(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 277 896 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
22.01.2003 Bulletin 2003/04

(51) Int Cl.[7]: **E04F 15/04**, E04F 15/10, F16B 5/00

(21) Application number: **01850125.4**

(22) Date of filing: **16.07.2001**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
Designated Extension States:
AL LT LV MK RO SI

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(54) Floorboards

(57) The invention relates to floorboards, e.g. for parquestry. The floorboards are intended to be joined with each other, wherein a first board (A) has a protrusion fitting into a recess in a second board (B). The protrusion on the first board comprises hooks (1) with intermediate slots (2). The recess (11) in the second board (B) is delimited on the top side by a solid edge (3), and on the bottom side by an edge having heads dimensioned to be inserted through the slots (2) of the first board (A). By providing slots in the protrusion corresponding to the tenon, and corresponding slots in the lower limiting edge of the groove, the boards can be joined in a substantially vertical movement and then be locked by a horizontal movement in the longitudinal direction of the boards.

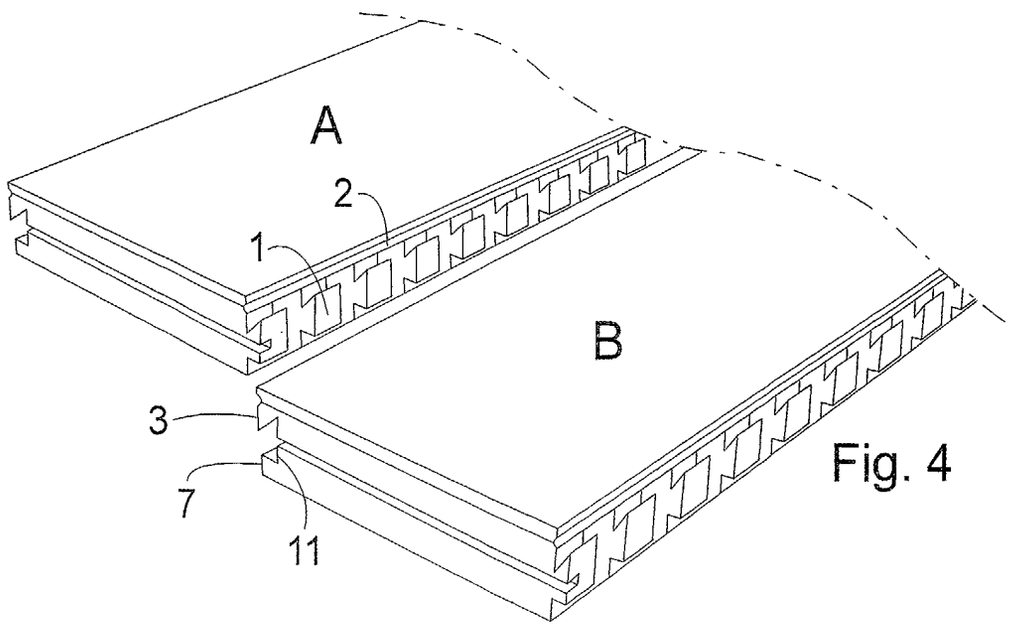

Fig. 4

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a joining system for floorboards, panels and sheaves, but foremost for parquetry. The invention will replace the traditional groove and tenon technique. By providing slots in the protrusion corresponding to the tenon, and corresponding slots in the lower limiting edge of the groove, the boards can be joined in a substantially vertical movement and then be locked by a horizontal movement in the longitudinal direction of the boards. At the same time, the protrusion is shaped like hooks engaging the groove. Through this, the joining will be very simple to perform, whilst at the same time providing a strong joint.

STATE OF THE ART

[0002] The traditional groove and tenon technique for floorboards has been known in the art for a long time. Furthermore, there are a number of alternative technical solutions available with various shapes of protrusions and recesses. Through giving the protrusions various hook-like shapes, a firmer locking has been achieved than with the groove and tenon. During assembly, the boards are angled in relation to each other, joined and pivoted to achieve a planar floor surface and a simultaneous locking. Examples of this technique are e.g. shown in WO 94/26999, US Patent No 5,797,237 and US Patent No 6,006,486. It is also known to complete the locking with separate auxiliary locking elements. This is illustrated e.g. in SE B 512 290.

[0003] However, it is not always easy to join the boards, as the entire length of a protrusion on a board has to be fitted into the recess of an existing, already laid-down board, before the new board can be pivoted and locked into its final position. This is especially difficult if the board is warped and not entirely straight, and too long for one person to control both ends simultaneously.

[0004] The present inventor has realised that the joining will be simpler if the necessary angle between the boards is reduced and the boards can be joined with an almost vertical movement. This is achieved by providing milled slots in the protrusions and in the lower edge of the recesses, allowing the board to be joined to be inserted into the already laid-down board more or less from above. The new board can then be displaced longitudinally to obtain the final locking thereof.

[0005] The invention allows for simple floor-laying that can easily be performed by one person. At the same time, the board manufacturing process is not made notably more complicated.

SUMMARY OF THE INVENTION

[0006] The invention thus relates to a joining system for floorboards, comprising boards intended to be joined together. The first board has a protrusion fitting into a recess in the second board.

[0007] According to the invention, the protrusion on the first board exhibits hooks with intermediate slots, and the recess of the second board is delimited in the upwards direction by a solid edge, and in the downwards direction by an edge with heads, sized so as to enable insertion through the slots in the first board.

[0008] Preferably, the lower edge of the recess has shoulders between the heads.

[0009] The invention also relates to a corresponding board for such a joining system.

[0010] The invention is defined in the appended claims 1 and 7, whereas preferred embodiments are described in the dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The invention will be described in further detail below, with reference to the enclosed drawings, of which:

- Fig. 1 is a partial cross section view of two boards, taken from the short side thereof, not joined together, according to the present invention.
- Fig. 2 is a view similar to Fig. 1, with the boards joined.
- Fig. 3 is a perspective view, illustrating the recess on the long side of a board.
- Fig. 4 is a perspective view from the other side, showing the hooks on the other long side of a board.
- Fig. 5 is a view corresponding to Fig. 3, with joined boards.
- Fig. 6 is a view corresponding to Fig. 4, with joined boards.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0012] The invention will be illustrated by means of an embodiment where the floorboards are made of wood. It should be understood that other materials, such as laminates, plastic, etc. could be used just as well.

[0013] In Figs 1 and 2, two boards A and B are shown in a cross sectional view from their short sides. The boards have an upper wear layer 8 of hardwood and a carrier layer of simpler wood, as is conventional. It should be understood that the boards A and B are identical, but Figs 1 and 2 show only the joint between a right hand long side of board A and a left hand long side of board B.

[0014] See also Figs 3, 4, 5 and 6, showing perspective views of the boards. Instead of a traditional tenon, board A exhibits hooks 1 with intermediate milled slots or cuts 2. Board B has a recess 11, corresponding to a traditional groove. The recess is delimited on the top

side by a solid edge 3, and on the bottom side by a non-solid edge comprising heads 4 with intermediate milled slots. Preferably, these slots do not extend to the full depth of the recess 11 but there is a shoulder 7 remaining. The function of the shoulder 7 will be described below.

[0015] The joining is performed as follows:

[0016] Board A is laid in place and is to be joined with the next board B.

[0017] Board B is fitted from above in such a way that the heads 4 will pass through the slots 2 of board A. Through angling board B somewhat, and holding it at an appropriate distance from board A, the shoulders 7 will be allowed to pass the hooks.

[0018] Eventually, the solid edge 3 of board B will abut the top side 5 of the hooks 1, and the shoulders 7 can be pushed under the hooks 1 through pivoting and pushing the two boards together.

[0019] Subsequently, board B can be displaced longitudinally, into its correct position in relation to the walls and the other floorboards. The heads 4 will thereby also be displaced to a location below the hooks 1, to form a strong joint. The joint may be further reinforced by glue, applied e.g. to the top side 5 of the hooks before mounting board B. The shoulders 7 may for example be about 2 mm long. It is also conceivable to mill away the shoulders 7 completely, down to the bottom of the recess. Board B can then be laid down entirely vertically, but at the same time, the joint will be weakened, as the entire head 4 generally will not happen to be located below a hook 1.

[0020] The top side 5 of the hook 1 is preferably angled, as is the matching underside 6 of the recess 11. A suitable angle is about 45°. The hooks may also have other profiled shapes than the configuration shown with straight edges and a flat exterior end surface, e.g. convexely or concavely rounded shapes or other curved and hook-shaped configurations (not shown). Naturally, the recess will have a complementary shape. The main point is that the configuration should result in that the boards A and B cannot be pulled away from each other sideways after having been joined.

[0021] After the joining, a small clearance will remain between the boards A and B in the carrier layer 9, as may be seen from Fig. 2. The wear layer 8 should preferably not have any remaining gap between the boards. If the boards, after the joining, should become warped, or if the underlying floor is uneven, the boards can pivot in relation to one another about a point located at the top side of the hooks and the underside 6 of the recess 11. It is advantageous for this point to be located as high as possible, thus avoiding the creation of any gap in the wear layer if the angle between the boards is changed.

[0022] In the illustrated embodiment, the widths of the hooks 1 and the intermediate slots 2 are the same. This may be varied as long as the heads 4 have a width corresponding to the slots 2. The heads 4 (and the hooks 1) should be about 8 mm wide and the slots 2 (and the shoulders 7) should be about 10 mm wide. As the tenon at the short side is 6 mm, the displacement will be at least 6 mm. If the heads are made wider, e.g. 20 mm, the total surface locking the boards will be reduced.

[0023] The short sides of the boards may be provided with conventional groove-and-tenon joints. This is illustrated in Figs. 3, 4, 5 and 6 by a groove 10. The corresponding tenon is located at the other short end and thus is not visible.

[0024] The illustrated embodiment may be varied e. g. through modification of the thickness of the wear and carrier layers, the angles and configuration of the hook, the width and the length of the boards, etc., all of which should be obvious to a person skilled in the art. The scope of the invention will only be limited by the appended claims.

Claims

1. A joining system for floor boards, comprising boards intended to be joined with each other, wherein a first board (A) has a protrusion fitting into a recess in a second board (B), **characterised by** said protrusion on the first board comprising hooks (1) with intermediate slots (2); and by said recess (11) in the second board (B) being delimited on the top side by a solid edge (3), and on the bottom side by an edge having heads (4) dimensioned to be inserted through the slots (2) of the first board (A).

2. The joining system according to claim 1, **characterised by** the hooks (1) exhibiting profiled top sides (5) and by the solid edge having a correspondingly profiled underside (6).

3. A joining system according to claims 1 or 2, **characterised by** the bottom edge of said recess (11) exhibiting shoulders between the heads (4).

4. A joining system according to claims 1, 2 or 3, **characterised by** the hooks (1), the slots (2) and the heads (4) having the same size in the longitudinal direction of the boards.

5. The joining system according to claim 4, **characterised by** the heads (4) being slightly narrower than the slots (2).

6. A joining system according to any one of claims 1, 2, 3, 4 or 5, **characterised by** the short sides of the boards being provided with grooves and tenons fitting into each other.

7. A board for a joining system, having a protrusion on a first long side of the board and a recess on a second long side of the board, said protrusion fitting into said recess, **characterised by** said protrusion on

said first long side comprising hooks (1) with intermediate slots (2); and by said recess (11) in said second long side being delimited on the top side by a solid edge (3), and on the bottom side by an edge having heads (4) dimensioned to be inserted through the slots (2), thus allowing identical such boards to be joined with each other.

8. The board according to claim 7, **characterised by** the hooks (1) exhibiting profiled top sides (5) and by the solid edge having a correspondingly profiled underside (6).

9. A board according to claims 7 or 8, **characterised by** the bottom edge of said recess (11) exhibiting shoulders between the heads (4).

10. A board according to claims 7, 8 or 9, **characterised by** the hooks (1), the slots (2) and the heads (4) having the same size in the longitudinal direction of the boards.

11. The board according to claim 10, **characterised by** the heads (4) being slightly narrower than the slots (2).

12. A board according to any one of claims 7, 8, 9, 10 or 11, **characterised by** the short sides of the boards being provided with grooves and tenons, allowing identical such boards to be joined with each other.

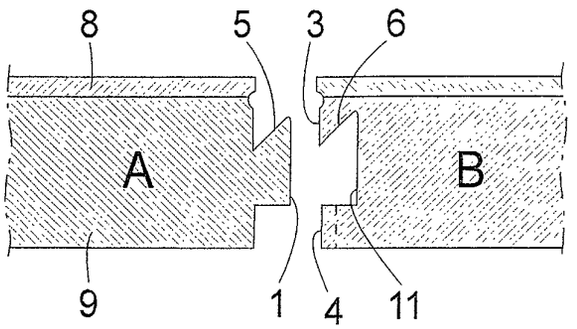

Fig. 1

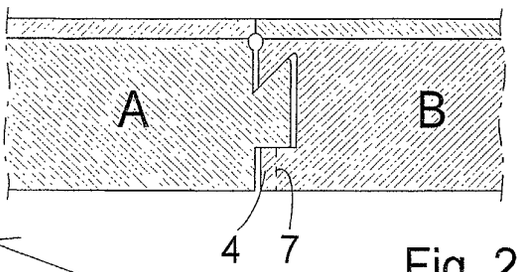

Fig. 2

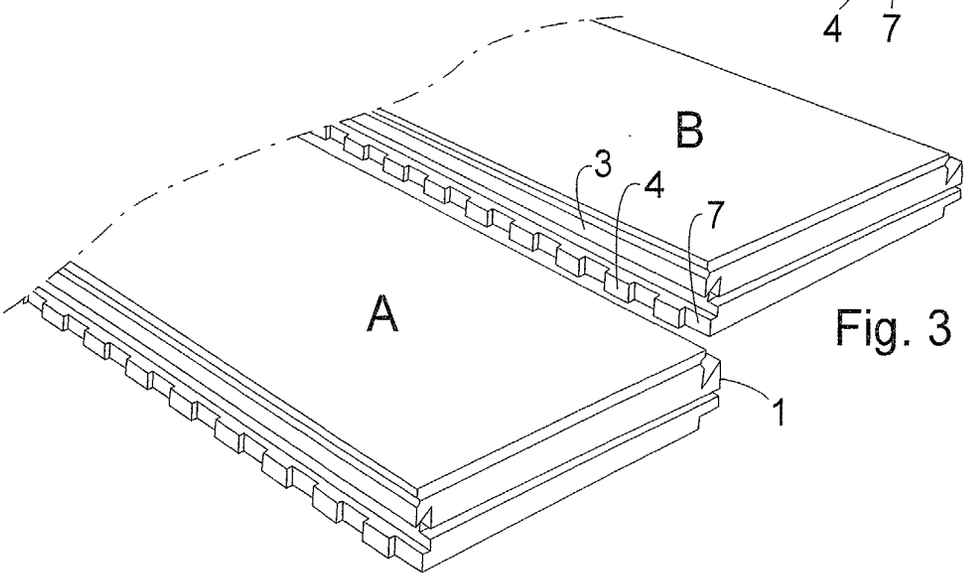

Fig. 3

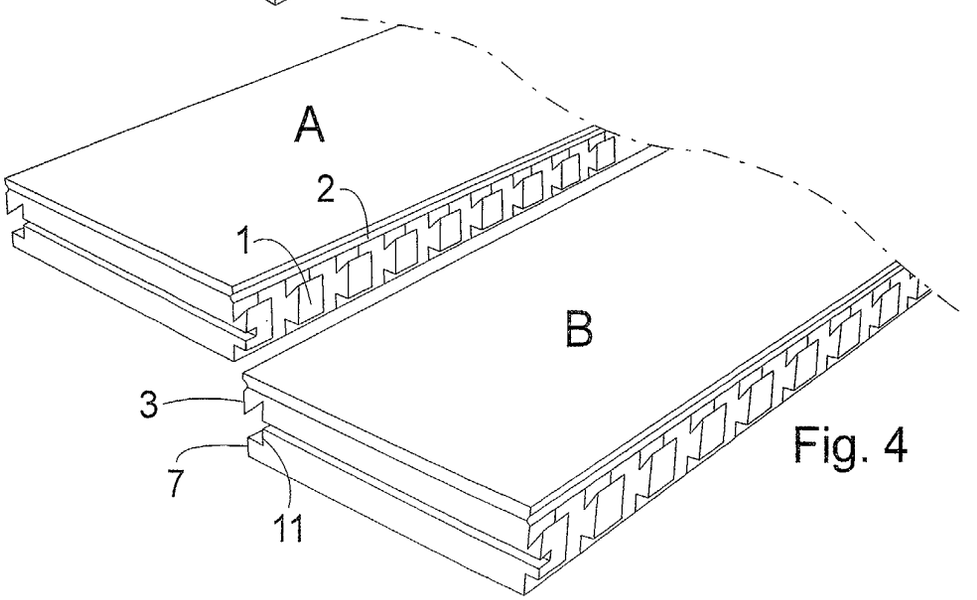

Fig. 4

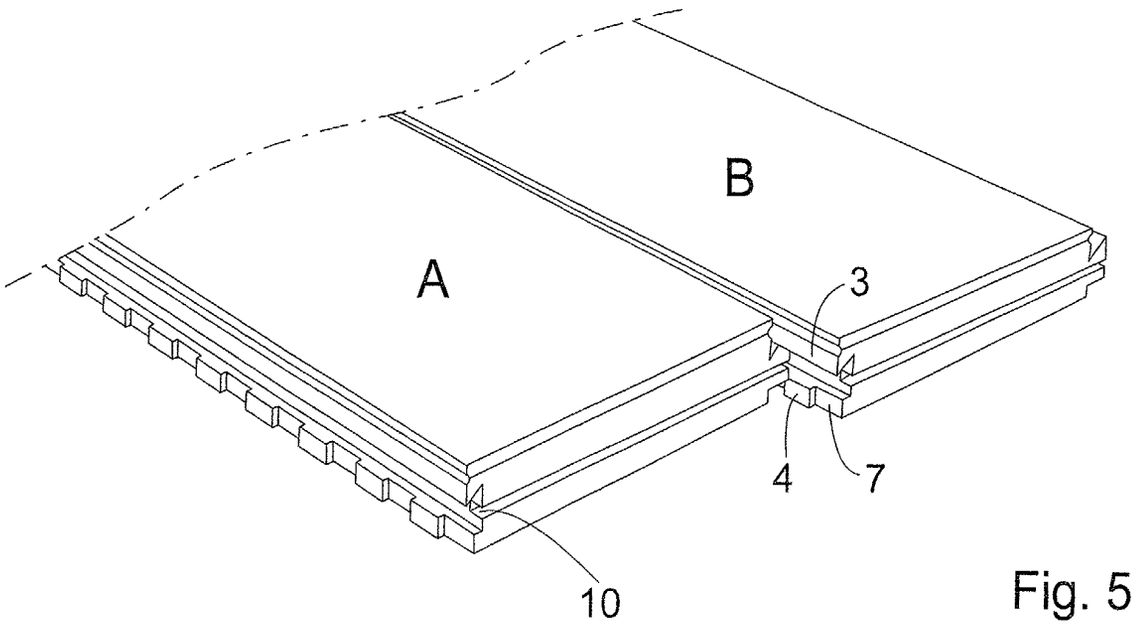

Fig. 5

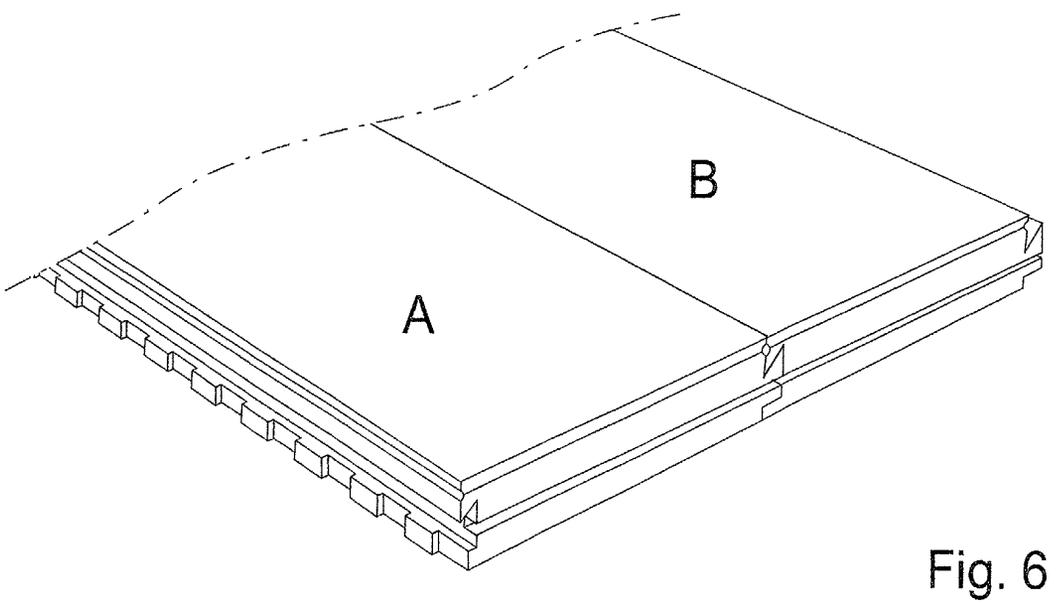

Fig. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 01 85 0125

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TECHNICAL FIELDS SEARCHED (Int.Cl.7)
E04F F16B E01C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	4 December 2001	Bouyssy, V

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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