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(54) **Structure of decorative frame for flat sheet door**

(57) A structure of decorative frame for flat sheet door having a cross section formed with a depressed central portion and two raised sides, and having connecting-sleeves and plug-tubes integrally formed on the back side and positioned symmetrically with respect to the longitudinal center line of the decorative frame of which the plug-tube functions as tenon and the connecting-sleeve

functions as mortise, so that two identical decorative frames shall be joined together and securely installed on the flat sheet door simply by inserting the plug-tube into the corresponding connecting-sleeve from opposite side of the flat sheet door to form a complete decorative frame with three-dimensional decorative effect.

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Description**BRIEF DESCRIPTION OF THE DRAWING FIGURES****BACKGROUND OF THE PRESENT INVENTION****[0007]****1. Field of the Present Invention**

[0001] The invention relates a structure of decorative frame (or called raised panel) for flat sheet door, particularly the structure formed by two identical decorative frames which are joined together from the opposite side of the door panel.

2. Description of Prior Art

[0002] As shown in Figure 1 is the door panel (11) of the traditional molded door (10). Since this type of traditional door is produced by compression forming technique, the frame-shaped decorative pattern can be made integrally on the door panel by applying the compression forming technique to make the door more beautiful with dignified air.

[0003] However, since the thickness of the material of traditional molded door panel (11) is only as small as 1 to 4 mm, the restriction due to the smaller thickness of door panel material has resulted in the drawback that the frame-shaped decorative pattern is always formed by depressed stripe pattern, and is unable to be formed by raised stripe pattern to display a satisfied three-dimensional effect in door panel decoration.

SUMMARY OF THE PRESENT INVENTION

[0004] In order to eliminate the aforesaid drawback a decorative frame for molded door panel is disclosed by the invention which can be installed on the flat sheet door simply by using tenon joint means provided by the decorative frame to enable a strong three-dimensional effect to the raised decorative pattern.

[0005] Therefore, the major purpose of the invention is to provide a structure of decorative frame for flat sheet door which has the connecting-sleeves and plug-tubes integrally formed on the back side of the decorative frame functioned as the mortise and tenon respectively, particularly the structure formed by two identical decorative frames which can be securely joined together, and installed on the flat sheet door from the opposite side by means of tenon joint to form a complete unit of decorative frame having three-dimensional effect that can save installation time and reduce labor cost.

[0006] Another purpose of the invention is to provide a decorative frame structure of which two identical decorative frames can be joined together by means of tenon joint so as to reduce the packing size to the minimal level to achieve the most effective packing for transportation and reduce the transportation cost.

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Figure 1 is the schematic drawing of the traditional molded door (10) having depressed decorative pattern made by integral molding technique.

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Figure 2 is the schematic drawing of the decorative frame (40) or (40a) of the invention installed on the flat sheet door (30) to construct a raised decorative pattern with strong three-dimensional effect.

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Figure 3 is the disassembly drawing showing the decorative frame (40) or (40a) of the invention which can be installed on the flat sheet door (30) from opposite side, and joined together to form raised decorative pattern.

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Figure 4 is the partial cross sectional drawing showing the use of the decorative frame (40) or (40a) of the invention which is installed on the flat sheet door (30) to form raised decorative pattern.

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Figure 5 is the schematic drawing showing the structure of the connecting-sleeve (43) and the plug-tube (44) formed on the back side of the decorative frame (40) or (40a) of the invention.

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Figure 6 is the schematic drawing showing the tenon joint connection of the connecting-sleeve (43) and plug-tube (44) formed on the back side of the decorative frame of the invention.

Figure 7 is the detail of region A in enlarged scale showing the actual use of the decorative frame of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

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[0008] As shown in Figure 2, 3 and 5, the decorative frame (40) or (40a) of the invention is a framed structure (41) having a hollow inner side, and the cross section of the decorative frame (40) or (40a) is provided with rise and fall shape raised on both two sides and depressed on central portion. The outer peripheral contour of the decorative frame (40) or (40a) is shown in Figure 3 which may also be made into other geometric shapes such as square, rectangular, circular, semi-circular, elliptic, arch and diamond.

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[0009] On the back side of the decorative frame structure (41) are provided with connecting-sleeves (43) and plug-tubes (44) which are formed at the depressed central portion, and arranged in such a way that the connecting-sleeves (43) and the plug-tubes (44) formed on the back side of the decorative frame (40) or (40a) are positioned symmetrically with respect to the longitudinal center line (L) of the decorative frame (40) or (40a).

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[0010] For example, if a connecting-sleeve (43) is arranged at a position on the left side of the decorative frame (40) or (40a) with respect to the longitudinal center line (L), then on the right side of the same decorative frame (40) or (40a) with respect to the same center line

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(L) a plug-tube (44) must be arranged at a position corresponding to the position of the aforesaid connecting-sleeve (43). Similarly, if a plug-tube (44) is arranged at a position on the left side of the decorative frame (40) or (40a) with respect to the longitudinal center line (L), then on the right side of the same decorative frame (40) or (40a) with respect to the same center line (L) a connecting-sleeve (43) must be arranged at a position corresponding to the position of the aforesaid plug-tube (44).

[0011] By this arrangement mentioned above, two identical decorative frames (40) or (40a) shall therefore be joined together by means of tenon joint, if the connecting-sleeve (43) on the decorative frame (40) or (40a) is structured to function as the mortise and then the plug-tube (44) on the decorative frame (40) or (40a) is structured to function as tenon, so that the connecting-sleeve (43) and plug-tube (44) on one decorative frame (40) or (40a) are connected to the corresponding plug-tube (44) and connecting-sleeve (43) on another decorative frame (40) or (40a) and two identical decorative frames (40) or (40a) shall be assembled into a complete unit to achieve the most effective transportation and packing.

[0012] As shown in Figure 3 and 5, the connecting-sleeve (43) formed on the back side of the decorative frame (40) or (40a) is a tube shaped sleeve having circular cross section. The inner space of the connecting-sleeve (43) is for holding the plug-tube (44) formed on the back side of another decorative frame (40) or (40a).

[0013] In addition, on the connecting-sleeve (43) a slot mortise (431) is provided to enable the connecting-sleeve (43) to function as the mortise; the plug-tube (44) is also shaped like a tube on which a snap-holder (441) is formed for providing the snap-in connecting function, i.e. the snap-holder (441) has a reverse-hook shaped tenon-head (442) which enables the plug-tube to function as the tenon.

[0014] Therefore, based on the arrangement mentioned above a tenon joint structure shall be achieved by applying the tenon-head (442) of snap-holder (441) of the plug-tube (44) snapped into the slot mortise (431) of the connecting-sleeve (43). As shown in Figure 6, when the plug-tube (44) is inserted into the corresponding connecting-sleeve (43), the tenon-head (442) of the snap-holder (441) shall snap into the slot mortise (431) on the connecting-sleeve (43) to form the condition of tenon joint.

PRACTICAL EMBODIMENT OF THE INVENTION

[0015] As shown in Figure 2 to 4 and in Figure 7, before installing the decorative frame (40) or (40a) a pre-processing of the flat sheet door (30) must be made by cutting mounting groove (32) or (34) on both sides of the flat sheet door (30) according to the outer peripheral contour of the decorative frame (40) or (40a) with depth and width sufficient for accommodating the depressed

central portion as shown in the cross sectional drawing of the decorative frame (40) or (40a) in Figure 7, and having the two raised sides as shown in the cross sectional drawing in Figure 7 closely and securely mounted on the front side (31) and the back side (36) of the flat sheet door (30). In addition, mounting holes (35) are provided in the mounting groove (32) or (34) according to the position of the connecting-sleeve (43) and plug-tube (44) formed on the back side of the decorative frame (40) or (40a) with hole diameter sufficient for the connecting-sleeve (43) to pass through.

[0016] Then install one decorative frame (40) or (40a) of the invention on one side of the flat sheet door (30) by fitting it into the mounting groove (32) or (34) and inserting the plug-tube (44) and connecting-sleeve (43) into the corresponding mounting hole (35). Then push the decorative frame (40) or (40a) all the way down making the two rising sides of the decorative frame (40) or (40a) onto the same surface, for example, onto the panel surface (31), in close contact condition as shown in Figure 7. Then subsequently install another piece of decorative frame (40) or (40a) from the opposite of the flat sheet door (30) by fitting the plug-tube (44) and the connecting-sleeve (43) on the corresponding connecting-sleeve (43) and plug-tube (44) originally mounted on the flat sheet door (30), and then push the decorative frame (40) or (40a) all the way down until the tenon-head (442) on each plug-tube (44) snaps into the slot mortise (431) on the corresponding connecting-sleeve (43) to make the two decorative frames (40) or (40a) and the flat sheet door (30) into the tenon joint condition to complete the installation of the decorative frame (40) or (40a) on both sides (31) and (36) of the flat sheet door (30).

[0017] Since the two decorative frame (40) or (40a) on the front side (31) or back side (36) of the flat sheet door (30) are raise from panel surface, a strong three-dimensional decorative effect on the flat sheet door (30) is therefore achieved.

Claims

1. A structure of decorative frame for flat sheet door having a cross section formed with a depressed central portion and two raised sides, which comprises connecting-sleeves (43) and plug-tubes (44) integrally formed on the back side of the decorative frame (40) or (40a) and positioned symmetrically with respect to the longitudinal center line (L) of the decorative frame (40) or (40a), wherein the connecting-sleeve (43) and plug-tube (44) are structured in such a way that one of them shall be joined to the other by means of tenon joint.
2. The structure of decorative frame for flat sheet door as defined in claim 1, wherein the connecting-sleeves (43) and plug-tubs (44) are integrally formed on the back side of the decorative frame (40)

or (40a), and located at the depressed central position.

3. The structure of decorative frame for flat sheet door as defined in claim 1 or 2, wherein the outer peripheral contour of the decorative frame (40) or (40a) may be shaped into one of the geometric forms of square, rectangular, circular, elliptic, semi-circular, arch and diamond. 5
4. The structure of decorative frame for flat sheet door as defined in claim 1, 2 or 3, wherein the connecting-sleeve (43) has the structure functioned as mortise with slot mortise (431) formed on the tube wall, and the plug-tube (44) has the structure functioned as tenon with a snap-holder (441) formed on the tube wall for snapping into the slot mortise (431). 10 15
5. The structure of decorative frame for flat sheet door as defined in claim 4, wherein the snap-holder (441) has a reverse-hook shaped tenon-head (442) for snapping into the slot mortise (431). 20

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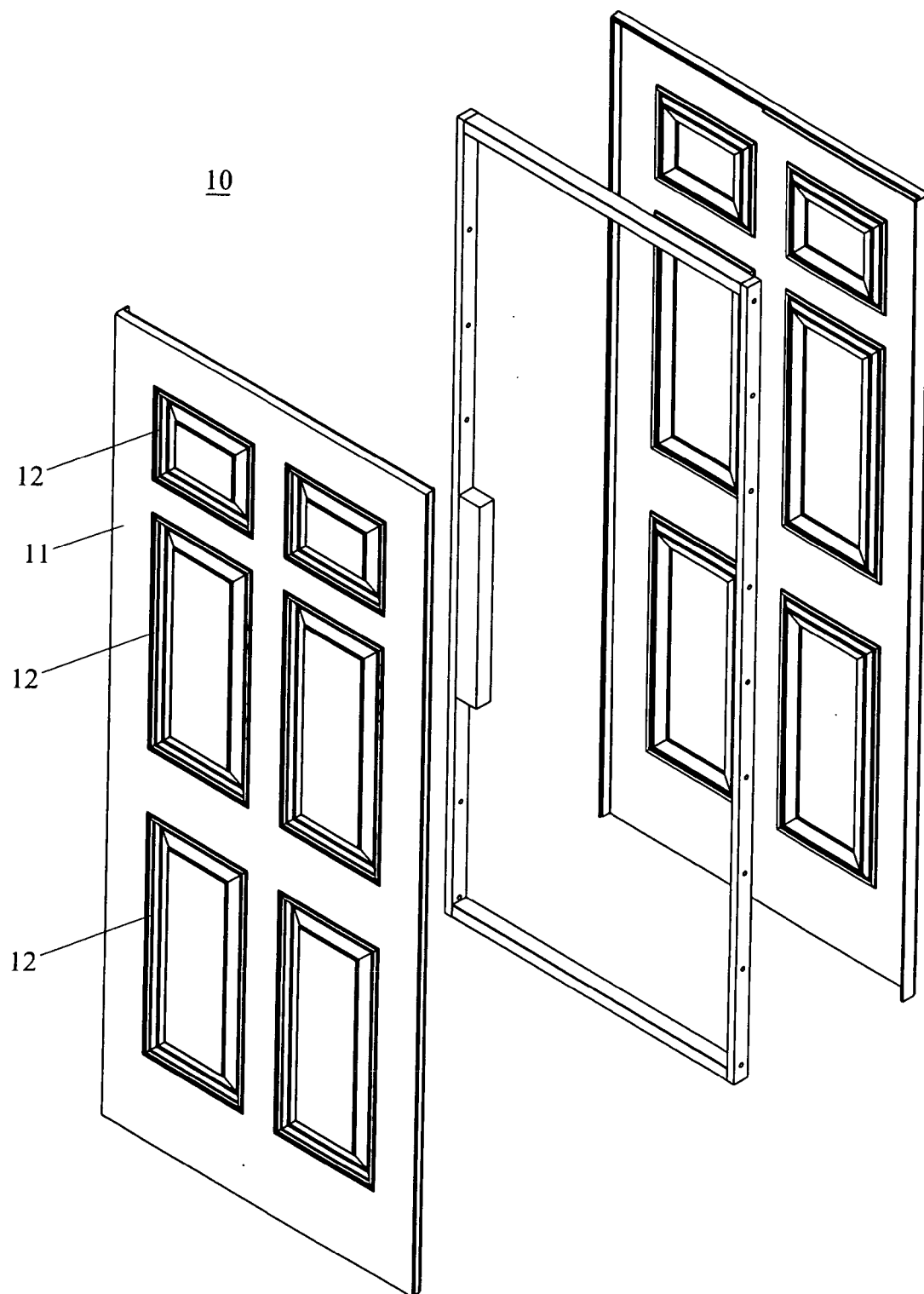


FIG. 1

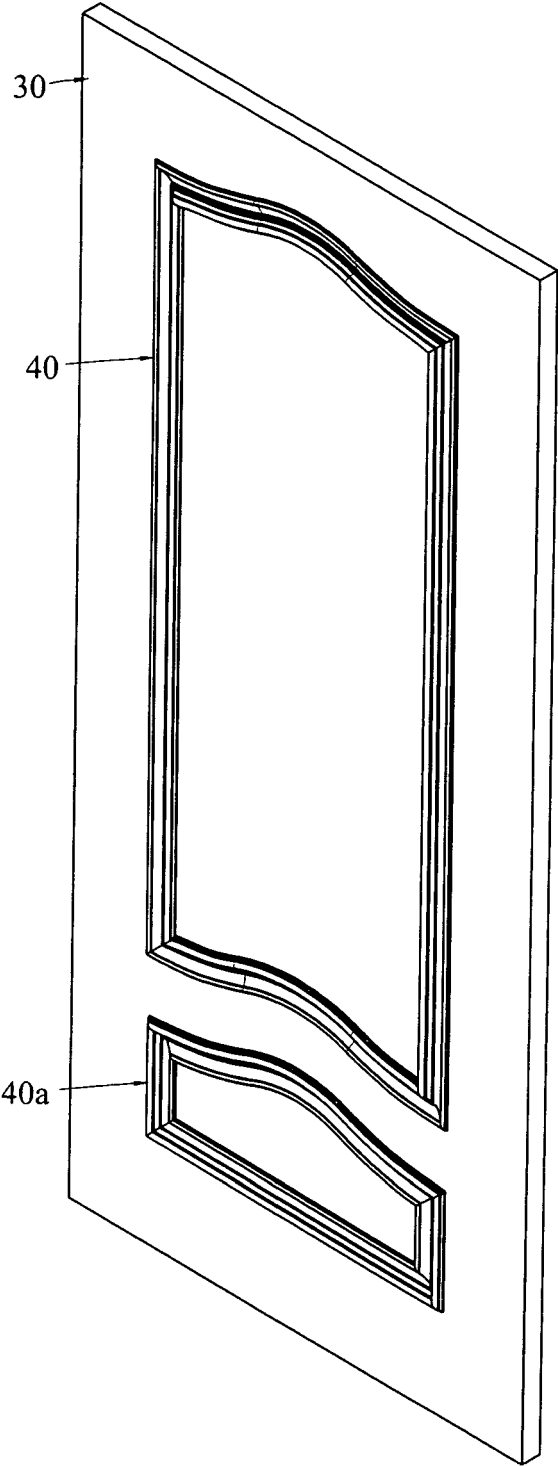


FIG. 2

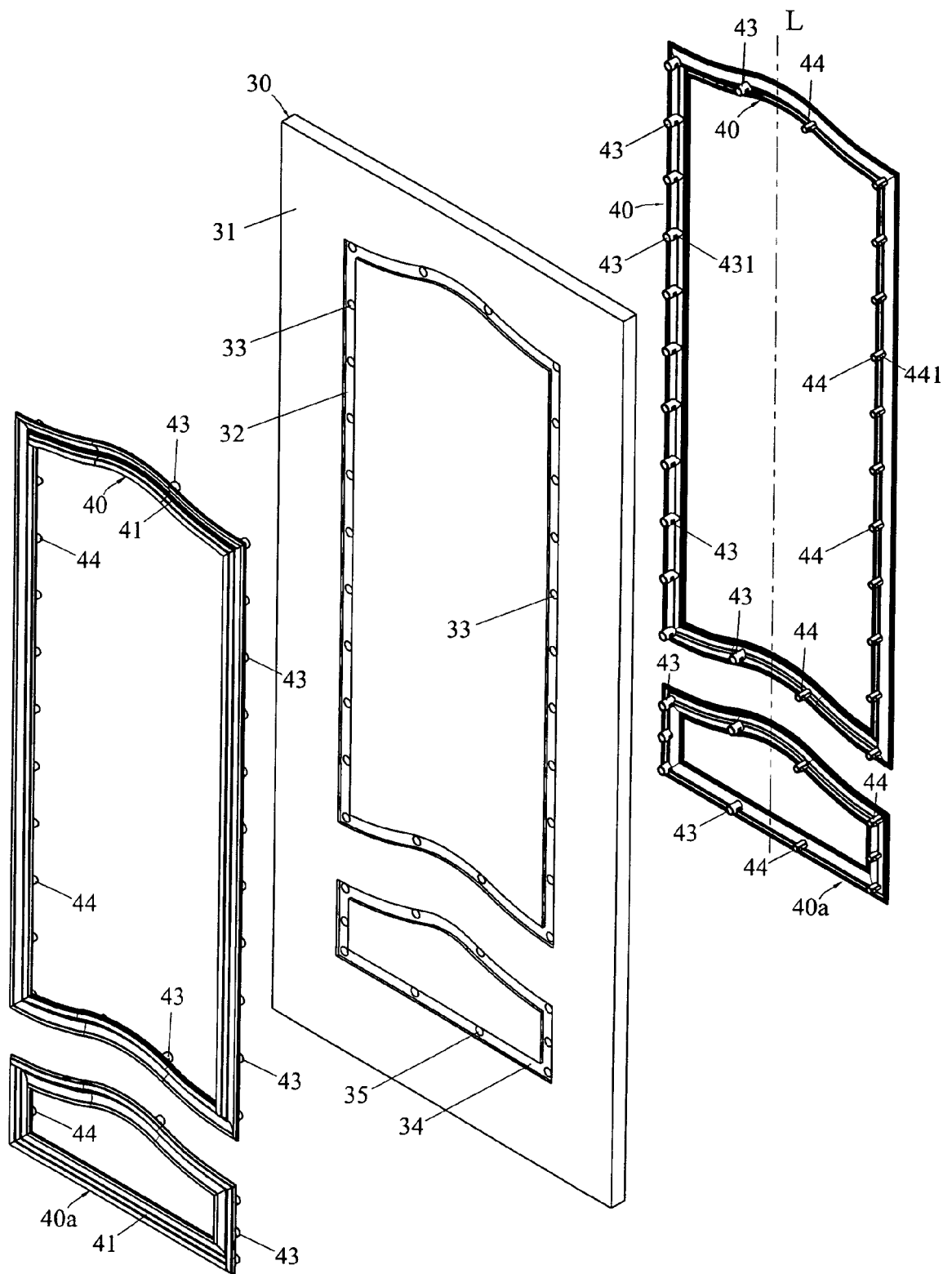


FIG. 3

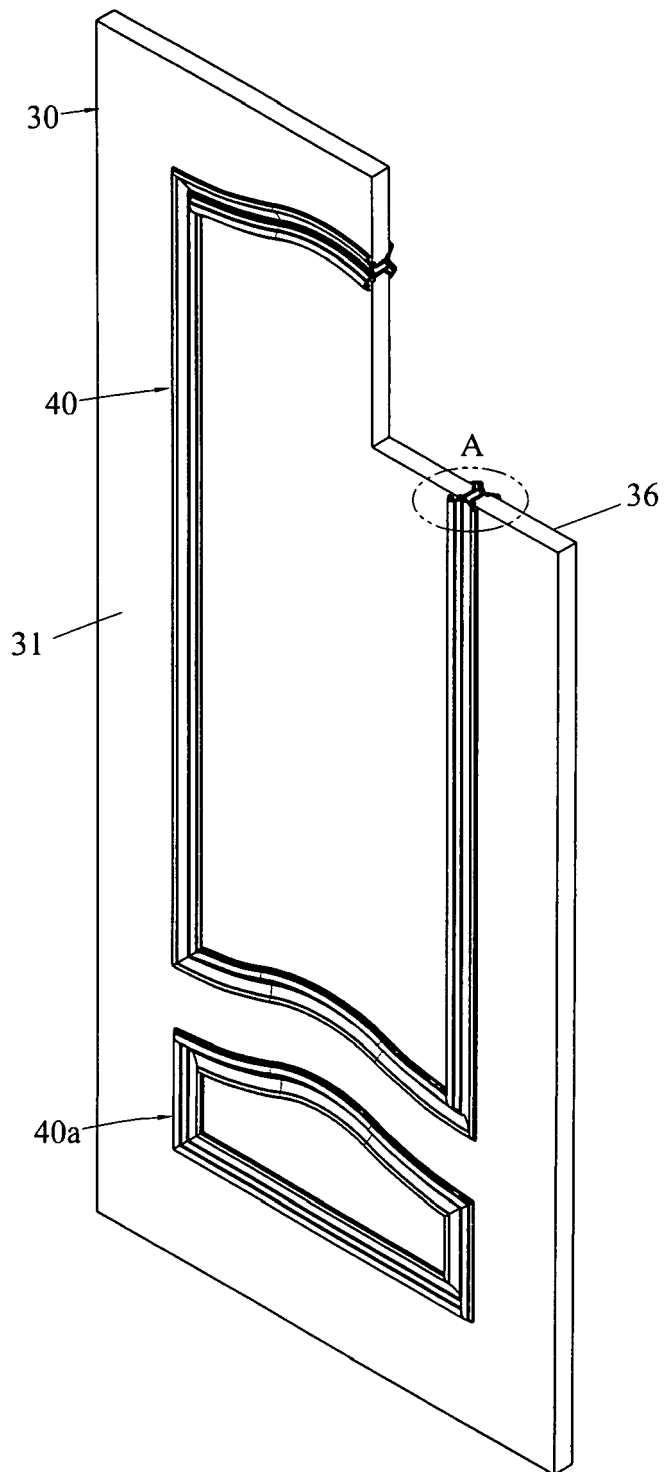


FIG. 4

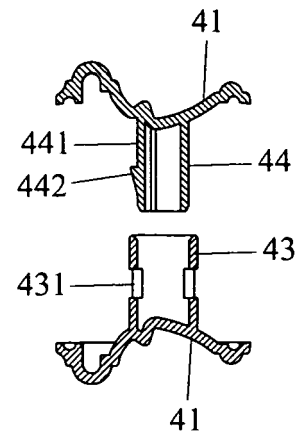


FIG. 5

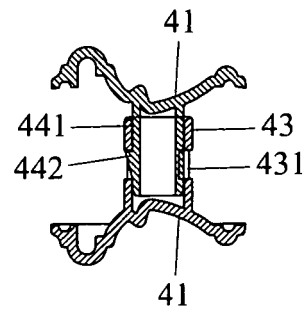


FIG. 6

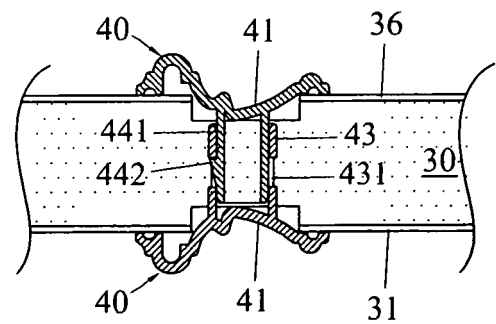


FIG. 7



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EUROPEAN SEARCH REPORT

Application Number
EP 04 02 4252

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 2003/115811 A1 (SIBBETT PETER) 26 June 2003 (2003-06-26) * figure 4 *	1-5	E06B3/58
A	----- EP 1 310 625 A (NAN YA PLASTICS CORP) 14 May 2003 (2003-05-14) * figure 3 *	4,5	
A	----- US 2003/019178 A1 (WANG CHEN KUEI YUNG) 30 January 2003 (2003-01-30) * figure 3 *	4,5	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E06B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 March 2005	Examiner Verdonck, B
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			

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

EP 04 02 4252

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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07-03-2005

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