what diameter the log may be cut down to. In this respect, the logs utilised are generally very large and thus require large diameter chucks to be held securely in place. This then dictates that the size of the log remaining after

the operation is reasonably significant and a large portion of the timber of the log is thus wasted.

An object of the present invention is to seek to provide a veneer manufacturing process that overcomes, or at least partly alleviates, this difficulty.

According to the invention there is provided a veneer manufacturing process, said process comprising placing a log within a work station, the work station having chucks at either end thereof for releasably engaging respective ends of the log such that the log is rotatable about its longitudinal axis, and then rotating the log about its axis such that the rotating log may be brought into engagement with a blade system, the blade system extending along substantially the entire length of the work station and engaging the log during rotation thereof, such that a relatively thin continuous layer of timber of substantially uniform thickness is cut therefrom as the log rotates, the blade system including retractable end sections that may be retracted prior to the blade system striking the chuck, thus allowing a central blade section to continue engagement with the log to a diameter less than the diameter of the chucks.

According to a further aspect of the invention there is provided apparatus for a veneer manufacturing process, the apparatus including a work station having chucks at either end thereof for releasably engaging the respective ends of a log such that the log is rotatable about its longitudinal axis, the apparatus also including a blade system located along the entire length of the work station, the blade system being adapted so as to be capable of movement into and out of engagement with the log when at the work station such that a relatively thin substantially continuous layer of timber of uniform

thickness is cut therefrom as the log rotates, the blade system including retractable end sections that may be retracted prior to the blade system striking a chuck, thus allowing a central blade section to continue engagement with the log to a diameter less than the diameter of the chucks.

In a preferred form, the invention may also include a means for scoring the log about the circumference thereof between each retractable end section and the central blade section. The presence of such a scoring means suitably assists in providing a smooth transition from the production of a veneer having the full length of the log to a veneer of the length of the centre blade section only. Thus, as the retractable end sections are retracted, the scoring means may be brought into engagement at either end of the central blade section, creating shoulders at either end of the log between which the central blade section may operate to remove the thin layer of timber.

It will also be appreciated that the veneer will travel through apparatus embodying the invention after being cut from the log to be passed to a veneer handling section where the veneer is preferably rolled in a continuous length so as to be ready for further processing as necessary.

A method and apparatus embodying the invention are hereinafter described, by way of example, with reference to the accompanying drawings. However, it will be understood that the following description is not to limit the generality of the above description.

Fig.1 is a side view of a log as loaded in a conventional veneer manufacturing system;

Fig.2 is a side view of the log of Fig. 1 after the process has been completed;

Fig.3 is a side view of the log of Figs. 1 and 2 after further processing by the veneer manufacturing process according to the preferred embodiment of the present invention; and

Fig.4 is an end view of the central blade section of the embodiment of Fig. 3.

Illustrated in Fig.1 is the work station of a traditional veneer manufacturing process. Located within the work station is a log 10 that has been felled and remains in an untreated form with the exception of the freshly cut ends 12 and 14.

Each of the ends 12 and 14 of the log 10 is held by chucks 16 and 18 in place within the working station. Thus, the apparatus of the veneer manufacturing process is able to rotate the log 10 about its longitudinal axis as indicated by arrow A.

In the traditional veneer manufacturing process as illustrated in Fig.1, a blade 20 (as illustrated in Fig. 2) is introduced along the entire length L of the log 10 as the log rotates, to engage the log and cut therefrom a thin continuous layer of timber of uniform thickness. Thus, the log 10 is 'shaved' until it reaches a diameter which approximates to the diameter shown schematically in Fig. 2.

Due to the blade 20 being of a length that overlaps beyond the length of the log, extending beyond the chucks 16, the operation must be discontinued once the diameter of the log approaches that of the chucks. Therefore, when chucks having a diameter of, for example, twenty centimetres (20cm) need to be utilised in order to support a log of particular weight, the diameter of

the log that would remain after the operation has been forced to be completed would be in the order of, for example, twenty five centimetres (25cm) or more. There is thus a significant volume of timber which is wasted.

It will be appreciated that the chucks 16 and 18 may be replaced by chucks of smaller diameter to 'shave' further the remaining log 10. The 'shaving' operation has, however, to be discontinued when changing the chucks 16 and 18 and is cumbersome.

It will also be appreciated that due to the differing lengths of logs which are utilised in such processes, it has not been possible simply to provide a shorter length blade. This would cause difficulties in removing the outer rough layer of the timber, and also in providing an acceptably neat edge for the veneer produced.

Therefore, apparatus embodying the present invention includes a blade system as illustrated in Fig. 3. The blade system utilises a central blade section 22 and retractable end sections 24 located at either end thereof. The blade system also includes scoring means 26 in association with each end of the central blade section 22.

In this embodiment, the central blade section 22 and the two retractable end sections 24 may be arranged as one single length during operation of the veneer manufacturing process of a log from the state indicated generally by Fig. 1 to the state indicated generally by Fig. 2. However, once the diameter of the log has been reduced to a point close to the diameter of the chucks, the retractable end sections are retracted and the scoring means 26 is introduced, so as to continue the operation to reduce the diameter of the log to a diameter significantly less than the diameter of the chucks.

It can thus be seen that a far greater volume of the log may be utilised for producing veneers according to this manufacturing process, and the ends of the veneer as produced after the retractable end sections are retracted are clean cut as provided by the scoring means.

In this embodiment, it will be appreciated that the length of the central blade section 22 may be of a length that is certain to be within the absolute length of each of the logs which are likely to be used in the process. Thus, even if the logs generated are a great deal longer than the central blade section 22, the only significant amount of loss will be during that portion of the operation where the retractable end sections are retracted.

An example of the type of clamping arrangement for the central blade section 22 of the embodiment illustrated in Fig.3, is illustrated in Fig.4. In this Figure there is provided a body 28 having a clamping member 30 adjustably secured thereto by screws 32 and 34, for securing therebetween the central blade section 22. The central blade section 22 may also be adjusted for extension beyond the body 28 by virtue of adjustable screw member 36.

The scoring means 26 is provided in the form of a minor blade adjustably secured at the top end of the body 28 by way of screw members 38 and 40. The scoring means 26 is configured so as to be capable of being brought into and out of engagement with the log at a predetermined period during the operation of the process. This predetermined period is that period during which the retractable end sections 24 (as illustrated in Fig. 3) are retracted.

It will also be appreciated that as the central blade section 22 cuts through the surface of the rotating log 10 (not shown in Fig. 4) the thin layer of

timber which is 'shaved' therefrom passes over the top inclined surface 42 of the body 28 to be passed to the rear of the apparatus and preferably to be collected for storage and further treatment if necessary.

Finally, it will be appreciated that there may be other alterations and modifications to the configurations described above that are also within the scope of the present invention as defined by the claims.

**CLAIMS**

1. A veneer manufacturing process, said process comprising placing a log within a work station, the work station having chucks at either end thereof for releasably engaging respective ends of the log such that the log is rotatable about its longitudinal axis, and then rotating the log about its axis such that the rotating log may be brought into engagement with a blade system, the blade system extending along substantially the entire length of the work station and engaging the log during rotation thereof, such that a relatively thin continuous layer of timber of substantially uniform thickness is cut therefrom as the log rotates, the blade system including retractable end sections which may be retracted prior to the blade system striking the chuck, thus allowing a central blade section to continue engagement with the log to a diameter less than the diameter of the chucks.
2. A veneer manufacturing process according to Claim 1, the process including using a means for scoring the log about the circumference thereof between each retractable end section and the central blade section, such that as the retractable end sections are retracted, the scoring means may be brought into engagement at either end of the central blade section, creating shoulders at either end of the log between which the central blade section may operate to remove the thin layer of timber.
3. A veneer manufacturing process according to Claim 1 or Claim 2, wherein the veneer travels from the blade system after being cut from the log to be passed to a veneer handling section where the veneer is rolled in a continuous length so as to be ready for further processing as necessary.



4. Apparatus for a veneer manufacturing process, the apparatus including a work station having chucks at either end thereof for releasably engaging the respective ends of a log such that the log is rotatable about its longitudinal axis, the apparatus also including a blade system located along the entire length of the work station, the blade system being adapted so as to be capable of movement into and out of engagement with the log when at the work station such that a relatively thin substantially continuous layer of timber of uniform thickness is cut therefrom as the log rotates, the blade system including retractable end sections which may be retracted prior to the blade system striking a chuck, thus allowing a central blade section to continue engagement with the log to a diameter less than the diameter of the chucks.
5. Apparatus according to Claim 4, including a means for scoring the log about the circumference thereof between each retractable end section and the central blade section.
6. Apparatus according to Claim 4 or Claim 5, wherein each scoring means is a blade which is adjustably and retractably secured adjacent the ends of the central blade section so as to be capable of scoring the rotatable log at a single circumferential position when the retractable end sections are retracted.
7. A veneer manufacturing process according to Claim 1, substantially as herein described with reference to Figs. 3 and 4.
8. An apparatus according to Claim 4, substantially as herein described with references to Figs. 3 & 4.