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(54) **A profile and a method for mounting a grid**

Profil und Verfahren zur Montage eines Profils

Profil et procédé de montage d'une grille

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**EP-A- 1 617 005 FR-A- 1 472 180**  
**US-A- 2 710 679**

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## Description

### Field of the invention

**[0001]** The present invention relates to a first profile adapted to extend in a longitudinal direction along a surface, to be fastened to said surface, and to position at least one second profile. The present invention further relates to a method for mounting a grid.

### Technical background

**[0002]** A suspended ceiling comprising tiles having sound-absorbing and/or sound-insulation properties improves the acoustic environment of the room, and it also conceals cable arrangements, ventilation equipment, lighting installations and other features arranged in the space between the suspended ceiling and the ceiling structure of a building.

**[0003]** The tiles are supported by a grid system formed by profiles extending in a longitudinal direction and profiles extending in a direction transverse to the longitudinal direction. Wall profiles are fastened to the walls of a room or a corridor and are extending along the walls. Transverse profiles, such as inverted T-profiles, are supported by the wall profiles at the ends of the transverse profiles. The transverse profiles may as well be supported by hangers attached to the ceiling structure of the building. Since the transverse profiles are not fastened to the wall profiles, the transverse profiles may be displaced along the extension of the wall profiles.

**[0004]** Alternatively, the transverse profiles may be locked in the horizontal and/or vertical direction by tabs arranged on the wall profile, such as disclosed in EP 1617005. This document discloses a grid system comprising L-shaped wall profiles and transverse, inverted T-profiles. A pair of tabs are integral with a horizontal ledge of the wall profile and a ratchet tooth is arranged adjacent or in at least one of the tabs. The tabs prevent the transverse profile from being displaced along the extension of the wall profile along the wall and in a vertical direction. The tabs are formed as a tongue folded and lanced from of the horizontal ledge. The folded tongue forms a hole in the horizontal ledge which is visible from inside a room.

**[0005]** EP 1762663 discloses a similar grid system as in EP 1617005. The wall profile is provided with a cap extending over a lower surface of the horizontal ledge of the wall profile for concealing the holes in the horizontal ledge. The cap constitutes an additional part which has to be fastened to the profile.

**[0006]** Further examples of wall profile tabs locking transverse, inverted T-profiles to L-shaped wall profiles are disposed in, for example, US 2008/0229680 and US 2008/0236068. These documents disclose wall profile tabs being formed as a cut-out of the horizontal flange, thereby forming a hole in the flange which is visible from inside a room.

**[0007]** Another solution for preventing displacement of the transverse profiles is disclosed in AU 24938/71. This document discloses tongues formed as cut-outs from a vertical web of an L-shaped wall profile which are bent over a transverse inverted T-profile in order to fix the position of the transverse profile. The length of the transverse T-profile has to be correctly adjusted in order to be positioned by the tongues.

**[0008]** Another type of solution is disclosed in FR 1 472 180. This document discloses a U-shaped wall profile having a first web, a second web and a flange. The wall profile, and more specifically the flange, is adapted to support a transverse profile. The transverse profile comprises a cut-out. When the transverse profile is supported by the wall profile, the second web of the wall profile is received in the cut-out of the transverse profile such that the wall profile is prevented from being displaced in a direction transverse to the longitudinal direction of the Wall profile.

**[0009]** However, this arrangement does not prevent the transverse profile from being displaced along the wall profile in a longitudinal direction of the wall profile.

### Summary of the invention

**[0010]** It is an object of the present invention to provide a new profile adapted to position at least one second profile and to prevent the second profile from moving in a longitudinal direction of the first profile.

**[0011]** This and other objects and advantages that will be apparent from the description have been achieved by a first profile adapted to extend in a longitudinal direction along a surface, to be fastened to said surface, and to position at least one second profile. The first profile comprises a first web, a second web and a flange, wherein, in a transverse cross-sectional direction of the first profile, the first web is adapted to extend along and to be fastened to said surface, the second web extends in a first direction having at least a component along the first web, and the flange extends in a second direction having at least a component transverse to the first web, thereby separating at least a portion of the first web from a portion of the second web. The second web comprises at least one cut-out being adapted to receive and position said second profile.

**[0012]** In one embodiment, the at least one cut-out is adapted to position the second profile only in the longitudinal direction. In another embodiment, the at least one cut-out is adapted to position the second profile in one or more directions (including or excluding the longitudinal direction).

**[0013]** An advantage of the present invention is that the at least one cut-out positions said second profile relative the first profile in the longitudinal direction of the first profile.

**[0014]** A further advantage of the present invention is that the at least one second profile is locked in the longitudinal direction of the first profile. Thereby, the second

profile can not move along the longitudinal extension of the first profile, and the second profile is kept in place. Consequently, any tiles or the like, supported by the second profile can not move in the longitudinal direction and is thereby kept in place. Uncontrolled displacement of the second profile may e.g. result in that tiles supported by the second profiles fall down.

**[0015]** The flange separates the first web from the second web such that the cut-out is arranged at a distance from the first web. Thereby, a portion of the second profile may be inserted in the cut-out until the end of the second profile reaches the first web. Consequently, the risk that the second profile falls down from the first profile if it moves in the second direction is reduced.

**[0016]** Another advantage is that mounting of the second profile becomes easier since the cut-out indicates where the second profile is to be arranged.

**[0017]** By arranging the at least one cut-out on the second web, the cut-out is not visible from, for example, inside a room. The flange hides the second web and, thereby, the cut-outs from being visible from inside a room. As the cut-outs are not visible from inside the room, no cap or cover is required to conceal the cut-outs from being visible, thereby reducing the number of removable parts and thereby simplifying the manufacture and/or mounting of the profile.

**[0018]** Further, since the profile comprises a first web, a second web and a flange, the first profile provides additional stability compared to an L-shaped profile.

**[0019]** By forming the positioning arrangement of the second profile as a cut-out, a first profile which is simple and cost-efficient to manufacture is obtained.

**[0020]** The first profile is adapted to support the at least one second profile, and may also be adapted to support at least one tile in one embodiment.

**[0021]** The second web may comprise a plurality of cut-outs. Thereby, more than one second profile may be positioned by the first profile. Each second profile is received in a separate cut-out of the first profile. One cut-out may be arranged for each second profile.

**[0022]** The cut-outs may be equidistantly arranged along the longitudinal direction of the first profile. Thereby, a uniform distance is formed between the second profiles. For example, the distance may correspond to the width of a tile intended to be supported by the at least one second profile.

**[0023]** The second web may further comprise at least one tab adapted to lock said second profile once said second profile is received in said at least one cut-out. Thereby, in one embodiment, the at least one second profile is positioned and locked on one hand vertically and on the other hand in the longitudinal direction of the first profile if the first portion is fastened to a vertical surface such as wall. Consequently, the second profile may be subjected to vertical forces acting upwards without being displaced in the upwards direction. The locking function provided by the at least one tab is concealed, and no fastening means previously used for obtaining

locking of the second profile is visible.

**[0024]** Said at least one cut-out and said at least one tab may be adapted to prevent said second profile, once said second profile is received in said at least one cut-out, from being removed in a third direction along the first web as viewed in the cross-sectional direction of the first profile. Thereby, removal and/or displacement of the at least one second profile is prevented.

**[0025]** Said at least one tab may be formed of a portion of the second web and be foldable relative the second web. By the tab being foldable, the second profile may be introduced in the cut-out from above, for example when the other end of the second profile is already received in an oppositely arranged profile.

**[0026]** At least a portion of said at least one cut-out may have a shape corresponding to a cross-sectional shape of said second profile. Thereby, the at least one second profile may be received in the cut-out of the first profile.

**[0027]** The first web and the second web may be extending in a vertical direction, and the flange may be extending in a horizontal direction as viewed in the cross-sectional direction of the first profile. In one embodiment wherein the first profile is attached to a wall, the first and second webs extends in the vertical direction, and the flange extends in the horizontal direction as viewed in the cross-sectional direction of the first profile.

**[0028]** According to a second aspect of the invention, the present invention is realised by a method for mounting a grid, comprising providing a first profile of a first kind, the first profile being adapted to extend in a longitudinal direction along a first surface, to be fastened to said first surface, and to position at least one second profile, the first profile of said first kind comprising a first web, a second web and a flange, wherein, in a transverse cross-sectional direction of the first profile of said first kind, the first web is adapted to extend along and to be fastened to said first surface, the second web extends in a first direction having at least a component along the first web, and the flange extends in a second direction having at least a component transverse to the first web, thereby separating at least a portion of the first web from a portion of the second web, wherein the second web comprising at least one cut-out being adapted to receive and position said second profile, providing at least two fastening means, fastening the first profile of said first kind to said first surface by means of said at least two fastening means, providing at least one second profile, and arranging said at least one second profile in said cut-out.

**[0029]** In one embodiment, the at least one cut-out is adapted to position the second profile only in the longitudinal direction. In another embodiment, the at least one cut-out is adapted to position the second profile in one or more directions (including or excluding the longitudinal direction).

**[0030]** By arranging the at least one second profile in the cut-out of the first profile, the at least one second profile is positioned relative the first profile in the longi-

tudinal direction of the first profile. The cut-out prevents the second profile from being displaced along the longitudinal direction of the first profile. Uncontrolled displacement of the second profile may result in that tiles supported by the second profiles fall down.

**[0031]** The flange separates the first web from the second web such that the cut-out is arranged at a distance from the first web. Thereby, a portion of the second profile may be inserted in the cut-out until the end of the second profile reaches the first web. Consequently, the risk that the second profile falls down from the first profile if it moves in the second direction is reduced.

**[0032]** Further, the cut-outs indicate a specified distance between the second profiles. Thereby, mounting of the second profile becomes easier since the cut-out indicates where the second profile is to be arranged. For example, the distances between the cut-outs may correspond to the width of a tile intended to be supported by the second profiles.

**[0033]** By providing a cut-out in the second web of the first profile, the cut-out is not visible from inside a room for example. Thereby, an aesthetically attractive profile is obtained. Further, no additional part is required to hide any cut-outs from being visible.

**[0034]** Further, the first profile comprising the first web, the second web, and the flange provides additional stability compared to an L-shaped profile.

**[0035]** The method may further comprise providing a third profile of said first kind, fastening the third profile of said first kind to a second surface by means of said fastening means, and arranging the at least one second profile in said cut-out of the third profile of the first kind. Thereby, a grid is obtained comprising the first and third profiles fastened to the first and second surfaces, respectively, and the at least one second profile extends between the first and third profiles and is arranged in the cut-outs of the first and third profiles.

**[0036]** The method may comprise fastening the first profile and the third profile of said first kind to said first and second surfaces, respectively, and thereafter arranging the second profile in said cut-outs of the first profile and the third profile of said first kind. By fastening the first and third profile firstly, the position of the second profile is defined, and the second profile is only to be arranged in the cut-outs.

**[0037]** The method may further comprise arranging the first profile of said first kind opposite the third profile of said first kind.

**[0038]** The method may further comprise locking said second profile by at least one tab being formed of a portion of the second web, thereby preventing removal of said second profile in a third direction along the first web as viewed in the cross-sectional direction of the first profile. Thereby, removal and/or displacement of the second profile is prevented.

**[0039]** The method may further comprise folding said least one tab before inserting said second profile, thereby allowing insertion of the said second profile, and there-

after locking said second profile by refolding said at least one tab. When both ends of the first profile are free, a first end of the second profile may be received in the cut-out of the first profile without folding the tabs. Once the first end of the second profile is received in a cut-out, the second end may be received in the cut-out of the third profile by folding the at least one tab. The second profile is locked in this position by refolding the tab.

**[0040]** The method may further comprise arranging the first web vertically.

#### Brief description of the drawings

**[0041]** The present invention will by way of example be described in more detail with reference to the appended schematic drawings, which show an embodiment of the present invention.

Fig 1 a schematically illustrates a perspective view of a first profile having a plurality of cut-outs adapted to receive second profiles according to a first embodiment.

Fig 1 b schematically illustrates a cross-section of the first profile in fig 1 a.

Fig 1 c schematically illustrates a front view of the first profile in fig 1 a extending along a surface.

Fig 2 a schematically illustrates a perspective view of the first profile in fig 1 a when a second profile is received in the cut-out.

Fig 2 b schematically illustrates a perspective view of the first profile when the second profile is received in the cut-out, wherein the second profile supports tiles.

Fig 3 a schematically illustrates the cut-out in more detail.

Fig 3 b schematically illustrates the cut-out when a tab is folded.

Figs 4 a-4 e schematically illustrate different embodiments of the first profile.

Fig 5 schematically illustrates a grid comprising the first profile, the second profile and a third profile.

#### Detailed description

**[0042]** With reference to figs 1 a, 1 b, and 1 c, a first profile 1 a of a first kind will be described. The first profile 1 a extends in longitudinal direction and is adapted to be fastened to a surface 2 and to support at least one second profile 20. The first profile 1 a comprises a first web 11, a second web 12, and a flange 13. The second web 12 comprises a plurality of cut-outs 10.

**[0043]** The first profile 1 a of the first kind may be made of sheet metal, plastic, aluminium, or any other suitable material.

**[0044]** The second profile 20 is adapted to support tiles. The first profile 1 a may, in addition to support the at least one second profile 20, also support tiles. The tile may be a ceiling tile, a floor tile, a wall tile or the like. The

invention is especially suited for ceiling tiles, for example ceiling tiles made of compressed fibre material, such as mineral wool. The tile may, for example, be a sound absorber having sound-absorbing properties and/or may be a sound-insulation element preventing sound from leaking from one room to another.

**[0045]** As seen in fig 1b, in a transverse cross-directional direction of the first profile 1a, the first web 11 extends along the surface 2. The second web 12 extends in a first direction having at least a component along the first web 11. In this embodiment the first and second webs 11, 12 are actually parallel to each other. The flange 13 extends in second direction having at least a component transverse to the first web 11. In this embodiment the flange 13 is actually orthogonal to the first web 11. The flange 13 separates at least a portion of the first web 11 from a portion of the second web 12. In this embodiment the first web 11 is fully separated from the second web 12. The first profile 1a has preferably a U-shaped cross-sectional shape.

**[0046]** In the embodiment shown in figs 1a, 1b, 1c, the first profile 1a is fastened to a vertical surface 2, such as a wall, and is extending in a horizontal direction. In this embodiment, the first web 11 and the second web 12 extend in a vertical direction. The flange 13 extends in a horizontal direction. Further, the flange 13 separates the first web 11 from the second web 12.

**[0047]** In one embodiment (not shown), the first profile 1a is fastened to a vertical surface 2 such as a wall. The first profile 1a extends in a longitudinal direction being different from the horizontal direction, and the first web 11 and the second web 12 are extending in a vertical direction. In the cross-sectional direction of the first profile 1a, as shown in fig 1b, the flange 13 extends in a horizontal direction. This embodiment is applied when the first profile 1a and the second profile 20 forms a support for example a sloping ceiling, e.g. a staircase or the like.

**[0048]** At least one of cut-out 10 is arranged on the second web 12 along the longitudinal extension of the first profile 1a. The cut-outs 10 are adapted to receive the second profile 20 and position the at least one second profile 20 along the longitudinal extension of the first profile 1a. One cut-out 10 is provided for each second profile 20. The cut-out 10 allows the second profile 20 to be received in and supported by the first profile 1. The bottom portion of the cut-out 20 has a shape corresponding to a shape of the second profile 20. As disclosed in figs 1a and 1c, the cut-outs 10 are equidistantly arranged along the longitudinal extension of the first profile 1a.

**[0049]** The first web 11 is adapted to be fastened to the surface 2. The first web 11 is adapted to receive fastening means, for example by the first web 11 having holes 32 adapted to receive the fastening means. The first web 11 is fastened to the surface by any conventional way. The first profile 1a may be directly abutting the surface 2, or a distance member (not shown) may be arranged between the first web 11 of the profile 1a and the surface 2.

**[0050]** Now referring to figs 2a and 2b, which shows the second profile 20 being received in the cut-out 10 of the first profile 1a and supported by the first profile 1a. Since at least a portion of the cut-out 10 corresponds to the shape of the second profile 20, the second profile 20 may be received in the cut-out 10 of the first profile 1a, and, thereby, may be supported by the first profile 1a. The second profile 20 may e.g. be an inverted T-profile having a web 21 and a flange 22 as disclosed in figs 2a and 2b. The web 21 preferably extends in the same direction as the first web 11 of the first profile 1a. The flange 22 preferably extends in the same direction as the flange 13 of the first profile 1a. When the at least one second profile 20 is received in the cut-out 10, the flange 22 is abutting a lower portion of the cut-out 10.

**[0051]** The second profile 20 may support at least one tile 30, 31 as shown in fig 2b. The flange 22 of the second profile 22 supports the tile 30, 31. A side surface of the tile 30, 31 may be arranged on the flange 22, or, as shown in fig 2b, the flange may 22 be received in a groove 34 of the tile 30, 31, thereby concealing the second profile 20. Another side surface of the tile 30, 31 is abutting the second web 12 of the first profile 1a, but the tile 30, 31 is not directly supported by the first profile 1a. As shown in fig 2b, the second profile 20 supports two tiles 30, 31, one on each side of the web 21. Another second profile may be arranged at a distance from the second profile 20, thereby supporting the other end of the tile 30, 31. The distance between the cut-outs 10 arranged on the second web 12 may correspond to the width of the tile 30, 31, such that the second profiles 20 being arranged at a specific distance from each other.

**[0052]** Figs 3a and 3b shows the cut-out 10 in more detail. As previously described, the cut-out 10 is arranged on the second web 12 of the first profile 1a. The cut-out 10 is formed as a portion of the second web 12 being removed, for example by punching. The width, in the longitudinal direction of the first profile 1a, of a lower portion 16 of the cut-out 10 essentially corresponds to the width of the flange 22 of the second profile 20. The width of the lower portion 16 of the cut-out 10 restricts movements of the second profile 20 in the longitudinal direction of the first profile 1a. Thereby, the second profile 20 is positioned in the longitudinal direction of the first profile 1a.

**[0053]** Tabs 14, 15 are formed of a portion of the second web 12 of the first profile 1a and are foldable relative the second web 12. The tabs 14, 15 restrict movements of the second profile 20 when being received in the cut-out 10 in a third direction extending along the first web 11 as viewed in the cross-sectional direction of the first profile 1a. In the embodiment shown in figs 3a and 3b, wherein the second web 12 is extending vertically, the tabs 14, 15 restricts movements of the second profile 20 vertically.

**[0054]** When arranging the second profile 20 in the cut-out 10, the second profile 20 may be inserted in the cut-out 10 without folding any tabs 14, 15. If possible movements and/or angling of the second profile 20 is restricted,

for example by the other end of the second profile 20 already being introduced in a cut-out, one or both of the tabs 14, 15 may be folded such that the second profile 20 may be received in the cut-out 10.

**[0055]** Figs 4a-4e disclose various embodiments of the first profile 1a as seen in cross-section. Fig 4a shows the embodiment previously discussed wherein the first profile 1a comprises the first web 11, the second web 12 and the flange 13. The first profile 1a has a U-shaped cross-sectional shape. The first profile 1a supports the second profile 20 which is received in the cut-out 10, but the first profile 1a does not support the tile 30.

**[0056]** Fig 4b shows an embodiment wherein the first profile 1b comprises the first web 11, the second web 12, the flange 13, and a second flange 17. In the cross-section of the first profile 1b, the first web 11 and the second web 12 extends both from the flange 13 but in two different directions. The second flange 17 extends in the same direction as the flange 13. As previously described, the second profile 20 is received in the cut-out 10. The second flange 17 may support the tile 30.

**[0057]** Fig 4c discloses an embodiment similar to the embodiment shown in fig 4b, wherein the first profile 1c comprises the first web 11, the second web 12, the flange 13 and the second flange 17 extending in the same direction as the flange 13. In the cross-section of the first profile 1c, the first web 11 and the second web 12 extend both from the flange 13 but in two different directions. In this embodiment, a distance is formed between the second flange 17 and the tile 30 such that the first profile 1a does not directly support the tile 30. When mounting the tile 30, the tile 30 may firstly be arranged on the first profile 1c and on the third profile 1a', or any other profile. The tile 30 may be inserted in the space between the first flange 13 and the second flange 17 of the first profile 1c, and thereafter the opposing side of the tile 30 may be placed on the third profile 1a', or any other profile. Thereby, the tile 30 is supported by the first profile 1a and the third profile 1a', or any other profile. Thereafter, the tile 30 may be positioned on the second profile 20, as shown in fig 4c, and on an adjacent second profile.

**[0058]** Fig 4d discloses an embodiment wherein the first profile 1d comprises the first web 11, the second web 12, the flange 13, the second flange 17 and a third web 18 extending in the same direction as the first web 11. In the cross-section of the first profile 1d, the first web 11 and the second web 12 extend both from the flange 13 but in two different directions. As previously described, the second profile 20 is received in the cut-out 10. The first profile 1d does not directly support the tile 30. The third web 18 may be abutting the tile 30.

**[0059]** Fig 4e discloses an embodiment wherein the first profile 1e comprises the first web 11, the second web 12, the flange 13 and a second flange 19 formed as a portion of the flange 13 being folded backwards overlying the flange 13. As previously described, the second profile 20 is received in the cut-out 10 and the tile 30 is supported by the second profile 20.

**[0060]** In one application of use of the present invention, which is shown in fig 5, the first profile 1a of the first kind is attached to a wall 2 of a corridor or a room for forming a part of a grid supporting ceiling tiles. When mounting the grid comprising at least the first profile 1a and at least one second profile 20, the first profile 1a is attached to one of the walls 2 of the corridor or the room by means of fastening means being received in the holes 32 of the first profile 1a. Thereafter, a third profile 1a' of the first kind, i.e. a profile of the same kind as the first profile 1a, is fastened to an opposite wall 3 of the corridor or the room by means of fastening means being received in the holes 32 of the third profile 1a'. The cut-outs of the first and third profiles 1a, 1a' are arranged opposite each other. When the first and third profiles 1a, 1a' are fastened to the walls 2, 3, a first end of the second profile 20 is inserted in a cut-out 10 of the first profile 1a and a second end of the second profile 20 is inserted in a cut-out 10 of the third profile 1a'. If necessary for inserting the second profile 20 in the cut-out 10, one or more tabs 14, 15 may be folded in order to receive the second profile 20 in the first and/or third profiles 1a, 1a'. Thereafter, any additional second profiles, or any other profiles, may be arranged as previously described in order to form a grid. Tiles (not shown in fig 5) forming the ceiling, may then be mounted. The tiles are supported by the second profiles 20, and may additionally be supported by the first profile 1a and/or the third profile 1a'.

**[0061]** Further, it is possible to dismount the grid, or a part of the grid, at any moments, for example to gain access to installations arranged above the grid. The tiles may be removed from the grid and the second profile 20 may be removed from the first profile 1a by folding one of the tabs 14, 15. Thereafter, the second profile 20 may be removed from the third profile 1a'. With the present invention, it is possible to remove one of the second profiles while the rest of the profiles will stay in position as they are received in the cut-outs 10 of the first and third profiles 1a, 1a'. Once desirable, the removed second profile may be remounted and reinserted in the cut-outs 10 of the first and third profile 1a, 1a'.

**[0062]** It is contemplated that there are numerous modifications of the embodiments described herein, which are still within the scope of the invention as defined by the appended claims.

**[0063]** For example, it is contemplated that the second web 12 may extend towards the first web 11 and may abut the first web 11. Although extending towards the first web 11, the second web 12 extends in a direction having at least a component along the first web 11. A portion of the first web 11, i.e. a portion of the first web 11 arranged adjacent the flange 13, is separated from a portion of the second web 12, i.e. a portion of the second web arranged adjacent the flange 13, by the flange 13. As previously described, the second profile 20 is received in the cut-out 10 of the second web 12.

**[0064]** Further, it is contemplated that the cut-out 10 may have another shape than disclosed in the appended

schematic drawings. For example, only one tab may be provided, or only one tab may be folded for introducing the second profile. The cut-out may also be formed as a snap-lock adjusted to the width of the second profile allowing the second profile to be snapped in the cut-out.

### Claims

1. A first profile (1a; 1b; 1c; 1d; 1e) adapted to extend in a longitudinal direction along a surface (2), to be fastened to said surface (2), and to position at least one second profile (20), the first profile (1a; 1b; 1c; 1d; 1e) comprising a first web (11), a second web (12) and a flange (13), wherein, in a transverse cross-sectional direction of the first profile (1a; 1b; 1c; 1d; 1e), the first web (11) is adapted to extend along and to be fastened to said surface (2), the second web (12) extends in a first direction having at least a component along the first web (11), and the flange (13) extends in a second direction having at least a component transverse to the first web (11), thereby separating at least a portion of the first web (11) from a portion of the second web (12), **characterised in that** the second web (12) comprises at least one cut-out (10) being adapted to receive and position said second profile (20).
2. A first profile (1a; 1b; 1c; 1d; 1e) according to claim 1, wherein the second web (12) comprises a plurality of cut-outs (10).
3. A first profile (1a; 1b; 1c; 1d; 1e) according to claim 2, wherein the cut-outs (10) are equidistantly arranged along the longitudinal direction of the first profile (1a; 1b; 1c; 1d; 1e).
4. A first profile (1a; 1b; 1c; 1d; 1e) according to any one of claims 1-3, wherein the second web (12) further comprises at least one tab (14,15) adapted to lock said second profile (20) once said second profile (20) is received in said at least one cut-out (10).
5. A first profile (1a; 1b; 1c; 1d; 1e) according to claim 4, wherein said at least one cut-out (10) and said at least one tab (14,15) are adapted to prevent said second profile (20), once said second profile (20) is received in said at least one cut-out (10), from being removed in a third direction along the first web (11) as viewed in the cross-sectional direction of the first profile (1a; 1b; 1c; 1d; 1e).
6. A first profile (1a; 1b; 1c; 1d; 1e) according to claim 4 or claim 5, wherein said at least one tab (14,15) is formed of a portion of the second web (12) and is foldable relative the second web (12).

7. A first profile (1a; 1b; 1c; 1d; 1e) according to any one of claims 1-6, wherein at least a portion of said at least one cut-out (10) has a shape corresponding to a cross-sectional shape of said second profile (20).
8. A first profile (1a; 1b; 1c; 1d; 1e) according to any one of claims 1-7, wherein the first web (11) and the second web (12) are extending in a vertical direction, and the flange (13) is extending in a horizontal direction as viewed in the cross-sectional direction of the first profile (1a; 1b; 1c; 1d; 1e).
9. Method for mounting a grid, comprising providing a first profile (1a; 1b; 1c; 1d; 1e) of a first kind, the first profile (1a; 1b; 1c; 1d; 1e) being adapted to extend in a longitudinal direction along a first surface (2), to be fastened to said first surface (2), and to position at least one second profile (20), the first profile (1a) of said first kind comprising a first web (11), a second web (12) and a flange (13), wherein, in a transverse cross-sectional direction of the first profile (1a; 1b; 1c; 1d; 1e) of said first kind, the first web (11) is adapted to extend along and to be fastened to said first surface (2), the second web (12) extends in a first direction having at least a component along the first web (11), and the flange (13) extends in a second direction having at least a component transverse to the first web (11), thereby separating at least a portion of the first web (11) from a portion of the second web (12), providing at least two fastening means, fastening the first profile (1a; 1b; 1c; 1d; 1e) of said first kind to said first surface (2) by means of said at least two fastening means, providing at least one second profile (20), **characterised in that** the step of providing the first profile further comprises arranging in the second web (12) of the first profile at least one cut-out (10) being adapted to receive and position said second profile (20), and by arranging said at least one second profile (20) in said cut-out (10).
10. Method according to claim 9, further comprising providing a third profile (1a') of said first kind, fastening the third profile (1a') of said first kind to a second surface (3) by means of said fastening means, and arranging the at least one second profile (20) in said cut-out (10) of the third profile (1a') of the first kind.
11. Method according to claim 9 or claim 10, comprising fastening the first profile (1a; 1b; 1c; 1d; 1e) and the third profile (1a') of said first kind to said first and second surfaces (2, 3), respectively, and thereafter arranging the second profile (20) in said cut-outs of the first profile (1a; 1b; 1c; 1d; 1e) and the third profile (1a') of said first kind.

12. Method according to claim 10 and claim 11, further comprising arranging the first profile (1a; 1b; 1c; 1d; 1e) of said first kind opposite the third profile (1a') of said first kind.
13. Method according to any one of claims 9-12, further comprising locking said second profile (20) by at least one tab (14, 15) being formed of a portion of the second web (12), thereby preventing removal of said second profile (20) in a third direction along the first web (11) as viewed in the cross-sectional direction of the first profile (1a; 1b; 1c; 1d; 1e).
14. Method according to claim 13, further comprising folding said least one tab (14,15) before inserting said second profile (20), thereby allowing insertion of the said second profile (20), and thereafter locking said second profile (20) by refolding said at least one tab (14, 15).
15. Method according to any one of claims 9-14, further comprising arranging the first web (11) vertically.

#### Patentansprüche

1. Erstes Profil (1a; 1b; 1c; 1d; 1e), das ausgebildet ist, um sich in einer Längsrichtung eine Oberfläche (2) entlang zu erstrecken, um an der Oberfläche (2) befestigt zu werden und um mindestens ein zweites Profil (20) zu positionieren, wobei das erste Profil (1a; 1b; 1c; 1d; 1e) einen ersten Steg (11), einen zweiten Steg (12) und einen Flansch (13) umfasst, wobei, in einer quer verlaufenden Querschnittsrichtung des ersten Profils (1a; 1b; 1c; 1d; 1e), der erste Steg (11) ausgebildet ist, um sich die Oberfläche (2) entlang zu erstrecken und daran befestigt zu werden, der zweite Steg (12) sich in eine erste Richtung erstreckt, mit mindestens einer Komponente entlang dem ersten Steg (11), und der Flansch (13) sich in eine zweite Richtung erstreckt, mit mindestens einer quer zu dem ersten Steg (11) verlaufenden Komponente, wodurch mindestens ein Abschnitt des ersten Stegs (11) von einem Abschnitt des zweiten Stegs (12) getrennt wird, **dadurch gekennzeichnet, dass** der zweite Steg (12) mindestens einen Ausschnitt (10) umfasst, der ausgebildet ist, um das zweite Profil (20) aufzunehmen und zu positionieren.
2. Erstes Profil (1a; 1b; 1c; 1d; 1e) nach Anspruch 1, wobei der zweite Steg (12) mehrere Ausschnitte (10) umfasst.
3. Erstes Profil (1a; 1b; 1c; 1d; 1e) nach Anspruch 2, wobei die Ausschnitte (10) in gleichen Abständen entlang der Längsrichtung des ersten Profils (1a; 1b;

1c; 1d; 1e) angeordnet sind.

4. Erstes Profil (1a; 1b; 1c; 1d; 1e) nach einem beliebigen der Ansprüche 1-3, wobei der zweite Steg (12) ferner mindestens eine Nase (14, 15) umfasst, die ausgebildet ist, um das zweite Profil (20) zu sichern, sobald das zweite Profil (20) in dem mindestens einen Ausschnitt (10) aufgenommen wurde.
5. Erstes Profil (1a; 1b; 1c; 1d; 1e) nach Anspruch 4, wobei der mindestens eine Ausschnitt (10) und die mindestens eine Nase (14, 15) ausgebildet sind, um zu verhindern, dass das zweite Profil (20), sobald das zweite Profil (20) in dem mindestens einen Ausschnitt (10) aufgenommen wurde, in einer dritten Richtung entlang dem ersten Steg (11) gesehen in der Querschnittsrichtung des ersten Profils (1a; 1b; 1c; 1d; 1e) entfernt wird.
6. Erstes Profil (1a; 1b; 1c; 1d; 1e) nach Anspruch 4 oder Anspruch 5, wobei die mindestens eine Nase (14, 15) aus einem Abschnitt des zweiten Stegs (12) gebildet ist und relativ zu dem zweiten Steg (12) faltbar ist.
7. Erstes Profil (1a; 1b; 1c; 1d; 1e) nach einem beliebigen der Ansprüche 1-6, wobei mindestens ein Abschnitt des mindestens einen Ausschnitts (10) eine Form aufweist, die einer Querschnittsform des zweiten Profils (20) entspricht.
8. Erstes Profil (1a; 1b; 1c; 1d; 1e) nach einem beliebigen der Ansprüche 1-7, wobei sich der erste Steg (11) und der zweite Steg (12), gesehen in der Querschnittsrichtung des ersten Profils (1a; 1b; 1c; 1d; 1e), in eine vertikale Richtung erstrecken und der Flansch (13) sich in eine horizontale Richtung erstreckt.
9. Verfahren zum Anbringen eines Gitters, umfassend:  
Bereitstellen eines ersten Profils (1a; 1b; 1c; 1d; 1e) einer ersten Art, wobei das erste Profil (1a; 1b; 1c; 1d; 1e) ausgebildet ist, um sich in eine Längsrichtung eine erste Oberfläche (2) entlang zu erstrecken, um an der ersten Oberfläche (2) befestigt zu werden und um mindestens ein zweites Profil (20) zu positionieren, wobei das erste Profil (1a) der ersten Art einen ersten Steg (11), einen zweiten Steg (12) und einen Flansch (13) umfasst, wobei, in einer quer verlaufenden Querschnittsrichtung des ersten Profils (1a; 1b; 1c; 1d; 1e) der ersten Art der erste Steg (11) ausgebildet ist, um sich die erste Oberfläche (2) entlang zu erstrecken und daran befestigt zu werden, der zweite Steg (12) sich in eine erste Richtung, mit mindestens einer Komponente entlang dem ersten Steg (11), erstreckt und der



- Flansch (13) sich in eine zweite Richtung, mit mindestens einer quer zu dem ersten Steg (11) verlaufenden Komponente, erstreckt, wodurch mindestens ein Abschnitt des ersten Stegs (11) von einem Abschnitt des zweiten Stegs (12) getrennt wird,  
Bereitstellen von mindestens zwei Befestigungsmitteln,  
Befestigen des ersten Profils (1a; 1b; 1c; 1d; 1e) der ersten Art an der ersten Oberfläche (2) mittels der mindestens zwei Befestigungsmittel,  
Bereitstellen von mindestens einem zweiten Profil (20),  
**dadurch gekennzeichnet, dass** der Schritt des Bereitstellens des ersten Profils ferner das Anordnen, in dem zweiten Steg (12) des ersten Profils, von mindestens einem Ausschnitt (10), der ausgebildet ist, um das zweite Profil (20) aufzunehmen und zu positionieren, und das Anordnen des mindestens einen zweiten Profils (20) in dem Ausschnitt (10) umfasst.
10. Verfahren nach Anspruch 9, ferner umfassend das Bereitstellen eines dritten Profils (1a') der ersten Art, das Befestigen des dritten Profils (1a') der ersten Art an einer zweiten Oberfläche (3) mittels der Befestigungsmittel und das Anordnen des mindestens einen zweiten Profils (20) in dem Ausschnitt (10) des dritten Profils (1a') der ersten Art.
11. Verfahren nach Anspruch 9 oder Anspruch 10, umfassend das Befestigen des ersten Profils (1a; 1b; 1c; 1d; 1e) und des dritten Profils (1a') der ersten Art an der ersten bzw. der zweiten Oberfläche (2, 3) und danach das Anordnen des zweiten Profils (20) in den Ausschnitten des ersten Profils (1a; 1b; 1c; 1d; 1e) und des dritten Profils (1a') der ersten Art.
12. Verfahren nach Anspruch 10 und Anspruch 11, ferner umfassend das Anordnen des ersten Profils (1a; 1b; 1c; 1d; 1e) der ersten Art gegenüber dem dritten Profil (1a') der ersten Art.
13. Verfahren nach einem beliebigen der Ansprüche 9-12, ferner umfassend das Sichern des zweiten Profils (20) durch mindestens eine Nase (14, 15), die aus einem Abschnitt des zweiten Stegs (12) gebildet ist, wodurch das Entfernen des zweiten Profils (20) in einer dritten Richtung entlang dem ersten Steg (11), gesehen in der Querschnittsrichtung des ersten Profils (1a; 1b; 1c; 1d; 1e), verhindert wird.
14. Verfahren nach Anspruch 13, ferner umfassend das Falten der mindestens einen Nase (14, 15) vor dem Einführen des zweiten Profils (20), wodurch das Einführen des zweiten Profils (20) ermöglicht wird, und danach das Sichern des zweiten Profils (20) durch Zurückfalten der mindestens einen Nase (14, 15).
15. Verfahren nach einem beliebigen der Ansprüche 9-14, ferner umfassend das vertikale Anordnen des ersten Stegs (11).

## Revendications

- Premier profilé (1a ; 1b ; 1c ; 1d ; 1e) adapté pour s'étendre dans une direction longitudinale le long d'une surface (2), pour être fixé sur ladite surface (2) et pour positionner au moins un deuxième profilé (20), le premier profilé (1a ; 1b ; 1c ; 1d ; 1e) comprenant une première âme (11), une seconde âme (12) et une embase (13), dans lequel, dans une direction de section transversale du premier profilé (1a ; 1b ; 1c ; 1d ; 1e), la première âme (11) est adaptée pour s'étendre le long de ladite surface (2) et y être fixée, la seconde âme (12) s'étend dans une première direction ayant au moins un composant le long de la première âme (11), et l'embase (13) s'étend dans une seconde direction présentant au moins un composant transversal à la première âme (11), séparant ainsi au moins une partie de la première âme (11) d'une partie de la seconde âme (12),  
**caractérisé en ce que** la seconde âme (12) comprend au moins une découpe (10) adaptée pour recevoir et positionner ledit deuxième profilé (20).
- Premier profilé (1a ; 1b ; 1c ; 1d ; 1e) selon la revendication 1, dans lequel la seconde âme (12) comprend une pluralité de découpes (10).
- Premier profilé (1a ; 1b ; 1c ; 1d ; 1e) selon la revendication 2, dans lequel les découpes (10) sont agencées à équidistance le long de la direction longitudinale du premier profilé (1a ; 1b ; 1c ; 1d ; 1e).
- Premier profilé (1a ; 1b ; 1c ; 1d ; 1e) selon l'une quelconque des revendications 1 à 3, dans lequel la seconde âme (12) comprend en outre au moins un onglet (14, 15) adapté pour verrouiller ledit deuxième profilé (20), une fois ledit deuxième profilé (20) reçu dans ladite au moins une découpe (10).
- Premier profilé (1a ; 1b ; 1c ; 1d ; 1e) selon la revendication 4, dans lequel ladite au moins une découpe (10) et ledit au moins un onglet (14, 15) sont adaptés pour éviter que ledit deuxième profilé (20), une fois ledit deuxième profilé (20) reçu dans ladite au moins une découpe (10), ne soit retiré dans une troisième direction le long de la première âme (11), vu dans la direction transversale du premier profilé (1a ; 1b ; 1c ; 1d ; 1e).
- Premier profilé (1a ; 1b ; 1c ; 1d ; 1e) selon la revendication 4 ou 5, dans lequel ledit au moins un onglet

- (14, 15) est formé d'une partie de la seconde âme (12) et est pliable par rapport à la seconde âme (12).
7. Premier profilé (1a ; 1b ; 1c ; 1d ; 1e) selon l'une quelconque des revendications 1 à 6, dans lequel au moins une partie de ladite au moins une découpe (10) présente une forme correspondant à une forme transversale dudit deuxième profilé (20). 5
8. Premier profilé (1a ; 1b ; 1c ; 1d ; 1e) selon l'une quelconque des revendications 1 à 7, dans lequel la première âme (11) et la seconde âme (12) s'étendent dans une direction verticale, et l'embase (13) s'étend dans une direction horizontale, vu dans la direction transversale du premier profilé (1a ; 1b ; 1c ; 1d ; 1e). 10
9. Procédé de montage d'une grille comprenant de prévoir un premier profilé (1a ; 1b ; 1c ; 1d ; 1e) d'un premier type, le premier profilé (1a ; 1b ; 1c ; 1d ; 1e) étant adapté pour s'étendre dans une direction longitudinale le long d'une première surface (2), pour être fixé sur ladite première surface (2) et pour positionner au moins un deuxième profilé (20), le premier profilé (1a) dudit premier type comprenant une première âme (11), une seconde âme (12) et une embase (13), sachant que, dans une direction de section transversale du premier profilé (1a ; 1b ; 1c ; 1d ; 1e) dudit premier type, la première âme (11) est adaptée pour s'étendre le long de ladite surface (2) et y être fixée, la seconde âme (12) s'étend dans une première direction ayant au moins un composant le long de la première âme (11), et l'embase (13) s'étend dans une seconde direction présentant au moins un composant transversal à la première âme (11), séparant ainsi au moins une partie de la première âme (11) d'une partie de la seconde âme (12), de prévoir au moins deux moyens de fixation, de fixer le premier profilé (1a ; 1b ; 1c ; 1d ; 1e) dudit premier type à ladite première surface (2) au moyen desdits au moins deux moyens de fixation, de prévoir au moins un deuxième profilé (20), **caractérisé en ce que** l'étape de prévoir le premier profilé comprend en outre d'agencer dans la seconde âme (12) du premier profilé au moins une découpe (10), adaptée pour recevoir et positionner ledit deuxième profilé (20), et d'agencer ledit au moins un deuxième profilé (20) dans ladite découpe (10). 15 20 25 30 35 40 45
10. Procédé selon la revendication 9, comprenant en outre de prévoir un troisième profilé (1a') dudit premier type, de fixer le troisième profilé (1a') dudit premier type à une deuxième surface (3) au moyen desdits moyens de serrage, et d'agencer ledit au moins un deuxième profilé (20) dans ladite découpe (10) du troisième profilé (1a') du premier type. 50 55
11. Procédé selon la revendication 9 ou 10, comprenant en outre de fixer le premier profilé (1a ; 1b ; 1c ; 1d ; 1e) et le troisième profilé (1a') dudit premier type auxdites première et seconde surfaces (2, 3), respectivement, et d'agencer par la suite le deuxième profilé (20) dans lesdites découpes du premier profilé (1a ; 1b ; 1c ; 1d ; 1e) et du troisième profilé (1a') dudit premier type.
12. Procédé selon les revendications 10 et 11, comprenant en outre d'agencer le premier profilé (1a ; 1b ; 1c ; 1d ; 1e) dudit premier type à l'opposé dudit troisième profilé (1a') dudit premier type.
13. Procédé selon l'une quelconque des revendications 9 à 12, comprenant en outre de verrouiller ledit deuxième profilé (20) par au moins un onglet (14, 15) formé d'une partie de la seconde âme (12), évitant ainsi que ledit deuxième profilé (20) ne soit retiré dans une troisième direction le long de la première âme (11), vu dans la direction transversale du premier profilé (1a ; 1b ; 1c ; 1d ; 1e).
14. Procédé selon la revendication 13, comprenant en outre de plier ledit au moins un onglet (14, 15) avant d'insérer ledit deuxième profilé (20), permettant ainsi l'insertion dudit deuxième profilé (20), et ensuite, de verrouiller ledit deuxième profilé (20) en repliant ledit au moins un onglet (14, 15).
15. Procédé selon l'une quelconque des revendications 9 à 14, comprenant en outre d'agencer la première âme (11) verticalement.

Fig 1a

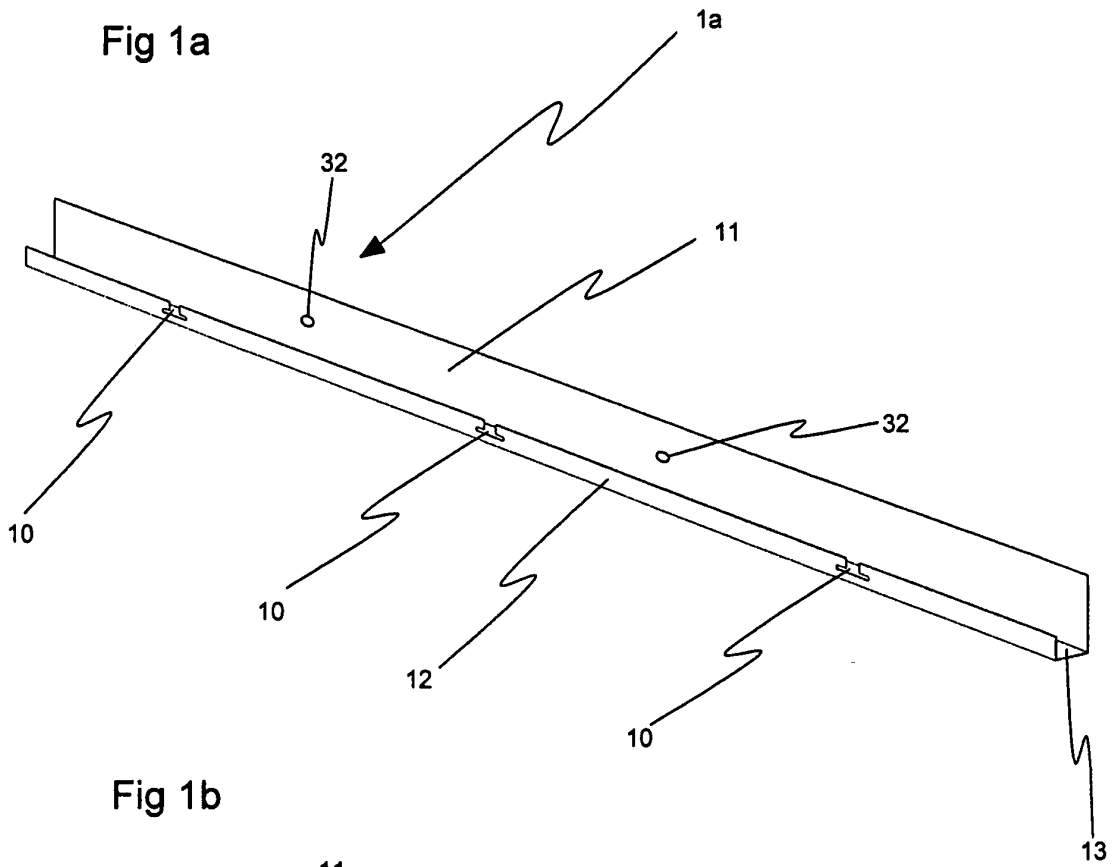


Fig 1b

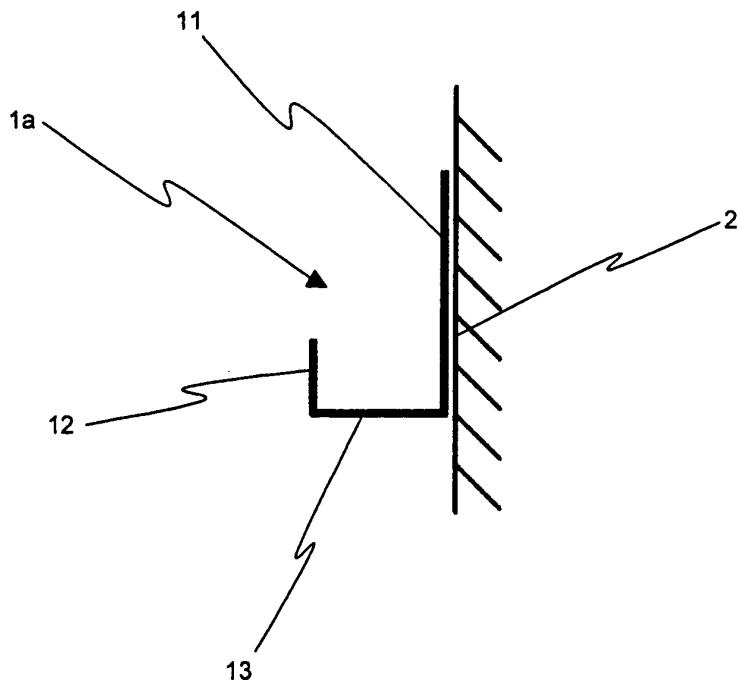


Fig 1c

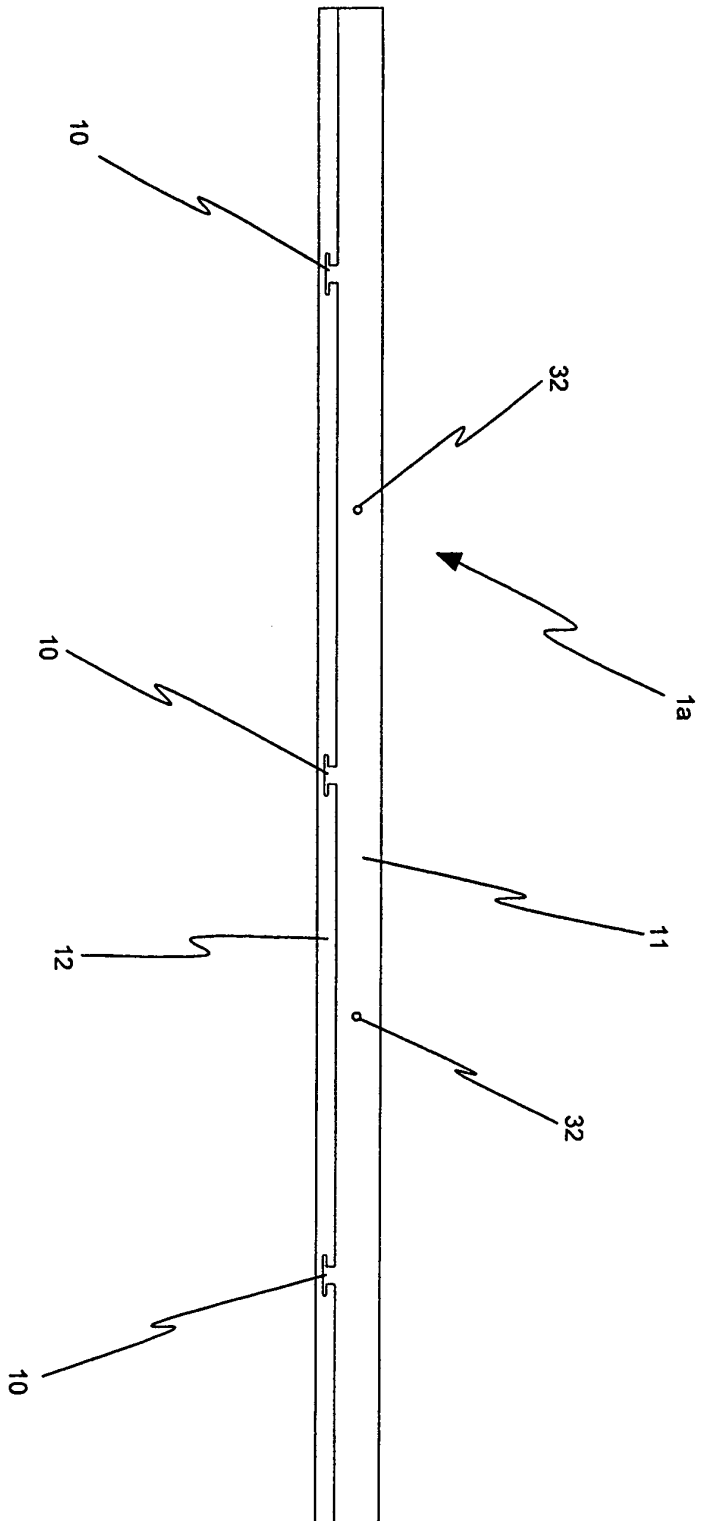


Fig 2a

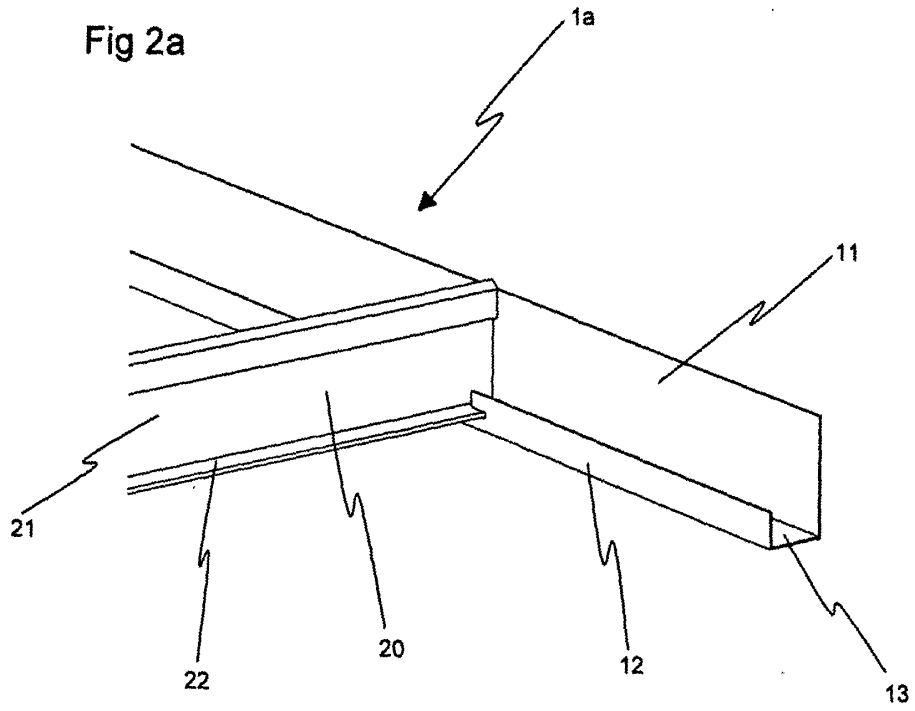


Fig 2b

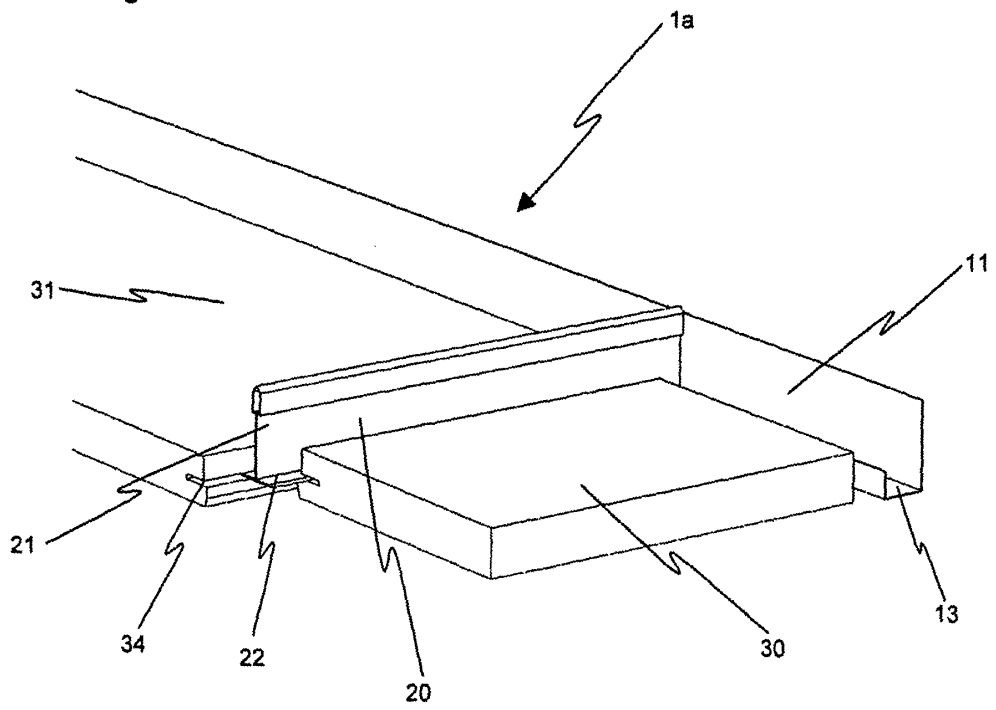


Fig 3a

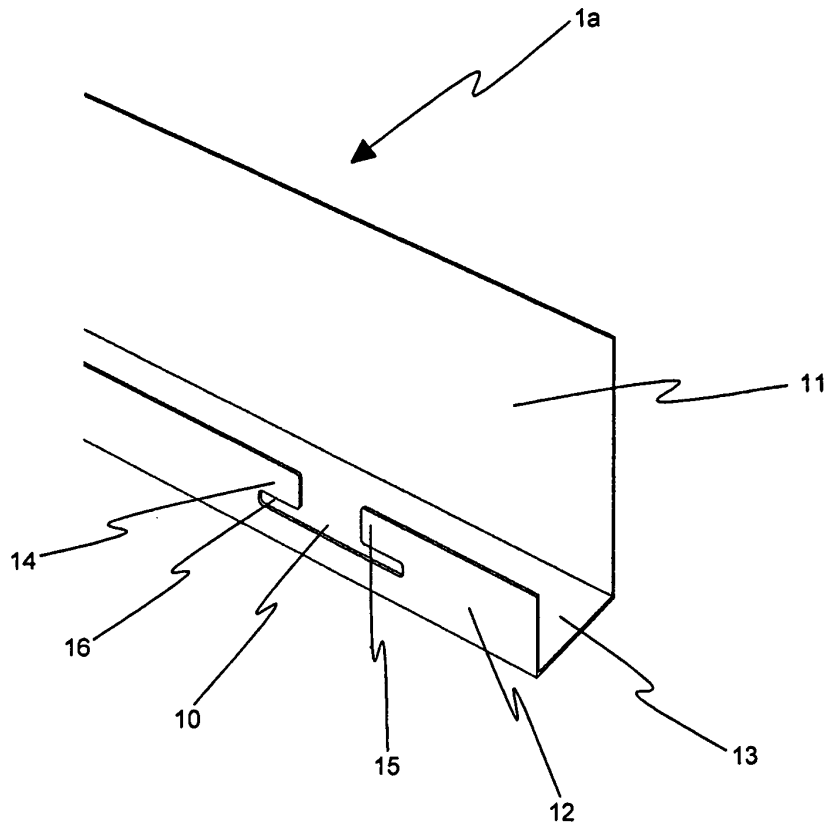


Fig 3b

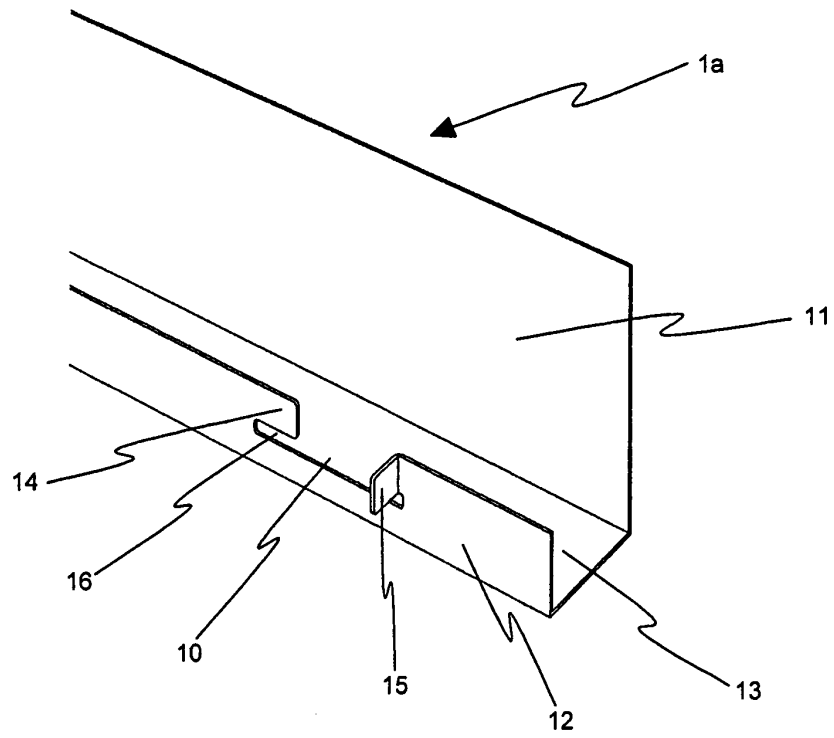


Fig 4a

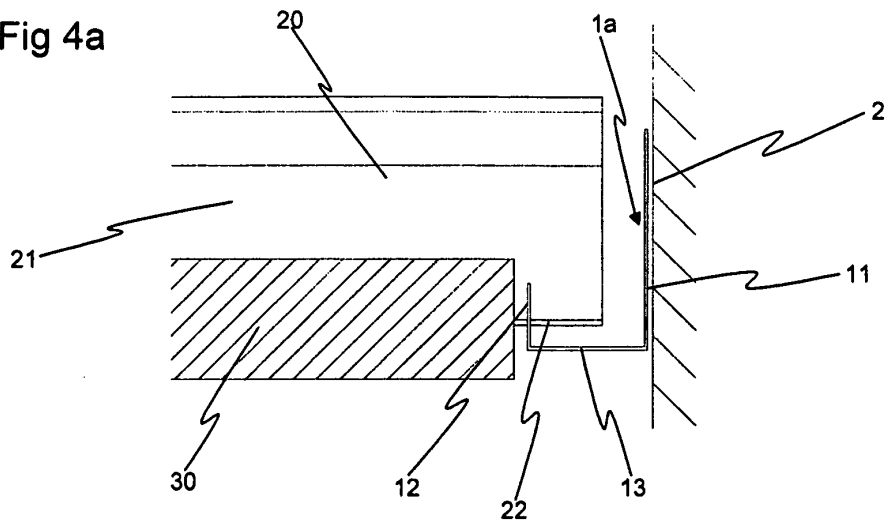


Fig 4b

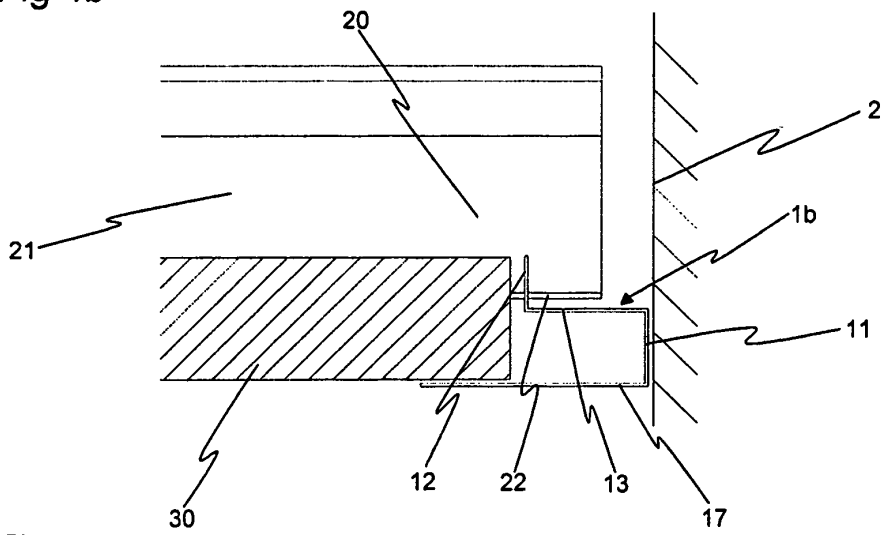


Fig 4c

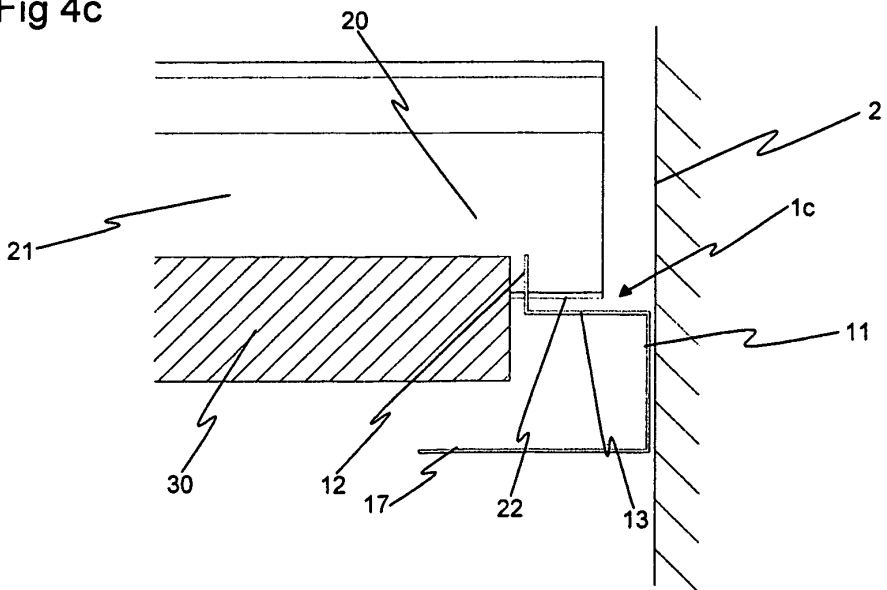


Fig 4d

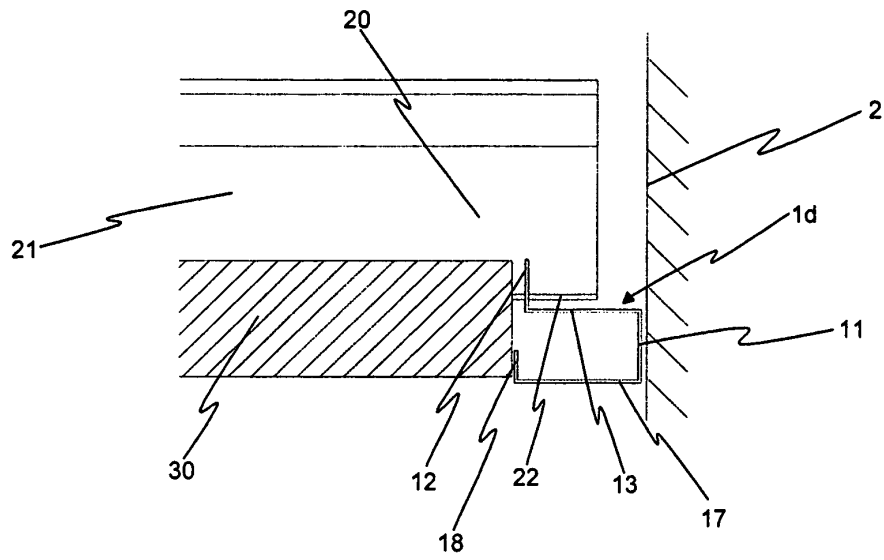


Fig 4e

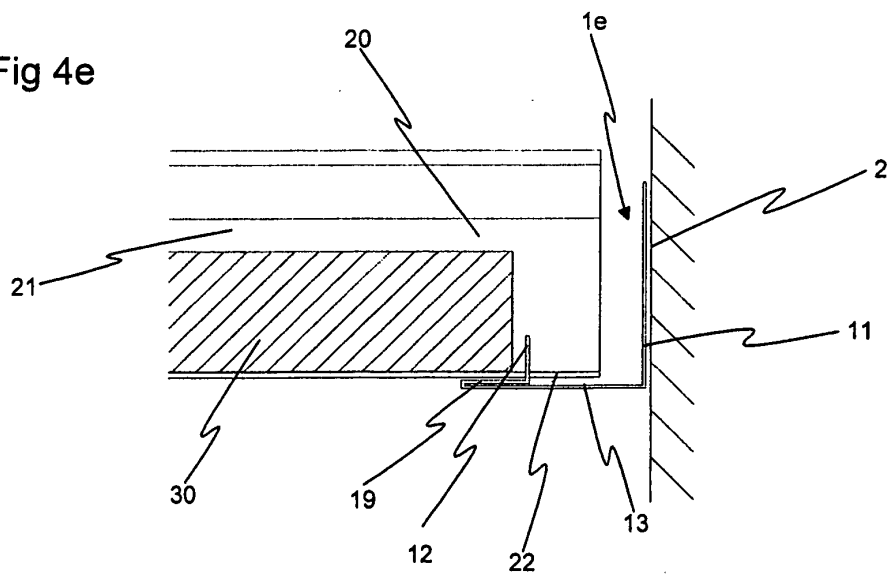
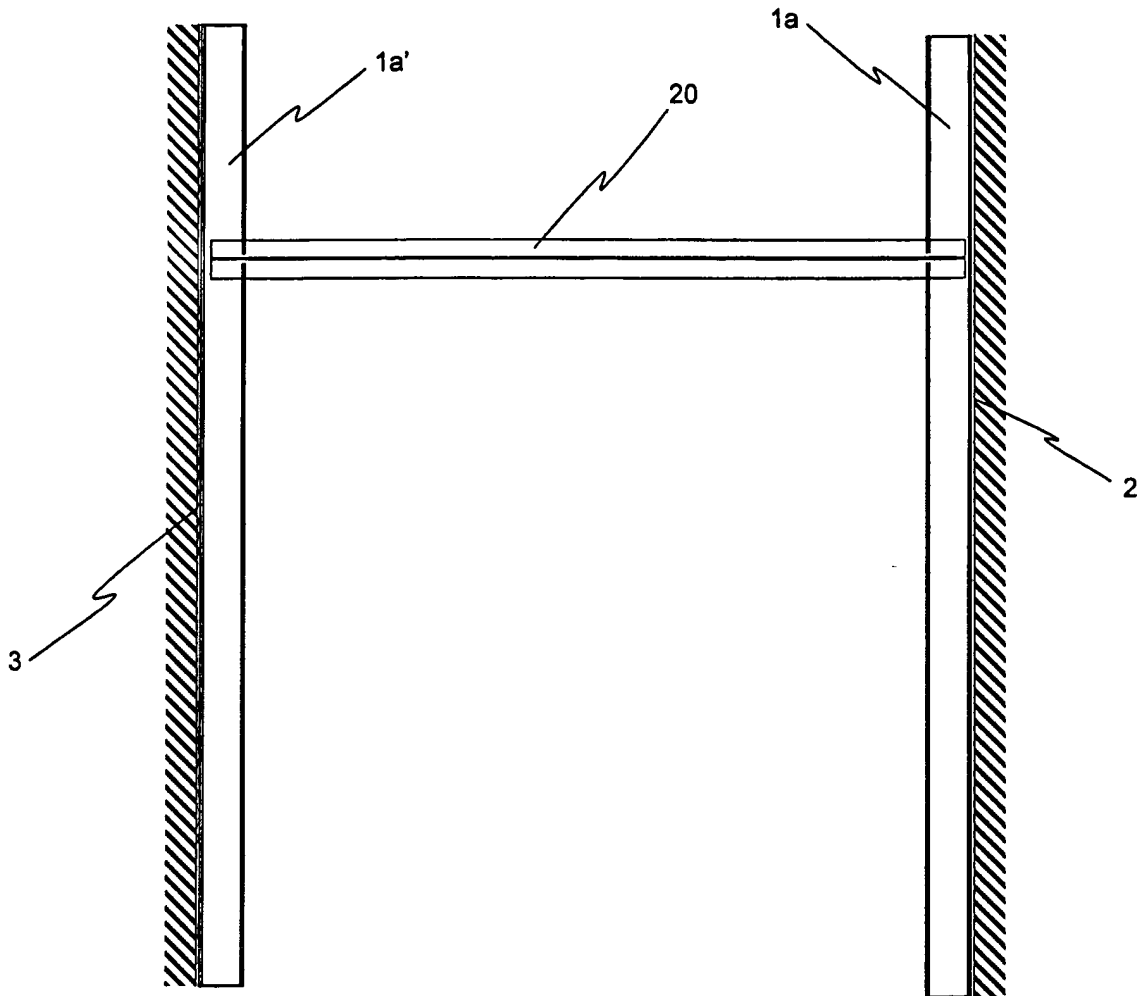




Fig 5



**REFERENCES CITED IN THE DESCRIPTION**

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