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(12) # EUROPEAN PATENT APPLICATION

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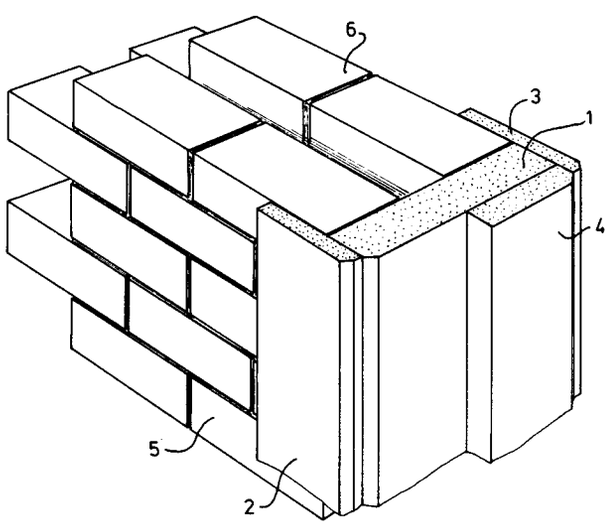
(54) **Window frame construction.**

(57) It comprises a wooden construction enclosing the wall with a part (1) extending over the thickness of said wall, and at least one part (2,3) connecting thereto and resting against the wall. The part extending over the thickness of the wall comprises a wood material which is not solid, such as a board material, and in particular a fibreboard material. The construction can produce a finished wall.

fig-1



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The present invention relates to a window frame construction, one side of which is exposed to weather conditions, comprising vertical and horizontal parts, at least the horizontal parts being provided with a bevel, and the horizontal and vertical parts being constructed of bonded wooden elements.

Such a construction is known from DE-B-1,133,107. In this case a plastic section provided on the inside with a number of adjoining solid wood blocks is used as the outer boundary.

On account of the maintenance costs, increasingly high standards are now being set for wood which is to be used for window frames and the like. These higher standards are being met by using alternative materials. Examples of these are hardwood, plastic and aluminium. The disadvantage of hardwood is that felling tropical forests is no longer considered acceptable. There are environmental problems with plastic, while the use of aluminium frames is expensive and energy-intensive.

Efforts have therefore been made to improve conventional wood materials such as pine. Various authorities have stipulated that the number of defects in wood per unit length must not exceed a certain value. These defects include knots, knarls, gum veins and the like. Attempts have been made to remove defects from the material by cutting pieces out of beams and gluing together the remaining parts of the beams with, for example, a finger joint. Such a connection does lead to the desired result that a reduced number of defects per linear metre is obtained, but it has the disadvantage that this method is expensive and a relatively large amount of waste is produced. This means that an unacceptable quantity of timber must be felled for obtaining window frames. If the width to be bridged - determined by the thickness of the wall - was relatively small, there were not too many problems until now with regard to the availability of the jamb-sill part. If, however, this width increases, it automatically means that either the wooden part must be wider, and is therefore more difficult to obtain, or this wooden part is made up of different parts, which is laborious.

The construction according to DE-B-1,133,107 does provide a solution to the width problem, but the use of plastics constitutes an environmental objection. Besides, it is not possible in the construction shown therein to make adjustments on site, because it is very conceivable that planing or the like will go through the plastic layer. Furthermore, considerable mould costs are involved in the construction shown there.

The object of the invention is to provide a window frame construction which does not have the disadvantages described above, with which it is possible to bridge a greater wall thickness without problems, and in the case of which environmentally friendly materials with good durability can be used as the starting materials.

This object is achieved in the case of a frame construction of the type described above in that the wooden elements form the outer boundary of the vertical and horizontal elements and are made of a board material comprising wood fibres and adhesive which is weather-resistant on all sides.

The invention is based on the realisation that it is not necessary at all to use a solid wood part, i.e. a part with the structure corresponding to that occurring in the tree, for achieving a jamb or sill. In particular, there is no problem at all in using board material for such jambs and sills. Such board materials can comprise any wood-based board materials known in the state of the art. Examples are: plywood and chipboard. The disadvantage of plywood is, however, that its end faces, which are exposed to the outside air, require a special finish. In certain circumstances this cannot be desirable. Chipboard is not sufficiently weather-resistant in certain circumstances. The use of a board material which is weather-resistant on all sides means that it is possible to make adjustments on site without the weather-resistant features being adversely affected as a result. With the construction according to the present invention it is possible to achieve all kinds of variations and adjustments cheaply, and all this can be carried out on site. Expensive moulds are no longer necessary.

It is pointed out that a construction for a door frame is known from WO-A-86/01557. This construction is made of parts glued together. However, a board material which is not weather-resistant and is provided with a sealing veneer to achieve weather resistance is used. Any working will immediately lead to the construction shown there no longer being weatherproof. This applies in particular to bevels of the type found in horizontal elements, and more particularly in the case of window frames, in window breasts and the like. Such a construction cannot be achieved with the structure according to the PCT publication. In the construction according to DE-A-2,227,825 the wood parts exposed to the weather are also provided with a protective covering.

The above-mentioned fibreboard is a compressed and cured mixture of wood fibres and adhesive. Examples of the adhesive are urea melamine adhesive and tannin adhesive. These materials are decomposable in an environmentally friendly way, so that problems existing in the case of PVC plastic window frames in particular are not present here. Such fibreboards have particularly good weather resistance and sufficient strength to be suitable for use as wood material for window frames. Such materials are easy to paint and absorb moisture well. Moreover, it is easy to screw into these boards, and the firmness of the

fixed screws is comparable to that of conventional "solid" wood.

The invention also relates to a method for producing a window frame construction of the type indicated above, in which a jamb or sill part is removed from a larger board, for example by sawing or milling. The frame can be made up by simply connecting different parts taken from a larger board of wood material. Such a connection can comprise adhering.

The invention will be explained in greater detail below with reference to an example of an embodiment shown in the drawing, in which:

Fig. 1 shows, partially in cross-section, a jamb according to the invention fitted in a wall;

Fig. 2 shows, cut away, the construction of a corner of a jamb/window head, in which for the sake of clarity the wall is not shown; and

Fig. 3 shows a cross-section of a sill member.

Fig. 1 shows a part of a window frame construction according to the invention, and more particularly the jamb. This construction comprises the actual jamb 1, provided with laths 2 and 3 and a rebate listel 4. This construction is fitted in a cavity, the wall parts of which are indicated by 5 and 6. Jamb 1 according to the invention is made of a piece of board material. A preferred board material is a fibreboard material, for example MDF boards, composed of wood fibre material with tannin-based adhesive. Such boards can have dimensions of, for example, 3.66 m x 1.83 m. Owing to the size of such boards it is possible to produce any size of jamb 1 through sawing, without it being necessary - as in the state of the art with solid wood parts - to build up jamb 1 from different parts in the case of wider cavities. Apart from jamb 1, the remaining parts shown in Fig. 1 can, of course, also be made of fibreboard material.

Examples of the properties of MDF boards are as follows:

Table

Board properties:	
Board thickness	12, 16,, 22 and 30 mm
Density	7500 N/m^3
Bending strength	30.0 N/mm^2
Tensile strength crosswise	70 N/cm^2
Screw firmness, surface	30 N/mm^2
Screw firmness, side	11.5 N/mm^2
Modulus of elasticity	2500 N/mm^2
Moisture content	8%

Standards for such boards are to be found in American standard NPA-4-73.

Fig. 2 shows the fixing of a window head, indicated in its entirety by 7, and a jamb 8 is shown. Holes 11, in which pins 12 are placed for the connection, are provided in both jamb 9 and window head 10. A particularly strong frame construction can be obtained in this way simply by gluing together. Jamb and window head are provided at one side with flat pieces and at the other side with head listels, with the result that the frame can recede relative to the outside of the wall (reveal).

Fig. 3 shows a cross-section of the sill member, which also provides window sill 13, with a finishing listel 14 and rebate listel 15.

It can be seen from the combination of Figures 1, 2 and 3 that a wall opening is finished completely by the frame construction, irrespective of the wall thickness.

Although the invention is described above with reference to a preferred embodiment, it must be understood that numerous modifications can be made to it without going beyond the scope of the present application. For example, it is possible to achieve the structure of both the jamb and the sill using parts adjoining each other in a different way. It is also possible through milling to produce a recess in the jamb or the sill for accommodation in the wall, so that lateral strips are no longer needed. All that is important for the invention is that jamb or sill are made from a wood material which is not solid wood and can thereby achieve a completely finished wall opening.

Claims

1. Frame construction, one side of which is exposed to weather conditions, comprising vertical and horizontal parts, at least the horizontal parts being provided with a bevel, and the horizontal and vertical parts being constructed of bonded wooden elements, characterised in that the wooden elements (1 - 4)

form the outer boundary of the vertical and horizontal elements and are made of a board material comprising wood fibres and adhesive which is weather-resistant on all sides.

2. Frame construction according to Claim 1, in which the board material comprises a homogeneously compressed mixture of adhesive material and wood particles.

3. Frame construction according to Claim 2, in which the board material comprises fibreboard.

4. Frame construction according to any of the preceding claims, in which the part extending over the thickness of the wall is integral with a window sill.

5. Method for producing at least a part of a wooden window frame construction extending over the thickness of the adjoining wall part, characterised in that this method comprises providing a board of wood material which is not solid and removing said part from it.

6. Method according to Claim 7, in which the construction is built up by merely connecting different parts to each other.

7. Method according to Claim 8, in which the connection comprises adhesives.

fig-1

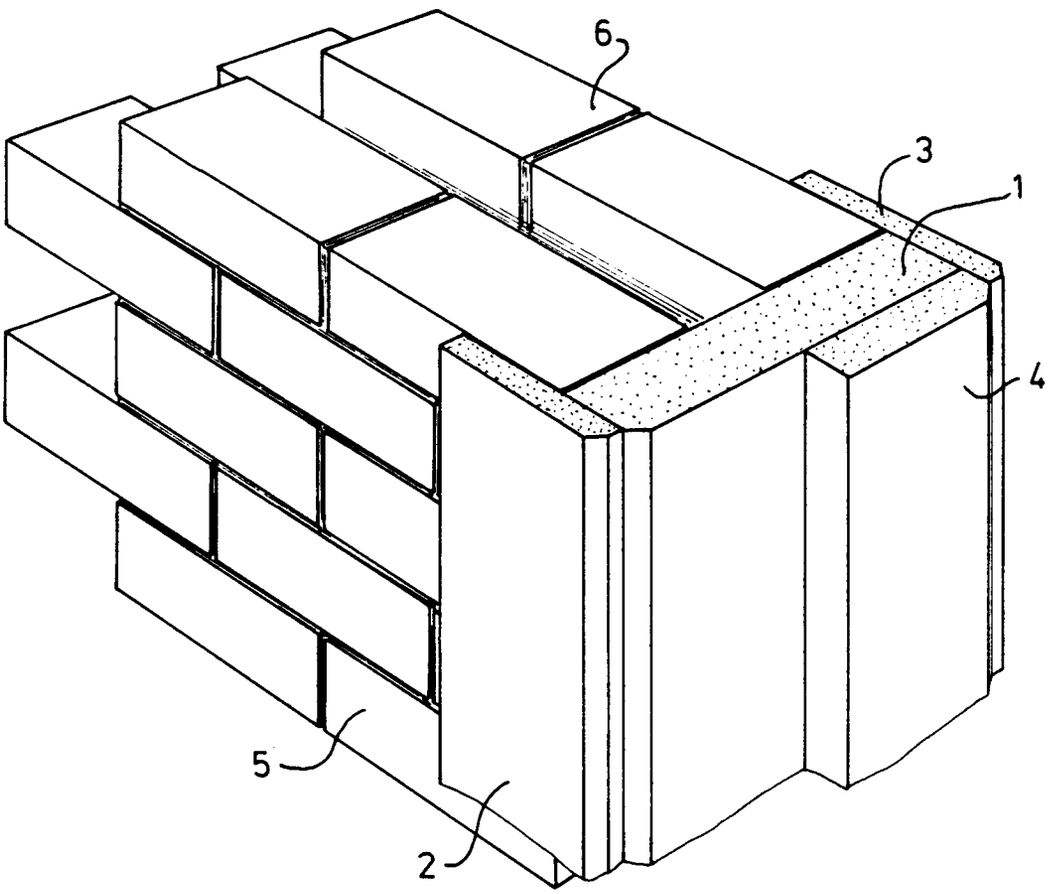


Fig-2

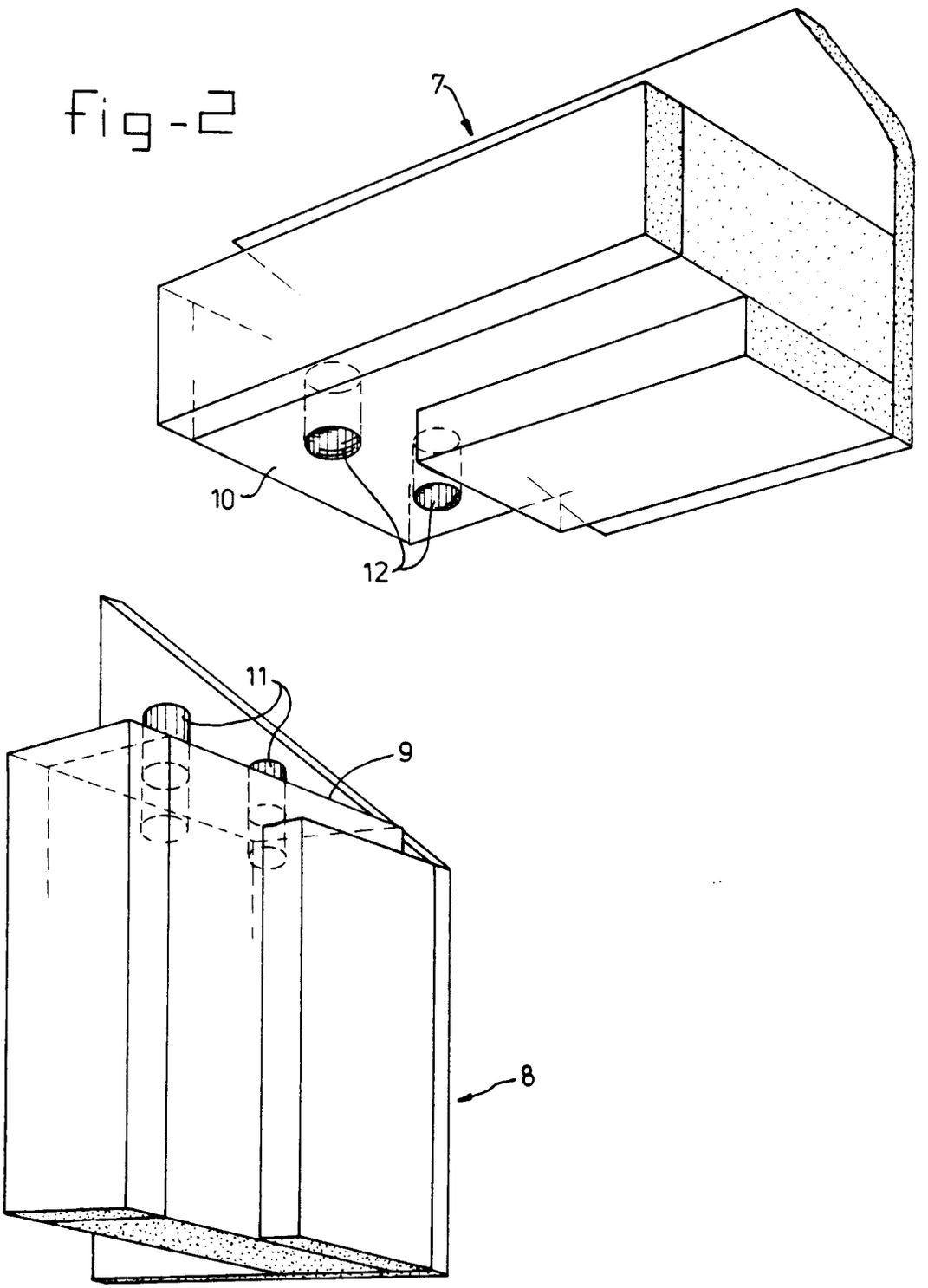
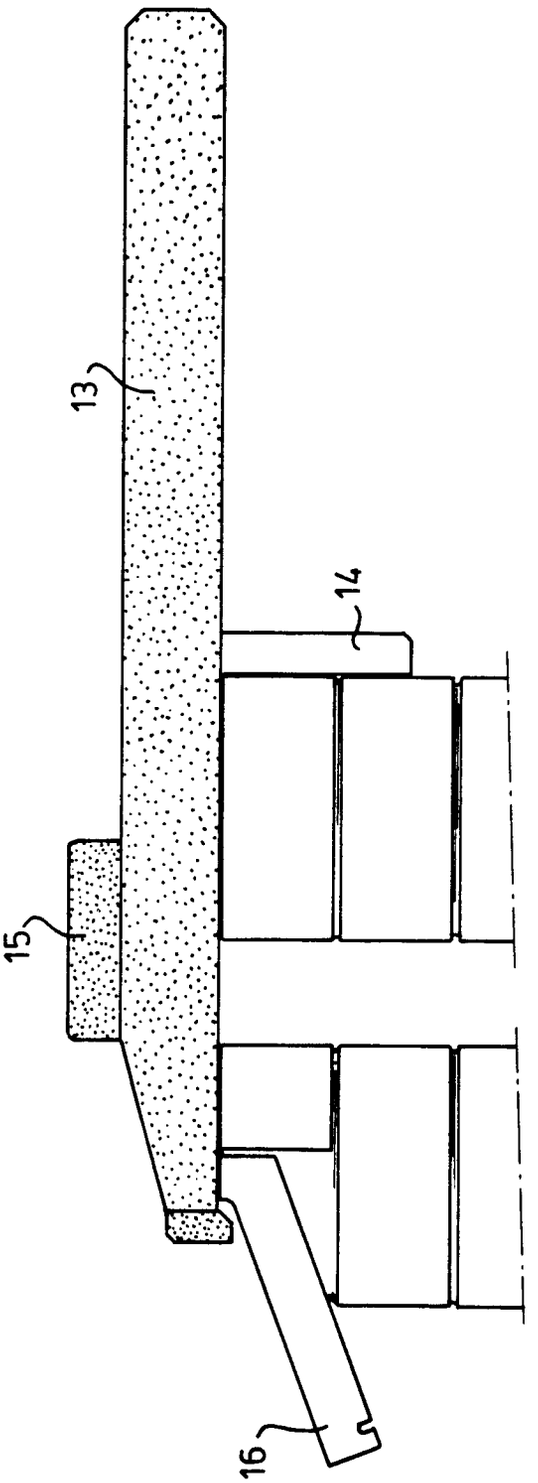


Fig-3



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EUROPEAN SEARCH REPORT

Application Number

EP 92 20 1028

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.5)
X Y	EP-A-0 059 916 (KELLER) * page 1, paragraph 1 - page 3, paragraph 1 * * page 4, line 24 - page 5, line 33; figure * ---	1-3,5-7 4	E06B1/08
X	BE-A-520 654 (JASINSKI) * page 1, line 1 - page 3, line 49; figures * ---	1,5-7	
D,A	WO-A-8 601 557 (NOREMA) * the whole document * ---	1-3,5-7	
D,A	DE-A-2 227 825 (HANNIG) * the whole document * ---	1-3,5-7	
D,Y	DE-B-1 133 107 (WILH. FRANK) * column 1, line 10 - line 33; figure * ---	4	
A	DE-U-1 747 205 (RITTER) * page 4, paragraph 2; figures * ---	1-7	
A	BE-A-542 568 (VAN WYNSBERGHE) * the whole document * -----	1-3	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	24 JULY 1992	DEPOORTER F.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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