

Description

Introduction

[0001] The invention relates to curtain walling and in particular to bimodular curtain walling.

[0002] A curtain walling system is described in our UK-A-2292955 which comprises a plurality of mullion posts for fixing to a support structure and a plurality of transom rails for mounting to the mullion posts. Sash assemblies which may be glazed units are mounted on site to the mullion posts and transom rails. The mounting of the sash assemblies is a relatively difficult and time consuming task.

[0003] In the existing system the sashes or panel insert elements are retained by means of an appropriate number of fixing clips which are clip fitted to the insert elements and screw fixed to the noses of the mullions and transoms of the gridwork. This method requires that the clips be fitted to the inserts on site, the inserts are then placed in position, and the retaining screws then fixed in position from the outside. Due to the closeness of the adjacent inserts and the overlapping front flipper weatherseal gaskets it is quite a slow and tedious task to fix the retaining screws. The flipper gaskets have to be carefully manipulated sideways to allow room for the screw to be fed in. Also the fixing screws have a tendency to bulge or spread the thermal break gasket where they penetrate which causes difficulties with fitting the adjacent insert. This is particularly so where the next insert is of an opening type.

[0004] There is therefore a need for an improved curtain walling system which will overcome at least some of these problems.

Statements of Invention

[0005] According to the invention there is provided a curtain walling system comprising: -

a plurality of mullion posts for fixing to a support structure;

a plurality of transom rails for fixing to the mullion posts; and

a plurality of sash assemblies for mounting to the transom rails and mullion posts;

each sash assembly including an upper sash rail, a lower sash rail and a pair of side sash rails extending between the upper and lower sash rails;

the lower sash rail having a lower sash engagement element for engagement, on assembly with a lower transom rail engagement element;

at least one of the other sash rails having an upper

sash engagement element for engagement with an upper transom rail or mullion post upper engagement element; and

at least one of the upper engagement elements being moveable relative to a corresponding upper engagement element from a release position for mounting the sash assembly, to a fixed position in which the sash assembly is fixed to the transom rails and the mullion posts;

[0006] Preferably an upper sash has an upper engagement element for engagement with an upper transom rail engagement element, the upper sash engagement element being movable relative to the upper transom rail engagement element to fix the sash assembly to the transom rail.

[0007] Most preferably the upper transom rail engagement element and the upper sash engagement element have complementary wedge engagement formations which interengage to fix the sash assembly to the transom rails.

[0008] In one embodiment of the invention the upper sash engagement element includes an operating rod which is slidably moveable in the sash from the release positions to the fixing positions.

[0009] In another embodiment of the invention the upper sash engagement element and the lower transom rail engagement elements are fixed to the sash and transom rail respectively. Preferably the lower sash engagement element and lower transom engagement elements have complementary wedge formations which interengage on mounting of the sash assembly to the lower transom rail.

Brief Description of the Drawings

[0010] The invention will be more clearly understood from the following description thereof given by way of example only with reference to the accompanying drawings in which:-

Fig. 1 is a front elevational view of a portion of an assembled curtain walling according to the invention;

Fig. 2 is a cross sectional view of detail I of the curtain walling;

Fig. 3 is an exploded view of the detail of Fig. 2;

Fig. 4 is an isometric, partially cut-away view illustrating the mounting of a lower sash to a transom rail;

Fig. 5 is an isometric, partially cut-away view illustrating the mounting of an upper sash to a transom rail; and

Fig. 6 is a plan view of the mounting of the upper sash to a transom rail.

Detailed Description

[0011] The invention is a method of retaining fixed insert elements to a curtain wall grid without the need for site drilling or screwing.

[0012] Referring to the drawings there is illustrated a curtain walling system according to the invention comprising a plurality of mullion posts 1 which are fixed to a building support structure and a plurality of transom rails for fixing to the mullion posts 1. Sash assemblies 4 which may have glazing 9 are mounted to upper and lower transom rails 2, 3 respectively. The transom rails 2, 3 and the mullions 1 have similar profiles with a rear box section 5 and a weather side nose portion 6 narrower than the rear section 5 and extending outwardly.

[0013] Each sash is of generally rectilinear shape and comprises an upper sash rail 10 and a lower sash rail 11 with a pair of side sash rails extending between the upper and lower sash rails, 10, 11.

[0014] A lower sash rail 11 has a lower sash engagement element in the form of longitudinally spaced-apart wedges 20 fixed thereto. Lower transom rail engagement elements are provided by wedges 21 of complementary shape to the wedges 20. The wedges 21 are fixed to the nose 6 of the transom rail. On mounting of the sash to the lower sash rail assembly 4 the wedges 20 engage behind the transom rail wedges 21 to retain the lower edge of the sash assembly to the transom rail.

[0015] An upper sash rail 10 has an upper sash engagement element in the form of longitudinally spaced-apart wedges 30 which are fixed to an operating rod 31. The rod 31 is slidably mounted in a track 33 of the sash rail 10. Upper transom rail engagement elements are provided by wedges 35 fixed to the nose 6 of the transom rail. The transom rail wedges 35 are of complementary shape to the sash rail wedges 30 and, on sliding of the operating rod 31, the wedges 30, 35 are interengaged so that the sash rail wedges 30 are engaged behind the transom rail wedges 35 and the sash assembly is fixed in position.

[0016] The operating rod 31 is moved using a tool 40 which is inserted for example as illustrated in Fig. 2 to engage with an operator 41 projecting from the sliding rod 31. When the rod 31 has been moved so that the wedges 30, 35 are interengaged, the tool 40 is removed.

[0017] On site, the mullion posts 1 are fixed to a support frame of a building and the transom rails 2, 3 with the wedges 21, 35 fitted are fixed to the mullion posts 1. A sash assembly 4 is mounted to the transom rails 2, 3 by engaging the lower wedges 20 fixed to the lower sash rail 11 behind the fixed wedges 21 of a lower transom rail 3. With the movable wedges 30 of the upper sash rail 10 offset from the corresponding wedges 35 of the upper transom rail 2 the sash assembly 4 is pushed inwardly so that it is supported by the lower transom rail 3. The fitter then inserts a tool 40 to engage the operator 41 and the tool 40 is then slid so that the operating rod 31 runs in the track 33 and the moveable sash wedges

30 are engaged behind the fixed transom wedges 35. The sash assembly 4 is thereby readily and rapidly fitted and retained. The tool 40 is removed and the procedure repeated to fix the further sash assemblies.

[0018] The invention is not limited to the embodiments hereinbefore described which may be varied in construction and detail.

Claims

1. A curtain walling system comprising: -

a plurality of mullion posts (1) for fixing to a support structure;

a plurality of transom rails (2, 3) for fixing to the mullion posts; and

a plurality of sash assemblies (4) for mounting to the transom rails and mullion posts;

each sash assembly including an upper sash rail (10), a lower sash rail (11) and a pair of side sash rails extending between the upper and lower sash rails;

the lower sash rail (11) having a lower sash engagement element for engagement, on assembly with a lower transom rail engagement element;

at least one of the other sash rails having an upper sash engagement element for engagement with an upper transom rail or mullion post upper engagement element; and

at least one of the upper engagement elements being moveable relative to a corresponding upper engagement element from a release position for mounting the sash assembly (4), to a fixed position in which the sash assembly is fixed to the transom rails (2, 3) and the mullion posts (1).

2. A curtain walling as claimed in claim 1 wherein an upper sash rail (10) has an upper engagement element for engagement with an upper transom rail engagement element, the upper sash engagement element being movable relative to the upper transom rail engagement element to fix the sash assembly to the transom rail.

3. A curtain walling as claimed in claim 2 wherein the upper transom rail engagement element and the upper sash engagement element have complementary wedge (30, 35) engagement formations which interengage to fix the sash assembly to the transom

rails.

4. A curtain walling as claimed in claim 2 or 3 wherein the upper sash engagement element includes an operating rod (31) which is slidably moveable in the sash from the release position to the fixing positions. 5
5. A curtain walling as claimed in any preceding claim wherein the lower sash engagement element and the lower transom rail engagement elements are fixed to the sash and transom rail respectively. 10
6. A curtain walling as claimed in claim 5 wherein the lower sash engagement element and lower transom engagement elements have complementary wedge formations (20, 21) which interengage on mounting of the sash assembly (4) to the lower transom rail. 15
7. A curtain walling substantially as hereinbefore described with reference to the accompanying drawings. 20

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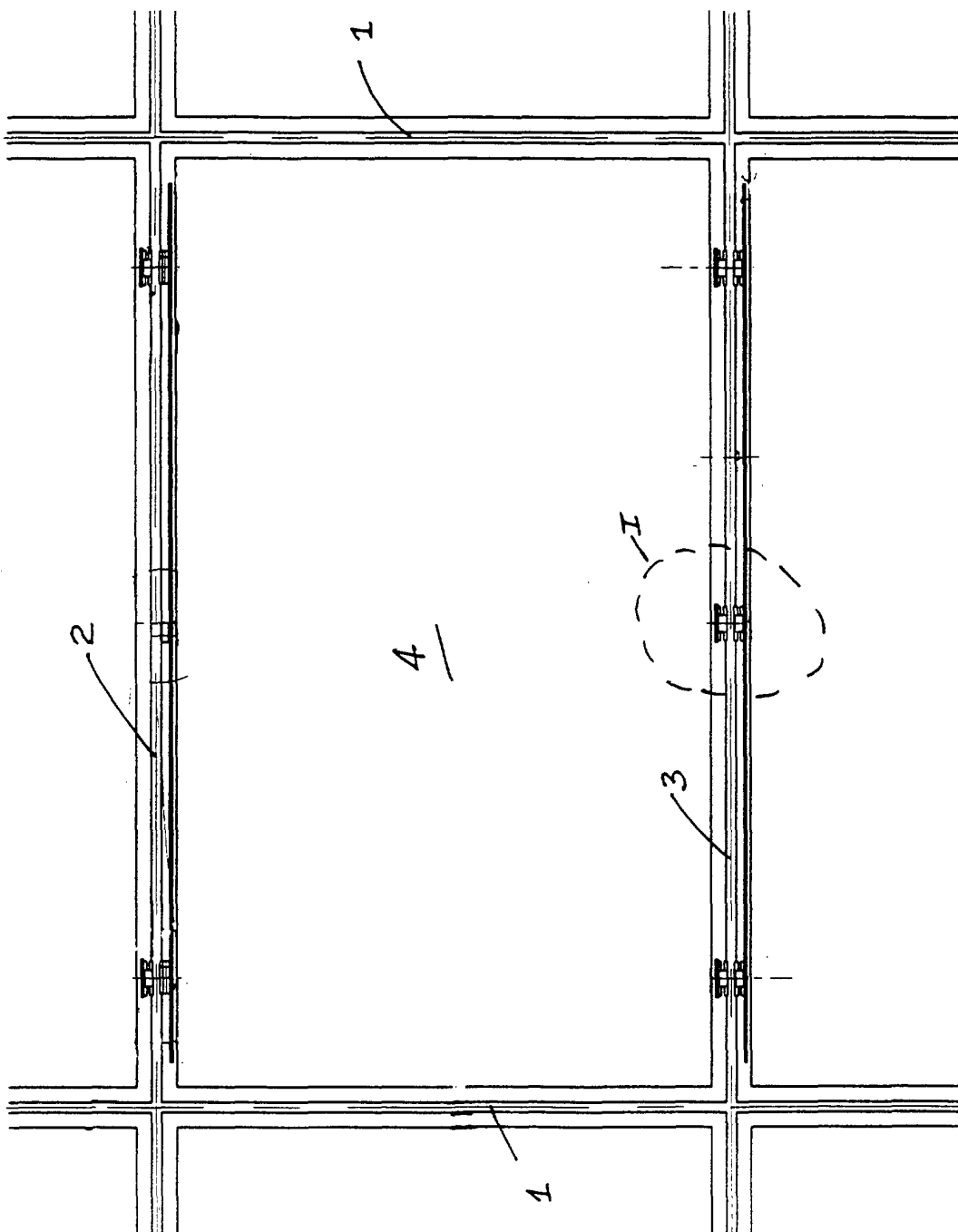
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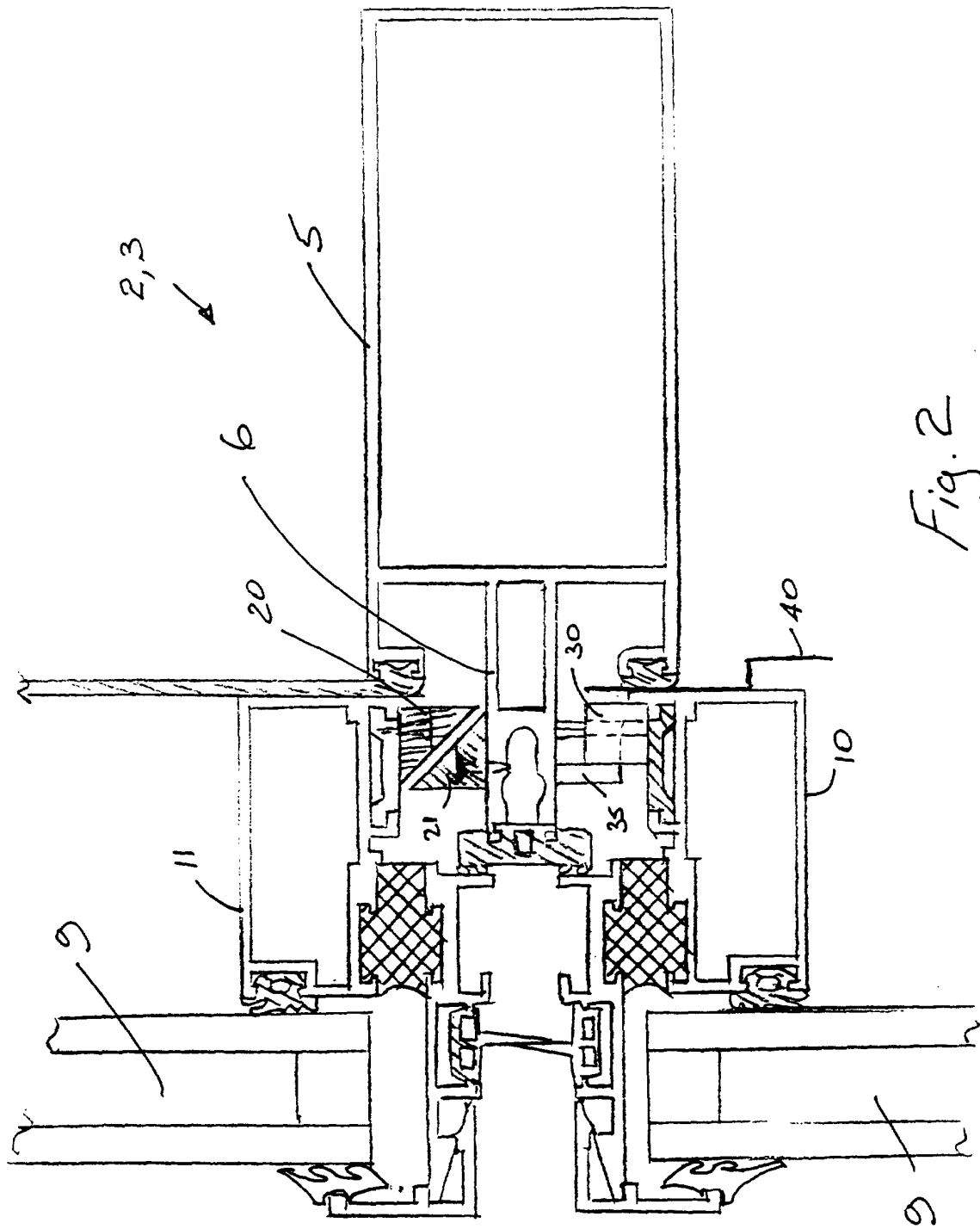
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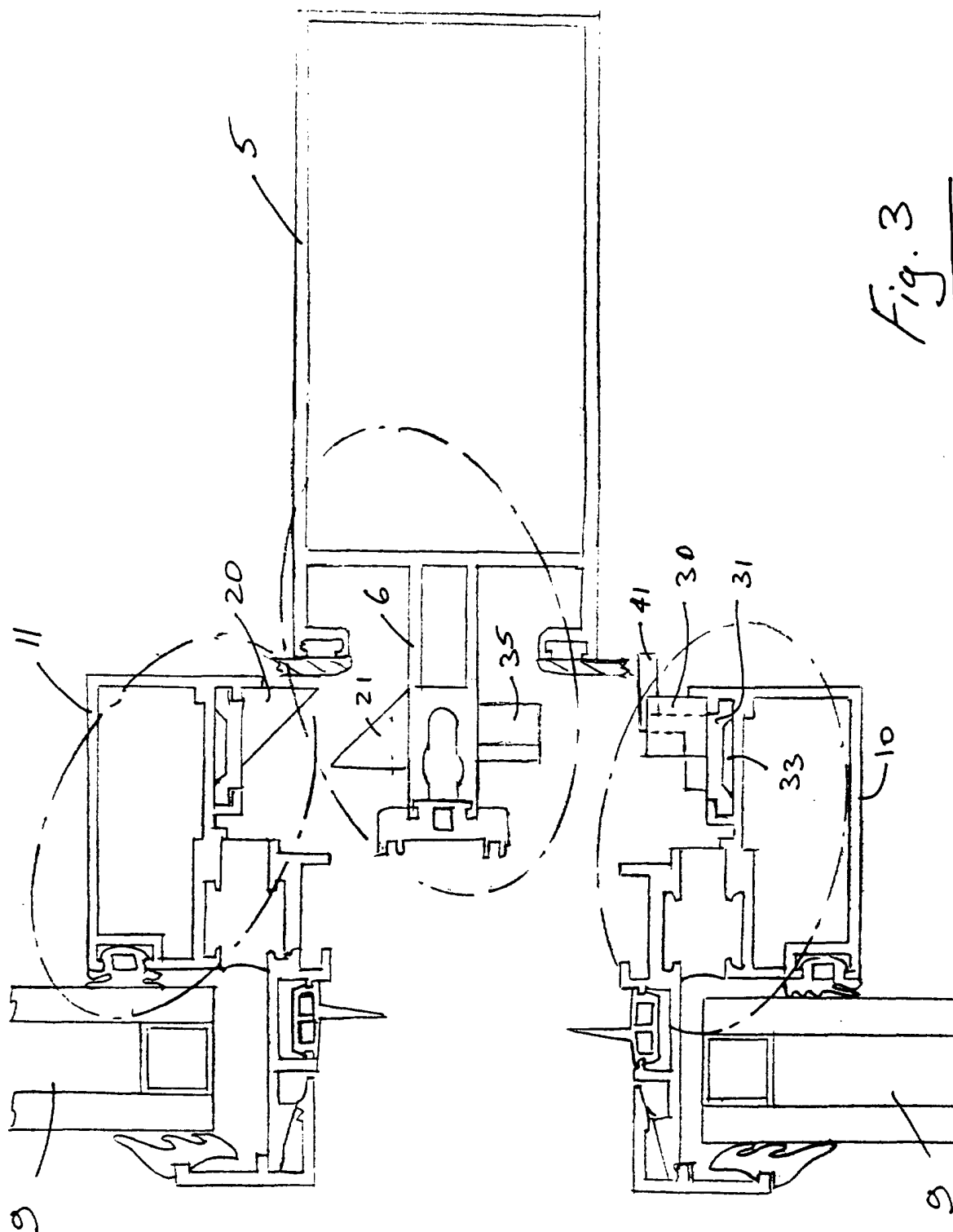
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Fig. 1







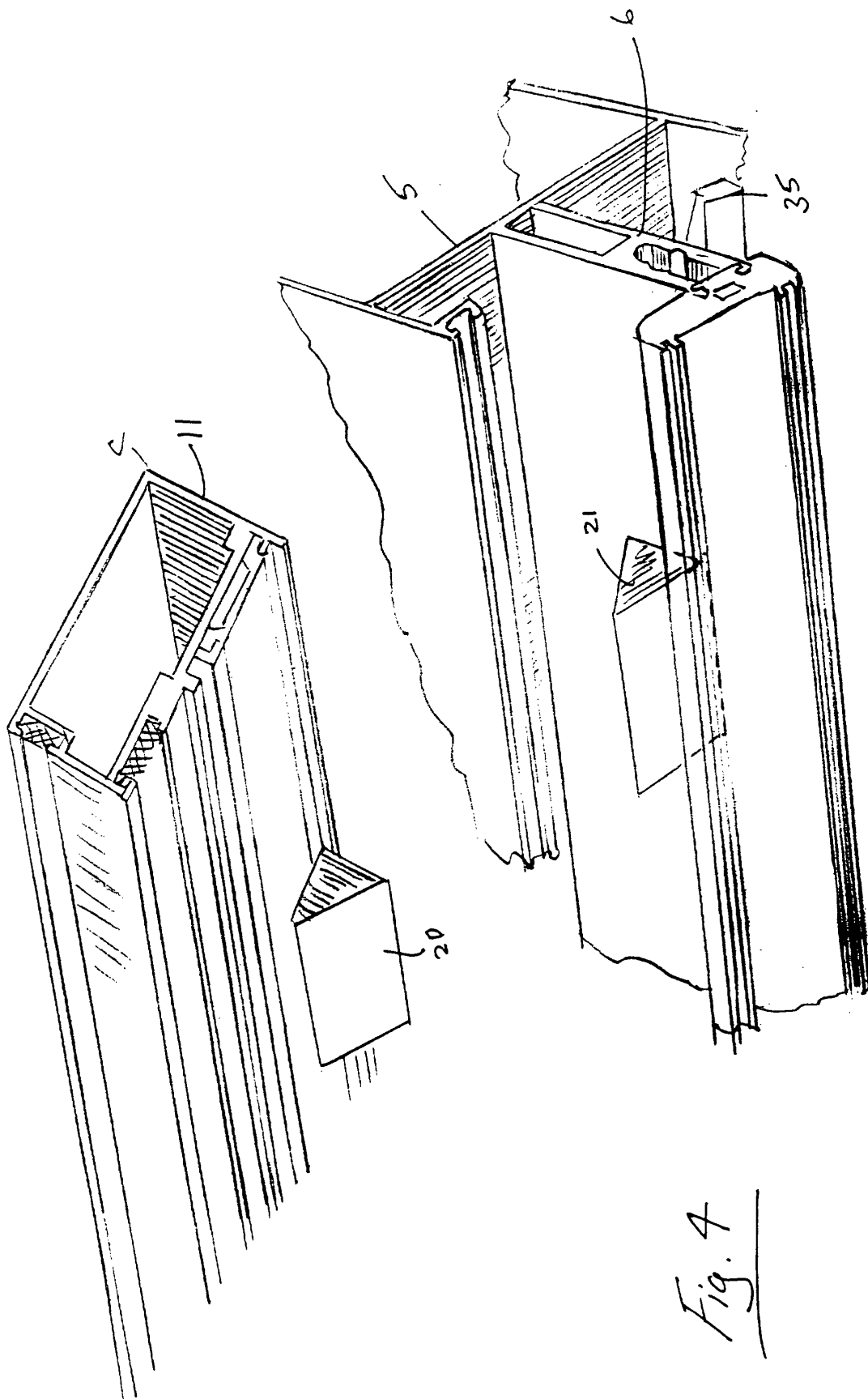


Fig. 4

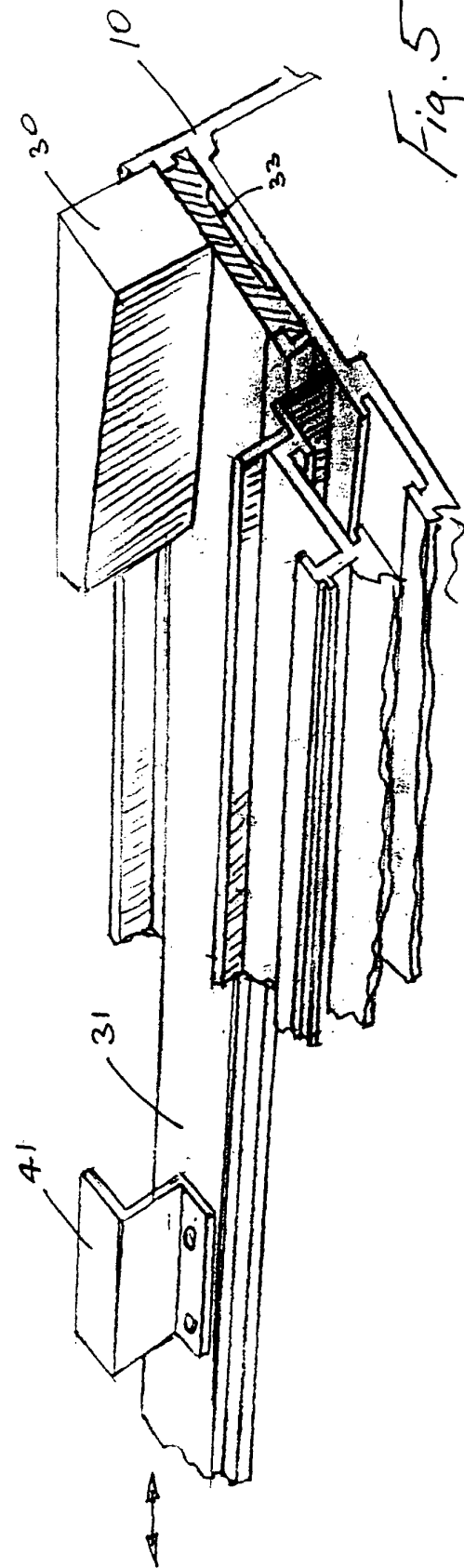
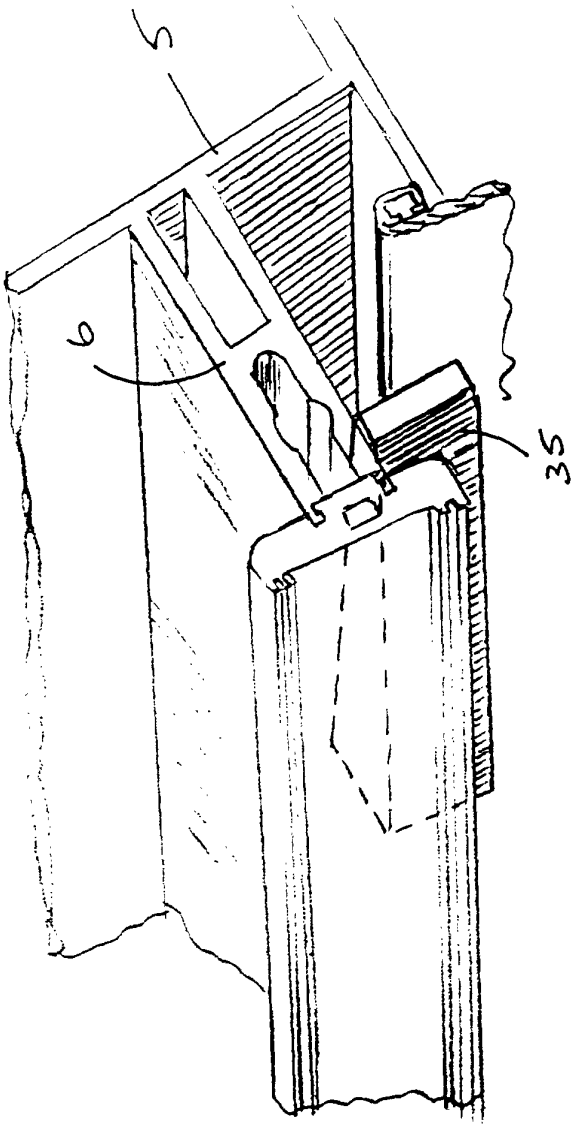


Fig. 5

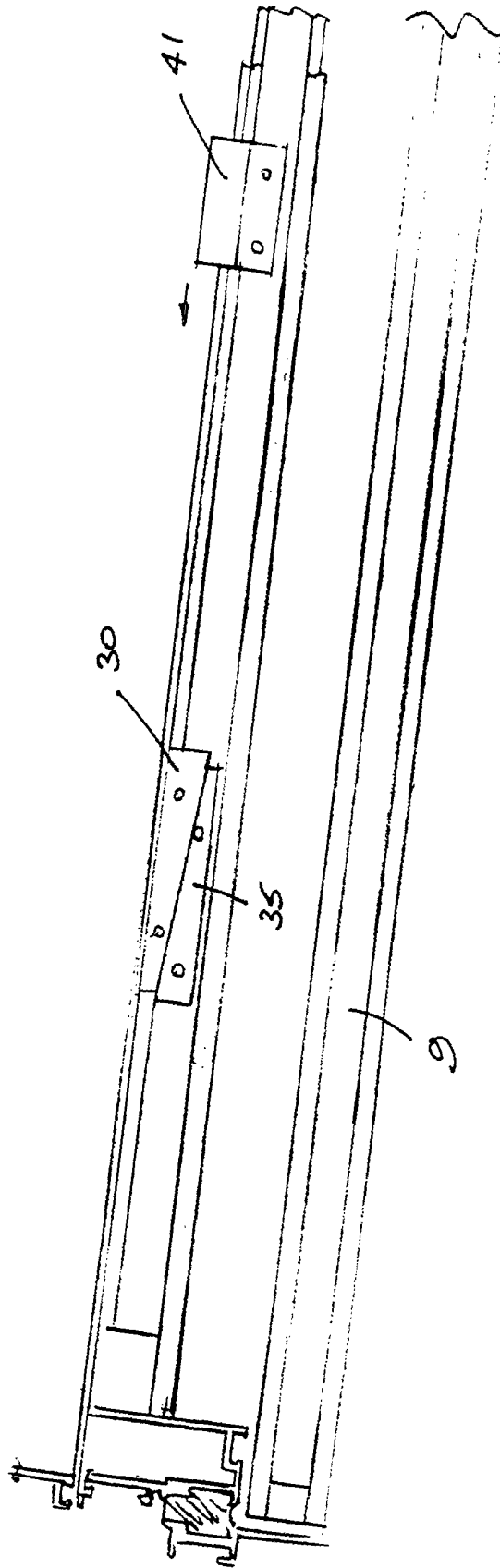


Fig. 6



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 00 65 0131

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	WO 99 29995 A (HYDRO ALUMINIUM SYSTEMS SPA ;ZANONI EDOARDO (IT)) 17 June 1999 (1999-06-17) * page 6, line 13 - page 7, line 10; figures *	1,5	E04B2/96
X	US 3 719 014 A (SUKOLICS R) 6 March 1973 (1973-03-06) * figure 43 *	1,2	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E04B
Place of search THE HAGUE		Date of completion of the search 26 January 2001	Examiner Fordham, A
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 00 65 0131

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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26-01-2001

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