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(54) DOOR HANDLE AND THE METHOD OF ITS MANUFACTURE

TÜRGRIFF UND VERFAHREN ZU SEINER HERSTELLUNG

POIGNÉE DE PORTE ET SON PROCÉDÉ DE FABRICATION

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(56) References cited:
EP-A1- 1 467 046
CN-Y- 2 595 935
DE-U1- 8 209 457
US-A1- 2007 157 427
WO-A1-2010/064881
DE-A1- 10 339 109
DE-U1- 20 319 015

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Description

Technical Field

[0001] The invention pertains to door and window fittings, viz. lever rotational handles of doors and windows with internal armature and external wood finish.

Background Art

[0002] The distinctive features of the said door handles with external wood finish and internal armature consist in the construction of the armature and the wood finish and the methods (modes) of their manufacture (production).

[0003] The form of the lever rotational handle profile is similar to the form of a vertical angle, where one end is perpendicular to the door leaf (perpendicular part) while the other is horizontal and parallel to the door leaf (horizontal part). The perpendicular part is for connecting with the lock or the latch, whereas the horizontal part (which is touched by hand) is for operating the latch as well as for opening and closing the door or the window. The armature, ensuring solidity and stability of the handle, is normally comprised of two mechanically linked elements, i.e. the connective element fixed in the perpendicular part of the handle and the solidity element mounted in the horizontal part of the handle. In many cases the connective element and the solidity element are made as one monolithic detail.

[0004] The door handle described in the invention (see Patent CN 2595935) is made of solid wood finish with the internally mounted armature. The connective element of the armature is mounted into the perpendicular part of the handle finish, while the solidity element (solidity bar) is pressed into the horizontal part of the door finish.

[0005] The drawbacks of the handle are the following:

[0006] The end of the pressed solidity bar is visible in the horizontal wooden part of the handle, which impairs the look of the wood finish;

[0007] The straight solidity bar restricts the design of the wood finish so that only a simple shape of the wooden finish is possible.

[0008] There is another known door handle made of wood finish and armature (see Patent EP1467046). The wood finish of this handle consists of two (upper and lower) bonded parts of solid wood. The connection surfaces of the solid wood parts contain recesses into which the armature is mounted.

[0009] The drawbacks of this invention are the following:

[0010] The wood finish of the handle, its lower and upper parts are comprised of two wood blanks, therefore after connecting them together it is impossible to superpose the textures of the wood;

[0011] The bonding line going along the perpendicular and horizontal parts of the handle finish is in the most visible place, which impairs the look of the wood finish of the handle.

[0012] The proposed handle construction and the methods of its manufacture (production) have no drawbacks mentioned above.

Disclosure of Invention

Technical Problem

Technical Solution

[0013] The aim of the invention is implemented in the aspect that

the handle consists of armature and solid wood finish;

the armature is made of the connective element and the solidity element that are connected in a dismantable or non-dismantable way;

the form of the solid wood finish has a perpendicular part and a horizontal part;

the solid wood finish is divided (cut) into the base and the cover which are later superposed and bonded;

the dividing section of the base and the cover is in the horizontal part of the solid wood finish;

recesses for the armature solidity element are formed on the division planes of the base and the cover;

a hole for the armature connective part is formed in the perpendicular part of the solid wood finish (base).

[0014] Characteristics of the invention are presented below in greater detail:

the recess for the armature solidity element is formed on the division plane of the base;

the recess for the armature solidity element is formed on the division plane of the cover;

the dividing section of the solid wood finish base and cover is rectilinear or curvilinear;

[0015] the dividing section of the solid wood finish base and cover is vertical or oblique and it coincides with the diagonal of the cross-section of the horizontal part of the handle.

[0016] The method of manufacture (mode of production) of the handle includes the following operations: mechanical cutting of the solid wood blank;

forming a blind hole in the perpendicular part of the handle blank;

dividing the blank into the base and the cover by cutting along the horizontal part of the handle blank;

forming recesses on the division planes of the base and/or the cover to match the form of the solidity element;

applying glue to the hole in the base as well as to the division planes of the base and the cover;

inserting an armature connective element into the hole in the base from above by superposing its solidity element with the recesses in the base and/or the cover;

superposing and bonding the base and the cover;

processing the solid wood finish of the handle mechanically into its final shape.

Advantageous Effects

Description of Drawings

[0017] Description of prior art of the invention is indicated in the drawings:

Fig. 1 - two projections of the overall handle view: a) side-view, b) end-view;
Fig. 2 - longitudinal section of the handle with monolithic armature;
Fig. 3 - longitudinal section of the handle with composite armature.

Best Mode

[0018] The handle (Fig. 1) consists of the following main elements: the armature (1) and the solid wood finish (2). The solid wood finish (2) has the perpendicular part (3) and the horizontal part (4). In (Fig. 1a) the perpendicular (3) and horizontal (4) parts are shown as divided by a dotted line. The vertical section (section line A-A) divides the solid wood finish (2) into the base (5) and the cover (6), which after fitting them together are superposed and bonded. The end-view of the handle (Fig. 1b) shows the oblique dividing sections that coincide with the diagonals of the cross-sections (section lines B-B and C-C) of the horizontal part of the handle.

[0019] The longitudinal section of the handle is shown in Fig. 2, where the armature (1) is made as one monolithic detail that has the connective element (7) and the solidity element (8). The connective element (7) has a longitudinal blind square hole (9). The solidity element (8) has a form that matches the curve of the horizontal part (4) of the solid wood finish (2). In the manufacturing process the solid wood finish (2) is divided by a curvilinear section (section line D-D) into the base (5) and the cover (6). In the base (5), in the perpendicular part (3) of the solid wood finish of the handle, a hole (10) is formed, while on the division planes of the base (5) and the cover (6) matching recesses (11) and (12) are formed. The connective element (7) of the armature (1) is inserted into the hole (10) and the solidity element (8) of the armature (1) is inserted into the recesses (11) and (12).

[0020] The handle shown in Fig. 3 differs from the handle shown in Fig. 2 in that its armature (1) is composite, the connective element is an insert (13) while the solidity element is a bar (14). Moreover, the solid wood finish (2) is divided into the base (5) and the cover (6) by a rectilinear vertical section (section line E-E) which does not coincide with the axial line of the solidity element (8) of the armature (1), therefore the recess (11 in which the solidity element (8) can be inserted) is made only in the base (5).

[0021] If the section line were shifted to the opposite side of the axial line of the solidity element (8) of the armature (1), the recess (12) in which the solidity element (8) of the armature (1) could be inserted should be formed only in the cover (6).

[0022] The method of manufacture of the handle comprises the following actions and operations (steps):

mechanical cutting of the solid wood blank;
making a blind hole (10) in the perpendicular part of the handle blank;
dividing the blank into the base (5) and the cover (6) by cutting along the horizontal part (4) of the handle blank;
forming recesses (11) and/or (12) on the division planes of the base (5) and/or the cover (6) by matching their shape with that of the solidity element (8) of the armature or the solidity bar (14);
applying glue to the hole (10) of the base (5) as well as to the division planes of the base (5) and cover (6);
inserting from above the connective element (7) of the armature (1) into the hole (10) of the base (5), superposing its solidity element (8) with the recesses (11) and/or (12);
superposing and bonding the base (5) and the cover (6);
mechanical processing of the wood finish (2) of the handle into its final shape.

[0023] Peculiarities of the handle manufacture (production).

[0024] For the bonding line between the base (5) and the cover (6) to be imperceptible and the texture of the solid wood to be minimally damaged, the division of the base (5) and the cover (6) must be made with a very thin instrument, so the width of the cutting line does not exceed 0.5 mm. The bonding line becomes especially imperceptible where the oblique sections are made to coincide with the edges of the horizontal part of the handle.

[0025] The proposed construction of the handle and its method of production have the following advantages:

the wooden handle is ecological and warm, it is soft to the touch;
the handle has the look of solid wood, the bonding line of the base and the cover is not on the frontal plane of the handle and therefore it is unnoticeable;
the perpendicular and horizontal parts of the handle are of a piece therefore the handle is mechanically very firm;
the handle has no additional noticeable fixing or connecting elements;
the handle can be made of the same wood as the door leaf, fully matching its texture and colour;
no difficult processing operations are needed for the manufacture of the handle, everything is performed by using the usual wood-processing tools.

Claims

1. A door handle with armature (1) consisting of the

connective element (7) and the solidity element (8), which are connected in a non-dismantable or dismantable way, and with solid wood finish (2) consisting of the perpendicular (3) in use to perpendicular to the door leaf and horizontal in use horizontal and parallel to one door leaf(4) parts,
characterized in that:

the solid wood finish (2) is divided by cutting it into the base (5) and the cover (6), which are later superposed and bonded;
the section dividing the base (5) and the cover (6) is in the horizontal (4) part of the solid wood finish (2);
recesses (11) and (12) for the solidity element (8) of the armature (1)are formed on the division planes of the base (5) and the cover (6);
a hole (10) for the connective element (7) of the armature (1) is made in the perpendicular part (3) (the base (5)).of the solid wood finish (2).

2. A handle according to claim 1
characterized in that
the recess (11) for the solidity element (8) of the armature (1) is formed on the division plane of the base (5).

3. A handle according to claims 1 and 2
characterized in that
the recess (12) for the solidity element (8) of the armature (1) is formed on the division plane of the cover (6).

4. A handle according to claims 1-3
characterized in that
the dividing section of the base (5) and cover (6) of the solid wood finish (2) is rectilinear or curvilinear.

5. A handle according to claims 1-4
characterized in that
the dividing section of the base (5) and cover (6) of the solid wood finish (2) is vertical.

6. A handle according to claims 1-5
characterized in that
the dividing section of the base (5) and cover (6) of the solid wood finish (2) is oblique and coincides with the diagonal of the cross-section of the horizontal part of the handle.

7. A method of the manufacturing of the handle consisting in processing the solid wood finish (2) and mounting the armature (1) **characterized in that:**

the solid wood blank is mechanically cut;
a blind hole (10) is formed in the perpendicular (3) part of the handle blank;
the blank is divided into the base (5) and the cover (6) by cutting it along the horizontal (4) part of the handle blank;
recesses (11) and/or (12) are formed on the division planes of the base (5) and/or the cover corresponding to the form of the solidity element (8);
glue is applied to the hole (10) of the base (5) as well as to the division planes of the base (5) and the cover (6);
the connective element (7) of the armature (1) is inserted into the hole (10) of the base (5), the solidity element (8) is superposed with the recesses (11) and/or (12);
the base (5) and the cover (6) are superposed and bonded;
the solid wood finish (2) of the handle is mechanically processed into a final finished shape.

Patentansprüche

1. Ein Türgriff mit Armatur (1) besteht aus dem Verbindungselement (7) und dem Festigkeitselement (8), die in einer unlösbarer oder lösbarer Art verbunden sind und mit Massivholzverkleidung (2) der Senkrechte (3), zum Gebrauch der Senkrechte zum Türblatt und der Horizontalen (4), in Gebrauch der Horizontalen und Parallelen zu den Teilen des Türblättes, **dadurch gekennzeichnet, dass**:

Die Massivholzverkleidung (2) wird in Boden (5) und Deckel (6) getrennt, die später überlagert und geklebt werden;
Der teilende Abschnitt, der den Boden (5) vom Deckel (6) trennt, ist in dem horizontalen Teil (4) der Massivholzverkleidung (2);
Einschnitte (11) und (12) für das Festigkeitselement (8) der Armatur (1) werden durch die Trennflächen des Bodens (5) und des Deckels (6) gebildet;
Ein Loch (10) in der Armatur (1) für das Verbindungselement (7) wird im senkrechten Teil (3) (des Bodens (5)) der Massivholzverkleidung gemacht.

2. Ein Griff gemäß dem Anspruch 1, **dadurch gekennzeichnet, dass** der Einschnitt (11) für das Festigkeitselement (8) der Armatur (1) durch die Trennfläche des Bodens (5) gebildet wird.

3. Ein Griff gemäß den Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass** der Einschnitt (12) für das Festigkeitselement (8) der Armatur (1) durch die Trennfläche des Deckels (6) gebildet wird.

4. Ein Griff gemäß den Ansprüchen 1-3, **dadurch gekennzeichnet, dass** der teilende Abschnitt des Bodens (5) und des Deckel (6) der Massivholzverklei-

dung gradlinig oder gekrümmt ist.

5. Ein Griff gemäß den Ansprüchen 1-4, **dadurch gekennzeichnet, dass** der teilende Abschnitt des Boden (5) und des Deckels (6) der Massivholzverkleidung (2) vertikal ist.

6. Ein Griff gemäß den Ansprüchen 1-5, **dadurch gekennzeichnet, dass** der teilende Abschnitt des Bodens (5) und des Deckels (6) der Massivholzverkleidung (2) eine Quere bildet und mit der Diagonalen der Schnittfläche des horizontales Teiles des Griffes zusammenfällt.

7. Eine Methode zur Herstellung des Griffes, die aus der Verarbeitung der Massivholzverkleidung (2) und der Anbringung der Armatur (1) besteht, **dadurch gekennzeichnet, dass**:

die massive Holzrohling mechanisch geschnitten wird;
ein Sackloch (10) wird im senkrechten Teil (3) des Griffrohlings gebildet;
Der Rohling wird in Boden (5) und Deckel (6) getrennt, indem entlang der Horizontalen (4) des Griffrohlings geschnitten wird;
Einschnitte (11) und/oder (12) werden an den Trennflächen des Bodens (5) und/oder des Deckeln entsprechend der Form des Festigkeitselements (8) gebildet;
Leim findet Anwendung für das Loch (10) des Bodens (5) ebenso für die Teilungsflächen des Bodens (5) und den Deckel (6);
das Verbindungselement (7) der Armatur (1) wird in das Loch (10) des Bodens (5), das Festigkeitselement (8) wird mit den Einschnitten (11) und/oder (12) überlagert;
Der Boden (5) und der Deckel (6) werden überlagert und verbunden;
Die Massivholzverkleidung (2) des Griffs wird mechanisch bis zu ihrer endgültig beendeten Form bearbeitet.

Revendications

1. Une poignée de porte avec armature (1) constituée de l'élément de raccordement (7) et de l'élément de solidité (8), qui sont reliés de manière non-démontable ou démontable, et avec une finition en bois massif (2) constitué de la perpendiculaire (3), en utilisation perpendiculaire à la feuille de la porte et horizontale (4), en utilisation horizontale et parallèle aux parties de la feuille de la porte, **caractérisée en ce que**:

la finition en bois massif (2) est divisée en la coupant dans la base (5) et le revêtement (6), qui sont ensuite superposés et liés;
la section séparant la base (5) et le revêtement (6) est dans la partie horizontale (4) de la finition en bois massif (2);
les renfoncements (11) et (12) pour l'élément de solidité (8) de l'armature (1) sont formés sur les plans de division de la base (5) et le revêtement (6);
un trou (10) pour l'élément de raccordement (7) de l'armature (1) est fabriqué dans la partie perpendiculaire (3) (la base (5)) de la finition en bois massif (2).

2. Une poignée selon la revendication 1 **caractérisée en ce que** le renfoncement (11) pour l'élément de solidité (8) de l'armature (1) est formé sur le plan de division de la base (5).

3. Une poignée selon les revendications 1 et 2 **caractérisée en ce que** le renfoncement (12) pour l'élément de solidité (8) de l'armature (1) est formé sur le plan de division du revêtement (6).

4. Une poignée selon les revendications 1-3 **caractérisée en ce que** la section de division de la base (5) et le revêtement (6) de la finition en bois massif (2) est rectiligne ou curviligne.

5. Une poignée selon les revendications 1-4 **caractérisée en ce que** la section de division de la base (5) et le revêtement (6) de la finition en bois massif (2) est verticale.

6. Une poignée selon les revendications 1-5 **caractérisée en ce que** la section de division de la base (5) et le revêtement (6) de la finition en bois massif (2) est oblique et coïncide avec la diagonale de la section transversale de la partie horizontale de la poignée.

7. Un procédé de fabrication de la poignée composé du traitement de la finition en bois massif (2) et le montage de l'armature (1) **caractérisé en ce que**:

l'ébauche de bois massif est coupée mécaniquement;
un trou borgne (10) est formé dans la partie perpendiculaire (3) de l'ébauche de la poignée;
l'ébauche est divisée dans la base (5) et le revêtement (6) en la coupant le long de la partie horizontale (4) de l'ébauche de la poignée;
les renfoncements (11) et/ou (12) sont formés sur les plans de division de la base (5) et/ou le revêtement correspondant à la forme de l'élément de solidité (8);
la colle est appliquée sur le trou (10) de la base (5) ainsi qu'aux plans de division de la base (5) et le revêtement (6);

l'élément de raccordement (7) de l'armature (1) est inséré dans le trou (10) de la base (5), l'élément de solidité (8) est superposé avec les renfoncements (11) et/ou (12);
la base (5) et le revêtement (6) sont superposés et liés;
la finition en bois massif (2) de la poignée est mécaniquement transformée en une forme finale finie.

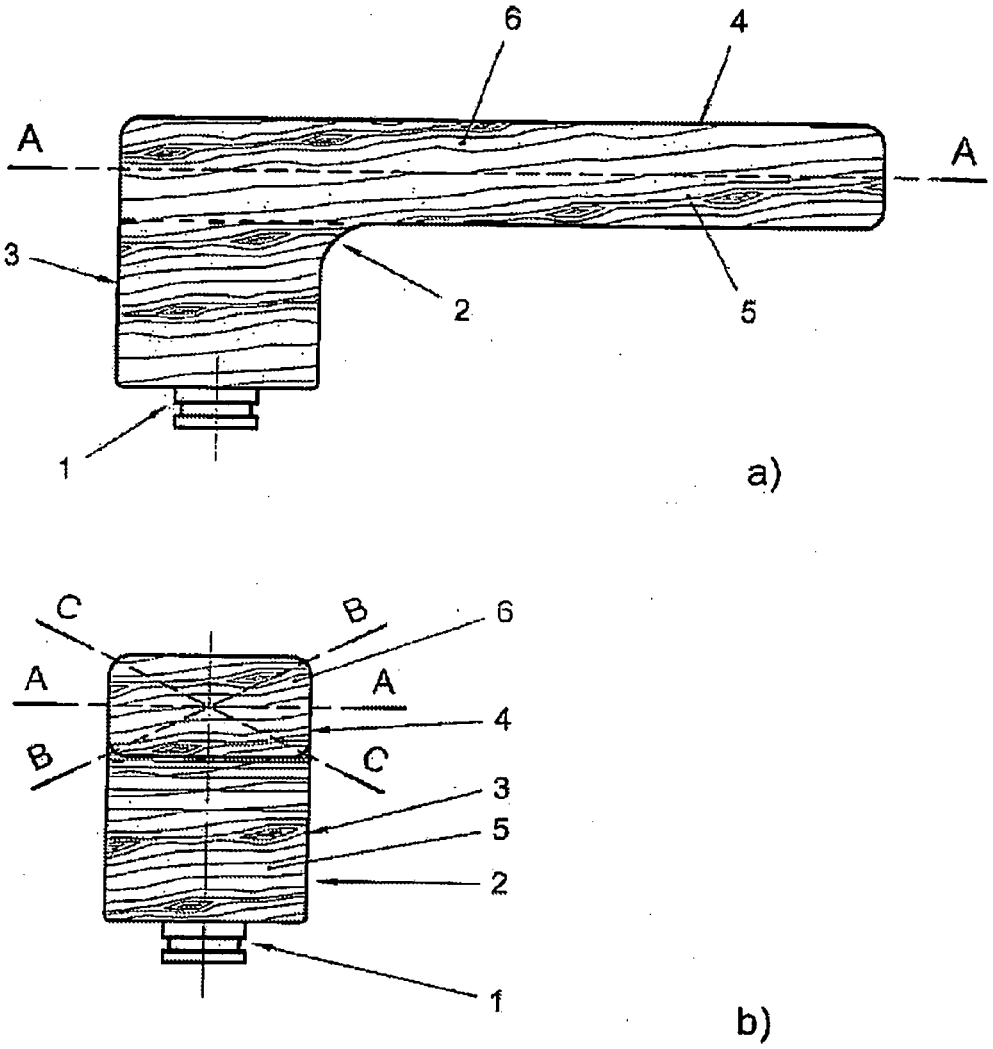

Fig. 1

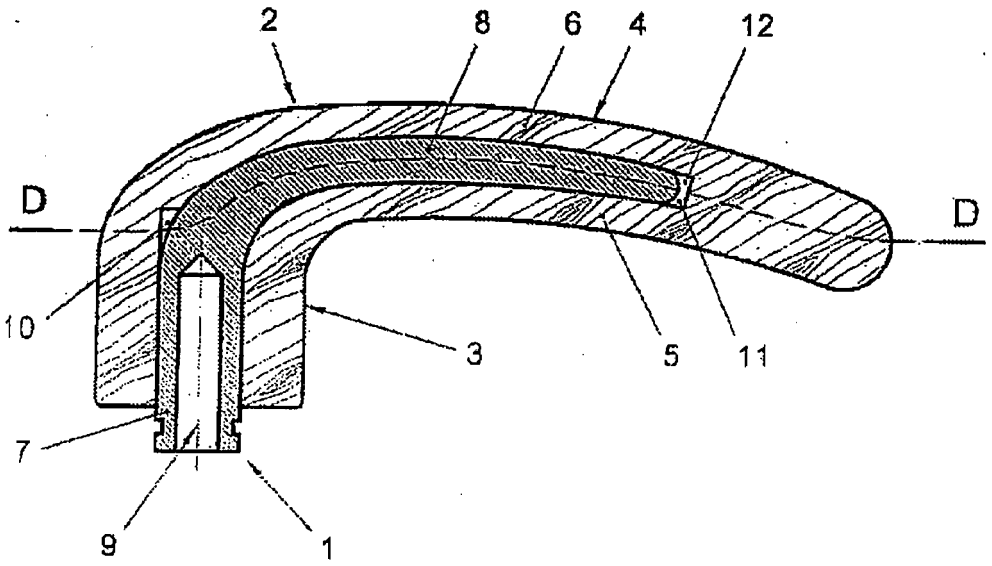

Fig. 2

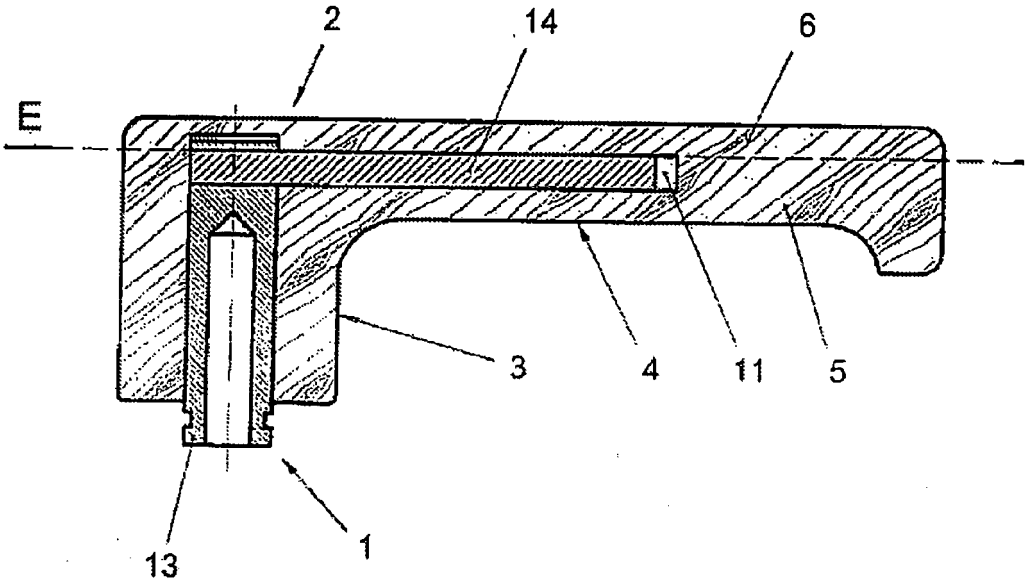

Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 2595935 **[0004]**
- EP 1467046 A **[0008]**