

Description

[0001] This invention concerns composite profiles of wood and aluminium for the construction of so-called continuous facade structures in accordance with the preamble to the principal claims.

[0002] One of the problems faced by the construction of structures with continuous facades is that of coplanarity of the seal at junctions between cross-members and uprights.

[0003] In a typical example of composite profiles made for this purpose according to known techniques, the profiled wooden element is backed with a first part of the profiled element of made of aluminium (such elements are also referred to below by the abbreviated term of profiles), fixed to the wood to form the support and attachment base for the seal. At junction points between uprights and cross-members, open ducts have to be provided in the aluminium profile to collect and discharge condensate water and provide bridges to restate continuity of a central rib structure on the aforesaid first part of the aluminium profile and then apply the seal to this assembly.

[0004] This constructional method is relatively costly and complex. The overall number of components is high and good experience in assembly is necessary in order to ensure that assembly is carried out correctly.

[0005] The problem on which this invention is based is to produce composite profiles of wood and aluminium that are particularly suitable for building structures with a continuous facade which are structurally and functionally designed to resolve all the disadvantages criticised in the aforementioned known technique.

[0006] This problem is resolved by the invention by means of composite profiles made in accordance with the claims which follow.

The characteristics and advantages of the invention can be determined more clearly from the detailed description which follows of some preferred examples of construction as illustrated which are given as an indication but are not considered limitative with reference to the attached drawings in which:

- Figures 1 and 2 are section views respectively of an upright profile and a cross-member profile made in accordance with the present invention;
- Figure 3 is a transverse sectional view on enlarged scale of the first seal applied to the profiles in the preceding Figures;
- Figures 4 and 5 are perspective views of the lower part of two joints of the first seal;
- Figures 6 and 7 are perspective views of two possible seal arrangements, respectively, formed in situ and with vulcanized frames.

[0007] In Figures 1 and 2, references 1 and 2 relate overall to two composite profiles, of an upright and cross-member respectively, made in accordance with this invention. Profiles 1 and 2 differ essentially in the dimensions of the profiled wooden elements and by the fact that in the cross-member profiles, passages are provided, reference P, for collecting, conveying and discharging condensation. In view of this substantial structural similarity, only one of these profiles is describe in detail and the elements common to both are distinguished by the said numerical references.

[0008] The composite profile 1 comprises a first profile element 10 made of wood, a second profile element 11 made of aluminium, a first seal 12 inserted between the wooden profile and the aluminium profile and a second pair of seals 13 fitted to the aluminium profile. An infill panel 14, for example a glass chamber, is contained between seals 12 and 13.

[0009] The body of the first wooden profiled element is essentially parallelepiped in form with a surface 15 in which there are two parallel grooves 16. The conformation of the first seal 12, in the sections between adjacent joints of the structure, is as a tape-like strip developed largely longitudinally with a projecting lip 19 along both its opposite edges. This strip has an initial surface 17 bearing directly on the surface 15 of the wooden profile and, on the opposite side, has a seating 18 formed between the two lips 19. Two parallel appendices 22 project from the bearing surface 17 which are accommodated in the respective grooves 16 to assist the first seal 12 in gripping to the wooden profile 10.

[0010] The seating 18 receives a fin 20 of an initial part 21 of the aluminium profile 11, which is fixed to the wooden profile by means of driven screws 21a with which this part and the first seal 12 are fixed to the wooden profile.

[0011] The first part 21 also has a web 23 with an associated longitudinal groove 25 designed to take the threaded end of the screws 26.

[0012] At the root of the web 23 there are two toothed formations 27 in which the same number of teeth engage, under conditions of reciprocal grip, at the free end of the two fins 28 of a second part 29, of "H" section, of the profile 11. The second part 29 is contained between the first part 21 and a third part 30 of the profile 11 and is preferably made of a heat-insulating material so that the aluminium profile 11 has heat shear characteristics.

[0013] The three parts 21, 29 and 30 of the aluminium profile are held together with the others by means of the screws 26. The third part 30 holds the second pair of seals 13 and may preferably be protected externally by a snap-on cover 32.

[0014] Two joints are provided, one cross type 33 (Figure 4) and one rectangular 34 (Figure 5) respectively, together with the first seal element, to complete this assembly opposite the joints between the cross-members and uprights.

[0015] In section the joints have the same geometry

as the straight strip section of the first seal and the corresponding parts are identified by the same names and same numerical references. Looked at in plan view from the bottom, the two joints are characterised by the presence of deep incisions 35 that do not pass right through, to form lines of weakness for preferential rupture, developed according to substantially median planes of the said joints.

[0016] These incisions 35 demarcate four parts 33a, b, c, d of the cross-type joint 33, which are separable from each other, whilst the rectangular joint has two separable parts, denoted by 34a and b.

[0017] Two pairs of appendices 36 project from the end of each joint 33, 34, which can be coupled to insert into the same number of cavities 37 in the tape-like strip of the first seal element to form stable, perfectly aligned couplings.

[0018] By this method it is possible to construct seals with several joints or frames formed in situ (Fig. 6), which is particularly useful where adjustments have to be made in situ, and also frames in which the seal components are joined together by vulcanization carried out in the workshop (Fig. 7), which is useful when frame measurements are standardised and can be predetermined with precision.

[0019] The invention thus solves the problem stated offering major advantages compared to the known technique.

[0020] In particular, the assembly of surfaces with continuous facades is simplified, thus also guaranteeing good coplanarity of the infill panels. Secondly, the system can also be assembled by personnel with little expertise and guarantee proper disposal of condensation water.

Claims

1. Composite profiles of wood and aluminium for the construction of so-called continuous facade structures, comprising at least one wooden profile element and at least one aluminium profile element assembled together to form uprights and cross-members of the said structure, these profile elements being designed for the assembly of a seal defining a bearing surface for an infill element, this seal including a tape-like strip of predominantly longitudinal development with a lip along at least one of its opposite edges, coplanar with the said bearing surface, whereby this seal has, on the part opposite this lip, an initial surface bearing directly on the said wooden profile and, on the opposite side, has a seating that is adjacent and parallel to the said lip, designed to take a fin of the first part of the said aluminium profile.
2. Composite profiles as per claim 1 in which the said seal is fixed to the said wooden profile by means of screws that act between the said wooden profile and the said fin, this seal having a gripping device projecting from this first surface and engaging in a counter-grip on the said wooden profile.
3. Composite profiles as per claim 1 or 2, in which the first part of the aluminium profile has a web substantially rectangular in shape extending from this fin and profiled to be housed and held between the facing fins of a second part of the aluminium profile, of "H" section, this second part being contained between the first part and a third part of the aluminium profile.
4. Composite profiles as per claim 3 in which the second part of the aluminium profile has a heat shear thermal insulating element.
5. Composite profiles as per one or more of the above claims in which the said seal comprises a joint element that can be applied opposite the joints between uprights and cross-members, this joint element comprising at least two sections of the said strip converging to form a rectangle with each other without continuity at least alongside the said lip.
6. Composite profiles as per claim 5 in which the said joint element is an L-joint.
7. Composite profiles as per claim 5 in which the said joint element is a cross joint.
8. Composite profiles as per claim 5, 6 or 7 in which the said joint element comprises at least two parts that are separable along a substantially median plane.
9. Composite profiles as per claim 8 in which the said joint element has a line of weakness for preferential rupture corresponding to the said median plane.

Fig. 1

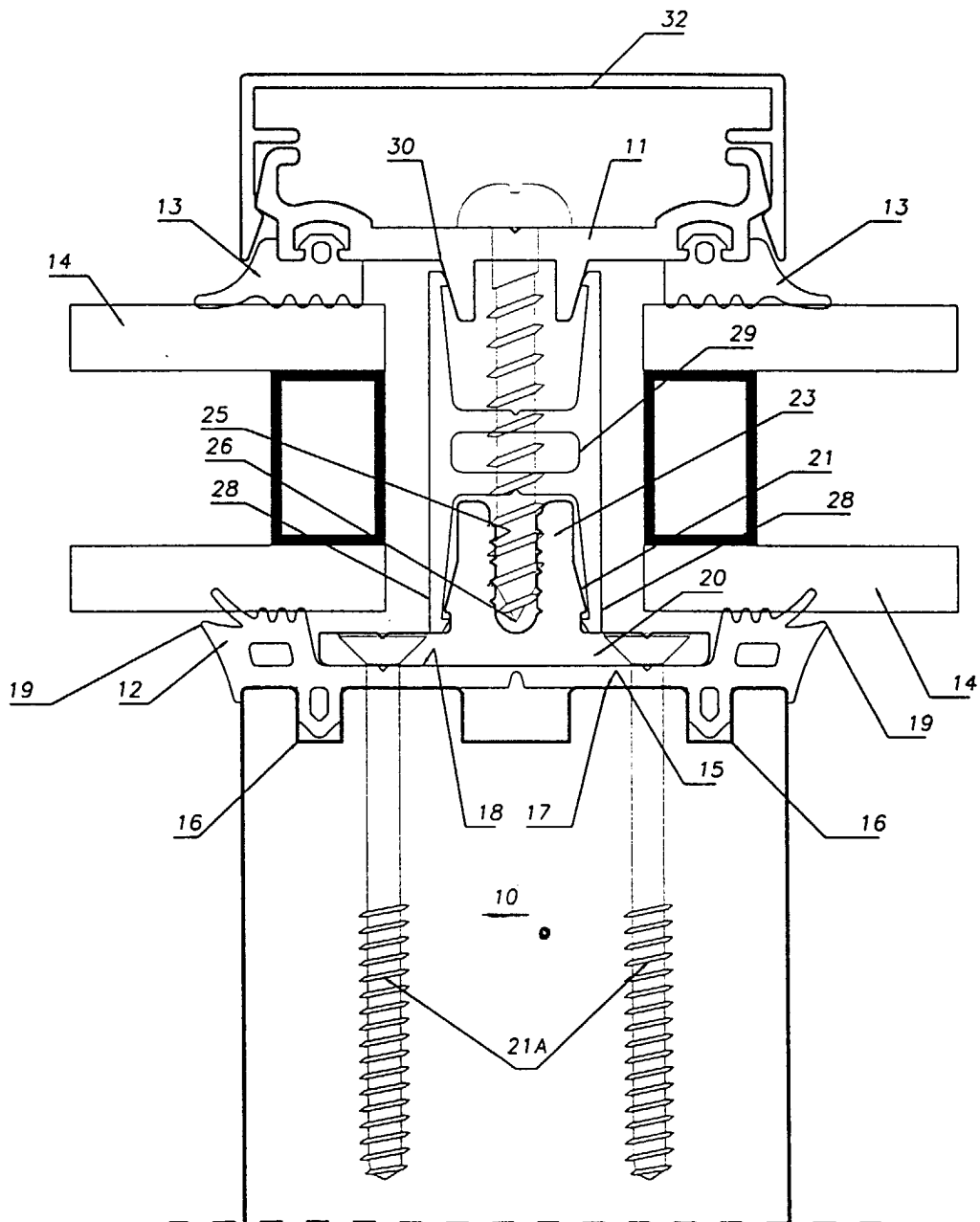


Fig. 2

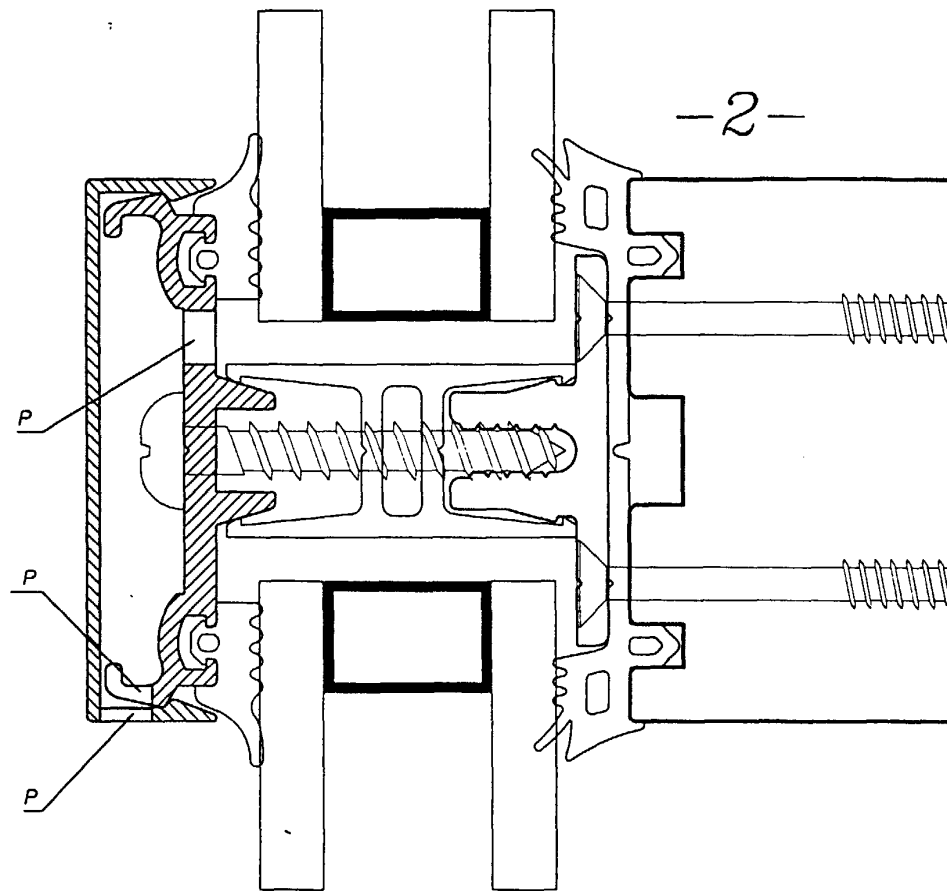
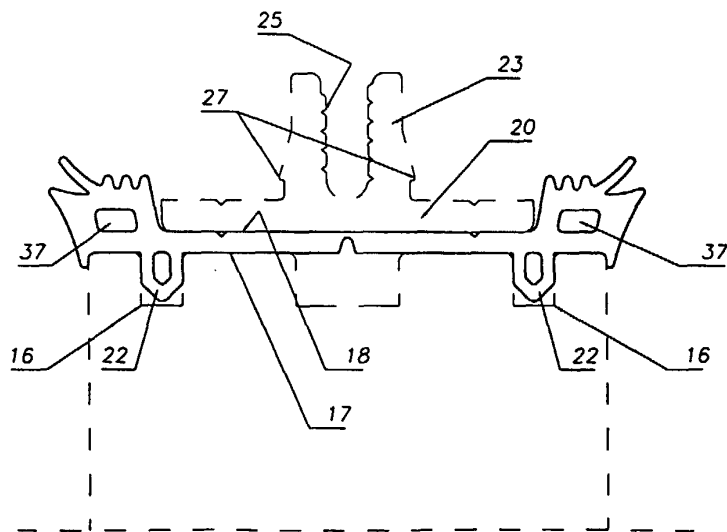


Fig. 3



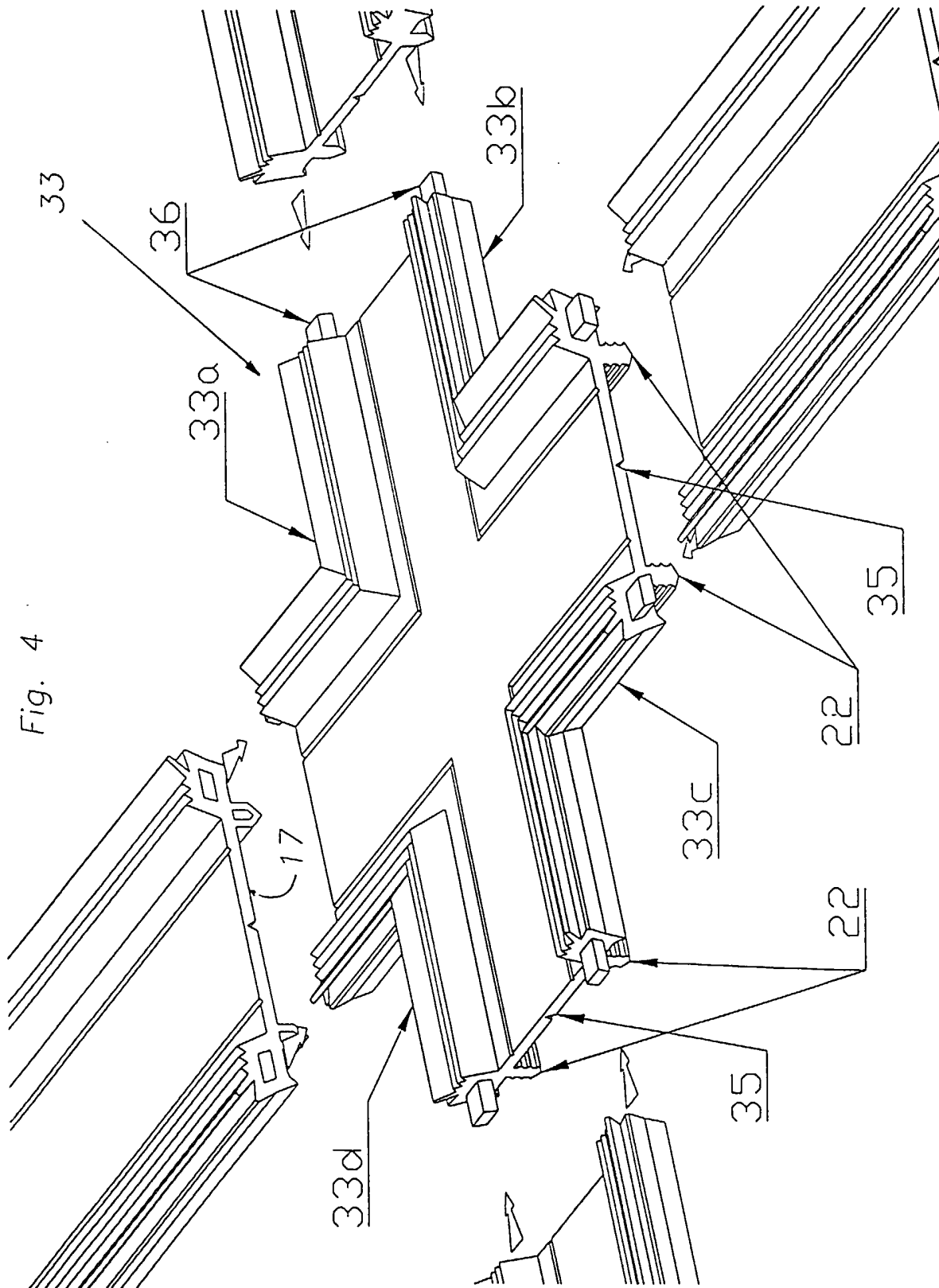


Fig. 5

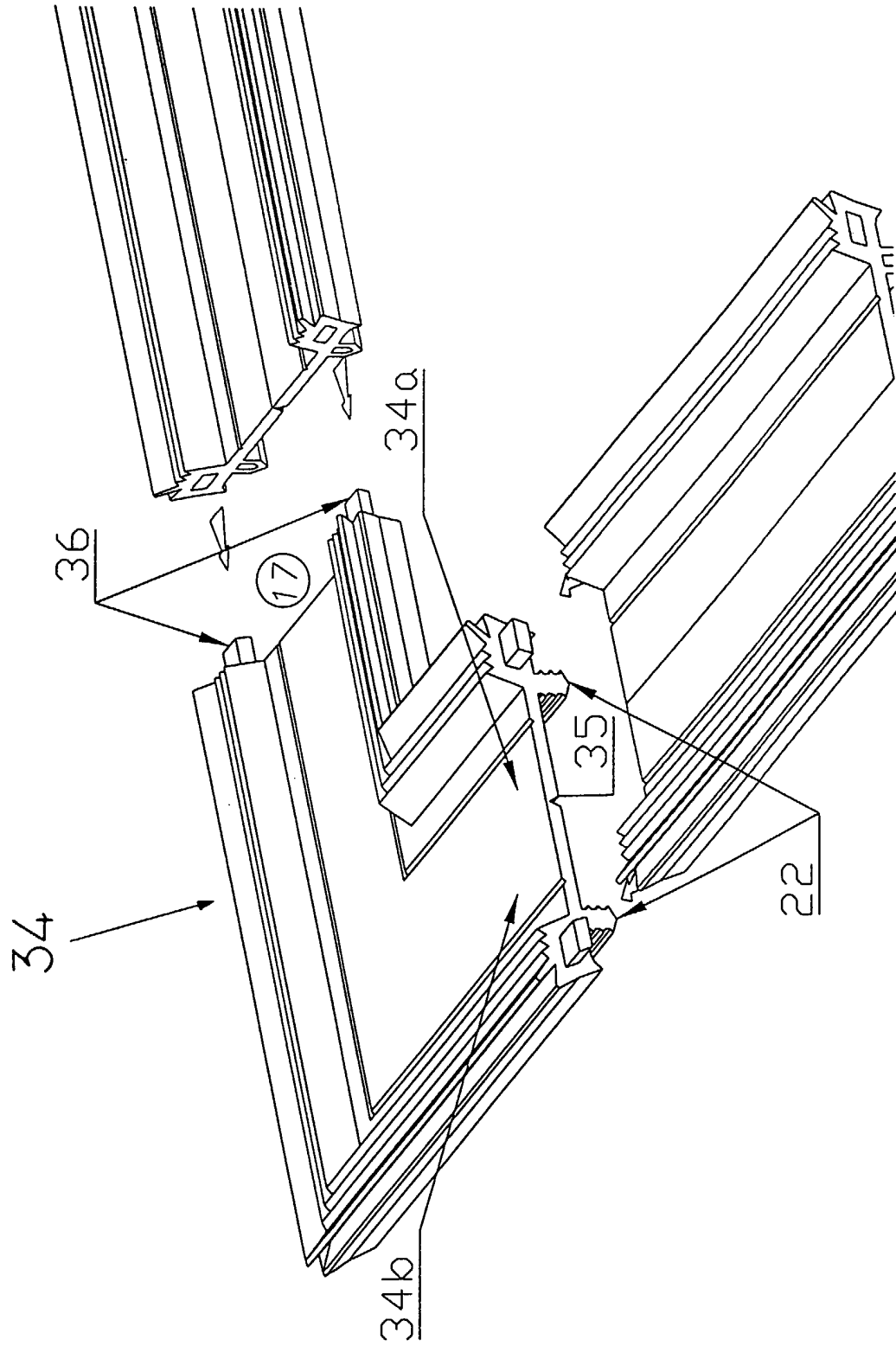
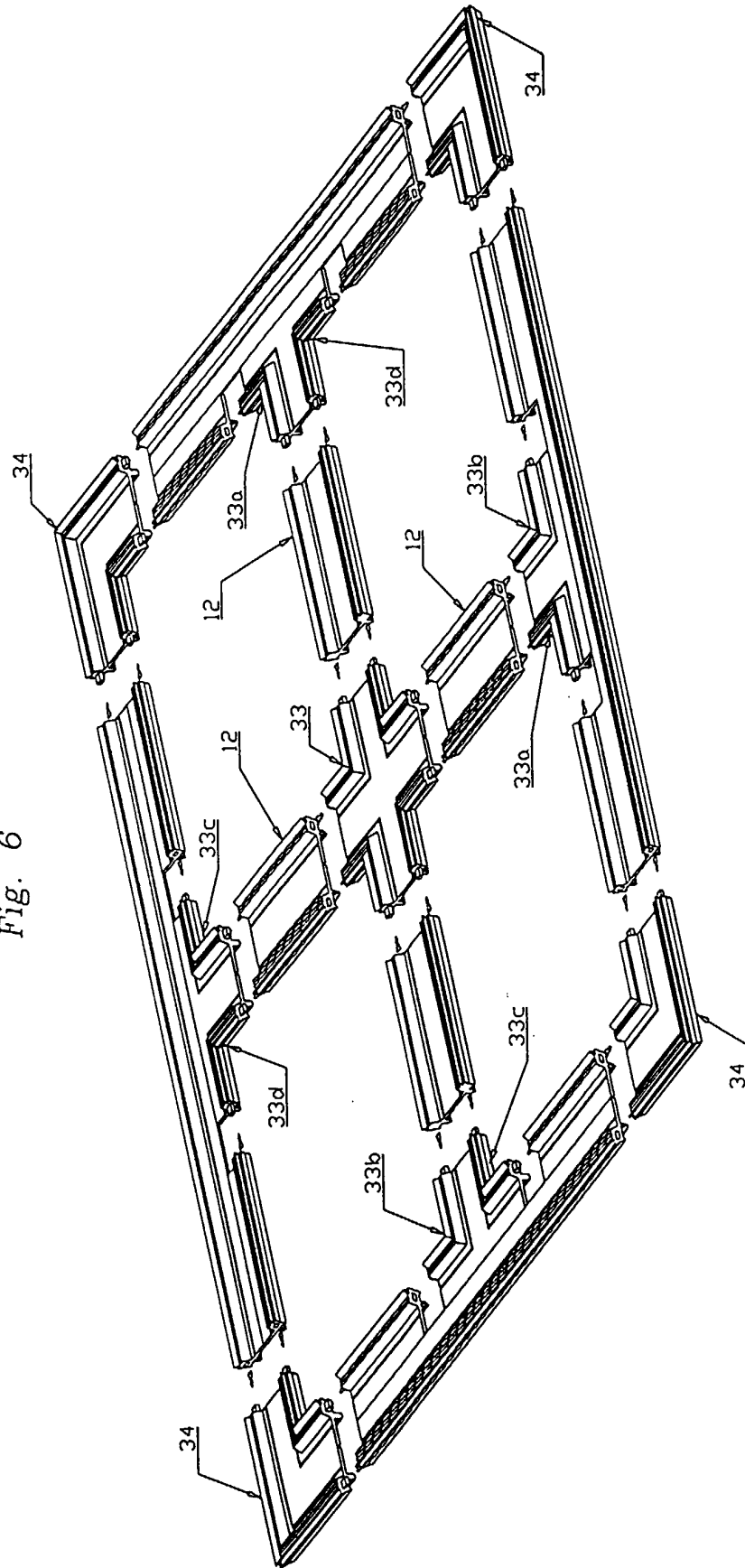
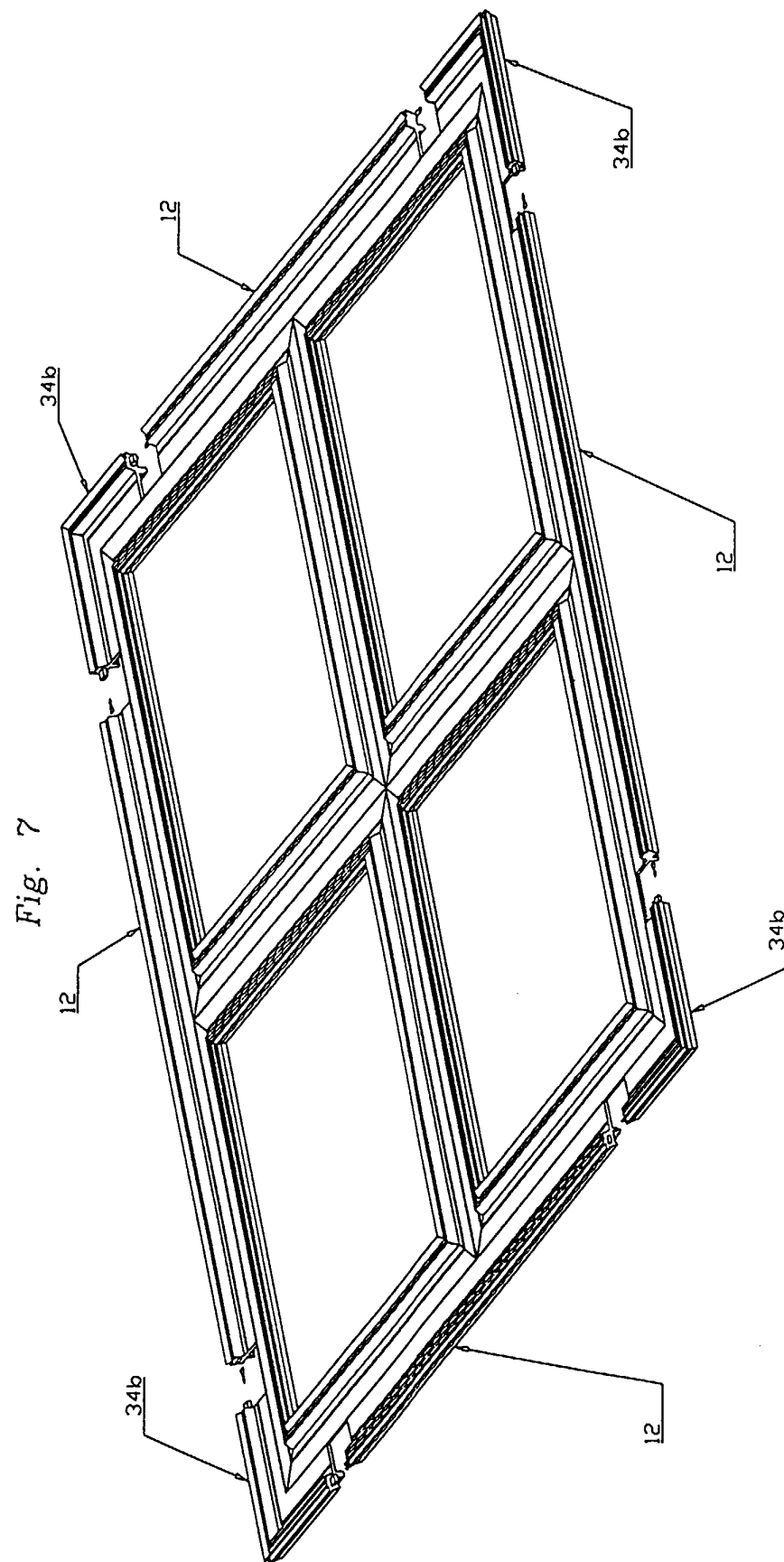


Fig. 6







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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 0184

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 5 356 675 A (UNGER FREDERICK C ET AL) 18 October 1994	1	E04B2/96
Y	* column 1, line 6 - line 32 * * column 2, line 48 - line 54 * * column 4, line 7 - column 5, line 4; figures 1-3 *	2-5,7	
Y	DE 195 19 219 A (SCHNEIDER FENSTERFABRIK GMBH &) 28 November 1996	2	
A	* column 1, line 38 - line 46 * * column 4, line 6 - column 5, line 11 * * column 5, line 53 - column 6, line 18; figures 2,4 *	1,5	
Y	DE 28 55 022 A (HARTMANN & CO W) 26 June 1980	3,4	
A	* page 7, line 5 - page 8, line 16; figure 1 *	2	
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	* column 4, line 41 - line 53 * * column 6, line 11 - line 32; figures 2,3,5 *		
A	DE 195 16 464 A (GLASBAU MARTIN SEDLMAIER FA) 7 December 1995	1-4	
	* column 5, line 52 - column 7, line 37; figures 1,2,6 *		
A	DE 89 08 436 U (BUG-ALUTECHNIK GMBH) 28 September 1989	1-4	
	* page 5, line 21 - page 6, line 2; figure 1 *		
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 7 June 1999	Examiner Porwoll, H
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	

EPO FORM 1503 03 82 (P04C01)



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Application Number
EP 99 20 0184

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A	DE 86 31 227 U (LACKER) 16 April 1987 * page 4, line 15 - page 6, line 4; figures 1,2 * -----	5,6	
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Place of search THE HAGUE		Date of completion of the search 7 June 1999	Examiner Porwoll, H
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			

EPO FORM 1503 03/82 (P04C01)

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

EP 99 20 0184

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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07-06-1999

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