

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 730 984 A1

(12)

EUROPEAN PATENT APPLICATION

published in accordance with Art. 158(3) EPC

(43) Date of publication:

11.09.1996 Bulletin 1996/37

(51) Int. Cl.⁶: **B44C 5/04**

(21) Application number: **94909361.1**

(86) International application number:

PCT/RU94/00039

(22) Date of filing: **01.03.1994**

(87) International publication number:

WO 95/14581 (01.06.1995 Gazette 1995/23)

(84) Designated Contracting States:

DE ES FR GB IT SE

(72) Inventor: **MAMONOV, Alexandr Sergeevich**

Kirov, 610050 (RU)

(30) Priority: **25.11.1993 RU 93051447**

(74) Representative: **Beetz & Partner**

(71) Applicant: **AKTSIONERNOE OBSHESTVO
OTKRYTOGO TIPa PROIZVODSTVENNO-
TORGOVAYA KOMPANIA "AVTOR"
Kirov, 610050 (RU)**

**Patentanwälte,
Steinsdorfstrasse 10
80538 München (DE)**

(54) **METHODS FOR MANUFACTURING COVERING PANELS**

(57) The present invention relates to processes for the manufacture of facing panels. The essence of the invention consists in that prior to connecting the facing with the substrate an image on the facing elements is formed by narrowly directed through cutting of the material to ensure the possibility of combining the image without adjusting the facing elements.

EP 0 730 984 A1

Description

BACKGROUND OF THE INVENTION

The present invention relates to processes for the manufacture of facing panels used, in particular, for the manufacture of artistic parquet bodies, facing panels for furniture production, panels for wall facing, etc.

Processes for the manufacture of facing panels have been known, one of which consists in the formation of a facing by the creation of a linkage between separate elements and further connection of the facing with a substrate, and the other consists in the formation of a facing by interconnecting separate elements and further connection of the facing with a substrate (see, e.g., Yu.D. Orlov, Facing Bodies Made of Wood, Vysshaya Shkola Publishers, Moscow, 1968, pp. 186-202 - the analogue and the prototype).

The drawback of known processes is a low production quality consisting in the presence of the adjustment stage with respect to the facing elements while forming an image and the presence of large-sized gaps formed.

SUMMARY OF THE INVENTION

The result which the present invention is intended to achieve resides in the improvement of the quality of a product.

This object can be attained by the fact that prior to connecting the facing with the substrate an image on the facing elements is formed by narrowly directed through cutting of the material to ensure the possibility of combining the image without adjusting the facing elements.

In accordance with another process, interconnection between separate elements is carried out by strips of a flexible material in order to avoid strain, wherein prior to connecting the facing with the substrate an image on the facing elements is formed by narrowly directed through cutting of the material to ensure the possibility of combining the image without adjusting the facing elements.

Narrowly directed through cutting of the material is carried out by laser radiation and wood is used as the material of the facing elements.

Sticky tape or paper is used as strips of a flexible material, wherein at least two strips are used on the right side and one strip - on the wrong side.

Also, several face layers made of elements of different wood species are formed to create a combined image texture.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Processes for the manufacture of facing panels are carried out in the following way.

At first, an artistic composition of the image is made and entered into the memory of an NC-unit by means of

a graphics editor of AUTOCAD, the image is divided into separate elements which, depending upon the image character, may be square, in the form of polygon, segment, etc.

Each element in turn is divided into parts, each of them may also have various geometric forms, for example, square, segment, etc., and can be made of any one wood species.

Next, a face layer of each part is formed, wherein facing elements are based over one corner and two adjacent thereto sides of the part, for example, of the square, aligning all ends of the layer elements.

Then, separate elements of the facing are connected to each other by gluing, for example, two strips of sticky tape or paper onto the right side and one strip onto the wrong side, in the space therebetween. (Claim 2.)

In accordance with another process (Claim 1), a linkage between separate elements is formed by, for example, spring-loading thereof in interperpendicular direction.

At the same time, the disposition of the tapes rules out displacement of the elements and warping of the facing upon drying out of the tapes, thus eliminating distortion of the image obtained.

Further, the facing (or a part thereof) so obtained is positioned on a working place, coordinated with base sides in relation to the axes of the working place and an image is formed by a laser radiation source under the program stored in the computer. The same operation is performed with respect to the face layers those elements are made of different wood species.

Following accomplishment of through cutting, upon which small width cuts are formed, and removal of cut-out figures, the transposition of those figures is carried out depending on the required image (for example, according to color). While transposing, a figure can be arranged, among other things, with another surface, which makes it possible to change a texture, i.e., improves the artistic scopes for panels.

Connection of the facing obtained with the substrate may be performed by molding under a specific pressure of about 1.4 MPa.

The panels so obtained are placed in pairs, for example, in a glue assembly frame for wooden articles with their faces towards each other, pressure is exerted in the range of (0.5 - 0.8)P (where P - a compression molding pressure) to mutually hold them out, and they are allowed to stand for 2 - 24 hours.

Pressure and dwelling time limits depend upon thickness and dimensions of panels, which provides for step-by-step reduction of internal stresses originating in the molding process and later on, as well as reduction of the probability of warping of ready-made panels.

The present invention improves the quality of panels.

Industrial Applicability

The present invention can be used in the manufacture of artistic parquet bodies, ornamental plaques, plaques for furniture production and special ornamental bodies. 5

Claims

1. A process for the manufacture of facing panels 10 comprising the steps of:
 - forming a facing by the creation of a linkage between separate elements;
 - connecting the facing with a substrate;
 - characterized in that** prior to connecting 15 the facing with the substrate an image on the facing elements is formed by narrowly directed through cutting of the material to ensure the possibility of combining the image and to avoid adjustment of the facing elements. 20
2. A process for the manufacture of facing panels comprising the steps of:
 - forming a facing by interconnection of separate elements; 25
 - connecting the facing with a substrate;
 - characterized in that** interconnection between separate elements is carried out by strips of a flexible material in order to avoid strain, and prior to connecting the facing with the substrate an image on the facing elements is formed by narrowly directed through cutting of the material to ensure the possibility of combining the image and to avoid adjustment of the facing elements. 30
3. The process of claims 1, 2, **characterized in that** narrowly directed through cutting of the material is carried out by laser radiation and wood is used as the material of the facing elements. 35
4. The process of claims 2, 3, **characterized in that** sticky tape or paper is used as strips of a flexible material, wherein at least two strips are used on the right side and one strip - on the wrong side. 40
5. The process of claims 1 - 4, **characterized in that** several face layers made of elements of different wood species are formed to create a combined image texture while transposing a cut-out material. 45

50

55

INTERNATIONAL SEARCH REPORT

International application No.

PCT/RU 94/00039

A. CLASSIFICATION OF SUBJECT MATTER		
IPC ⁵ B44C 5/04 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC ⁵ B44C 5/04, B44C 5/00, B44B 3/00		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR, A5, 2054929 (NAIRN-FRANSE S.A), 7 May 1971 (07.05.71)	1
A	GB, A, 1099714 (INTERPLAC S.L), 17 January 1968 (17.01.68)	2, 4-5
A	GB, A, 2078621 (VYSKUMNY A VYVOJOVY USTAV SKLARSKY) 13 January 1982 (13.01.82)	3
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
28 June 1994 (28.06.94)		19 August 1994 (19.08.94)
Name and mailing address of the ISA/ ISA/RU Facsimile No.		Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)