(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 447 487 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
18.08.2004 Bulletin 2004/34

(51) Int Cl.[7]: **E04B 2/82**

(21) Application number: **04003103.1**

(22) Date of filing: **12.02.2004**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(30) Priority: **13.02.2003 IT pd20030025**

(71) Applicant: **Mason, Luca**
35010 Villa del Conte (Padova) (IT)

(72) Inventor: **Mason, Luca**
35010 Villa del Conte (Padova) (IT)

(74) Representative: **Gustorf, Gerhard, Dipl.-Ing.**
Patentanwalt,
Bachstrasse 6 A
84036 Landshut (DE)

(54) Modular profiles for fixing prefabricated curtain and / or partition walls complete with a skirting strip to floors

(57) The inventions concerns novel modular profile elements for fixing prefabricated partition walls (T) to the floor (P), complete with a skirting strip, comprising a base element (F) for fixing to the floor (P), which has a flat underside (F1) and upper cavities (F2) with a spherical or droplet-shaped cross-section, a side element (R) suitable for retaining the bottom edge of the partition wall panel (T) and adhering to the surface of the partition wall panel (T) and to the floor (P), with a generically triangular shape with a side wing (R1a) complete with a spherical or droplet-shaped raised rim (R1ar) at the bottom end that slots into the cavities (F2) in the base element (F), a bridging element (G) suitable for connecting several adjacent base elements (F) together. There are also other, larger-sized side skirting strips (Mr1, Mr2) that can be applied to suitable side skirting support elements (Ma).

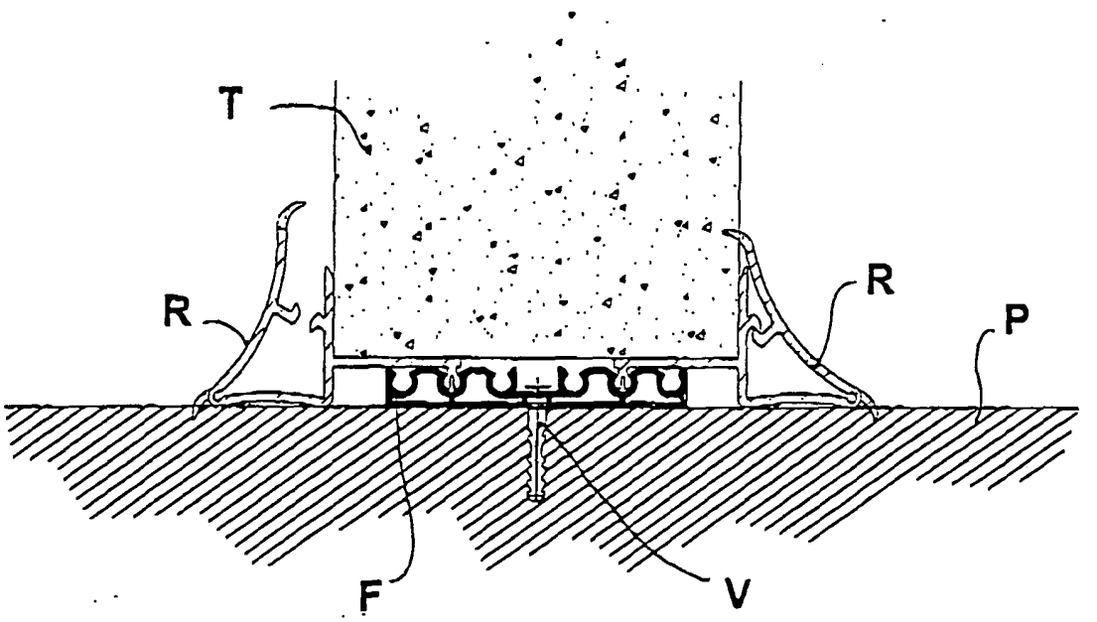

Fig. 5

EP 1 447 487 A2

Description

[0001] This patent concerns the prefabricated walls used in civil, industrial and farming buildings, cold stores, slaughterhouses, etc.

[0002] Curtain walling panels or gypsum wallboard partitioning panels are attached to floors or foundations by means of a straightforward metal or plastic U-shaped profile fixed to the floor with screws. To fix the partitioning panels adequately, however, it is important to use U-shaped profiles of exactly the same width as the thickness of the panel.

[0003] When a room is divided, partitioning panels of different thicknesses are used, e.g. a greater thickness for the main partitions and a narrower thickness for the other, secondary partitions.

[0004] As a consequence, different profiles of suitable width for each panel have to be purchased, cut to size and attached to the floor, with the corresponding economic cost and inconvenience of more shorts, alignments and connectors.

[0005] Moreover, this situation obliges us to keep numerous profiles of different width in stock, even if they are only rarely used.

[0006] The above-described systems for fixing partition walls also present several severe drawbacks.

[0007] In some rooms, e.g. slaughterhouses and cold stores, it becomes necessary for reasons of hygiene to clean and wash the floor and walls very frequently. This washing and cleaning is done with jets of water under pressure. That is why the walls and floors of such rooms are coated with a water-repellent lining and the prefabricated panels and walls used to divide such rooms comprise an insulating layer coated on the main surfaces with a water-repellent layer.

[0008] Both rainwater and the water or other fluids used for cleaning can seep between the floor and the bottom edge of the panel, wetting the floor of the inner or adjacent room.

[0009] The liquid filtering between the floor and the wall can carry dirt and infections that stagnate in the space between the bottom edge of the panel and the floor, which thus becomes a trap for germs that is difficult to clean and makes all subsequent cleaning and disinfecting operations scarcely effective.

[0010] Moreover, the water and washing fluids may penetrate inside the U-shaped profile fixing the panel to the floor and soak into the bottom of the panel's insulating layer, leading to the rapid deterioration of the panel.

[0011] In some cases, attempts have been made to avoid these problems by providing silicone linings in the various cavities, with the result of making it difficult and laborious to rearrange the partition walls and interfering with the level of hygiene achievable in the rooms concerned.

[0012] To overcome all said drawbacks, modular profiles have been studied and developed for attaching prefabricated curtain or partition walls to floors or foundations, thereby providing a skirting strip.

[0013] The aim of the new modular profiles is to enable the bottom edge of prefabricated partition walls of any thickness to be fixed to the floor.

[0014] Another aim of the new modular profiles is to adhere perfectly to the surfaces of the wall and floor, thereby preventing any infiltration and seepage of water or other fluids.

[0015] A further aim of the new modular profiles is to enable a straightforward and rapid rearrangement of the walls.

[0016] These and other direct and complementary aims are achieved by the new modular profiles for fixing prefabricated walls to floors or foundations, complete with a skirting strip, comprising a base element, a side element, a bridging element, a side support for the skirting strip, and side skirting strips.

[0017] The base element has a generically comb-like cross-section, i.e. it has one flat side and a series of cavities, generically with a droplet-like shape, on the opposite side. This base element is attached to the floor, e.g. by means of screws, in the position where the partition wall panels are to be installed.

[0018] The side elements have a generically right-angle triangular cross-section with their oblique side forming a concave arch, acting as the skirting strip, and extending beyond the straight sides of the generically triangular shape. These portions extending beyond the straight sides are flexible, being made of a different material and/or being thinner.

[0019] On one of the two straight sides there is a wing extending outwards from the generically triangular cross-section, parallel to the other side, with a raised rim at the end. Said rim has a generically spherical or droplet-like shape and is designed to fit into the cavities in the above-described base element.

[0020] These side elements retain the bottom edge of the partition wall panel while their flexible portions adhere to the surface of the partition wall panel and to the floor.

[0021] Depending on the thickness of the wall panel, the raised rims on the side elements will fit into the innermost, intermediate or outermost cavities in the base element.

[0022] Other, larger-sized side skirting strips are provided, for attaching to suitable side skirting supports. The larger side skirting strips have an arched shape, with flexible ends, and they snap onto the aforementioned side skirting supports. The side skirting supports have a generically triangular shape with a wing complete with a droplet-shaped rim that can be attached to the base element. Both the side elements and the side supports serve the purpose of containing the wall.

[0023] For thicker partition wall panels, there are also jointing elements comprising a flat panel fitted at the ends with generically droplet-shaped raised rims lying perpendicular to said flat panel and facing the same side, so as to couple two base elements lying side by

side

[0024] The characteristics of the new modular profiles for fixing prefabricated partition walls to floors and forming a skirting strip will be better explained by the description that follows, referring to the attached drawings, which serve as a non-restrictive example.

[0025] Figure 1 shows a cross-section of the base element (F), figures 2a and 2b show a cross-section of the open and closed side element (R), figure 3 shows a cross-section of a budging element (G), figures 4a, 4b and 4c show the skirting side support (Ma) and two side skirting strips (Mr1) and (Mr2), respectively.

[0026] Figures 5 and 6 show two examples of the application and use of the modular elements (F, R, G, Ma, Mr1, Mr2) for attaching a wall panel (T) to the floor (P).

[0027] The base element (F) has a generically comb-like cross-section, i.e. it has a flat underside (F1) and a series of generically spherical or droplet-shaped cavities on the top (F2).

[0028] The flat side (F1) of the base element (F) is designed to enable the base element (F) to rest on the floor.

[0029] The cavities (F2) on the other side of the base element (F) lie parallel to each other and to the extruded edge of the base element profile (F). These cavities (F2) have a preferably circular cross-section with an opening at the top that is narrower than their diameter.

[0030] In a position preferably central to the base element (F), between and parallel to the cavities (F2), there is a groove (F3) to allow for the insertion of a screw (V) for fixing the base element (F) to the floor.

[0031] The side elements (R) have a generically right-angle triangular cross-section with the oblique side forming a concave arch (R3) and extending beyond the straight sides (R1, R2) of the generically triangular shape.

[0032] The portions (R3e) of said arched side (R3) that extend beyond the other two straight sides (R1, R2) are flexible, i.e. they are made of another material and/or are thinner

[0033] On the inner surface of the said arched side (R3) there is a tooth (R3d) or an arrow-shaped rib.

[0034] On the vertical straight side (R1), hereinafter called the first straight side (R1), there is a tooth (R1d) facing towards the inside of the triangular shape, and a wing (R1a) extending outwards from the triangular shape

[0035] This wing (R1a) is generically horizontal and lies parallel to the second straight side (R2), and it has a spherical or droplet-shaped rim (R1ar) facing downwards on its free end.

[0036] This rim (R1ar) is designed to fit into the droplet-shaped cavities (F2) in the base element (F).

[0037] The above-described side element (R) is such that the two straight sides (R1, R2) are joined together, while the arched side (R3) is jointed-hinged onto the outer end of the second straight side (R2). Basically, this arched side (R3) is open, i e. it is detached from the first straight side (R1), before and during the application of the side element (R) onto the base element (F), and it is subsequently closed, i.e. it is turned towards the first straight side (R1), so that its tooth (R3d) becomes hooked onto the tooth (R1d) on the first straight side (R1). In the closed position, the ends (R3e) of the arched side (R3) press against and adhere to the floor (P) and to the partition wall panel (T).

[0038] The jointing elements (G) are composed of a flat panel (G1) fitted at the ends with generically spherical or droplet-shaped rims (G2) that face downwards.

[0039] These jointing elements (G) are used to couple two base elements (F) lying side by side and thereby enable thicker panels (T) to be fixed to the floor (P).

[0040] The side skirting support (Ma) is substantially composed of walls (Ma1, Ma2, Ma3) similar to the walls of the side element (R), with the corresponding wing (Maa) complete with a rim (Maar). In particular, the arched wall (Ma3) of the side skirting support (Ma) has a tooth (Ma3d) in the vicinity of the bottom wall (Ma2), and an arched rim facing upwards (Ma3u) in the vicinity of the top end of said arched wall (Ma3).

[0041] The small side skirting strip (Mr1), illustrated in figure 4b, is composed of a boxed section, or two arched walls (Mr1a, Mr1b) lying generically parallel and coupled together by various intermediate small partitions (Mr1c).

[0042] The outer arched wall (Mr1a) extends further than the inner arched wall (Mr1b) and its ends are flexible, being made of a different material and/or having different thickness.

[0043] The inner arched wall (Mr1b) has loops or grooves (Mr1d, Mr1e) designed so as to hook over the arched rim (Ma3u) and the tooth (Ma3d) on the side skirting support (Ma).

[0044] A large side skirting strip (Mr2), illustrated in figure 4c, is similar to, but higher than the previously-described small side skirting strip (Mr1).

[0045] In particular, this large side skirting strip (Mr2) has a portion of the outer arched wall (Mr2a) that can be opened and closed (Mr2f), to allow for the passage and insertion of a screw (V) for fixing said large side skirting strip (Mr2) to the partition wall panel (T).

[0046] The various modular profile elements (F, R, G, Ma, Mr1, Mr2) for attaching prefabricated walls (T) to floors (P) and forming a skirting strip are thus installed in a few simple steps.

[0047] The base element (F) is fixed to the floor (P) along the line of installation of the vertical wall (T) with the aid of several screws (V) inserted in the central groove (F3), between the droplet-shaped cavities (F2).

[0048] In the event of the side elements (R) being used, these are attached to said base element (F) so that their spherical or droplet-shaped raised rims (R1ar) fit into a cavity (F2) in the base element (F). In particular, these spherical or droplet-shaped rims (R1ar) are inserted into the most suitable cavity (F2), so that the first, vertical straight side (R1) of the two side elements (R) attached to either side of the base element (F), comes

exactly up against the partition wall panel (T)

[0049] The arched wall (R3) of the side elements (R) is left open, i e. it is unhooked from the first straight side (R1).

[0050] The partition wall panel (T) rests on the base element (F), between the two side elements (R).

[0051] Finally, the arched walls (R3) of the side elements (R) are closed, i.e. they are turned up until the tooth (R3d) on the arched wall (R3) hooks onto the tooth (R1d) on the first straight wall (R1). The ends (R3e) of the arched wall thus adhere perfectly to the surface of the floor (P) and of the partition wall panel (T).

[0052] In the event of the panel (T) being of considerable thickness, two or more base elements (F) can be attached to the floor side by side and coupled with bridging elements (G).

[0053] When the side skirting strips (Mr1, Mr2) are used, the corresponding side skirting supports (Ma) are attached to the one or more base elements (F) and the partition wall panel (T) is placed between them, where the wall (Ma1) of the side supports (Ma) serves the purpose of containing the panel (T).

[0054] Finally, suitable side skirting strips (Mr1, Mr2) are attached to said side skirting supports (Ma), as necessary.

[0055] The new modular profile elements (F, R, G, Ma, Mr1, Mr2) for fixing prefabricated partition wall panels (T) to floors (P) and forming a skirting strip, constituted as described above, offer the following considerable advantages.

[0056] The new modular profiles enable the bottom edge of prefabricated partition walls of any thickness to be fixed in place simply by attaching the side elements (R) or side skirting supports (Ma) in suitable positions on the base elements (F). There is no need for a variety of different elements for fixing the partition wall panels (T), since the above-described modular profile elements (F, R, G, Ma, Mr1, Mr2) adapt to any thickness of partition wall panel (T).

[0057] The modular profile elements (F, R, G, Ma, Mr1, Mr2) can easily be removed and repositioned numerous times.

[0058] The flexible ends of the side elements (R) and of the side skirting strips (Mr1, Mr2) adhere perfectly to the surfaces of the partition wall (T) and floor (P), thereby preventing any infiltration or seepage of water or other fluids.

[0059] Figure 7 shows a preferred alternative solution, where the base element (F') has its flat side (F1') uppermost and a set of cavities (F2') in the underside. In the middle of the element (F') there are one or more seats (F3') for fixing screws. Congruously, the side element (R') is complete with a tooth (R1 ar') that faces upwards, suitable for inserting in the cavities (F2').

[0060] Figure 8 shows the end sealing element (Z), or plug, complete with a wall (Z1) and edges (Zb), and the corresponding devices for its insertion and hook-up (Zx), suitable for fitting into the cavities (F2). This element can be divided into two parts, depending on the thickness of the wall.

[0061] Figure 9 shows a corner element (A) composed of a flat bottom part (A1), that is basically square with a rounded angle (Ar), and devices (A2) for hooking together the profiles (F) on two adjacent sides, in order to connect two profiles (F) lying at right angles to each other with the aid of pins (A2) designed to fit into the cavities (F2).

[0062] The resulting spaces or small compartments, e.g. those coming between the wall (R3) and the walls (R1) and (R2), could be affected by the formation of colonies of moulds, bacteria and other harmful organisms. To prevent this from happening, these spaces are saturated with a PVC foam or other filler.

[0063] Therefore, with reference to the previous description and to the enclosed drawings, the following claims are put forth.

Claims

1. System for fixing prefabricated curtain and/or partition walls complete with skirting to floors, comprising at least one base element (F) and one side element (R), **characterized in that**:

   the base element (F) has a generically comb-like cross-section, i.e. it has one flat side (F1) and a set of generically spherical or droplet-shaped cavities (F2) on the other side,
   the side element (R) has a generically right-angle triangular cross-section with the oblique side forming a concave arch (R3) that extends beyond the straight sides (R1, R2), and wherein on the vertical straight side (R1) there is a generically horizontal wing (R1a) extending outwards from the triangle and presenting a spherical or droplet-shaped rim (R1ar) on its free end that is suitable for slotting into one of the cavities (F2) in the base element (F).

2. Modular profile elements, according to claim 1, **characterized in that** said base element has said flat side (F1) at the top and said set of generically spherical or droplet-shaped cavities (F2) on the underside.

3. Modular profile elements, according to claim 1, **characterized in that** said base element has said flat side (F1) at the bottom and said series of generically spherical or droplet-shaped cavities (F2) on the upper side.

4. System for fixing prefabricated curtain and/or partition walls to floors, complete with skirting, comprising at least one base element (F) and one side element (R), according to the previous claims, **char-**

acterized in that the base element (F) has a groove (F3) for inserting a screw (V) or other means for attaching said base element (F) to the floor (P).

5. Modular profile elements, according to the previous claims, **characterized in that** the portions (R3e) of the arched side (R3) of the side element (R) that extend beyond the two straight sides (R1, R2) are flexible, i.e. they are made of another material and/or are thinner.

6. Modular profile elements, according to claims 1, 2, 3, 4 and 5, **characterized in that** the arched side (R3) of the side element (R) is jointed/hinged to the outer end of the horizontal straight side (R2) and detached from the vertical straight side (R1), and wherein said vertical straight side (R1) has a tooth (R1d) facing towards the inside of the triangular shape, and wherein said arched side (R3) has a tooth (R3d) or arrow-shaped rim on its inner surface designed to hook onto said tooth (R1d) of said vertical straight side (R1)

7. System for fixing prefabricated curtain and/or partition walls to floors, according to claims 1, 2, 3, 4, 5 and 6, **characterized in that** it comprises a bridging element (G) comprising a horizontal flat wall (G1) fitted at the ends with generically spherical or droplet-shaped raised rims (G2) facing downwards, suitable for fitting each into one of the cavities (F2) in two base elements (F) placed side by side.

8. System for fixing prefabricated curtain and/or partition walls to floors, according to claims 1, 2, 3, 4, 5, 6 and 7, **characterized in that** it comprises a side skirting support (Ma) and a side skirting strip (Mr1, Mr2), and wherein the side skirting support (Ma) is basically composed of walls (Ma1, Ma2, Ma3) with a corresponding wing (Maa) complete with a raised rim (Maar), similar to the side element (R) described in claim 1, and with a tooth (Ma3d) on the arched wall (Ma3) near the bottom wall (Ma2) and an arched rim facing upwards (Ma3u) near the top end, and wherein the side skirting strip (Mr1, Mr2) is composed of two arched walls (Mr1 a, Mr1b) lying generically parallel and joined together by various intermediate small partitions (Mr1 c), and wherein the outer arched wall (Mr1 a) has flexible ends made of a different material and/or having different thickness, and wherein the inner arched wall (Mr1 b) has loops or grooves (Mr1d, Mr1e) designed to hook onto the arched rim (Ma3u) and the tooth (Ma3d) on the skirting side support (Ma).

9. Modular profile elements, according to claims 1, 2, 3, 4, 5, 6, 7 and 8, **characterized in that** the side skirting strip (Mr2) has a portion that can be opened and closed (Mr2f) on the outer arched wall (Mr2a), so as to enable the passage and insertion of a screw (V) for fixing said side skirting strip (Mr2) to the partition wall panel (T).

10. System for fixing prefabricated curtain and/or partition walls to floors, according to claims 1, 2, 3, 4, 5, 6, 7, 8 and 9, **characterized in that** it comprises an end closing element (Z), or plug, comprising a wall (Z1), edges (Zb) and corresponding insertion and hooking devices (Zx) suitable for fitting into the cavities (F2).

11. System for fixing prefabricated curtain and/or partition walls to floors, according to claims 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, **characterized in that** it comprises a corner element (A) composed of a flat lower part (A1), which is basically square with a rounded angle (Ar), and devices (A2) for hooking together the profiles (F) on two adjacent sides, to connect two profiles (F) lying at right angles to each other with the aid of said hook-up devices or pins (A2) suitable for inserting in the cavities (F2).

12. System for fixing prefabricated curtain and/or partition walls to floors, according to claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11, **characterized in that** it includes saturating the cavities or spaces between the walls of said modular profile elements with PVC foam or other filler.

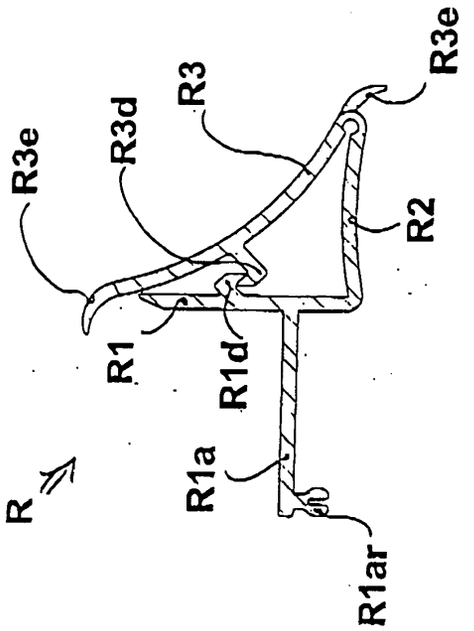

Fig. 2b

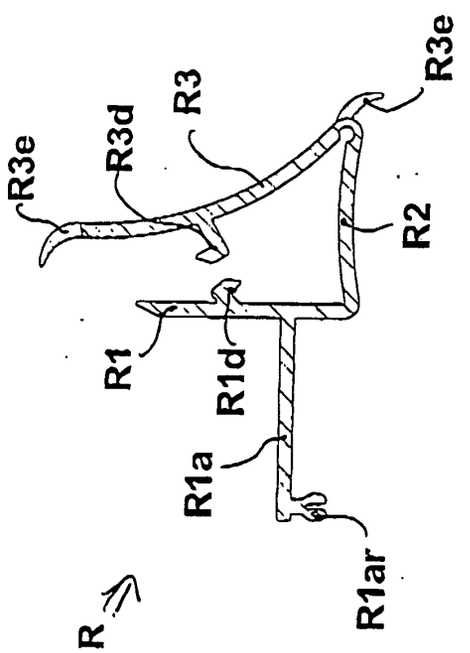

Fig. 2a

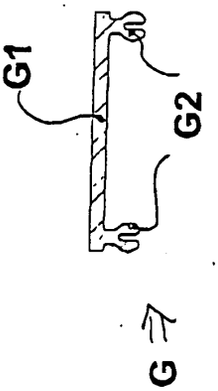

Fig. 3

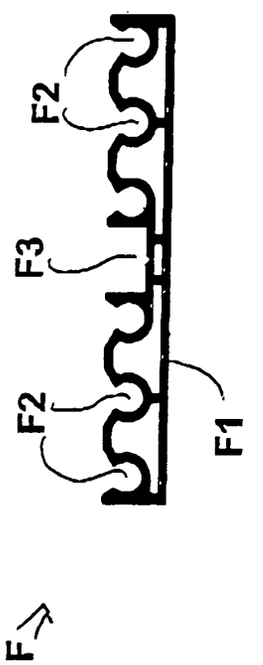

Fig. 1

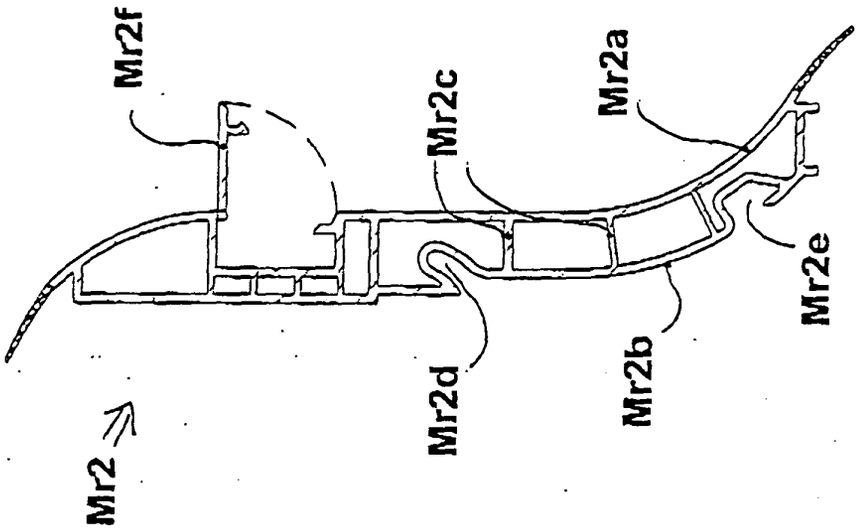

Fig 4c

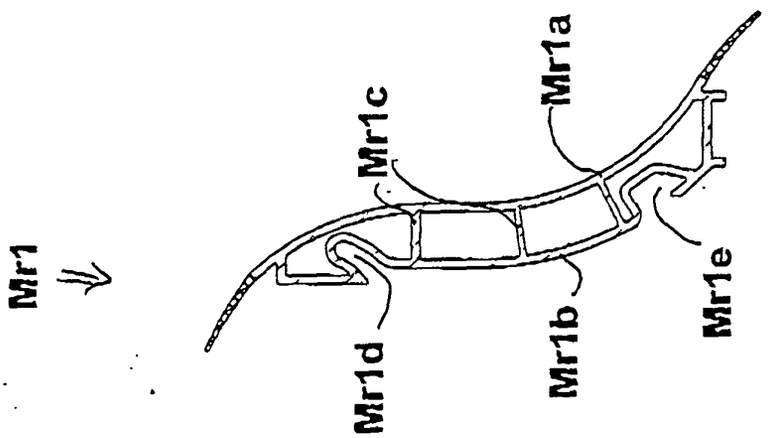

Fig. 4b

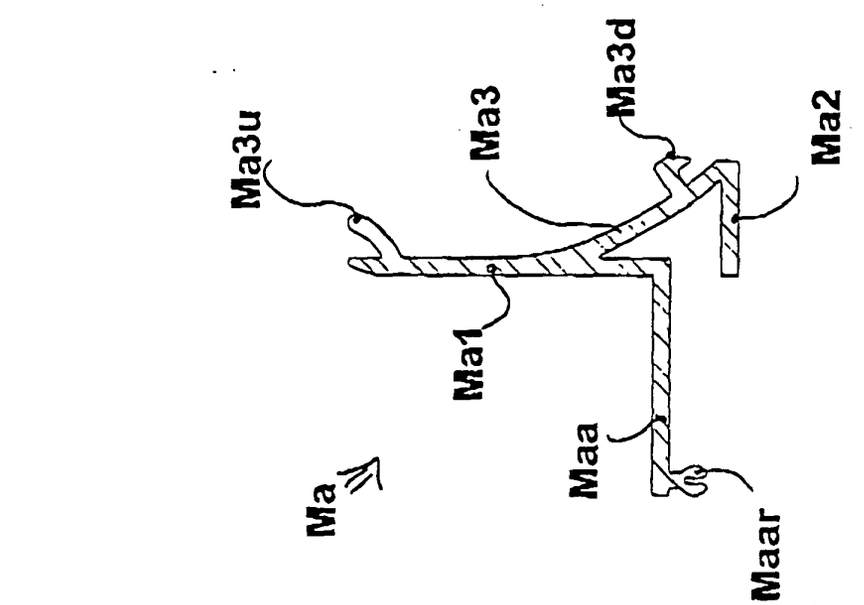

Fig. 4a

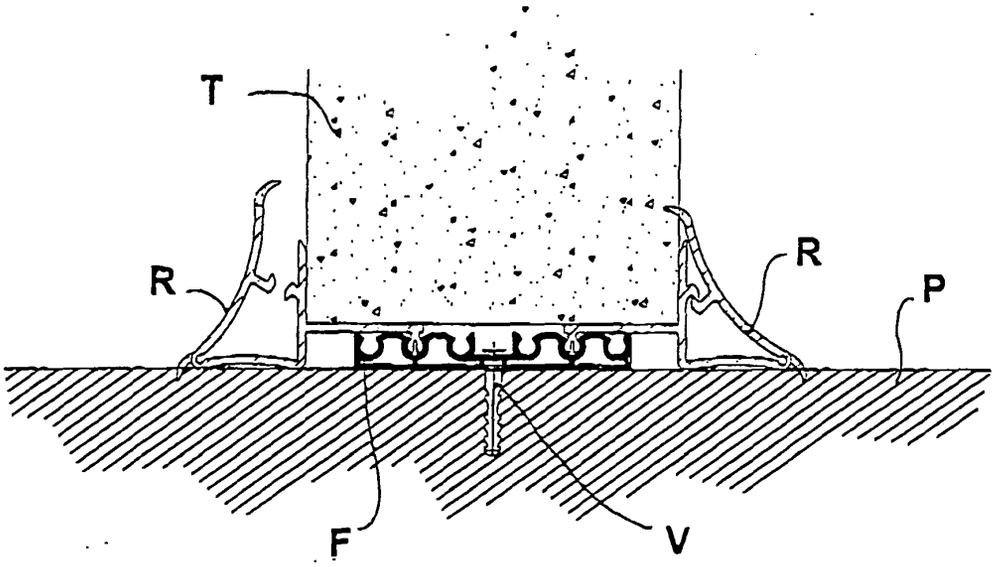

Fig. 5

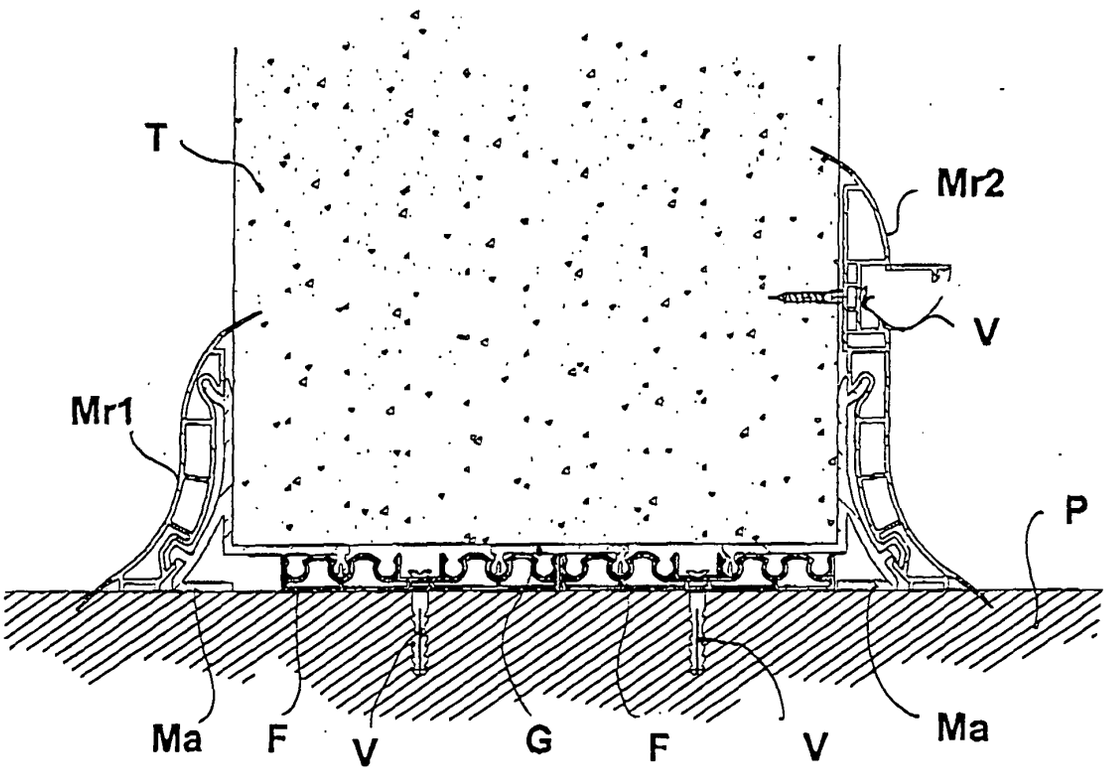

Fig. 6

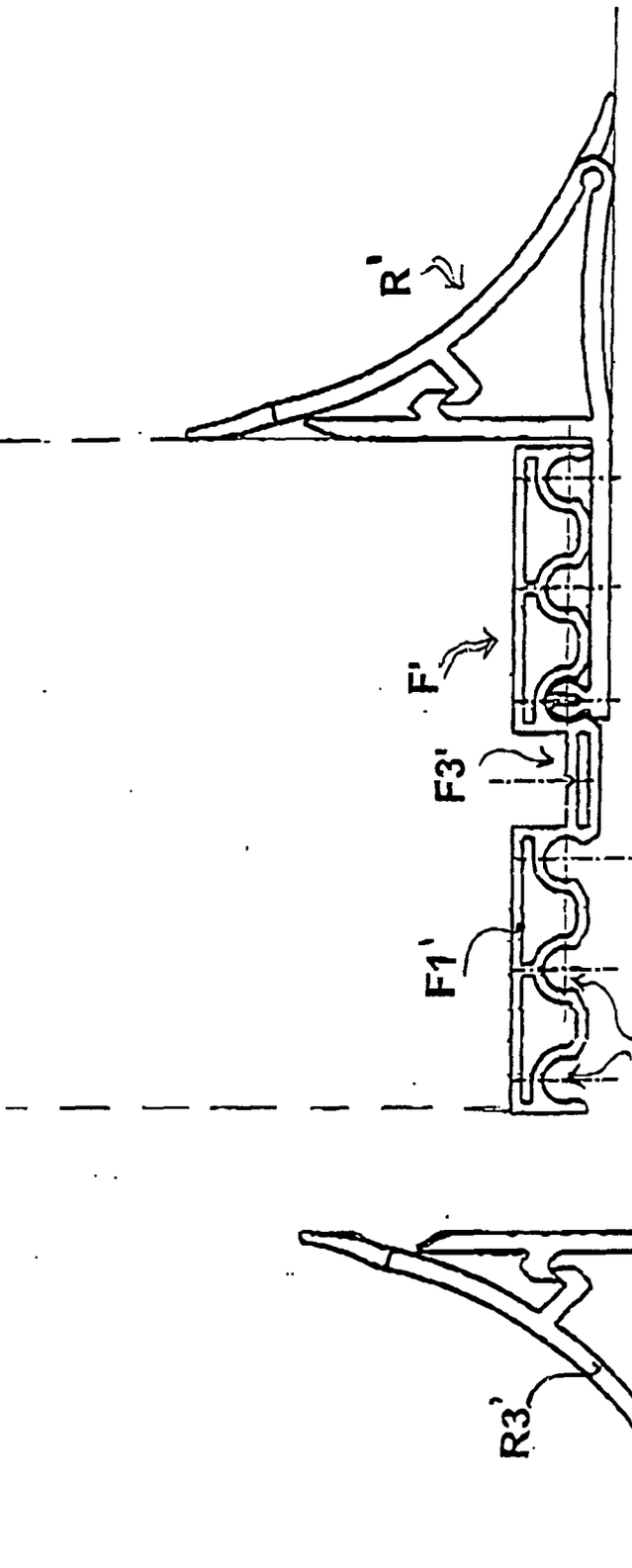

Fig. 7

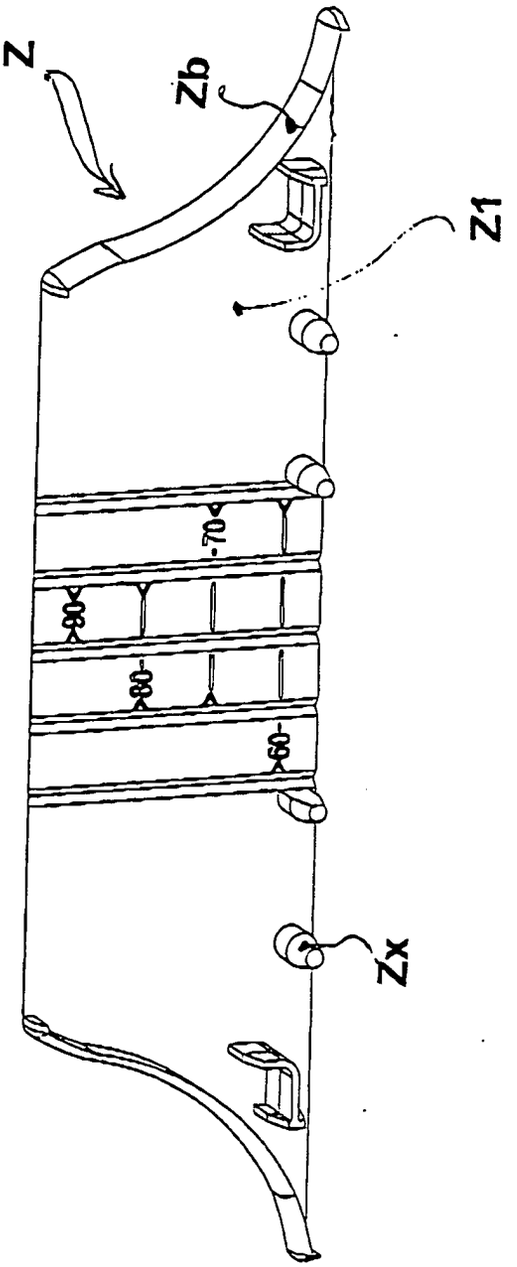

Fig. 8

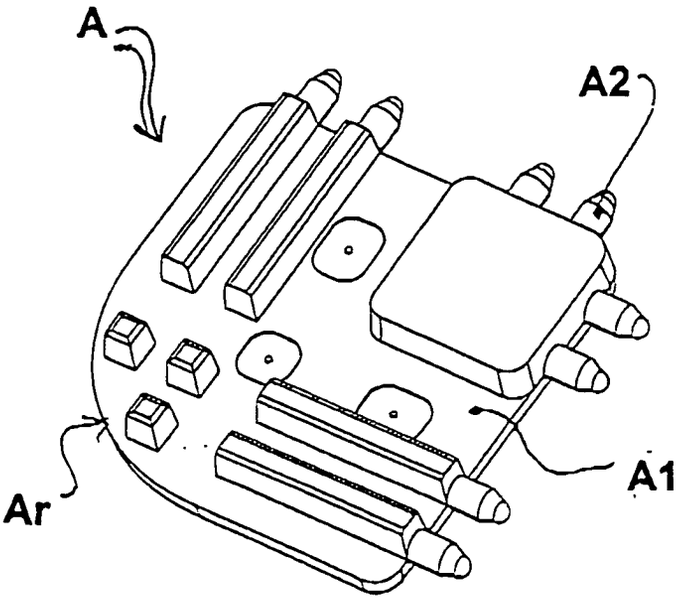

Fig. 9a

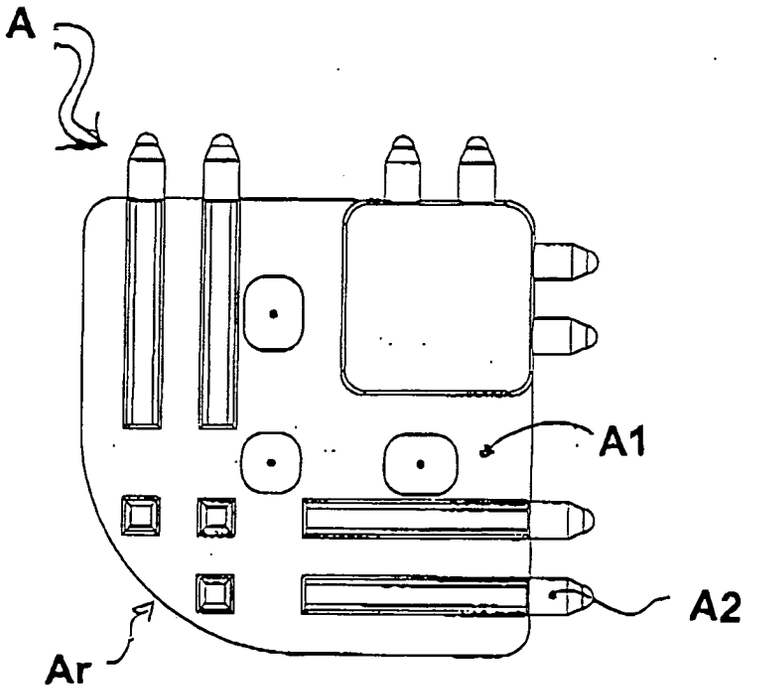

Fig. 9b