

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 438 195 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
07.12.2005 Bulletin 2005/49

(51) Int Cl.7: **B41M 5/00**, B41M 7/00,
B05D 7/06, B05D 7/08

(21) Application number: **02775067.8**

(86) International application number:
PCT/IB2002/004196

(22) Date of filing: **11.10.2002**

(87) International publication number:
WO 2003/033273 (24.04.2003 Gazette 2003/17)

(54) **METHOD TO PREPARE A WOOD SURFACE TO RECEIVE DECORATIONS PERFORMED WITH WATER BASED INK**

VERFAHREN ZUR VORBEREITUNG EINER HOLZOBERFLÄCHE ZUM EMPFANGEN VON
DEKORATIONEN MIT TINTE AUF WASSERBASIS

PROCEDE DE PREPARATION D'UNE SURFACE EN BOIS POUR L'APPLICATION DE
DECORATIONS A BASE D'ENCRE A L'EAU

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
IE IT LI LU MC NL PT SE SK TR**

(74) Representative: **Beszédes, Stephan G.**
Patentanwalt,
Münchener Strasse 80a
85221 Dachau (DE)

(30) Priority: **16.10.2001 IT BO20010634**

(56) References cited:
DE-A- 19 727 766 JP-A- 62 278 080

(43) Date of publication of application:
21.07.2004 Bulletin 2004/30

- **PATENT ABSTRACTS OF JAPAN vol. 2000, no. 10, 17 November 2000 (2000-11-17) -& JP 2000 190462 A (MASTER MIND:KK), 11 July 2000 (2000-07-11)**

(73) Proprietor: **Lesepidado Srl**
40139 Bologna (IT)

(72) Inventors:

- **SETTI, Leonardo**
I-40139 Bologna (IT)
- **GIULIANI, Silvia**
I-40139 Bologna (IT)

Remarks:

The file contains technical information submitted
after the application was filed and not included in this
specification

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 1 438 195 B1

Description**FIELD OF THE ART**

[0001] The present invention refers to the technological field of the realization of permanent decorations on wood surfaces.

STATE OF THE ART

[0002] In order to give a wood surface an outlook of rich wood it can currently be used a covering with a dry transfer sheet previously decorated or can be employed other direct print techniques.

[0003] The known techniques require technological processes with high environmental impact, coupled with the necessity of building expensive clichés that obviously produce repetitive decorations. The standard patterns of the wood decorations show clearly that the wood surface is artificial. The technique above described requires stores for the rolls of dry-transferable sheets. Generally the disposal of the stores of the clichés need expensive costs.

[0004] In JP-A-2000 190462 (Patents Abstracts of Japan) it has been described the forming of a printing image with a water-based ink by a ink-jet printer onto a recording medium having a water absorbability such as a wooden medium or the like. The image accepting layer is formed on the printing surface of the water absorbable recording medium by applying a vinyl acetate emulsion-based resin. However, the latter is not a hydrophilic substance but a hydrophobic one.

[0005] From JP-62-278080 (Patent Abstracts of Japan) it has been known to provide an ink jet recording material capable of recording images with high resolution and high quality, by incorporating an epoxy-modified polyvinyl alcohol (PVA). The base into which the epoxy-modified polyvinyl alcohol has been incorporated also can be good. However, epoxy-modified polyvinyl alcohol is not a hydrophilic substance but a hydrophobic one.

[0006] The present invention suggests a method to prepare an inexpensive wood surface to receive decorations with high chromatic definition that, being performed with ink-jet printers controlled by computers, can be not repetitive, thus resembling the peculiar outlook of the surfaces of different natural woods.

[0007] Furthermore, the traditional stores are transformed by the present invention in the informatic archives in which the images are stored without added costs and with an optimized management.

[0008] The introduction of the present method, allows for the employment of technologies with a low environmental impact.

DESCRIPTION

[0009] The invention is now disclosed with reference

to the figures of the attached drawings, as a not limiting example.

Figure 1 schematizes the superficial treatment 2 of a wood surface 1 with etching compound or hydrophilic macromolecular substances, or with a combination of the two., capable to bind the die or the water respectively, which are content in the water-based ink.

Figure 2 schematizes the decorations 3 performed with water-based ink 4 through ink-jet techniques 5. Figure 3 schematizes the covering of the decorations 3 with a protective layer 6.

[0010] The clearness of the picture shows the simplicity of the finding that is the object of the present invention, the reliability of the technological operations, the low cost of realization and the variety of programmable decorations.

[0011] It should be pointed out that this method allows the realization of a wide choice of non repetitive decorations having the peculiar outlook of different kind of natural wood. All the kinds of equipment to obtain decorations on wood surfaces, performed through ink jet techniques, that will feature the same characteristics as the ones described, illustrated and hereinafter claimed, will be held as being part of the protection sphere of the present invention.

Claims

1. Method for preparing a wood surface (1) to receive ink-jet (4) decorations (3) by a superficial treatment, **characterized in that** the superficial treatment (2) is made as a preventive one with etching compounds or hydrophilic substances, or with a combination of the two.
2. Method according to claim 1, **characterized in that** as inks (4) such based on water are used the water of the inks (4) being absorbed by the hydrophilic substances and the dye of which being fixed on the wood surface (1) by the etching substances.
3. Method according to claim 1 or 2, **characterized in that** the decorations (3) performed on the wood surface (1) are covered with a protective film (6).
4. Method according to claims 1 to 3, **characterized in that** the decorations (3) on the wood surface (1) are performed by technologies having a low environmental impact.

Patentansprüche

1. Verfahren zur Vorbereitung einer Holzoberfläche

(1) zur Aufnahme von Tintenstrahl(4)-Dekorationen
 (3) durch eine Oberflächenbehandlung,
dadurch gekennzeichnet, dass
 die Oberflächenbehandlung (2) als eine schützende mit ätzenden Verbindungen oder hydrophilen Substanzen oder mit einer Kombination von den beiden erfolgt.

5

2. Verfahren nach Anspruch 1,
dadurch gekennzeichnet, dass 10
 Tinten (4) auf Wasserbasis verwendet werden, wobei das Wasser der Tinten (4) durch die hydrophilen Substanzen aufgenommen wird und deren Farbstoff an der Holzoberfläche (1) durch die ätzenden Substanzen fixiert wird. 15
3. Verfahren nach Anspruch 1 oder 2,
dadurch gekennzeichnet, dass
 die auf der Holzoberfläche (1) durchgeführten Dekorationen (3) mit einem Schutzfilm (6) überzogen werden. 20
4. Verfahren nach Anspruch 1 bis 3,
dadurch gekennzeichnet, dass
 die Dekorationen (3) auf der Holzoberfläche (1) 25
 durch Technologien mit einer geringen Auswirkung auf die Umwelt durchgeführt werden.

Revendications 30

1. Procédé de préparation d'une surface en bois (1) pour la réception de décorations (3) à jet d'encre (4) par un traitement de surface,
caractérisé en ce que 35
 le traitement de surface (2) est réalisé sous une forme préventive avec des composants corrosifs ou des substances hydrophiles, ou par une combinaison des deux. 40
2. Procédé selon la revendication 1,
caractérisé en ce que
 des encres (4) à base d'eau sont utilisées, l'eau des encres (4) étant absorbée par les substances hydrophiles et leur teinte étant fixée sur la surface en bois (1) par les substances corrosives. 45
3. Procédé selon la revendication 1 ou 2,
caractérisé en ce que
 les décorations (3) réalisées sur la surface en bois (1) sont recouvertes d'un film de protection (6). 50
4. Procédé selon la revendication 1 à 3,
caractérisé en ce que
 les décorations (3) sur la surface en bois (1) sont réalisées par des technologies ayant un faible impact sur l'environnement. 55





