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54 **Curtain wall, in particular with structural glazing.**

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Description

The present invention relates to a curtain wall assembly according to the preamble of claim 1.

Such a curtain wall assembly is known from EP-A-0 153 574.

In the assembly shown therein after putting a panel against the framework structure the lips engaging the edges are inserted laterally. The lips are provided on separate claps which have to be arranged after inserting of the panel. This means that at least two persons are necessary to mount a panel to a curtain wall. The first one is at the outside of the building and pushes the panel against the framework structure. The second one being on the inside of the building then inserts the mounting clamps. It is clear that this is a complicated method for inserting of panels because it is laborious and requires special provisions, such as the mounting clamps.

This invention aims to obviate this drawback.

This is realized with the features described in the characterizing part of claim 1. This increases considerably by the flexibility at the building site. Furthermore no complex parts are necessary to be introduced from the interior of the building. From DE-C-1183220 it is known to introduce a panel in a frame work by tilting and sliding. However, a snap tongue is provided preventing easy removal of the panel during a later stage. The sealing rubber in DE-C-1183220 is provided before the panel is introduced in the frame whilst in the subject patent a sealing is introduced after provision of the panel. This is also of importance to improve removability of the panel.

According to a preferred embodiment of the invention the panels are attached by putting to the frames. This putting can be carried out at the workshop, so that the advantages obtained with putting can be retained, while the optimum conditions for putting can be achieved, so that a reliable connection is obtained.

According to another advantageous embodiment the frame comprises an U-section with moulded corner joints.

In a further embodiment of the curtain frame assembly at least one peripheral side of the framework structure which in the fitted state of the panel does not engage one of its edges is provided with at least one locking device to be engaged with the frame. This does not secure the panel in the other direction. This locking device can comprise an eccentric clamp.

In order to fix the position of the panels accurately and also to support the panels when fixed, the vertical members can be provided with outward-pointing projections. In the fitted state, supporting blocks can be disposed between these

projections and the panel for accurate setting of the height of the panel.

Moreover, on the downward-facing side the projections can be provided with a section to permit engagement with a sealing section. Such a sealing section is provided to achieve sealing between the various panels.

This sealing can comprise a T-section, in which the leg of the T is provided with means for engaging between the panels, and the body of the T in grips fitted state grips another panel on either side of the leg.

This leg can, on the one hand, grip the vertical member provided with section and, on the other, an extension of the leg of the U-section, said leg tying closest to the panel, and said extension extending parallel to the body of the U-section. A cross member may be present for connection of the sections fitted to the longitudinal side and transverse side of the panel. Depending on the place where it is used, this cross member can be provided, on the top or bottom side of the panel, with venting or drainage means. This cross member provides for a good connection of the various parts.

The invention will now be explained in greater detail with reference to a non-limiting embodiment in the attached drawings, in which:

Fig. 1 shows a side view of a curtain wall;

Fig. 2 shows a top view in section; and

Fig. 3 shows a front view of a cross member of the sealing section.

In Fig. 1 only the horizontal members 1 of the framework structure are shown, while Fig. 2 shows a vertical member 2. Panels 3 and 4 have to be disposed between these horizontal members 1 and vertical members 2. The panel 3 consists of double glazing, while panel 4 consists of single glazing with a filler sheet 5 behind it. On the outside this gives the impression that the wall is provided with glass over its entire surface, while on the inside windows are present only at particular points. Both panel 3 and panel 4 are provided with peripheral frames 6. The connection between the peripheral frames 6 and the glass panels can be made in the usual manner by putty edges 7. These connections can be made already in the workshop. In this way it is ensured that these connections are optimum and do not have to suffer disadvantageous weather conditions. The panel 3, 4 is delivered to the building site provided with the frame 6. For fitting of the glass, first the vertical members 2 and then the horizontal members 1 are fitted. The frames 6 consist of a U-section with a body 8 and legs 9 and 10. The leg 9 lies closest to the panel 3, 4. The panel 3, 4 is fitted as follows. The panel is moved with its top side obliquely to the right from the position shown in Fig 1, and with the under side is

moved obliquely to the left. This causes the leg 10 to be inserted behind lip 11. The panel 3, 4 is then moved up and hinged to the left with the leg 10 lying on the under side of the panel 3, 4 moving over lip 12. When panel 3, 4 is moved downwards the last leg 10 will also slide behind lip 12, as a result of which the panel is fixed. The panel can thereby rest directly on a projection 13 or can have interposed a supporting block 14, of which there are a number interspaced in the longitudinal direction of the panel. In order to provide sealing between the panels and the projections 13 of the vertical members 1, a rubber section can be provided. This rubber section engages, on the one hand, with teeth 17 provided on the projection 13 and, on the other, grips the panel. For this, leg 9 of the frame can be provided with an extension 18 extending parallel to the body 8 of the U-shaped section. This extension can also serve to support the panel 3, 4. In order to achieve sealing between the U-shaped section frame 6 and the vertical members, sealing rubbers 19 may be provided. The parts of the section shown in Fig. 1 form part of a cross member 23 which is shown in front view in Fig. 3. This cross member can be provided with venting openings 16 or drainage openings 15. As shown in Fig. 3, these can also be disposed side by side in one and the same cross member 23, so that a universally usable cross member is obtained. Through the use of these sections in conjunction with the panels 3, 4, one obtains a removable structural glazing which has no cold bridges anywhere, so that insulation measures are not necessary. In order to secure the panel further and prevent rattling or stresses, it can also be provided with locking devices which engage with the vertical members 2. Fig. 2 shows how eccentric clamps 20 can be used for this, engaging at one side with the legs 10 of the U-shaped frame and being fastened by means of a screw 21 on the vertical members 2. These eccentric clamps can be removed or turned by loosening this screw, following which the panels 3, 4 can be removed by lifting. Although only one locking device is shown, it must be understood that a number of such devices can be fitted for each side of the panel, and use can be made of these locking devices on different sides of the panel. A sealing section 22 can be fitted between the panels shown in Fig. 2.

Claims

1. Curtain wall assembly, in particular with structural glazing, comprising panels (3,4), such as panes (3), to be mounted in a frame work structure to be fitted against a wall of a building, the panels (3,4) being provided on the side which faces the framework after fitting

with a frame (6) having at opposite sides of the panel protruding vertical or horizontal edges (10) spaced from the panel and parallel thereto, having their free ends at the same side as the related edge of the panel and defining a first recess, wherein the framework structure comprises an opening to receive the panel (3,4) being provided at two opposite sides with protruding vertical or horizontal lips (11,12) spaced from and parallel to the base of the frame structure, such as to be engaged by the edges (10) of the frame of the panel, and defining a second recess, wherein the outer dimensions of the panel of their edges (10) respectively are substantially smaller than that of the corresponding receiving opening of the framework structure, but larger than the opening delimited by the lips (11,12) of the framework structure, characterized in that, the recesses are provided such that when the panel (3,4) is placed at an angle to the framework structure one edge (10) of the frame (6) engages behind the lip (11) of the framework structure and after insertion of the panel (3,4) the opposite edge (10) also on sliding back engages behind opposite lip (12), in that the horizontal members of the framework structures are provided with outward-pointing projections (13) to support the panel (3,4) in mounted position, and in that a T-section sealing is provided, to be fitted between the various panels (3,4) in which the leg of the T is provided with means (17) for engaging between the panels and the lower side of the projection and the body of the T in the fitted state grips another panel on either side of the leg.

- 2.** Curtain wall assembly according to claim 1, characterized in that the panels (3,4) are attached by puttying (7) to the frame (6).
- 3.** Curtain wall assembly according to one of the preceding claims, characterized in that the frame (6) comprises an U-section with moulded corner joints.
- 4.** Curtain wall assembly according to one of the preceding claims, characterized in that at least one peripheral side of the framework structure which in the fitted state of the panel (3,4) does not engage one of its edges (10) is provided with at least one locking device (20) to be engaged with the frame (6).
- 5.** Curtain wall assembly according to claim 4, characterized in that the locking device comprises an eccentric clamp (20).

6. Curtain wall assembly according to one of the preceding claims, characterized in that in the fitted state supporting blocks (14) are disposed between the projections (13) and the panels (3,4). 5
7. Curtain wall assembly according to one or more of the preceding claims, characterized in that on the lower side the projections (13) are provided with a profile to permit engagement with a sealing section. 10
8. Curtain wall assembly according to one of the preceding claims, characterized in that the fitted state the leg grips the profile according to claim 7. 15
9. Curtain wall assembly according to one of the preceding claims, characterized in that the leg of the sealing engages an extension (18) of the leg of the U-section of the frame (6) lying closest to panel (3,4), said extension (18) extending parallel to the body (8) of the U-section. 20
10. Curtain wall assembly according to one of the preceding claims, characterized in that a cross member (23) is provided on the longitudinal and transverse sides of the panels at the cross points of the T-section sealings. 25
11. Curtain wall assembly according to claim 10, characterized in that the cross member is provided with drainage means (15). 30
12. Curtain wall assembly according to claim 10 or 11, characterized in that the cross member (23) is provided with venting means. 35

Patentansprüche

1. Fassadenwandaufbau, insbesondere mit Bauverglasung, mit Paneelen (3, 4), wie z.B. Glas-scheiben (3), die in einem Rahmentragwerk montiert sind, das an einer Gebäudewand angebracht wird, wobei die Paneele (3, 4) auf der Seite vorgesehen sind, welche das Rahmen-tragwerk verkleidet, nachdem diese in einen Rahmen (6) eingepst worden sind, der an gegenüberliegenden Seiten des Paneels vor-stehende vertikale oder horizontale Kanten (10) aufweist, die von dem Paneel beabstandet sind und parallel zu diesem verlaufen, wobei sich deren freie Enden auf der gleichen Seite befinden wie die in Beziehung stehende Kante des Paneels und eine erste Aussparung festlegen, wobei das Rahmentragwerk eine Öffnung zur Aufnahme des Paneels (3, 4) aufweist, die an 45

zwei gegenüberliegenden Seiten mit vorste-henden vertikalen oder horizontalen Nasen (11, 12) versehen ist, die voneinander beabstandet sind und parallel zur Basis des Rahmenwerkes derart verlaufen, daß sie in Eingriff mit den Kanten (10) des Rahmens des Paneels treten, und eine zweite Aussparung festlegen, wobei die Außenabmessungen des Paneels bzw. deren-Kanten (10) wesentlich kleiner sind als die der entsprechenden Aufnahmeöffnung des Rahmentragwerks, jedoch größer als die Öff-nung, die durch die Nasen (11, 12) des Rahmentragwerks begrenzt ist, 5

dadurch **gekennzeichnet**, daß die Aussparungen derart ausgebildet sind, daß eine Kante (10) des Rahmens (6) hinter der Nase (11) des Rahmentragwerks in Eingriff tritt, wenn das Paneel (3, 4) in einem Winkel zu dem Rahmentragwerk angeordnet wird, und daß nach Einsetzen des Paneels (3, 4) die gegenüberliegende Kante (10) auch auf ein Zurückgleiten hin hinter der gegenüberliegen-den Nase (12) in Eingriff steht, daß die hori-zontalen Glieder des Rahmentragwerks mit nach außen zeigenden Vorsprüngen (13) ver-sehen sind, um das Paneel (3, 4) in der mon-tierten Stellung zu lagern, und daß eine im Querschnitt T-förmige Dichtung vorgesehen ist, die zwischen den verschiedenen Paneelen (3, 4) eingepaßt wird, wobei der Fuß des T mit einer Einrichtung (17) versehen ist, die zwi-schen den Paneelen und der Unterseite des Vorsprungs in Eingriff tritt, und wobei der Kör-per des T im montierten Zustand ein weiteres Paneel auf jeder Seite des Fußes klemmt. 10

2. Fassadenwandaufbau nach Anspruch 1, dadurch **gekennzeichnet**, daß die Paneele (3, 4) mittels Kitt (7) an dem Rahmen (6) befestigt sind. 15

3. Fassadenwandaufbau nach einem der vorste-henden Ansprüche, dadurch **gekennzeichnet**, daß der Rahmen (6) ein U-Profil mit geformten Eckverbindungen umfaßt. 20

4. Fassadenwandaufbau nach einem der vorste-henden Ansprüche, dadurch **gekennzeichnet**, daß an mindestens einer Umfangsseite des Rahmentragwerks, die im montierten Zustand des Paneels (3, 4) nicht in Eingriff mit einer seiner Kanten (10) steht, mindestens eine Verriegelungseinrichtung (20) zum Eingriff mit dem Rahmen (6) vorgesehen ist. 25

5. Fassadenwandaufbau nach Anspruch 4, dadurch **gekennzeichnet**, daß die Verriegelungseinrichtung eine exzentrische Klammer (20) umfaßt. 5
6. Fassadenwandaufbau nach einem der vorstehenden Ansprüche, dadurch **gekennzeichnet**, daß im montierten Zustand Lagerblöcke (14) zwischen den Vorsprüngen (13) und den Paneelen (3, 4) angeordnet sind. 10
7. Fassadenwandaufbau nach einem oder mehreren der vorstehenden Ansprüche, dadurch **gekennzeichnet**, daß die Vorsprünge (13) an der unteren Seite mit einem Profil versehen sind, das einen Eingriff mit dem Dichtungsprofil erlaubt. 15
8. Fassadenwandaufbau nach einem der vorstehenden Ansprüche, dadurch **gekennzeichnet**, daß der Fuß im montierten Zustand das Profil klemmt. 20
9. Fassadenwandaufbau nach einem der vorstehenden Ansprüche, dadurch **gekennzeichnet**, daß der Fuß der Dichtung mit einer Verlängerung (18) des Schenkels des U-Profiles des Rahmens (6) in Eingriff tritt, der am nächsten zu dem Paneel (3, 4) liegt, wobei die Verlängerung (18) parallel zum Körper (8) des U-Profiles verläuft. 25
10. Fassadenwandaufbau nach einem der vorstehenden Ansprüche, dadurch **gekennzeichnet**, daß an den Längs- und Querseiten der Paneele an den Kreuzungspunkten der im Querschnitt T-förmigen Dichtungen ein Kreuzungsglied (23) vorgesehen ist. 30
11. Fassadenwandaufbau nach Anspruch 10, dadurch **gekennzeichnet**, daß das Kreuzungsglied mit einer Drainageeinrichtung (15) versehen ist. 35
12. Fassadenwandaufbau nach Anspruch 10 oder 11, dadurch **gekennzeichnet**, daß das Kreuzungsglied (23) mit einer Entlüftungseinrichtung versehen ist. 40
1. Ensemble de mur-rideau, en particulier à vitrage structurel, comprenant des panneaux (3, 4), tels que carreaux (3), à monter dans une structure d'encadrement à monter contre un mur d'un bâtiment, les panneaux (3, 4) étant prévus sur le côté faisant face à l'encadrement après montage avec un cadre (6) présentant, sur les côtés opposés du panneau, des bords verticaux ou horizontaux (10) en saillie, distants du panneau et parallèles à celui-ci, présentant leurs extrémités libres du même côté que le bord du panneau concerné et définissant un premier évidement, dans lequel la structure d'encadrement comprend une ouverture destinée à recevoir le panneau (3, 4) pourvu, sur deux côtés opposés, de languettes verticales ou horizontales (11, 12) en saillie, distantes de la base de la structure de cadre et parallèles à celle-ci, de manière à venir en prise avec les bords (10) du cadre du panneau, et définissant un second évidement, dans lequel les dimensions extérieures du panneau de leurs bords (10), respectivement, sont sensiblement plus petites que celle de l'ouverture de réception correspondante de la structure d'encadrement, mais plus grandes que l'ouverture délimitée par les languettes (11, 12) de la structure d'encadrement, caractérisé en ce que les évidements sont prévus de telle manière que, lorsque le panneau (3, 4) est placé selon un angle par rapport à la structure d'encadrement, l'un des bords (10) du cadre (6) vient en prise derrière la languette (11) de la structure d'encadrement et que, après insertion du panneau (3, 4), le bord (10) opposé, lors du recul par glissement, vient également en prise derrière la languette opposée (12), en ce que les éléments horizontaux de la structure d'encadrement sont pourvus de saillies (13) orientées vers l'extérieur, destinées à supporter le panneau (3, 4) en position montée, et en ce qu'il est prévu un joint d'étanchéité à section en "T", destiné à être monté entre les différents panneaux (3, 4), dans lequel le pied du "T" est pourvu de moyens (17) pour l'introduction entre les panneaux et le côté inférieur de la saillie et le corps du "T" vient en prise, à l'état monté, avec un autre panneau de part et d'autre du pied. 45
2. Ensemble de mur-rideau suivant la revendication 1, caractérisé en ce que les panneaux (3, 4) sont fixés au cadre (6) par masticage (7). 50
3. Ensemble de mur-rideau suivant l'une des revendications précédentes, caractérisé en ce que le cadre (6) comprend une section en "U" à joints d'angle moulés. 55
4. Ensemble de mur-rideau suivant l'une des revendications précédentes, caractérisé en ce

Revendications

- qu'au moins l'un des' côtés périphériques de la structure d'encadrement qui, à l'état monté du panneau (3, 4), présente l'un de ses bords (10) non en prise, est pourvu d'au moins un dispositif de verrouillage (20) destiné à venir en prise avec le cadre (6). 5
5. Ensemble de mur-rideau suivant la revendication 4, caractérisé en ce que le dispositif de verrouillage comprend une attache concentrique (20). 10
6. Ensemble de mur-rideau suivant l'une des revendications précédentes, caractérisé en ce que, à l'état monté, des blochets de support (14) sont disposés entre les saillies (13) et les panneaux (3, 4). 15
7. Ensemble de mur-rideau suivant l'une ou plusieurs des revendications précédentes, caractérisé en ce que, sur le côté inférieur, les saillies (13) sont pourvues d'un profilé destiné à permettre de venir en prise avec la section du joint d'étanchéité. 20
- 25
8. Ensemble de mur-rideau suivant l'une des revendications précédentes, caractérisé en ce que, à l'état monté, le pied vient en prise avec le profilé. 30
9. Ensemble de mur-rideau suivant l'une des revendications précédentes, caractérisé en ce que le pied du joint d'étanchéité vient en prise avec un prolongement (18) de la branche de la section en "U" du cadre (6) la plus rapprochée du panneau (3, 4), ledit prolongement (18) s'étendant parallèlement au corps (8) de la section en "U". 35
10. Ensemble de mur-rideau suivant l'une des revendications précédentes, caractérisé en ce qu'un élément transversal (23) est prévu sur les côtés longitudinaux et transversaux des panneaux, aux intersections des joints d'étanchéité à section en "T". 40
- 45
11. Ensemble de mur-rideau suivant la revendication 10, caractérisé en ce que l'élément transversal est pourvu de moyens de drainage (15). 50
12. Ensemble de mur-rideau suivant la revendication 10 ou 11, caractérisé en ce que l'élément transversal (23) est pourvu de moyens d'aération. 55

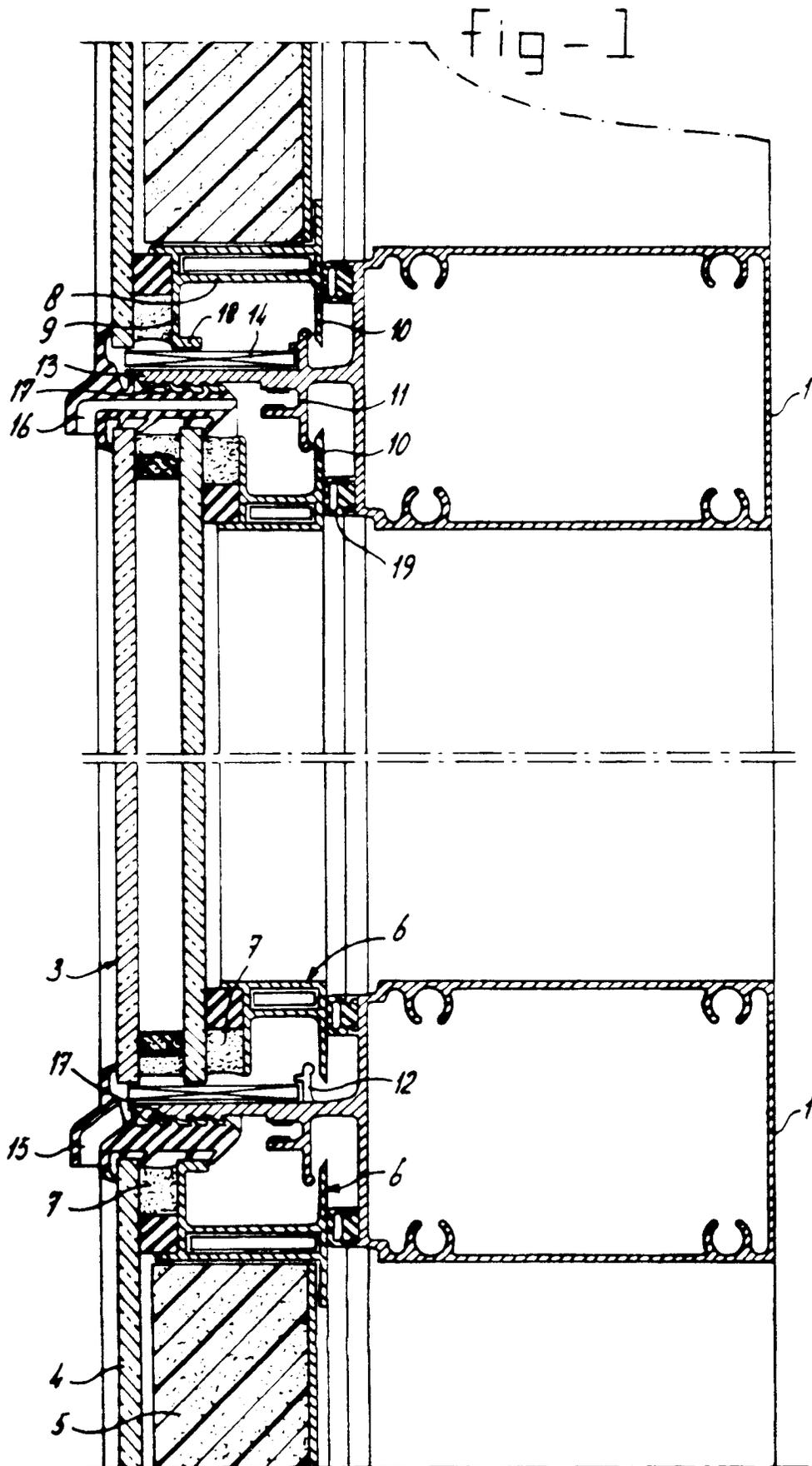


fig-2

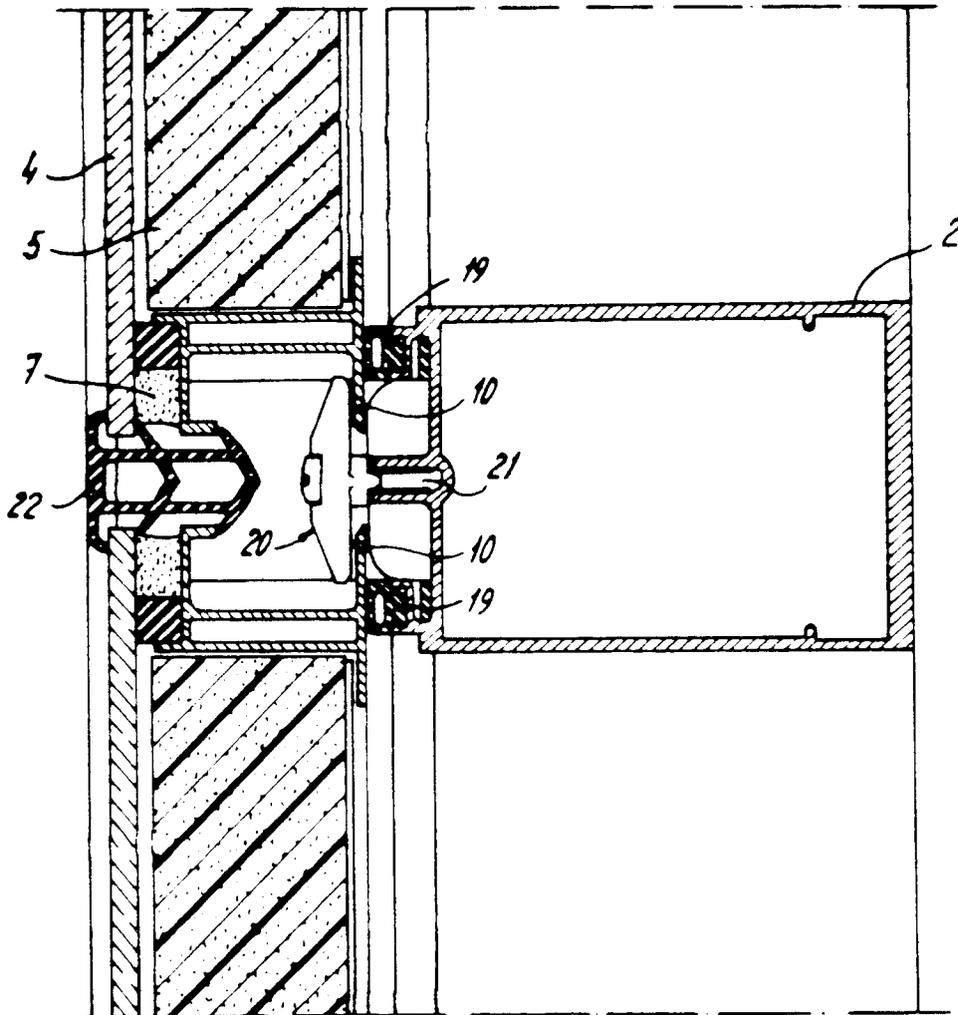


fig-3

