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(54) **Floor board and method for its manufacturing**

(57) Method for manufacturing floor boards (P) having an antique and used look, in which the boards of planed new wood at one of their main sides (10) are being subjected to a mechanical treatment for making

damages on the surface of said main side that are irregularly distributed over the surface, the damages being made by means of a scraping treatment (3).

EP 1 398 126 A1

Description

[0001] The invention relates to a method for manufacturing wooden floor boards having an antique or (long) used look. The invention furthermore relates to such a board.

[0002] Many occupants wish for a home with antique or old furnishings. In addition to antique furniture an old wooden floor covering will be required to perfect an antique atmosphere. Such floors, however, are available to a very limited extent, even less than antique furniture, so that genuine antique furnishings are impossible most of the time. In order to enable occupants to provide their home with an old or antique look, wooden floor boards are offered made of new wood but subjected to a mechanical ageing treatment, and also treated with a water-based colourant.

[0003] It is an object of the invention to provide an improved method of the kind mentioned in the preamble, as well as a board obtained with such a method.

[0004] It is a further object of the invention to provide a method for manufacturing boards with a unique antique/used look.

[0005] From one aspect, the invention to that end provides a method for manufacturing floor boards having an antique and used look, in which the boards of planed new wood at one of their main sides are being subjected to a mechanical treatment for making damages on the surface of said main side that are irregularly distributed over the surface, the damages being made by means of a scraping treatment. The irregularity enhances the antique look of the board, the scraping treatment of the planed new wood giving a special effect.

[0006] Preferably the scraping treatment takes place by passing the board with the said main side considered relatively along a scraping blade. The scraping blade, which preferably is inclined with respect to the surface of the board to be scraped, performs a so-called stripping treatment on the surface of the main side in question. In this way a special effect is achieved when the annual rings run irregularly in the board. Where the annual rings are oriented in downstream direction towards the surface of the main side, they are on the grain to the blade and the surface will be made smoother. Where the annual rings slope down (inclined to the inside) in downstream direction of the surface, they are across the grain and the surface will become rougher. The more irregular the annual rings end in the main side, the more irregular the surface will be after the treatment.

[0007] In a simple embodiment use is made of a scraping blade that is positioned stationary.

[0008] Preferably the boards -considered relatively- are passed along the scraping blade in longitudinal direction.

[0009] The described effect with rough and smooth spots is enhanced when the speed of movement is lower than 20 meter/minute, preferably lower than 15 meter/minute.

[0010] Preferably the board is pressed towards the scraping blade during the movement of the board along the scraping blade.

[0011] Preferably the board is subjected to the scraping treatment over its entire width. This can be realised with one scraping blade extending over the entire width or with a number of scraping blades placed adjacently and in line with each other. Alternatively an arrangement having a number of scraping blades can be used in which the blades are positioned staggered in operative direction but contiguous to each other as regards their operative ranges in width direction.

[0012] Preferably the damages made are of different shapes and/or depths in order to enhance the irregularity.

[0013] The method according to the invention is particularly suitable for treating boards of a short grain wood type, preferably hardwood, such as oak wood.

[0014] Preferably the wood of the board has a hardness of 5,000 or more on a scale of 0-10,000 or 50,000 or more on a scale of 0-100,000 (Janka, Brinell).

[0015] Preferably the board in the main side is provided with annual rings that are at an angle to its surface, particularly at an angle to the surface when considered in a plane of cross-section and/or to the surface when considered in a plane of longitudinal section.

[0016] From another aspect according to the invention, which may optionally also be used separately, the edges of the main side are provided with a bevelled edge having irregularly distributed and formed damages. According to the invention the bevelled edge may be made by a scraping treatment. A special effect is achieved when the bevelled edge is made by a chopping treatment. The chopping treatment can take place by means of a blade used for scraping off layers of paint from wooden construction parts. The blade is then forcefully passed along the edge after being slammed in.

[0017] From another aspect the invention provides a method for manufacturing floor boards having an antique and used look, in which boards of planed new wood at one of their main sides are being subjected to a mechanical treatment for making damages on the surface of said main side that are irregularly distributed over the surfaces, the damages made on the one surface forming extended little grooves. Preferably, the damages are made by means of metal parts, which preferably are larger than the groove (as in groove and tongue) of the board to be treated.

[0018] Preferably the damages made are of different shapes and/or depths in order to enhance the irregularity.

[0019] In a further development of the methods according to the invention the board, or at least the main side in question, is subjected to a saturating treatment with a fluid, such as impregnating, oiling or hard waxing. Preferably the board is subsequently subjected to a brushing treatment with soft brushes. The board can subsequently be dried and optionally be subjected again

to a treatment with fluid, in particular oil or hard wax.

[0020] In a further development of the methods according to the invention the board is subjected to a colouring treatment prior to the treatment with fluid.

[0021] From a further aspect the invention provides a board obtained with the method according to the invention, only one (main) side being provided with damages that are irregularly distributed over the surface.

[0022] The invention will be elucidated on the basis of an exemplary embodiment shown in the attached drawings, in which:

Figure 1 shows a schematic view of an arrangement for carrying out an embodiment of a method according to the invention;

Figure 2 shows a moment during the process according to figure 1;

Figure 3 shows a board obtained with the process according to figures 1 and 2, subjected to a further treatment of a longitudinal edge; and

Figures 4A-C show consecutive steps during the treatment of the bevelled edge of the board according to figure 3.

[0023] A stationary table 1 is shown in figure 1, in which table a scraping blade 3 supported by a riving knife 4 is positioned at the location of a slot 2. The degree to which the blade extends above the upper surface of the table 1 can be adjusted. As can be seen, the scraping blade 3 is positioned inclined with respect to the surface of the board to be scraped.

[0024] At some distance above the table 1 a conveyor assembly 5 has been placed, here schematically shown. The conveyor 5 comprises rollers 6a, 6b, 16a, 16b that are driven. Driving belts 7, 17, 27, which may for instance be made of leather, run about the rollers. The belts 7, 17, 27 are driven in the direction shown, and are positioned such that when conveying a board P in the direction A, they are able to press said board P with its lower main surface 10 against the blade 3, during conveying the board P.

[0025] The board P is laid on the table with its longitudinal direction L parallel to process direction A. The board is provided with grooves 8 and tongues 9, at both pairs of edges.

[0026] As shown slightly exaggerated in figure 2, the annual rings 11 of the board P will have a varied -curvy-course, as a result of the fact that the board P originates from trees. With respect to the main surface 10 the annual rings 11 will be differently oriented, namely in the area 11 a in downstream direction, that means opposite to direction A, bent towards the surface 10, and in areas 11 b indeed away from it.

[0027] When the blade 3 engages the surface 10 to scrape it off, the surface in area 1 a that is on the grain

will become smoother and in the area 11 b across the grain, the surface 11 b will become rougher. The result is schematically shown in figure 3, in which the surface 10 is shown having smooth areas 13 and rough areas 14. The locations of these areas depend on the actual orientation of the annual rings 11 with respect to the surface 10. The result is that the surface 10 has a particular characteristic used look, which may form the sight side in a floor of boards. The untreated other side faces down and therefore remains out of sight.

[0028] The effect can be influenced by the fact that the annual rings do not only vary in longitudinal direction, but also in a direction transverse to it, the width direction of the board. In a tree from which the board originates, the annual rings may after all vary in circumferential direction as well as in longitudinal direction of the tree. This is particularly the case with plain sawn boards, but may also play a part in semi-quarter and (for the longitudinal direction) quarter sawn boards.

[0029] The boards P are made of new, dried wood, and have a high hardness, at a minimum 50% of the used scale (Janka or Brinell). Said scales may range from 1-10,000 or 1-100,000, the highest numbers indicating the highest hardness.

[0030] The speed with which the board P is conveyed in the direction A along the blade 3 is relatively low, lower than 20 meters a minute, preferably, depending on the wood type, lower or equal to 15 meters a minute. As a result the blade 3 can be optimally operative on the surface 10.

[0031] The used wood types preferably are short grain wood types, such as hardwood, for instance oak wood. Poplar wood or beech wood may also be suitable.

[0032] The boards P may at the location of the edge 15, in this case the longitudinal edge along the surface 10, be provided with a bevelled edge. This may take place by means of scraping, but also, as indicated, by means of a cutting/chopping tool, such as a paint scraper 20. The blade 21 of the paint scraper 20 is slammed into the edge 15 by a workman in a motion parallel to the direction A, and is subsequently pulled along the edge in that direction. As a result chips are removed locally, over some length, from the edge 15, as locally shown in figure 4B. The operation can then be repeated at a slightly different angle to the edge 15, in order to remove material at the location of 15b (also figure 4C). The result is a bevelled edge having locally rough portions. Said treatment may for that matter also be carried out on boards that have been subjected to another damaging process than the process according to figures 1 and 2. The treatment can also be carried out with a stationary blade which (in a direction considered perpendicular to the edge in question) may be resiliently supported or suspended to achieve a similar effect (rough and less rough portions).

[0033] The boards may prior to making damages be coloured, by means of smoking (ammonia vapour), lixivated in a caustic soda bath that may or may not be

heated, or with a lime water solution. They can also be steamed, prior to a drying process.

[0034] After the scraping process according to the invention, the boards may be subjected to a saturating treatment by impregnating, oiling or hard waxing. They can then be brushed with rotating brushes of a soft material. After that drying can take place and optionally oil or hard wax can be applied again. Subsequently the boards are polished/rubbed.

Claims

1. Method for manufacturing floor boards having an antique and used look, in which the boards of planed new wood at one of their main sides are being subjected to a mechanical treatment for making damages on the surface of said main side that are irregularly distributed over the surface, the damages being made by means of a scraping treatment. 15
2. Method according to claim 1, the scraping treatment taking place by passing the board with the said main side considered relatively along a scraping blade, the scraping blade preferably being inclined with respect to the surface of the board to be scraped. 25
3. Method according to claim 2, the scraping blade being positioned stationary. 30
4. Method according to claim 2 or 3, the boards considered relatively, being passed along the scraping blade in longitudinal direction. 35
5. Method according to claim 2, 3 or 4, the speed of movement being lower than 20 meter/minute, preferably lower than 15 meter/minute. 40
6. Method according to any one of the claims 2-5, the blade being pressed towards the scraping blade during the movement of the board along the scraping blade. 45
7. Method according to any one of the preceding claims, the board over its entire width being subjected to the scraping treatment. 50
8. Method according to claim 7, the board over its entire width being passed along one or more scraping blades, the scraping blade or the scraping blades extending in line over the entire width of the board. 55
9. Method according to any one of the preceding claims, the damages made being of different shapes and/or of irregular depths.
10. Method according to any one of the preceding claims, the boards being of a short grain wood type,

preferably of hardwood, even more preferably of oak wood.

11. Method according to any one of the preceding claims, the wood of the board having a hardness of 5,000 or more on a scale of 0-10,000 or 50,000 or more on a scale of 0-100,000 (Janka, Brinell).
12. Method according to any one of the preceding claims, the board in the main side being provided with annual rings that are at an angle to its surface, the annual rings preferably being at an angle to the surface when considered in a plane of cross-section and/or the annual rings preferably being at an angle to the surface when considered in a plane of longitudinal section.
13. Method according to any one of the preceding claims, the edges of the main side being provided with a bevelled edge having irregularly distributed and formed damages, the bevelled edge preferably being made by a scraping treatment or a chopping treatment.
14. Method according to any one of the preceding claims, the board afterwards being subjected to a saturating treatment with a fluid, such as impregnating, oiling or waxing, the board preferably subsequently being subjected to a brushing treatment with soft brushes, the board preferably subsequently being dried and optionally being subjected again to a treatment with fluid.
15. Method according to claim 14, the board being subjected to a colouring treatment prior to the treatment with fluid.
16. Board obtained according to a method with the method according to any one of the preceding claims, only one (main) side being provided with damages that are irregularly distributed over the surface.

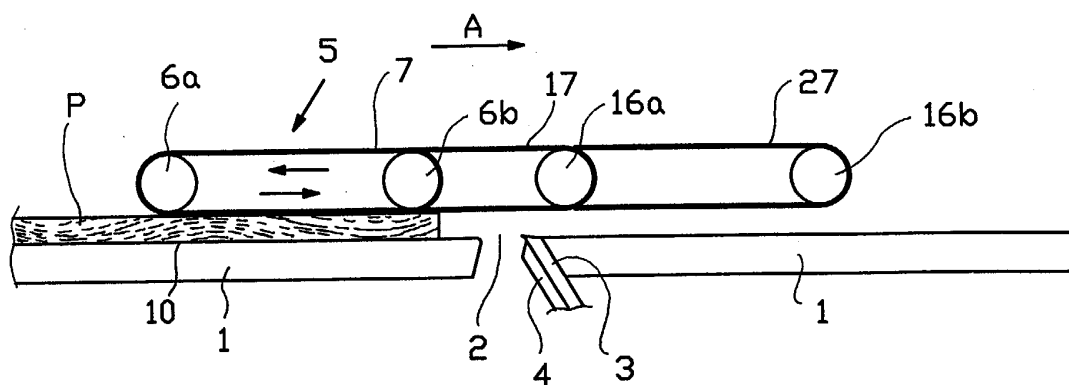


FIG. 1

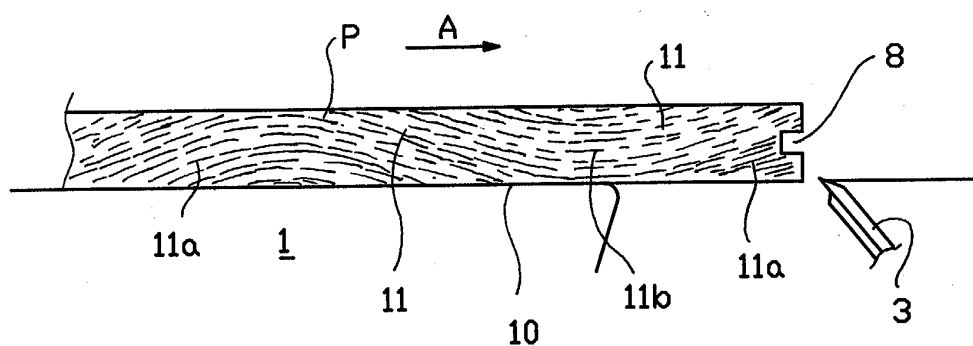


FIG. 2

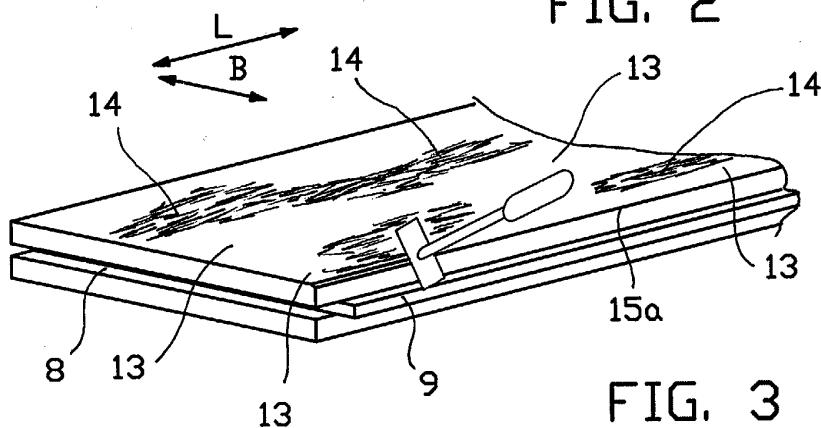


FIG. 3

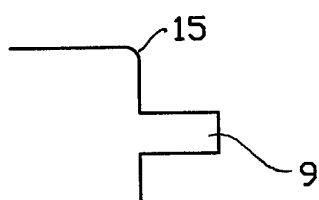


FIG. 4A

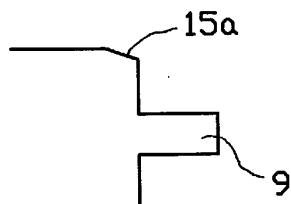


FIG. 4B

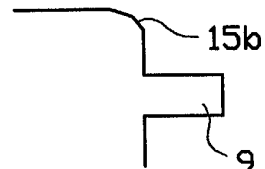


FIG. 4C



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EUROPEAN SEARCH REPORT

Application Number
EP 03 07 7882

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 3 726 328 A (LUEBS D ET AL) 10 April 1973 (1973-04-10) * column 3, line 1 - line 11; claim 1 * ---	1-4, 6-12,16	B27M1/00 B27D1/00
X	US 1 609 889 A (SHERMAN WILLIS S) 7 December 1926 (1926-12-07) * page 1, line 1 - line 14 * * page 1, line 37 - line 48 * * page 1, line 64 - line 91 * * page 2, line 47 - line 57; figure 4 * ---	1-4,6, 9-12,16	
A	GB 2 347 381 A (MACHELL & SONS LTD W) 6 September 2000 (2000-09-06) * page 3, paragraph 3 - paragraph 4 * * page 4, line 6 - line 23 * * figures * ---	1	
A	US 4 971 125 A (RULE KENNETH P) 20 November 1990 (1990-11-20) * column 2, line 60 - column 3, line 43; figure 2 * ---	14,15	
A	US 3 271 184 A (POLETIKA NICHOLAS V ET AL) 6 September 1966 (1966-09-06) * column 1, line 11 - line 21 * * column 6, line 22 - line 28; figure 2B * ---	14	B27M B27D
A	CH 602 297 A (BRAUN G FIRMA) 31 July 1978 (1978-07-31) * the whole document * ---	16	
A	US 3 791 427 A (HAYNES L) 12 February 1974 (1974-02-12) -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15 December 2003	Examiner Huggins, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

EPO FORM 1503 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 07 7882

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15-12-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3726328 A	10-04-1973	NL 6914011 A	17-03-1970
		US 3616826 A	02-11-1971
		US 3703198 A	21-11-1972
US 1609889 A	07-12-1926	NONE	
GB 2347381 A	06-09-2000	NONE	
US 4971125 A	20-11-1990	NONE	
US 3271184 A	06-09-1966	NONE	
CH 602297 A	31-07-1978	AT 341761 B	27-02-1978
		AT 583175 A	15-06-1977
		CH 602297 A5	31-07-1978
		IT 1040123 B	20-12-1979
US 3791427 A	12-02-1974	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82