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(54) **Method of fabricating a parquet slab base**

(57) The invention relates to a method of manufacturing a parquet slab base structure consisting of wood laths (1a, 1b) with a substantially uniform length, a substantially uniform thickness and a substantially uniform width, which laths are set to extend longitudinally, laterally parallel to each other in the lateral plane, at a given side-by-side distance from each other, and which, on one lateral face, are attached to a binding sheet (2 and 2', resp.) extending substantially over the faces. The wood laths are obtained by providing sawn timber having a double lath height and a multiple lath width, at alternating positions on opposite sides, with longitudinal, adjacent grooves (3, 3') substantially perpendicular to the faces, which extend at least to the depth of intersection. The grooved sawn timber is set into a flat lay-up side by side, and a binding sheet is attached to both faces of the sawn timber. The lay-up with the binding sheets is cleaved at the intersecting or overlapping depth (4) of the grooves.

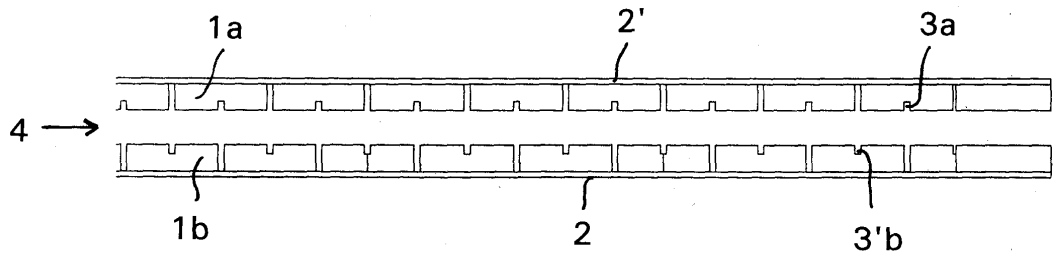

Fig. 3

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Description

[0001] The invention relates to a method of manufacturing a parquet base, in particular of manufacturing a slab parquet base.

[0002] A conventionally manufactured slab parquet consists, first of all, of so-called intermediate laths which are laths sawn out of timber, having a given length, a given width and a given thickness. The lath length and thickness are determined by the width and thickness of the parquet slab to be manufactured, respectively. The lath width can be chosen more freely in terms of the manufacturing technique, by giving appropriate consideration to the available raw material and the humidity conditions of the application site.

[0003] According a manufacturing technique which is in use the laths are set laterally parallel to each other, into a flat lay-up on bottom veneer, especially softwood veneer. The aim is to leave a small gap for motion between the parallel laths in order to reduce the effects of the humidity-related stretching and contracting of the wood in the finished parquet slab. The dimensions of the bottom veneer substantially equal to the dimensions of the parquet slab to be manufactured, and such a number of laths are set thereon parallel to each other that the lay-up corresponds to the length of the parquet slab to be manufactured. Glue can be applied to one side of the laths to be set into the lay-up, or alternatively to the bottom veneer. The bottom veneer and laths are adhered to each other by curing the glue under pressure and heating, to obtain a parquet slab blank. In a more advanced manufacturing process, the lath lay-up is created on the bottom veneer by using laths with glue on both sides, and the lay-up is finished by providing the lay-up with a parquet face, continuous wood-veneer or veneer-lath face. The three-layered structure thus obtained is adhered into an integrated structure by curing the glue under pressure and heating. The tongues and grooves necessary for connecting the parquet slabs together are machined in the intermediate laths.

[0004] The intermediate laths used for the base structure are sawn out of timber, into blocks of the required size, the sawing operation being performed so that the grain direction coincides with the longitudinal direction of the lath and so that the annual rings in the cross-section of the lath mainly run in the direction of thickness of the lath. This aims at minimizing the problems caused by the humidity-related stretching and contracting.

[0005] In the manufacture and handling of the laths into a lay-up to be adhered to the bottom veneer, it is necessary to perform many work steps and to monitor the work steps accurately so as to obtain a decent base structure. However, in spite of the monitoring and the machines developed for the manufacture, the resulting lay-up is not always optimal. The laths may locally settle inappropriately close to each other, into side-by-side contact with each other, as a result of which the play reserved for the humidity-related stretching of the base structure is lost. Besides, in some places there may remain quite large gaps between the laths, which, in turn, make it more difficult to achieve the intended strength values of the structure. More specifically, an over-sized lath gap is observed later in the finished parquet floor, in the form of a depression at the over-sized gap, this depression being reflected disadvantageously in a glossy floor surface.

[0006] The manufacturing method according to the invention is substantially capable of elininating the above-described problems related to the manufacture of a parque slab. The method according to the invention is applied to the manufacture of a parquet slab whose base structure consists of wood laths which have a substantially uniform length, a substantially uniform thickness and a substantially uniform width and which are set to extend longitudinally, laterally parallel to each other in the lateral plane, at a given side-by-side distance from each other, and which, on one lateral face, are attached to a binding sheet extending substantially over the faces. According to a charasteristic of the invention, the laths are obtained by providing sawn timber having a double lath height and a multiple lath width, at alternating positions on opposite sides, with longitudinal, adjacent grooves substantially perpendicular to the faces, which extend at least to the depth of intersection, by setting the grooved sawn timber into a flat lay-up side by side, by attaching a binding sheet to each face of the sawn timber lay-up and by cleaving the lay-up with the binding sheets at the intersecting or overlapping depth of the grooves.

[0007] We can start from the assumption that the material used in the invention is cut-to-size timber (sawn timber) whose primary dimensionally equivalent timber product is the one called "board". The parquet slab can be manufactured, for example, from sawn timber having the following cross-sectional dimensions 22 x 125 mm and an optional length (extendable, for example, with a finger joint, if necessary). This timber is cut to size, such as into lengths of 700 mm or 1400 mm. The cut-to-size boards are planed at their both flat faces, and the both flat faces are provided with grooves, which run in the longitudinal direction of the board and extend perpendicularly from the flat faces to a given depth, by sawing. The opposite faces are provided, at alternating different positions, with identical, evenly spaced grooves, which means that in the case of the above-mentioned 120 mm wide board, the groove spacing on each side of the board can be 30 mm, i.e. there will be two sawcuts on one side, in addition to the both lateral edge sawcuts, while the other, opposite side will comprise three equally spaced sawcuts between the sawcuts of the opposite side.

[0008] The purpose of the grooves is to interrupt the effect of any tensions generated in the wood structure, for which purpose it is advisable to make them extend to a considerable depth in direction of thickness of the board, approximately at least to the middle of the thickness of the board or beyond it, but not to a depth that would reduce the handling strength of the laths.

[0009] These cut-to-size grooved boards which have

been given a predetermined cross-sectional dimension by planing, are set side by side into a lay-up, in order to achieve a given dimension, such as 1800, 2000, 2200 mm, in the lay-up direction. A binding sheet selected according to the final application is glued to each flat face of the lay-up.

[0010] Different operational models can be used in the lay-up. For instance, the boards can be set on a glued bottom sheet constituting one of binding sheets. A sheet covering the lay-up and having glue applied to its lower face is set as the other binding sheet, and the construction is made into a whole through heat-compression in order to cure the glue.

[0011] Alternatively, the lay-up can be created from boards with glue on both sides, on a bottom plate, finished with a covering sheet and taken to the heat-compression.

[0012] For example, the bottom sheet can comprise a veneer, plywood or coated sheet selected to be suited for the final spplication. The covering sheet usually is similar to the bottom sheet, or has dissimilar properties. The construction obtained can be classified as a solid wood construction, which, however, in contrast with conventional solid wood, does not have the disadvantage of stretching and contracting when the moisture content of the surrounding air varies.

[0013] The board is subjected to one more additional processing step. In this processing the board is cleaved in the in-plane direction at the middle of its thickness. This results in a construction in which the board has become a lath construction in which the laths are equally spaced, at a side-by-side distance determined by the sawcuts, from each other, and attached to the binding sheet on one side. For the cleavage sawing it may be advisable to first saw the board to a smaller size, such as into parquet blanks, according to the intended application.

[0014] The lath construction exposed in the cleavage sawing can be covered with a facial lath lay-up or face veneer intended for a slab parquet, considering the application objectives. In the board obtained, which is covered on both sides, the base structure is composed of laths produced from the board, having a uniform length and an equal spacing in the construction.

[0015] The invention will now be explained by means of the accompanying drawing in which

Figure 1 is an exemplary cross-sectional view of a basic unit of the base structure, i.e. of a board taken through the planing and grooving step,

Figure 2 is a sectional view of the basic structure of the base of a parquet slab, and

Figure 3 shows a parquet slab pre-fabricate obtained from the structure of Figure 2 through an additional processing step.

[0016] Figure 1 is a cross-sectional view of a board 1 which is to be used in the base structure of a parquet slab and which is manufactured from sawn timber by planing the board to desired cross-sectional dimensions. The board is provided, in an appropriate work step, with grooves 3 and 3' extending longitudinally over the length of the board, by means of a circular saw, for example. The grooves 3 on one side are located in alternating positions with respect to the grooves 3' on the other side and extend to the middle of the thickness of the board or somewhat beyond it. The board may have an optional length in the planing and grooving step. A short board is utilizable if fitted with scarf joints.

[0017] In the next manufacturing step, the planed and grooved, cut-to-size board 1 is set into a flat lay-up where the boards lie longitudinally flat and side by side. Boards are placed side by side in the lay-up direction according to the desired parquet slab length. Then, the lay-up is covered by a suitable binding sheet 2 which has glue applied thereon and which is pressed onto the lay-up, and the glue is cured. The lay-up is turned upside down, and a second binding sheet 2' is glued to the opposite side. The binding sheets 2 and 2' are selected according to the intended application of the parquet being manufactured, to serve as frame sheets, for the manufacturing step of Figure 3.

[0018] Figure 3 shows an operational step of the method according to the invention in which a sheet manufactured through the above-described operations (as such or cut to size) is cleaved substantially at the middle of the thickness 4 in the in-plane direction. Thus, two sheet blanks are attained having a structure comprised of regular and evenly spaced laths 1a and 1b glued to the binding sheet 2 and 2'. The sawn face of the sheet blanks can then be covered by veneer or other surface material used in parquets.

[0019] The operational step of Figure 3 allows various modifications. First, a more effective interruption of tension can be achieved in the laths 1a and 1b along the depth dimension of the grooves 3 and 3', by extending the grooves beyond the sawing plane 4, a groove 3a and a groove 3'b thus being formed in the lath 1a and the lath 1b, respectively. Besides, it is possible to add similar grooves 3a and 3'b to the laths after the cleaving step, or for the same purpose, in the planing step of the board 1. For example, the depth of the grooves 3 and 3' as well as of the grooves 3a and 3'b can be 1,5 cm and 0,5 cm, respectively. Furthermore, different opposite groove depths and the choice of the cleaving plane 4 make it possible to obtain sheet blanks of different thickness through simple method operations, if necessary.

[0020] When the invention was put into practice, it was found out that board sawn out of heartwood also can be used as the raw material of the board 1. Besides, the raw material can be sawn in such a way that the grain direction of the wood is transverse to the longitudinal direction of the laths. In the parquet slab blank manufactured according to the invention, the settling direction of the annual rings is not critical either. The use of such raw material

has not caused any problems in the form of humidity-related stretching and contracting in the product.

Claims

1. A method of manufacturing a parquet slab base structure consisting of wood laths with a substantially uniform length, a substantially uniform thickness and a substantially uniform width, which laths are set to extend longitudinally, laterally parallel to each other in the lateral plane, at a given side-by-side distance from each other, and which, on one lateral face, are attached to a binding sheet extending substantially over the faces, **characterized in that** the wood laths are obtained by providing sawn timber having a double lath height and a multiple lath width, at alternating positions on opposite sides, with longitudinal, adjacent grooves substantially perpendicular to the faces, which extend at least to the depth of intersection, by setting the grooved sawn timber into a flat lay-up side by side, that a binding sheet is attached to both faces of the sawn timber and that the lay-up with the binding sheets is cleaved at the intersecting or overlapping depth of the grooves.

2. A method as defined in Claim 1, **characterized in that** the grooves are cut to extend beyond the midpoint of the thickness of the sawn timber and that the cleaving of the lay-up with the binding sheets is performed at the middle of the thickness of the sawn timber.

Fig. 1

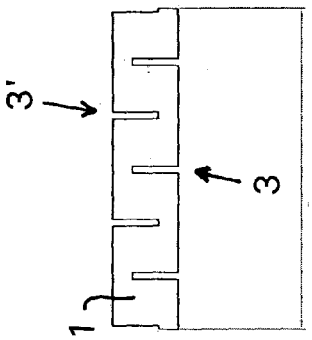

Fig. 2

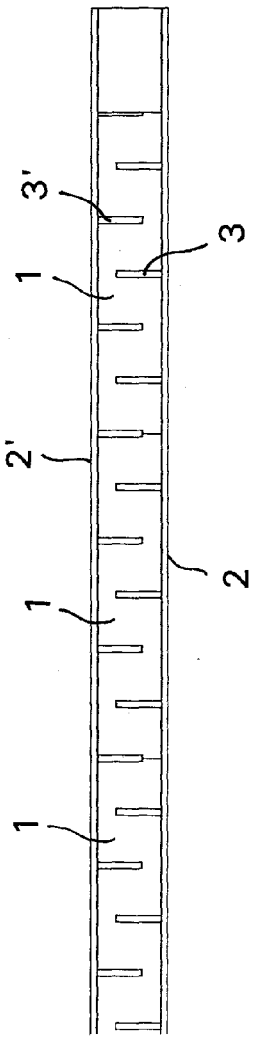

Fig. 3