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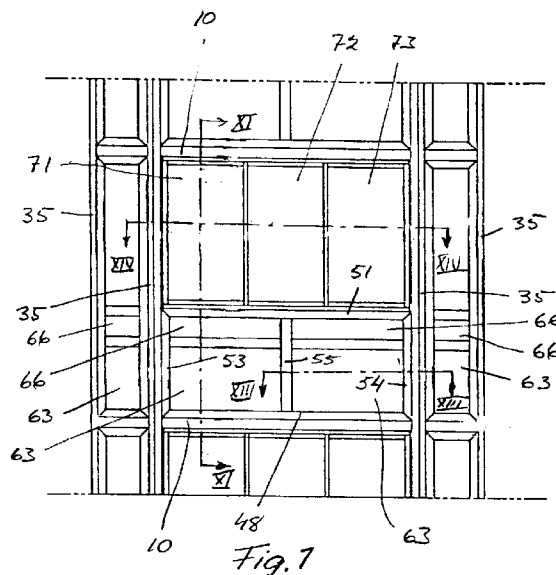
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(54) **Enclosure for balconies.**

(57) Enclosure for balconies wherein a horizontal profile (10) is attached to the front edge of each balcony slab (11A,11B), extending along said edge, and vertical profiles (35) spanning several balcony slabs (11A,11B) are connected to said horizontal profiles (10). Parapets (63) and fixed and/or displaceable windows (66,71,72,73) are provided in the openings defined by said profiles (10,35).



The invention relates to an enclosure for balconies, comprising a frame-work with parapets and fixed or displaceable windows mounted therein.

Prior art enclosures of this type require extensive metal sheet work in order to provide the necessary covering and sealing of existing joints in a frame-work supporting parapets and windows. Then, the enclosure to a great extent must be manufactured at the site by adjusting the sheet to the frame-work and connecting parts of the building, and has to be tailored according to the balcony configuration. Problem arise at variations in the surrounding temperature due to deformation of the sheet, existing rivet connections between frame-work and sheet being exposed to great strain. As a consequence thereof untightness of the sheet covering may arise with risk of corrosion.

The object of the invention is to provide an enclosure of the kind referred to which allows great flexibility with regard to the balcony configuration and can be built up by simple mounting of factory-made units without use of outside rivet connections and without the necessity of performing sheet work at the site, necessary ventilation, gas tightness and water drainage being maintained independently of existing temperature variations.

This object is achieved by the balcony enclosure according to claim 1.

In order to explain the invention in more detail reference is made to the accompanying drawings in which

FIG. 1 is a front view of one embodiment of the balcony enclosure,

FIG. 2 is a horizontal cross sectional view of the balcony enclosure of FIG. 1,

FIG. 3 is a front view of a second embodiment of the balcony enclosure according to the invention for a double balcony,

FIG. 4 is a horizontal cross sectional view of the embodiment in FIG. 3,

FIG. 5 is a horizontal cross sectional view of a corner and side portion in the embodiment according to FIGS. 1 and 2,

FIG. 6 is a perspective view of the profile attached to the front edge of the balcony,

FIG. 7 is a perspective view of the balcony profile forming part of the corner section according to FIG 5,

FIG. 8 is a horizontal cross sectional view of the central portion of the profile attached to the front edge of the balcony slab in the embodiment according to FIGS. 3 and 4,

FIG. 9 is a perspective view of the vertical profile provided in the central portion according to FIG. 8,

FIG. 10 is a horizontal cross sectional view of a corner portion in the embodiment according to FIGS. 3 and 4,

FIG. 11 is a vertical cross sectional view along

line XI-XI in FIG. 1,

FIG. 12 is a perspective view of a frame profile for a window and an associated snap rail,

FIG. 13 is a horizontal cross sectional view along line XIII-XIII in FIG. 1, and

FIG. 14 is a horizontal cross sectional view along line XV-XV in FIG. 1.

Referring to FIGS. 1, 2, 6 and 11 the balcony enclosure according to the invention comprises horizontal profile sections 10 attached to the front edge of the balcony slabs and extending along said edge, two balcony slabs one located above the other, being shown at 11A and 11B in FIG. 11. The profile sections are attached by means of bolts 12 engaged with nuts 13 molded into the slabs. The profile sections 10 are constructed as channels as will be more clearly seen in FIG. 6, having flanges 14 and 15 projecting perpendicularly from a web 16 which is attached against the edge surface of the balcony slab by means of bolts 12 and nuts 13. A groove 17 is provided on the web 16 for mounting a sealing strip 18, FIG. 11, of EPDM rubber for provide a smoke and gas seal between the profile 10 and the balcony slab. A cover 19 is supported at a hook-shaped portion on an upstanding edge flange 21 on flange 14 of profile 10, an edge flange 22 on flange 15 being received by a channeled portion 23 of the cover. A further edge flange 24 of flange 15 forms a drip extending downwards over the upper edge of the cover 19.

The horizontal profile sections attached to the balcony slab are connected to a number of vertical profiles located between adjacent ends of the horizontal profile sections and spanning several balcony slabs. Thus, there is shown in FIG. 5 a vertically extending channel profile 25 which is connected to another channel profile 26 to form together with said latter profile a box girder. Profile 25 is connected to the wall 27 of the building, and since the box girder consists of two interconnected parts 25 and 26 compensation can be made for deviation, if any, of the wall 27 from the vertical. Profile 25 extends along the wall and profile 26 extends along the vertical, and they are interconnected in these positions. Profile 25 has in a projecting flange 28 a groove for receiving therein a sealing strip 29 (a lip seal for sealing against the wall). An angle bracket 30 is connected at one flange thereof to profile 26 by means of a bolt 31 and is engaged with web 16 of profile 26 by means of a stop screw 32 which is screwed into an inside flange 33 of profile 10. Said one flange of angle bracket 30 is inserted into grooves defined by flange 33 and a flange 34 at the top of profile 10 (FIG. 6) and thus is received completely in said profile.

In the corners of the balcony enclosure in the embodiment according to FIGS. 1 and 2 where the corners do not form right angles, there are provided vertically extending corner profiles 35, FIG. 7, consisting of two parts 36 and 37. One part 36 forms a channel

and is connected to one end of the adjacent horizontally extending profile section 10 connecting at the other end to the wall 27, by means of an angle bracket 38 in the manner described with reference to said other end of profile section 10, connecting at the other end to the wall. The other part 37 is also connected in this manner by means of an angle bracket 39 to the other adjacent horizontal profile section 10 and is constructed as a closed box girder. Part 36 forms a hub 40 on which part 37 is rotatably mounted by means of an open tubular portion 41 so that said two parts 36 and 37 can be angled in relation to each other about a longitudinal axis in profile 35, defined by portions 40 and 41. Part 37 has a portion 42 curved about said axis, one flange of part 36 engaging the outside surface of said portion. This flange is constructed to engage longitudinal grooves in the outside surface of portion 42 to define a number of suitably chosen relative angular positions of parts 36 and 37. These parts each form a groove on a projecting flange 43 and 44, respectively, to receive therein a sealing strip 45 and 46, respectively, of the same type as sealing strip 29. By adjustment of the two parts 36 and 37 of the vertical profile 35 to different angles this profile can be adapted to the configuration of the balcony slab. However, the two parts can also be adjusted to be in line with each other, and this position is defined by a shoulder 47 on part 37 in cooperation with the end edge of the outer flange of part 36. The use of this adjusted position will be described below in connection with the embodiment according to FIGS. 3 and 4.

In the openings defined by the horizontal and vertical profiles there are mounted parapets as well as fixed and displaceable windows. In FIG. 11 there is shown how the mounting of parapets and windows is made. The mounting is effected by means of frame profiles which are single or double. In FIG. 11 there is shown a single horizontal frame profile 48 which is attached to the horizontal profile section 10 on the top side of flange 15 by means of screw connections 49 spacers 50 being provided between profile 48 and flange 15 to provide a water drainage and ventilation gap between profiles 10 and 48, through which water from the upper side of balcony slab 11A can escape and flow down over drip 24 and to which the balcony space obtained by means of the enclosure can be ventilated. The spacers can comprise one or more spacer bolts allowing the width of the gap to be adjusted. In FIG. 11 there is shown also an upper framing profile 51 of the same construction as framing profile 48, and between these profiles there is provided an intermediate double horizontal framing profile 52. Also vertical framing profiles are provided which are of the same construction as profiles 48 and 51, and these are shown in FIG. 1 at 53 and 54, profile 54 being shown also in more detail in FIG. 13. An intermediate double vertical framing profile of the same con-

struction as profile 52 is shown at 55 in FIG. 1 and in more detail in FIG. 13.

As will be seen from the perspective view in FIG. 12 the single framing profile comprises a box girder having a projecting flange 56 forming a groove for receiving therein a sealing strip. At the side of the box girder where flange 56 is provided there is also an angle flange 57 and an angle flange 58. A snap rail 59 having two hook-shaped flanges 60 and 61 is engaged by snap action with these angle flanges the hook-shaped flange 61 of snap rail 59 being flush with the outside of the box girder, a third flange 62 being in register with but spaced from the grooved portion of flange 56. Referring again to FIG. 11 it will be seen that a parapet 63 is attached between sealing strips 64 and 65 attached to flange 56 and flange 62 respectively, FIG. 12) by snap rail 59 being engaged by snap action with profile 48. The same attachment is provided at the lower side of the double profile 52. In the same way also a window pain 66 is attached to the upper side of the double profile 52 and to profile 51 by means of snap rails. This attachment of parapets and window pains, respectively, provided in the manner described along the horizontal edges of the parapet and the window pain, respectively, is applied in a similar manner at the vertical edges as shown in FIG. 13 regarding parapet 63. The sealing strips comprise snap seals, and it can be seen from FIG. 13 how sealing strip 45 on the vertical corner profile 35 engages the outside surface of vertical profile 54. A snap rail 67 is attached by snap action to part 37 to keep a corresponding sealing strip 68 engaged with profile 54 on the outside surface thereof. At the remaining vertical and horizontal framing profiles attachment and seal by means of snap rails is provided in a corresponding manner as that described with reference to specific profiles, as will be seen from the drawings.

On the upper side of the horizontal profile 51 there is mounted a lower guide rail 69, and on the lower side of profile 10 of the balcony slab 11B there is mounted an upper guide rail 70 for supporting and guiding three window panels 71, 72, and 73, but these elements are of common standard construction and therefore will not be described in detail because the window panels and the guides thereof can be constructed in a known manner, which is true also as far as the vertical rails 74 and 75 are concerned, which are attached to the vertical corner profiles 35 and form side frame elements in the window panel opening.

In the embodiment of FIGS. 3 and 4 the corners of the balcony enclosure form right angles and, therefore, it is not necessary to use adjustable vertical profiles of the construction shown for example in FIG. 7. Box profiles 76 made in one piece can instead be provided otherwise mounted in the same way as described previously with reference to profile 35. A vertical intermediate profile 77 is of the same construction as

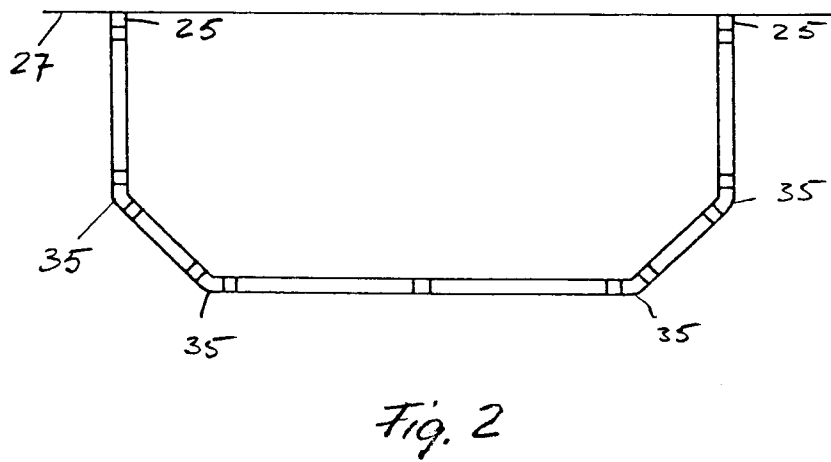
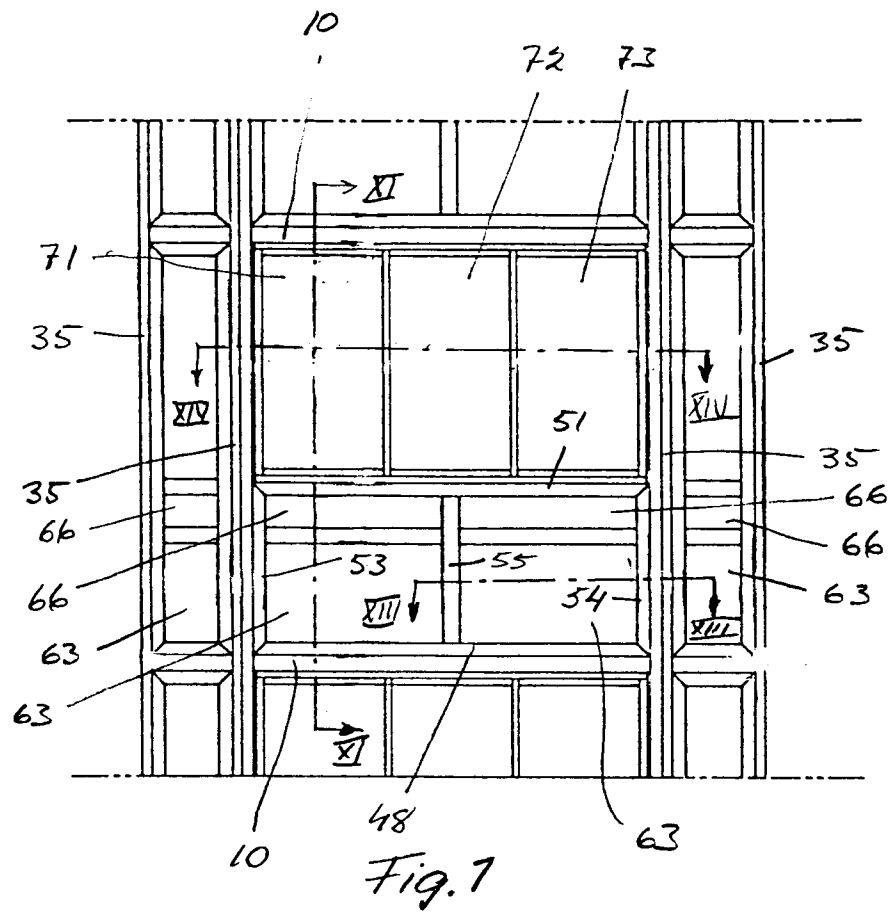
profile 35 but is adjusted to the end position in which the two parts of the profile are in line with each other as shown in FIG. 9, the end edge of part 36 engaging the shoulder 47 of part 37. The attachment of profile 77 is the same as has been described previously with reference to profile 35. Otherwise the embodiment of FIGS. 3 and 4 are previously the same as described with reference to the embodiment of FIGS. 1 and 2.

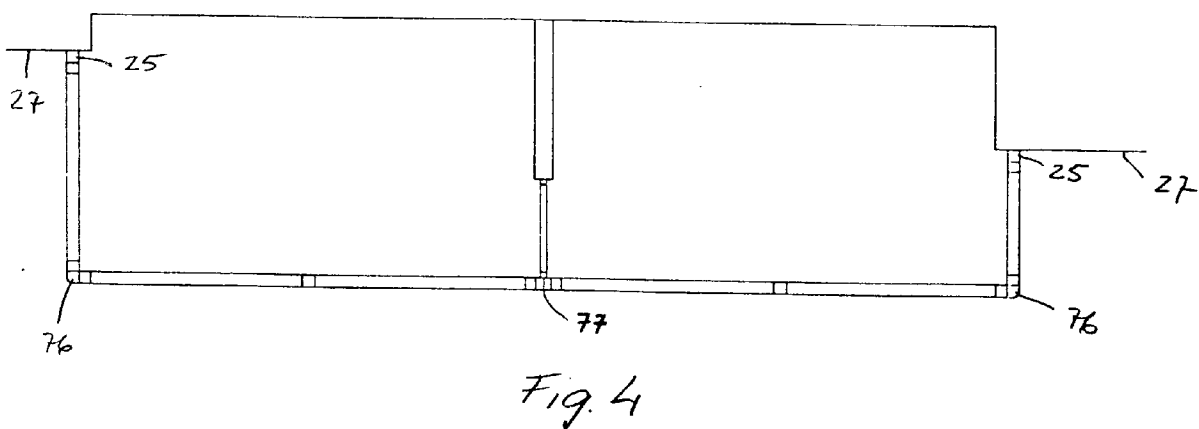
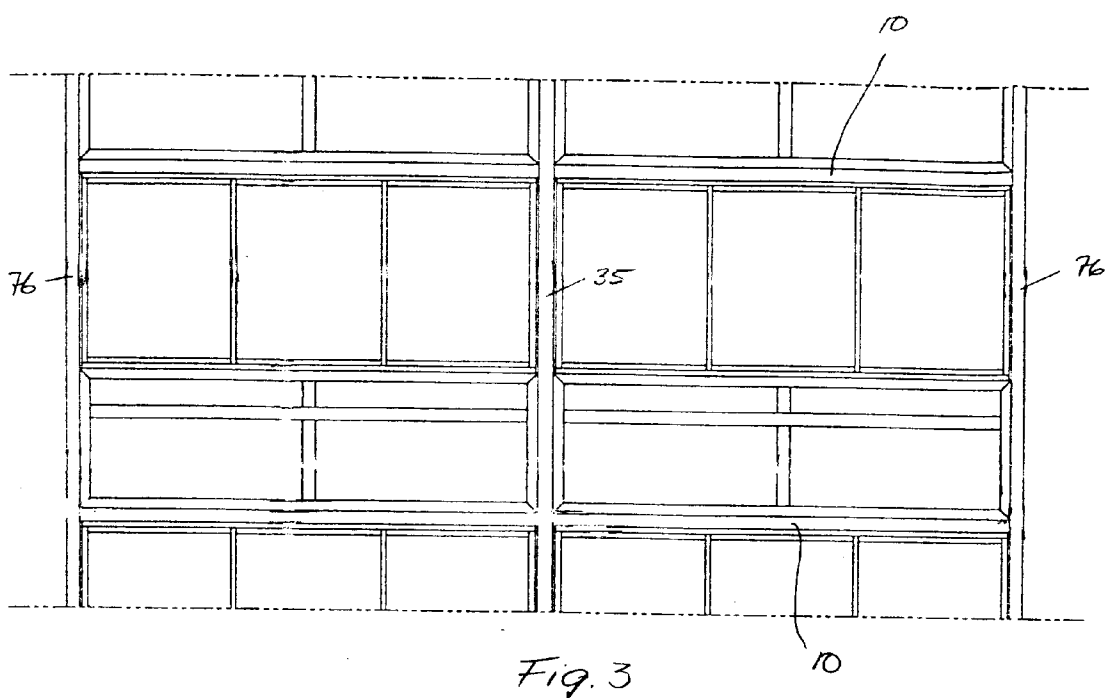
Thus, it will be seen that the balcony enclosure can be built up of relatively few profile types and with window panels of standard type, that the mounting can take place in a simple manner with screw and rivet connections and by using easily mounded snap rails to a large extent and that it is possible to adapt the balcony enclosures to different configurations of the balcony by using profile 35. It is also possible to vary the position and the distribution of windows and parapets in accordance with individual wishes by using the profiles described. Summarizing, there are obtained by the invention large possibilities to construct balcony enclosures in many different manners by using few profile types and building elements, which means that the balcony enclosure can be made cheap in manufacturing as well as mounting.

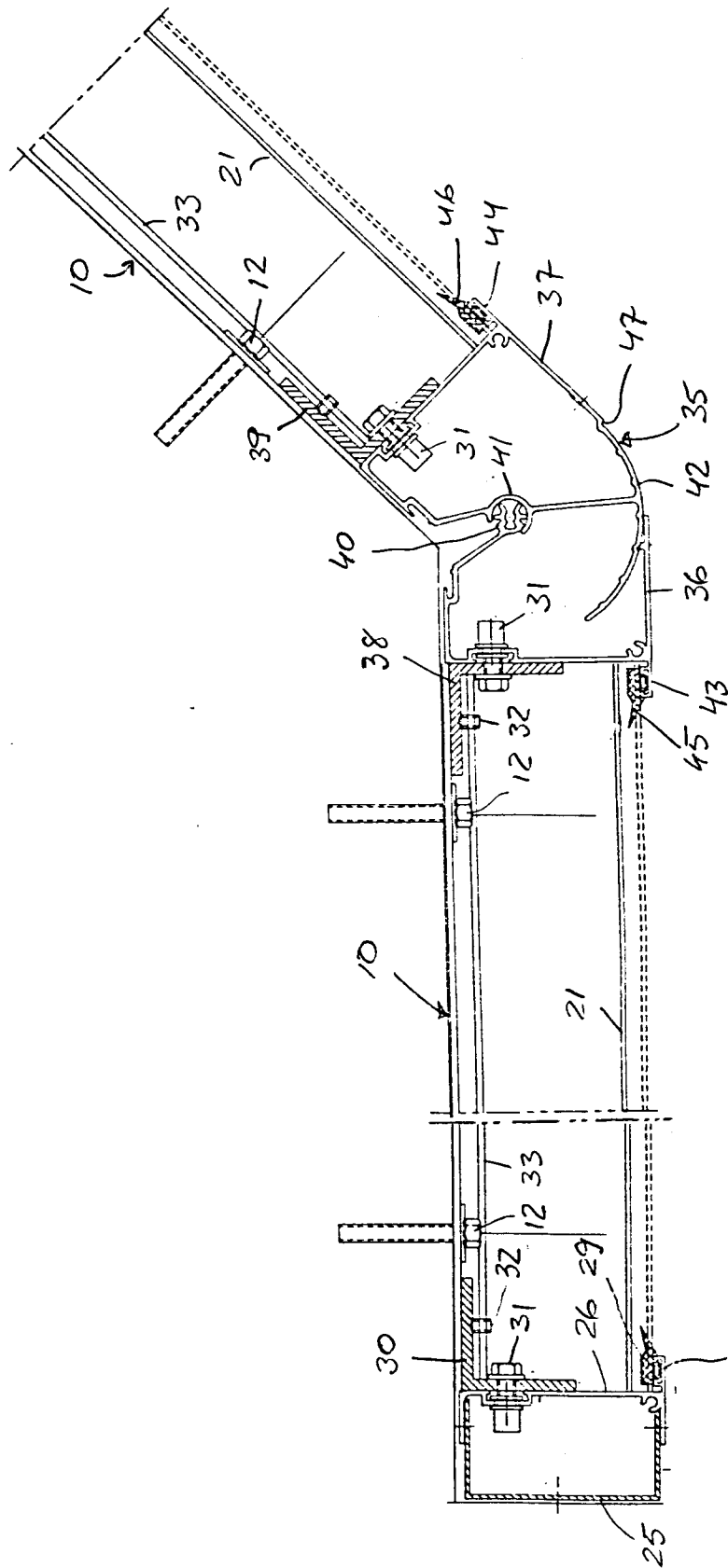
All profiles and rails preferably consist of anodized or lacquered aluminium. Also the angle brackets are preferably made of aluminium.

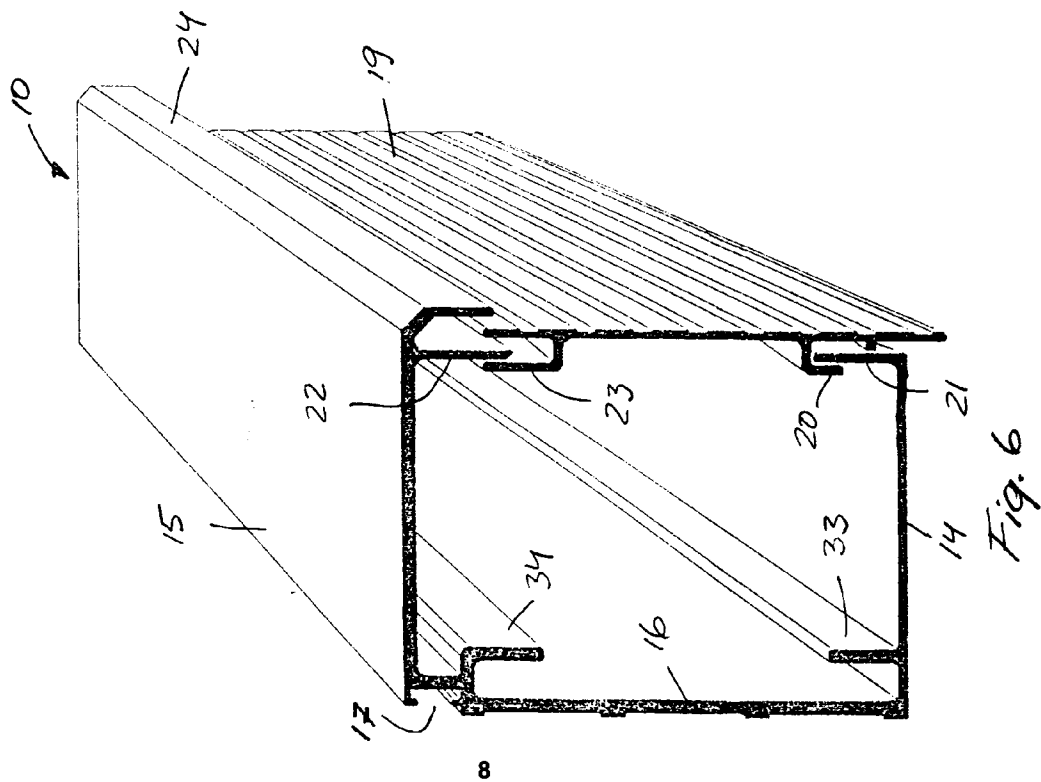
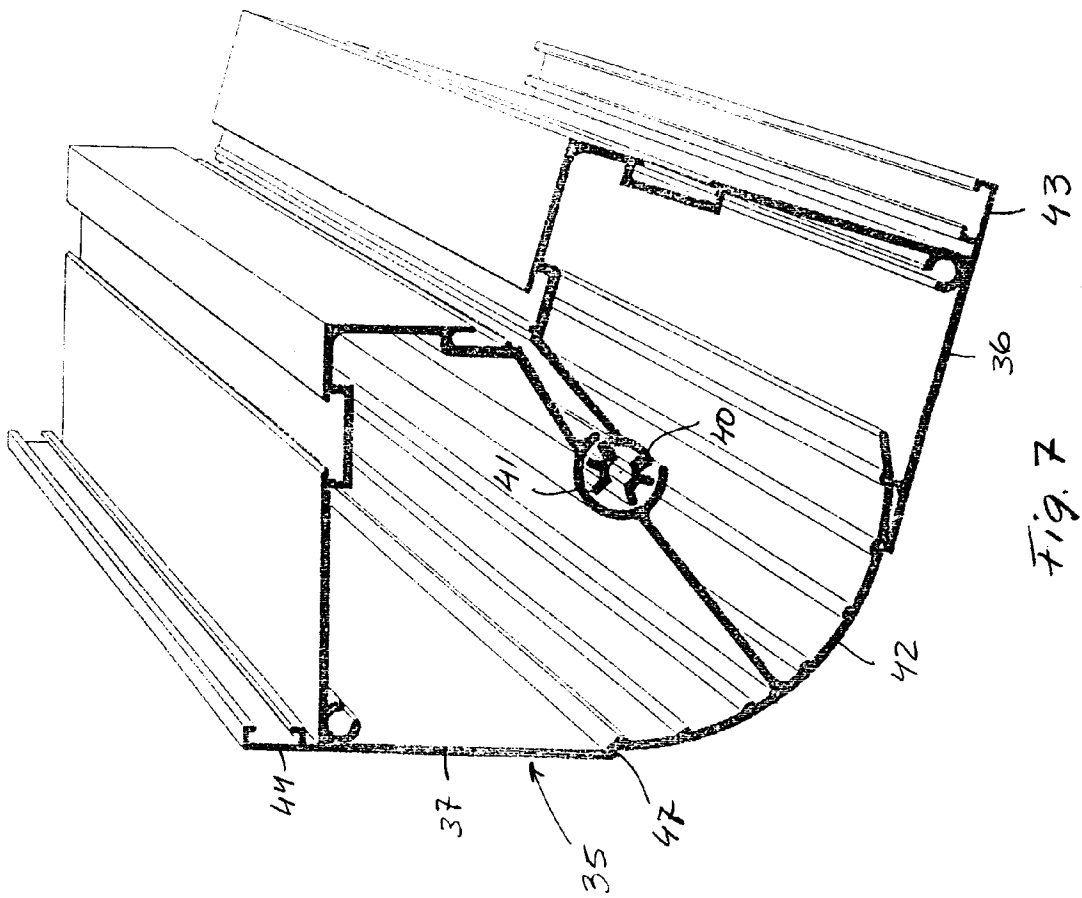
## Claims

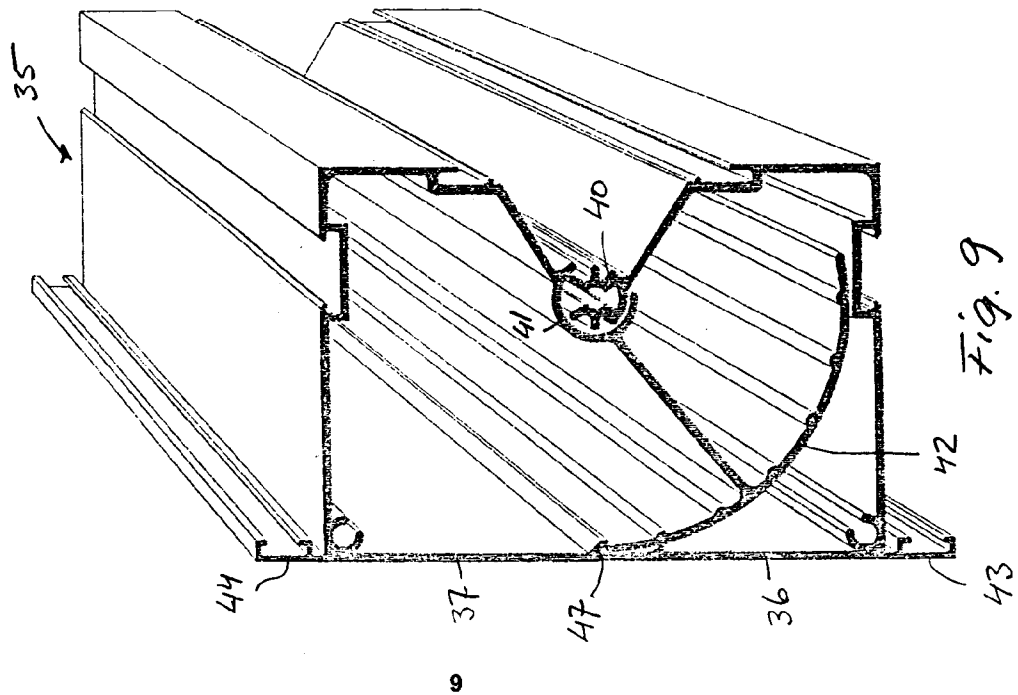
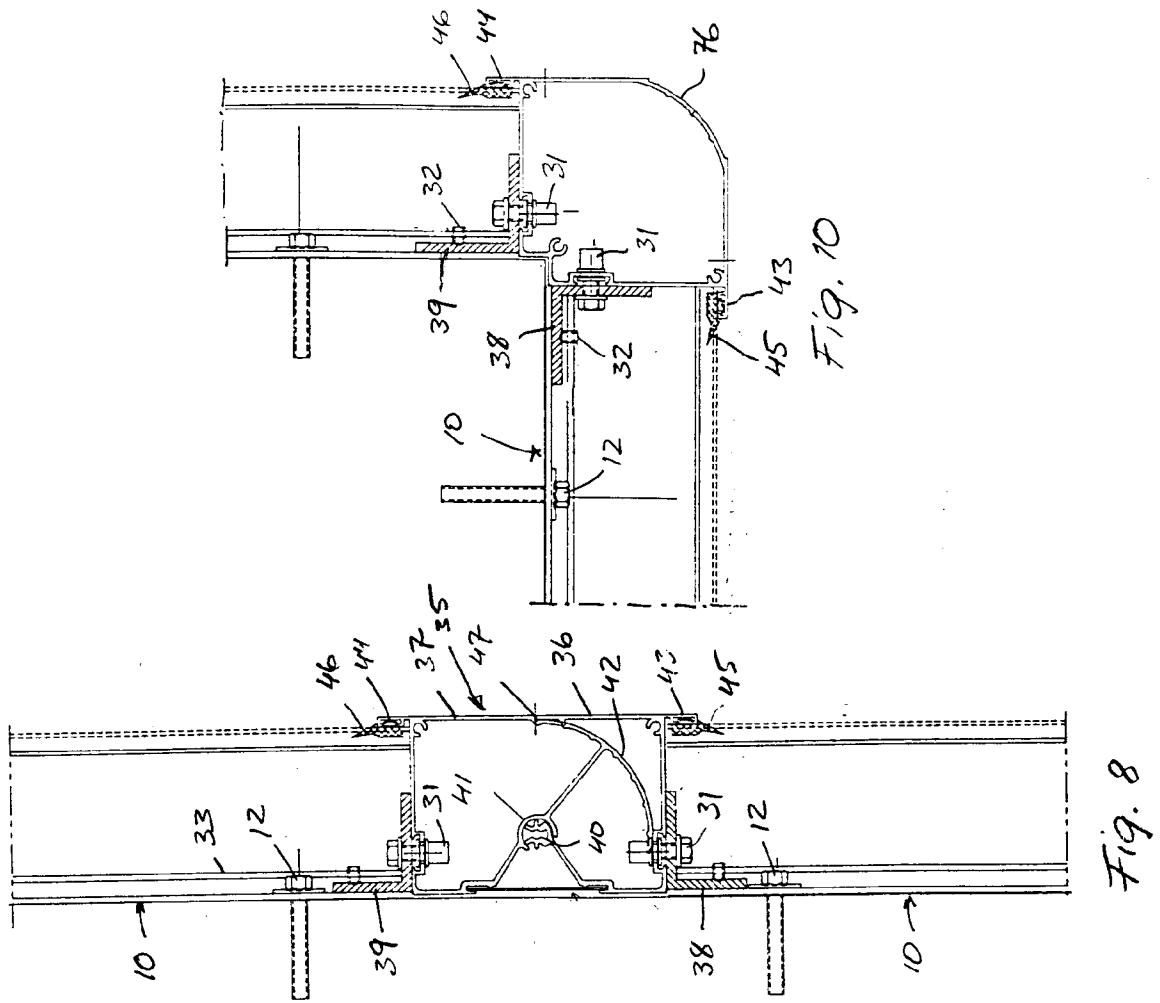
1. Enclosure for balconies comprising a frame-work with parapets (63) and fixed or displaceable windows (66, 71, 72, 73), **characterized** in that a horizontal profile (10) is attached to the front edge of each balcony slab (11A, 11B) extending along said edge and concealing the edge, and that vertical profiles (25, 26; 75, 76) spanning several balcony slabs are connected with the horizontal profiles, parapets (63) and windows (66, 71, 72, 73) being mounted in the openings defined by said profiles.
2. Enclosure as in claim 1 wherein the horizontal profiles (10) attached to the balcony slabs (11A, 11B) are provided with adjustable spacers (50) for adjustment of the horizontal position of the parapets and windows.
3. Enclosure as in claim 1 or 2 wherein the vertical profiles (25, 26; 75, 76) are connected with the horizontal profiles (10) by means of angle brackets (30).
4. Enclosure as in any of claims 1 to 3 wherein vertical profiles (35) consist of two parts (36, 37) which can be angled in relation to each other about a vertical axis, one of said parts being channelled and the other being box-shaped and has a portion (42) curved around said axis and engaging the inside surface of one flange of said one part.
5. Enclosure as in claim 4 wherein the curved portion (42) and said one flange are interengaged in predetermined angular positions in order to define said positions.
6. Enclosure as in claim 4 and 5 wherein the curved portion (42) has a shoulder (47) for engagement with the end edge of said one flange when the two parts (36, 37) are in line with each other.
7. Enclosure as in claim 1 wherein a gas and air seal (18) is provided between the balcony slabs (11A, 11B) and the horizontal profiles (10) attached thereto.
8. Enclosure as in claim 1 wherein profiles (48, 51, 52) extending between the vertical profiles (25, 26; 75, 76) are attached between the horizontal profiles (10) in parallel therewith.
9. Enclosure as in claim 1 wherein the horizontal profiles (10) attached to the balcony slabs (11A, 11B) comprise channel profiles the web of which is attached to the balcony slabs, a cover (19) being engaged between the flanges (14, 15) of the profile.
10. Enclosure as in claim 1 wherein parapets (63) and fixed windows (66) are attached against shoulders (56) of surrounding profiles by means of rails (59) by snap action.
11. Enclosure as in claim 10 wherein sealing strips (64, 65) are provided between profiles and seals.
12. Enclosure as in claim 10 or 11 wherein a water drainage or ventilation gap is provided between the horizontal profiles (10) attached to the balcony slabs (11A, 11B), and profiles (48) mounted on top of the horizontal profiles for the attachment of parapets (63) or fixed windows.

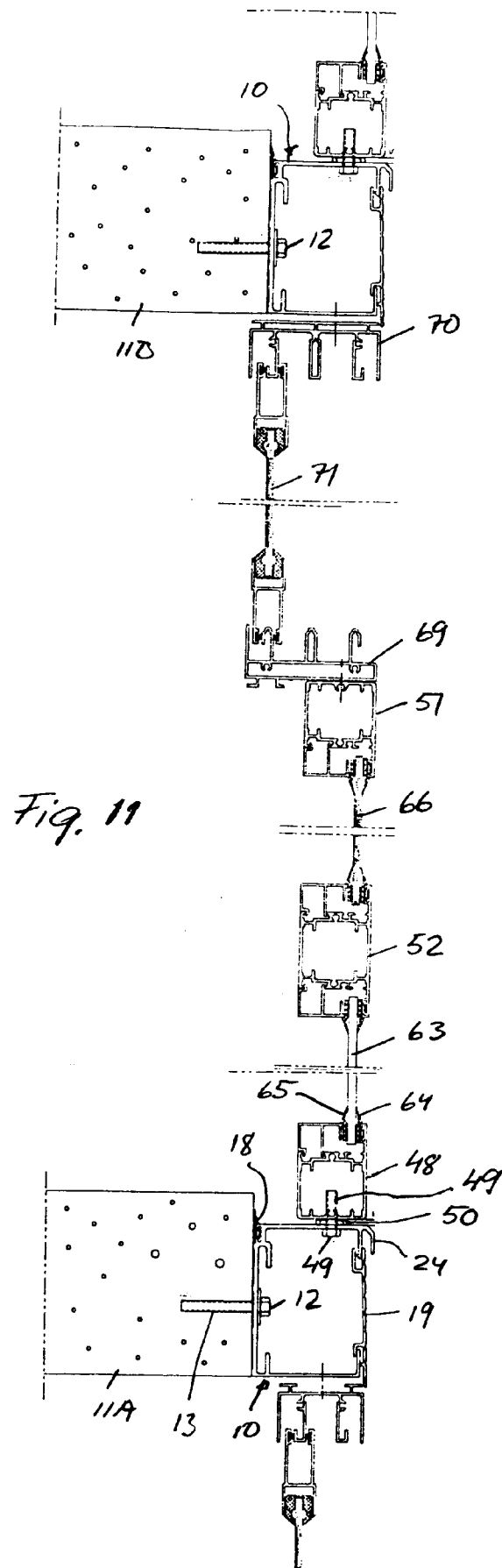












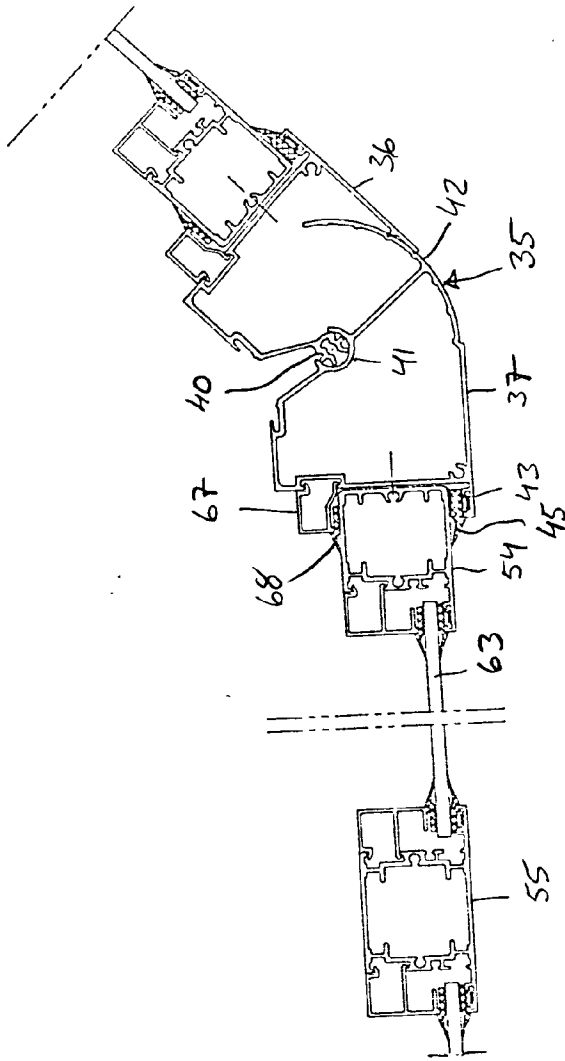


Fig. 13

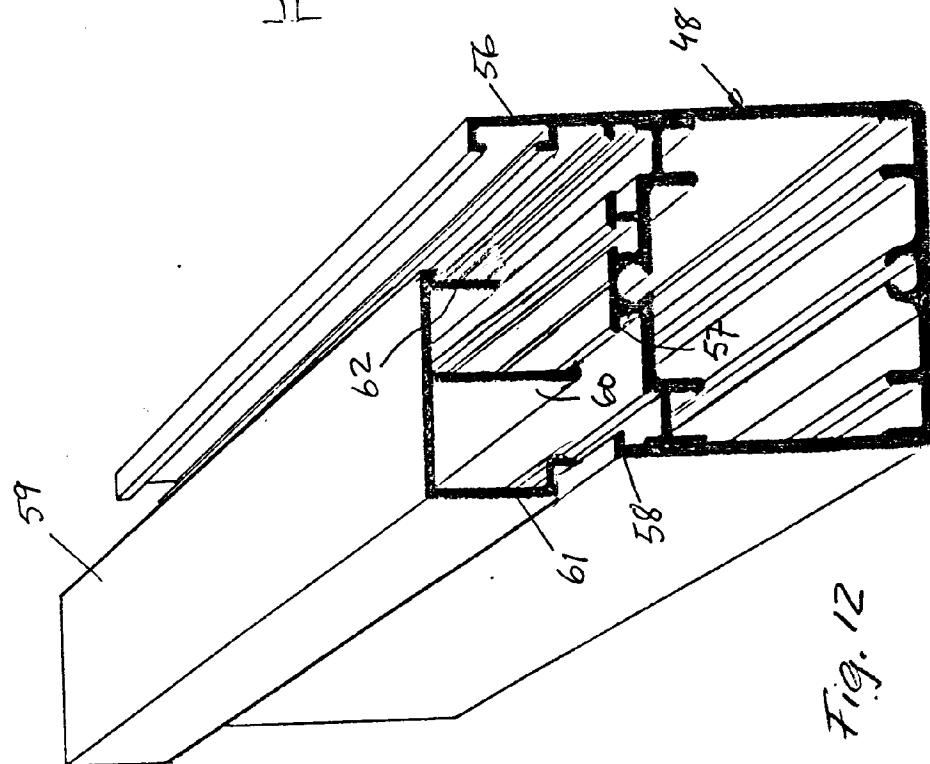


Fig. 12

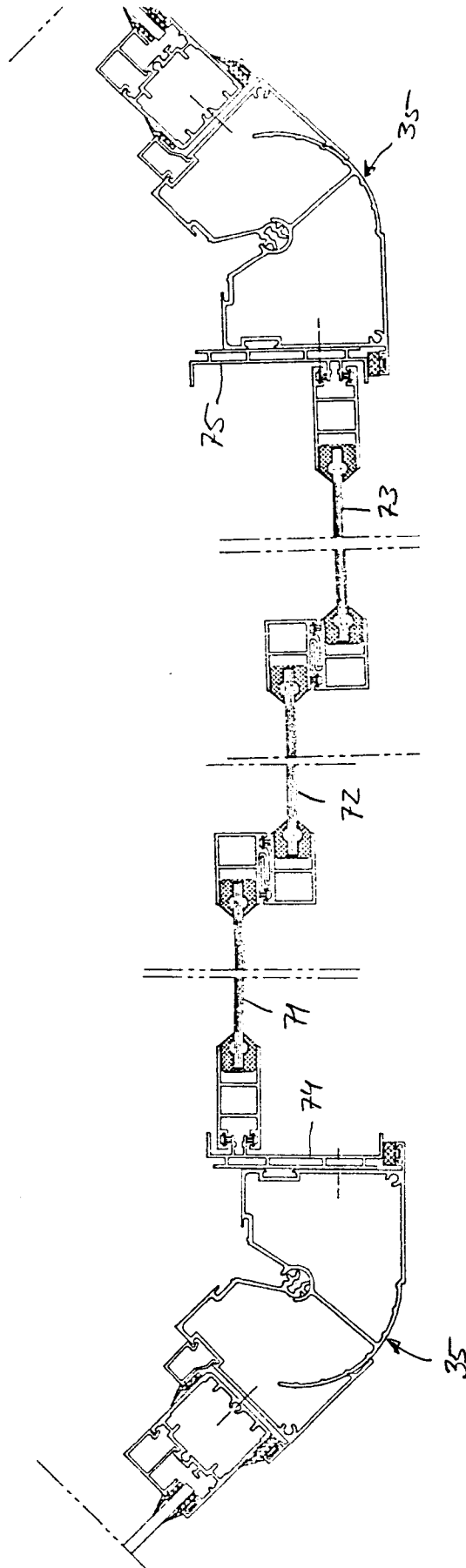


Fig. 14



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# EUROPEAN SEARCH REPORT

Application Number  
EP 93 85 0208

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                             |                                                     |                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Citation of document with indication, where appropriate, of relevant passages                                               | Relevant to claim                                   | CLASSIFICATION OF THE APPLICATION (Int.Cls)         |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EP-A-0 474 582 (V. KANN RASMUSSEN)<br>* column 2, line 28 - line 45; figures 1-6<br>*                                       | 1                                                   | E04B1/00<br>E04B2/96                                |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EP-A-0 195 662 (ELEMETA)<br>* page 5, line 12 - line 23; claim 1;<br>figures 3,4 *                                          | 1                                                   |                                                     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DE-U-85 35 450 (ALCAN ALUMINIUMWERKE)<br>* page 13, paragraph 2 - page 14,<br>paragraph 1; figures 1,5 *                    | 2                                                   |                                                     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | GB-A-2 153 871 (YOSHIDA KOGYO)<br>* page 7, line 34 - line 38 *<br>* page 7, line 107 - page 8, line 1;<br>figures 8,9,15 * | 3                                                   |                                                     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FR-A-2 670 251 (ALUVAR)<br>* figures 1-4,10,11,19 *                                                                         | 4-6                                                 |                                                     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DE-U-92 07 578 (H. LENZ)<br>* figures 1,2 *                                                                                 | 8                                                   | TECHNICAL FIELDS<br>SEARCHED (Int.Cl.5)<br><br>E04B |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                             |                                                     |                                                     |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                             | Date of completion of the search<br>1 February 1994 | Examiner<br>Kriekoukis, S                           |
| <b>CATEGORY OF CITED DOCUMENTS</b><br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>F : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                                                                                             |                                                     |                                                     |

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