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(54) SYSTEM FOR MOUNTING WALL CLADDING PANELS

SYSTEM ZUR MONTAGE VON WANDVERKLEIDUNGSTAFELN

SYSTÈME DE MONTAGE DE PANNEAUX DE REVÊTEMENT MURAUX

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Description

[0001] The present invention relates to a system for the assembly of wall panels, in particular panels with a vertical development.

[0002] Various methods and systems are used for the assembly and fixing of wall panels, for example in wood, such as "boiseries" or the like.

[0003] A system for the assembly of wall panels according to the preamble of claim 1 is known from document DE202015008489 which discloses a modular wall comprising at least one wall panel for attachment to a support system, the support system being attachable, directly or indirectly, to a wall of a room, building or rack, the support system being able to accommodate any number of wall panels. The wall panels (2, 2a, 2b, 2n) can be suspended from the support system and detachably fastened.

[0004] The document US2001/011443 discloses a method for fastening a building board to the framework of a building. According to said method, a building board having a flat plate-like configuration and provided on the rear surface thereof with engaging protrusions and an elongated fixture which is adapted to be detachably engaged with the building board are employed, and the building board is assembled in advance together with the elongated fixture through an engagement between the engaging protrusions and the elongated fixture, and then the elongated fixture is fixed to the framework of a building, thereby fastening the building board to the framework of a building.

[0005] An extremely simple system is to arrange one or more wall supporting bars to which the wall panels should be hung. If, on the one hand, it is a simple and rapid system, on the other, it does not allow any kind of adjustment and requires extreme precision in placing both the bar and the hooks on the rear wall of the panels.

[0006] Adjustable anchoring devices have been proposed in order to overcome these assembly drawbacks and difficulties which require precision and lengthy times for measuring, tests and installation.

[0007] In this way, the panels, supported by these adjustable anchoring devices, once assembled, must be correctly positioned (recorded position). Various devices have been proposed for effecting the adjustments of the panel, such as, for example, that described in EP2199488 in the name of Leonardo S.r.l., which presents the possibility of a vertical adjustment, obtainable by means of a screw that moves a slide.

[0008] This type of adjustment, although effective, shows its limitations, however, in the case in which the panel is mounted on walls that are not perfectly vertical and/or in the case where it is necessary to align adjacent panels, with a vertical development or course, which can be arranged on non-rectilinear or aligned portions of the same wall.

[0009] Devices are also known, in some ways similar, which allow a plurality of adjustments but which can only be used in the case of walls of wall cupboards intended to be hung on a wall. Said devices, in fact, cannot be used with panels intended to be mounted visibly on walls, as for example in the case of panels destined for producing "boiseries".

[0010] In these devices, assembled between the rear panel of the wall cupboard and the wall, an adjustment can only be effected by accessing the adjustment screws through an access window. The presence of this window is only acceptable in the case of a wall cupboard, as, when the latter is closed, it is not visible, but it is unacceptable in all cases in which the panel is to be mounted "visibly" on the wall so as not to jeopardize the final result.

[0011] This means that these devices are not suitable in the case of panels that must be suspended "visibly" on a wall, substantially parallel to the wall itself.

[0012] The general objective of the present invention is therefore to provide a system for the assembly of wall panels, in particular panels with a vertical development, capable of solving the above-mentioned drawbacks of the known art, in an extremely simple, economical and particularly functional manner.

[0013] A further objective of the present invention is to provide a system for the assembly of wall panels, in particular panels with a vertical development, which is extremely functional and simple, without visible holes for positioning on the wall.

[0014] Another objective of the present invention is to provide a system for the assembly of wall panels, in particular panels with a vertical development, in which it is extremely simple to obtain a perfect alignment between adjacent vertical panels.

[0015] Yet another objective of the invention is to provide a system for the assembly of wall panels, in particular panels with a vertical development, which can also be used in the presence of walls that are not perfectly vertical and smooth, even having an almost wavy pattern or having surface humps.

[0016] The above objectives are achieved by a system for the assembly of wall panels, in particular panels with a vertical development, produced according to the independent claim 1 and the following subordinate claims.

[0017] The structural and functional features of the present invention and its advantages with respect to the known art, will appear even more evident from the following description referring to the enclosed schematic drawings, which show an embodiment of the invention itself. In the drawings:

- figures 1 and 2 are perspective views illustrating an upright to be used in a system for the assembly of wall panels, in particular panels with a vertical development, when the upright is positioned according to two different arrangements, i.e. it is in embodiments different from each other inverted;
- figures 3 and 4 are two perspective views of enlarged details of figure 1;
- figures 5 and 6 are two perspective views of two suc-

cessive fixing sequences of a system for the assembly of wall panels, in particular panels with a vertical development, with the uprights positioned according to figure 1;

- figure 7 is a perspective view of a wall in which the panels are positioned and aligned using the system of the present invention in any of its embodiments shown;
- figures 8, 9 and 10 are raised sectional views illustrating an enlarged detail of the system according to the embodiment of figure 1, in three subsequent positioning phases in the area close to a floor or supporting surface;
- figures 11, 12 and 13 are raised sectional views illustrating a detail of the system according to the embodiment of figure 2, in three subsequent positioning phases also in the area close to a floor or supporting surface;
- figures 14, 15 and 16 are cross-sectional plan views from above of three embodiments of the upright used in the system of the invention;
- figures 17 and 18 are enlarged sections showing, the first with elements exploded with respect to each other and the second in an operative assembled position, how a first embodiment of a screw is positioned on the rear wall of the panel, not visible, in a system according to the present invention;
- figures 19 and 20 are enlarged sections showing, the first with elements exploded with respect to each other and the second in an operative, assembled position, how a second embodiment of a screw is positioned on the rear wall of the panel, not visible, in a system according to the present invention.

[0018] With reference to the various figures, these show a system for the assembly of wall panels, in particular panels with a vertical development 11. More specifically, figures 1 and 2 show how a single upright can be positioned according to two different arrangements.

[0019] In a first arrangement or embodiment of figure 1, a single upright 12 has a certain number of pairs of slots 13, spaced from each other in a vertical direction. The upright 12 also provides fixing elements of the upright 12 to a vertical wall PV and a lower levelling group of the upright GLM. At least two uprights 12 spaced from each other must be provided for the assembly of a single panel 11. This arrangement is also almost identically used for a second positioning or embodiment shown in figure 2. In a possible simplified form of upright 12, single slots 13 can be provided, spaced from each other in a vertical direction for each upright 12.

[0020] In the two figures 1 and 2, it can be seen how each slot 13 provides a narrow extension or slit 14 in a vertical direction of the upright 12 which, in the first form is positioned vertically above the slot 13 with respect to a floor P. In an inverted manner according to the arrows F in the second form of figure 2, the slots 13 have narrow extensions or slits 14' in a vertical direction which, this time, are positioned vertically below each slot 13, with respect to a floor P.

[0021] As already mentioned, the levelling group GLM is positioned at a lower end of the upright 12, the group comprising a plate 15, integrally fixed inside the upright 12. The plate 15 provides a threaded hole 16 into which it is screwed, with an adjustable position, a threaded rod 17 of a foot 18. It is evident how this levelling group GLM can be assembled after selecting the orientation of the single upright 12 according to one of the two embodiments of figure 1 or 2.

[0022] It should also be pointed out that the above-mentioned fixing elements to a vertical wall PV essentially consist of an expansion dowel 19 or the like, in which a wall-fixing screw 20 is housed. In particular, in the arrangement of the invention, each upright 12 provides a housing 21 suitable for receiving a spacer 22.

[0023] This spacer 22, of the tubular type for example, has a threaded outer surface 23 which is housed in a complementary threaded hole 24 positioned in the housing 21 of the upright 12.

[0024] Furthermore, each panel with a vertical development 11 provides a series of supporting pins 25, 25' on its rear surface 26, facing the uprights 12 and the vertical wall PV. Said supporting pins 25, 25' protrude from said rear surface and are housed in the slots 13 and/or extensions or slits 14, 14' of the upright 12.

[0025] Each panel with a vertical development 11 also provides, in one of its lower ends, levelling groups of the panel GLP which allow an adjustment of its position in a vertical direction. The levelling groups of the panel GLP advantageously act to find a stable housing of the supporting pins 25, 25' in the narrow extensions or slits 14, 14' of the uprights 12. In this way, the panels with a vertical development 11 are firmly blocked in a suspended position on the vertical wall.

[0026] Figure 5 shows how the uprights are positioned with respect to the vertical wall PV, spaced from each other according to a measurement slightly less than that of the panels 11 to be positioned on the same.

[0027] The presence on each upright 12 of a pair of slots 13 and relative extensions or slits 14, spaced apart, allows, for each upright 12, the positioning of facing ends of two adjacent panels 11, as can be clearly seen in figures 6 and 7.

[0028] The presence of lower levelling groups GLM for the single upright 12, allows a horizontal alignment of the lower end of the same to be obtained, in addition to an alignment of the slots 13 between parallel adjacent uprights.

[0029] Figure 6, in particular, shows how the supporting pins 25, 25', protruding from the rear surface 26 of the single panel 11, are engaged.

[0030] Figures 8 to 10 show the stable positioning of a panel 12 with respect to the vertical wall PV or to the uprights 12 fixed to the same.

[0031] These figures relate to the first arrangement or embodiment of the upright 12. As previously indicated,

in fact, in the upright 12, each eyelet 13 provides for the narrow extension or slit 14 to be in a vertical direction of the upright 12, positioned vertically above the same slot 13 with respect to the floor P.

[0032] The panel 11 carrying its supporting pins 25 (or 25'), protruding from the rear surface 26, is juxtaposed towards the uprights 12 according to the arrow K of figure 8, bringing the head of the pin 25 towards the slot 13.

[0033] Figure 9 shows how the head of the pin 25 is inserted in the slot 13 (see specific detail) so that the panel 11 is in contact with the outer surface of the uprights 12.

[0034] Figure 10 shows how the upward ascent of the panel 11 according to the arrow T is promoted by operating on the levelling group of the panel GLP by means of a specific tool UT, such as an Allen key. Said tool UT can be introduced through a small hole O formed in the lower part of the panel 11.

[0035] In this way, the head of the pin 25, up until that moment positioned in the slot 13, moves inside the narrow extension or slit 14. It has in fact already been said and seen that this narrow extension or slit 14 is obtained in a vertical direction in the upright 12, vertically above the slot 13 with respect to the floor P. The head of the pin 25 thus remains blocked in the slit 14, consequently blocking the panel 11 with respect to the uprights 12. This happens for all the pins 25 of the single panel 11 and for all the slits 14 of the two single uprights 12 involved and facing the rear surface 26 of that panel 11.

[0036] A fairly similar reasoning can be applied to figures 11 to 13 which show how the stable positioning of a panel 12 is effected with respect to the vertical wall PV or the uprights 12 fixed to the same in the case of the second arrangement or embodiment of the upright 12 shown in figure 2.

[0037] In this case, in fact, each slot 13 in the upright 12 provides that the narrow extension or slit 14 be in a vertical direction of the upright 12, positioned vertically below the same slot 13 with respect to the floor P.

[0038] Also in this example, the panel 11 carrying its supporting pins 25 (or 25'), protruding from the rear surface 26, is juxtaposed towards the uprights 12 according to the arrow H of figure 11 bringing the head of the pin 25 towards the slot 13.

[0039] Figure 12 shows how the head of the pin 25 is inserted in the slot 13 (see specific detail) so that the panel 11 comes into contact with the outer surface of the uprights 12.

[0040] The subsequent figure 13 shows how, by acting on the levelling group of the panel GLP using a specific tool UT, such as an Allen key, the downward descent of the panel 11 is promoted following the arrow S. In this way, the head of the pin 25, up until that moment positioned in the slot 13, moves into the narrow extension or slit 14. It has already been said and seen, in fact, that this narrow extension or slit 14 is formed in a vertical direction in the upright 12, vertically below the slot 13 with respect to the floor P.

[0041] Also in this second example, the head of the pin 25 thus remains blocked in the slit 14, consequently blocking the panel 11 with respect to the uprights 12.

[0042] And this is the case for all the pins 25 of the single panel 11 and for all the entire slits 14 of the two single uprights 12 involved and facing the rear surface 26 of that panel 11.

[0043] The advantages of the system of the present invention are therefore evident, which also allows the use of a single type of upright for both of the two arrangement forms of the upright shown in figures 1 to 10 and in figures 2, 11, 12, 13, respectively.

[0044] As already indicated, once the orientation of the single upright 12 has been selected according to one of the two application forms of said two groups of figures, the respective levelling group GLM is then assembled.

[0045] Figures 14, 15 and 16 also show cross-sections in a plan view from above of three embodiments of upright used in the system of the invention.

[0046] Figure 14 shows an upright 12 with rectangular section and open profile with a housing 21 suitable for receiving the spacer 22.

[0047] Figure 15 shows an upright 12 with a flattened omega-shaped section, also provided with the housing 21 suitable for receiving the spacer 22.

[0048] Figure 16 shows an upright 12 with a rectangular section and closed profile with a housing 21 suitable for receiving the spacer 22.

[0049] In this respect, it should be pointed out that the presence of the spacer 22 allows an adjustment in depth of the upright to be effected, adapting the position of the upright to a specific distance required by the vertical wall PV. This adjustment is effected using a tool such as that previously indicated with UT and acting on the same spacer so as to cause the movement of the upright 12 towards or away from the vertical wall PV.

[0050] As already mentioned on the other hand, a horizontal adjustment of the upright 12 is possible thanks to the presence of the lower levelling groups GLM for the single upright 12. This allows a horizontal alignment of the lower end of the same uprights to be obtained, together with an alignment of the slots 13 between adjacent parallel uprights, however the upright is arranged with respect to the vertical wall PV.

[0051] Considering now figures 17 and 18, these illustrate a first of the possible embodiments of supporting pins of the panel 11 protruding from the rear surface of the same panel.

[0052] In this first embodiment, the pin 25 comprises a screw 27 with an enlarged head 30 that can be positioned in a bush 28 internally threaded in 29. The bush 28 is positioned in a blind hole 31 formed in the rear surface 26 of the panel 11 of the system.

[0053] It should be pointed out that the screw 27 also provides an annular collar 32 having a width equal to that of the thickness of a wall of the upright 12. In this way, said collar 32 defines, together with an annular projection 33 of the bush 28, a housing L for both the slot 13 and

for its extension or slit 14, blocking the upright 12.

[0054] In the second embodiment, the pin 25' consists of a screw in a single piece which is positioned in a blind hole 31 formed in the rear surface 26 of the panel 11 of the system.

[0055] In this case, it is directly the screw 25' that provides a lowered annular collar 32 having a width L substantially equal to that of the thickness of the wall of the upright 12.

[0056] In short, a system for the assembly of wall panels, in particular panels with a vertical development, according to the present invention, is extremely functional and simple, and above all lacks the numerous visible holes required for inserting the panel in the systems so far known.

[0057] A system is obtained for the assembly of wall panels, in particular panels with a vertical development, in which a perfect alignment between adjacent vertical panels can be easily obtained thanks to the provision of numerous adjustment arrangements. It has been seen that it is possible to adjust the uprights both horizontally and vertically and also to adjust the depth of the same with respect to the vertical wall on which they are arranged.

[0058] It is in this way that a system for the assembly of wall panels of the invention can also be used in the presence of walls that are not perfectly vertical and smooth, even having an almost wavy pattern or with various kinds of surface humps.

[0059] The forms of the structure for providing a system for the assembly of wall panels, in particular panels with a vertical development, of the invention, as also the materials and assembly modes, can naturally differ from those shown by way of non-limiting example in the drawings.

[0060] The objectives mentioned in the preamble of the description have therefore been achieved.

[0061] The protection scope of the present invention is defined by the enclosed claims.

Claims

1. A system for the assembly of wall panels, in particular panels with a vertical development, comprising at least two uprights (12) spaced apart from each other and at least one panel with a vertical development (11), wherein:

   - each of said uprights (12) provides slots (13) having narrow extensions or slits (14,14') in a vertical direction, spaced apart from each other, fixing elements (19,20) of the upright to a vertical wall (PV) and
   - said at least one panel with a vertical development (11) provides, on its rear surface (26), facing the uprights (12) and the vertical wall (PV), a series of supporting pins (25,25'), protruding from said rear surface (26) and which are inserted in said slots (13) and/or narrow extensions or slits (14,14') of the uprights (12),

   characterized in that

   - said uprights (12) are provided with a levelling group (GLM) at their lower ends for levelling the upright vertically with respect to the floor (P), and
   - said at least one panel with a vertical development (11) is provided at its lower end with levelling groups (GLP) which allow an adjustment of the position of the panel (11) in a vertical direction with respect to the floor (P) and thereby a stable housing of said supporting pins (25,25') in said narrow extensions or slits (14,14') of the uprights (12).

2. The system according to claim 1, **characterized in that** said supporting pins (25,25') protruding from the rear surface (26), are in the form of screws (27) provided with an annular collar (32) having a width (L) substantially equal to that of the thickness of a wall of the upright (12).

3. The system according to claim 1 or 2, **characterized in that** each upright (12) provides a certain number of pairs of slots (13) each provided with a narrow extension or slit (14,14'), spaced apart from each other in a vertical direction, which receive supporting pins (25,25') positioned on vertical side ends of adjacent panels (11).

4. The system according to one or more of the previous claims, **characterized in that** in each upright (12) of the system, each slot (13) provides a narrow extension or slit (14) positioned vertically above the slot (13) with respect to a floor P.

5. The system according to one or more of the previous claims from 1 to 4, **characterized in that** in each upright (12) of the system, each slot (13) provides a narrow extension or slit (14) positioned vertically beneath the slot (13) with respect to a floor P.

6. The system according to one or more of the previous claims, **characterized in that** said lower levelling group (GLM) of the upright (12) is positioned inside the upright once the positioning of said upright (12) of each slot (13) has been selected with respect to the relative narrow extension or slit (14).

7. The system according to one or more of the previous claims, **characterized in that** said fixing elements (19,20) of the upright to a vertical wall (PV) comprise an expansion dowel (19) inside which a wall fixing screw (20) is housed.

8. The system according to claim 7, **characterized in that** each upright (12) provides a housing (21) suitable for receiving a spacer (22), wherein said tubular spacer (22) provides an outer threaded surface (23) which is housed in a complementary threaded hole (24) provided in the housing (21) of the upright (12).

9. The system according to one or more of the previous claims, **characterized in that** said supporting pins (25,25'), protruding from the rear surface (26) of the panels (11), comprise a screw (27) housed in a respective hole of said panels (11).

10. The system according to claim 9, **characterized in that** said supporting pins (25) comprise a screw (27) with an enlarged head (30) that can be positioned in a bush (28) internally threaded (in 29) positioned in a blind hole (31) formed in the rear surface (26) of the panel (11) of the system.

Patentansprüche

1. System zur Montage von Wandtafeln, insbesondere von Tafeln mit vertikaler Entwicklung, mit zumindest zwei voneinander beabstandeten Ständern (12) und zumindest einer Tafel mit vertikaler Entwicklung (11), wobei:

   - jeder der Ständer (12) Spalte (13), die schmale Verlängerungen oder Schlitze (14, 14') in vertikaler Richtung aufweisen, die voneinander beabstandet sind, Befestigungselemente (19, 20) des Ständers an einer vertikalen Wand (PV) bereitstellt, und
   - die zumindest eine Tafel mit einer vertikalen Entwicklung (11) auf ihrer den Ständern (12) und der vertikalen Wand (PV) zugewandten Rückfläche (26) eine Reihe von Stützstiften (25, 25') bereitstellt, die aus der Rückfläche (26) herausragen und die in die Spalte (13) und/oder schmalen Verlängerungen oder Schlitze (14, 14') der Ständer (12) eingesetzt sind,

   dadurch gekennzeichnet, dass

   - die Ständer (12) an ihren unteren Enden mit einer Nivelliergruppe (GLM) versehen sind, um den Ständer vertikal in Bezug auf den Boden (P) zu nivellieren,

   und

   - die zumindest eine Tafel mit einer vertikalen Entwicklung (11) an ihrem unteren Ende mit Nivelliergruppen (GLP) versehen ist, die eine Einstellung der Position der Tafel (11) in einer vertikalen Richtung in Bezug auf den Boden (P) und dadurch eine stabile Unterbringung der Stützstifte (25, 25') in den schmalen Verlängerungen oder Schlitzen (14, 14') der Ständer (12) ermöglichen.

2. System nach Anspruch 1, **dadurch gekennzeichnet, dass** die Stützstifte (25, 25'), die aus der Rückfläche (26) herausragen, in der Form von Schrauben (27) vorliegen, die mit einem ringförmigen Kragen (32) versehen sind, der eine Breite (L) hat, die im Wesentlichen gleich der Dicke einer Wand des Ständers (12) ist.

3. System nach einem der Ansprüche 1 oder 2, **dadurch gekennzeichnet, dass** jeder Ständer (12) eine bestimmte Anzahl von Paaren von Spalten (13) bereitstellt, die jeweils mit einer schmalen Verlängerung oder einem Schlitz (14, 14') versehen sind, der/die in vertikaler Richtung voneinander beabstandet sind und Stützstifte (25, 25') aufnehmen, die an vertikalen Seitenenden benachbarter Tafeln (11) positioniert sind.

4. System nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** in jedem Ständer (12) des Systems jeder Spalt (13) eine schmale Verlängerung oder einen Schlitz (14) vorsieht, der vertikal über dem Spalt (13) in Bezug auf einen Boden P angeordnet ist.

5. System nach einem der vorhergehenden Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** in jedem Ständer (12) des Systems jeder Spalt (13) eine schmale Verlängerung oder einen Schlitz (14) vorsieht, der vertikal unter dem Spalt (13) in Bezug auf einen Boden P angeordnet ist.

6. System nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die untere Nivelliergruppe (GLM) des Ständers (12) im Inneren des Ständers positioniert ist, sobald die Positionierung des Ständers (12) jedes Spalts (13) in Bezug auf die relativ schmale Verlängerung oder den Schlitz (14) gewählt worden ist.

7. System nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Befestigungselemente (19, 20) des Ständers an einer vertikalen Wand (PV) einen Spreizdübel (19) umfassen, in dem eine Wandbefestigungsschraube (20) untergebracht ist.

8. System nach Anspruch 7, **dadurch gekennzeichnet, dass** jeder Ständer (12) ein Gehäuse (21) bereitstellt, das zur Aufnahme eines Abstandhalters (22) geeignet ist, wobei der rohrförmige Abstandhalter (22) eine äußere Gewindefläche (23) bereitstellt, die in einem komplementären Gewindeloch (24) untergebracht ist, das in dem Gehäuse (21) des Ständers (12) vorgesehen ist.

9. System nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Stützstifte

(25, 25'), die aus der Rückfläche (26) der Tafeln (11) herausragen, eine Schraube (27) umfassen, die in einem entsprechenden Loch der Tafeln (11) untergebracht ist.

10. System nach Anspruch 9, **dadurch gekennzeichnet, dass** die Stützstifte (25) eine Schraube (27) mit einem vergrößerten Kopf (30) umfassen, die in einer Buchse (28) mit Innengewinde (in 29) positioniert werden kann, die in einem Sackloch (31) positioniert ist, das in der Rückfläche (26) der Tafel (11) des Systems ausgebildet ist.

Revendications

1. Système pour l'assemblage de panneaux muraux, en particulier des panneaux présentant un développement vertical, comprenant au moins deux montants (12) espacés l'un de l'autre et au moins un panneau présentant un développement vertical (11), dans lequel :

- chacun desdits montants (12) prévoit des fentes (13) ayant des extensions ou entailles étroites (14, 14') dans une direction verticale, espacées les unes des autres, des éléments de fixation (19, 20) du montant à un mur vertical (PV) et
- ledit au moins un panneau présentant un développement vertical (11) prévoit, sur sa surface arrière (26), faisant face aux montants (12) et au mur vertical (PV), une série de broches de support (25, 25'), faisant saillie depuis ladite surface arrière (26) et qui sont insérées dans lesdites fentes (13) et/ou extensions ou entailles étroites (14, 14') des montants (12),

caractérisé en ce que

- lesdits montants (12) sont pourvus d'un groupe de mise à niveau (GLM) au niveau de leurs extrémités inférieures pour mettre à niveau le montant verticalement par rapport au sol (P),

et

- ledit au moins un panneau présentant un développement vertical (11) est pourvu, au niveau de son extrémité inférieure, de groupes de mise à niveau (GLP) qui permettent un ajustement de la position du panneau (11) dans une direction verticale par rapport au sol (P) et ainsi un logement stable desdites broches de support (25, 25') dans lesdites extensions ou entailles étroites (14, 14') des montants (12).

2. Système selon la revendication 1, **caractérisé en ce que** lesdites broches de support (25, 25') faisant saillie depuis la surface arrière (26), se présentent sous la forme de vis (27) pourvues d'un collier annulaire (32) ayant une largeur (L) sensiblement égale à celle de l'épaisseur d'une paroi du montant (12).

3. Système selon la revendication 1 ou 2, **caractérisé en ce que** chaque montant (12) fournit un certain nombre de paires de fentes (13) pourvues chacune d'une extension ou entaille étroite (14, 14'), espacées les unes des autres dans une direction verticale, qui reçoivent des broches de support (25, 25') positionnées sur des extrémités latérales verticales de panneaux (11) adjacents.

4. Système selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** dans chaque montant (12) du système, chaque fente (13) prévoit une extension ou entaille étroite (14) positionnée verticalement au-dessus de la fente (13) par rapport à un sol P.

5. Système selon une ou plusieurs des revendications précédentes de 1 à 4, **caractérisé en ce que** dans chaque montant (12) du système, chaque fente (13) prévoit une extension ou entaille étroite (14) positionnée verticalement sous la fente (13) par rapport à un sol P.

6. Système selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit groupe de mise à niveau inférieur (GLM) du montant (12) est positionné à l'intérieur du montant une fois que le positionnement dudit montant (12) de chaque fente (13) a été sélectionné par rapport à l'extension ou entaille étroite (14) relative.

7. Système selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** lesdits éléments de fixation (19, 20) du montant à un mur vertical (PV) comprennent un goujon d'expansion (19) à l'intérieur duquel est logée une vis de fixation murale (20).

8. Système selon la revendication 7, **caractérisé en ce que** chaque montant (12) fournit un logement (21) approprié pour recevoir une entretoise (22), dans lequel ladite entretoise tubulaire (22) fournit une surface extérieure filetée (23) qui et logée dans un trou fileté complémentaire (24) ménagé dans le logement (21) du montant (12).

9. Système selon une ou plusieurs des revendications précédentes, **caractérisé en ce que** lesdites broches de support (25, 25'), faisant saillie depuis la surface arrière (26) des panneaux (11), comprennent une vis (27) logée dans un trou respectif desdits panneaux (11).

10. Système selon la revendication 9, **caractérisé en ce que** lesdites broches de support (25) comprennent une vis (27) ayant une tête agrandie (30) qui peut être positionnée dans une douille (28) intérieurement filetée (en 29) positionnée dans un trou bor-

gne (31) formé dans la surface arrière (26) du panneau (11) du système.

Fig. 1

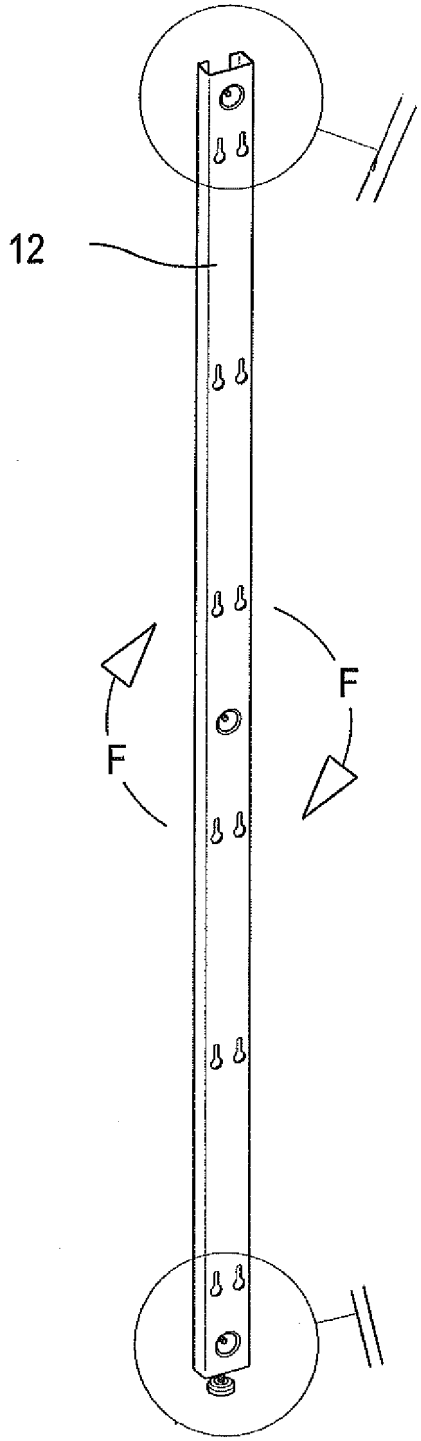
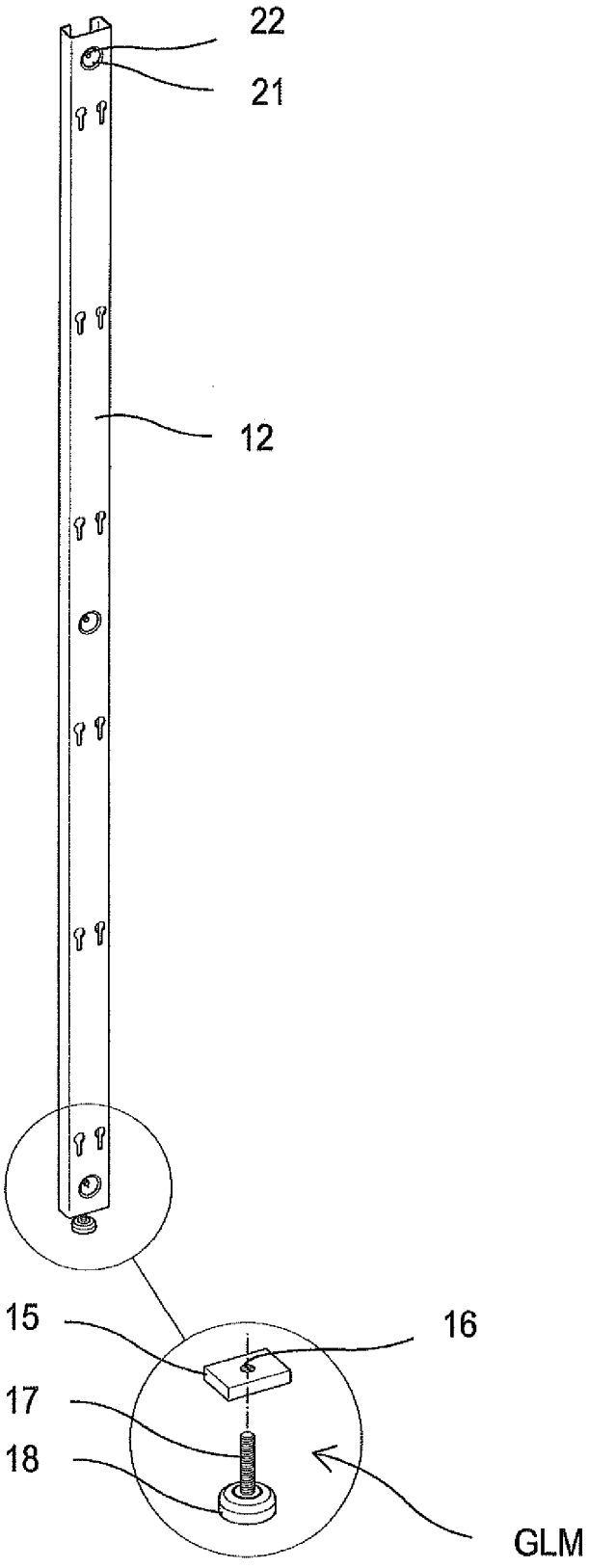


Fig. 2



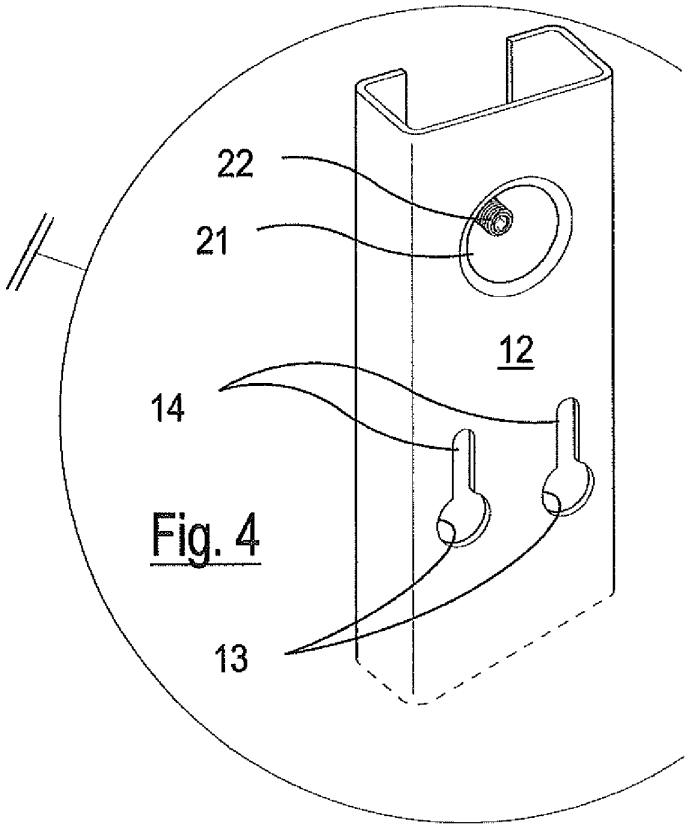


Fig. 4

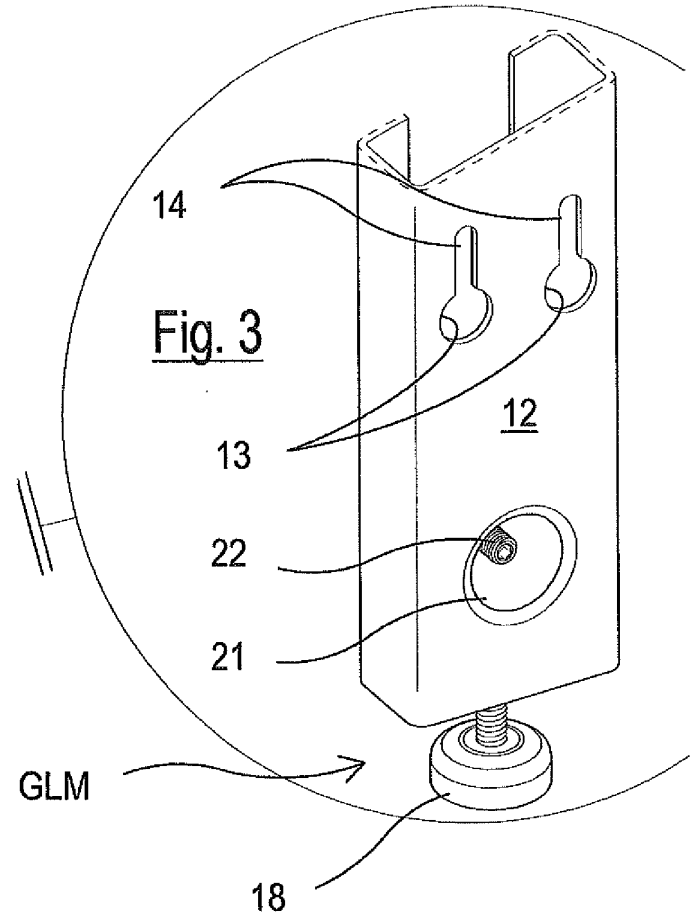


Fig. 3

Fig. 5

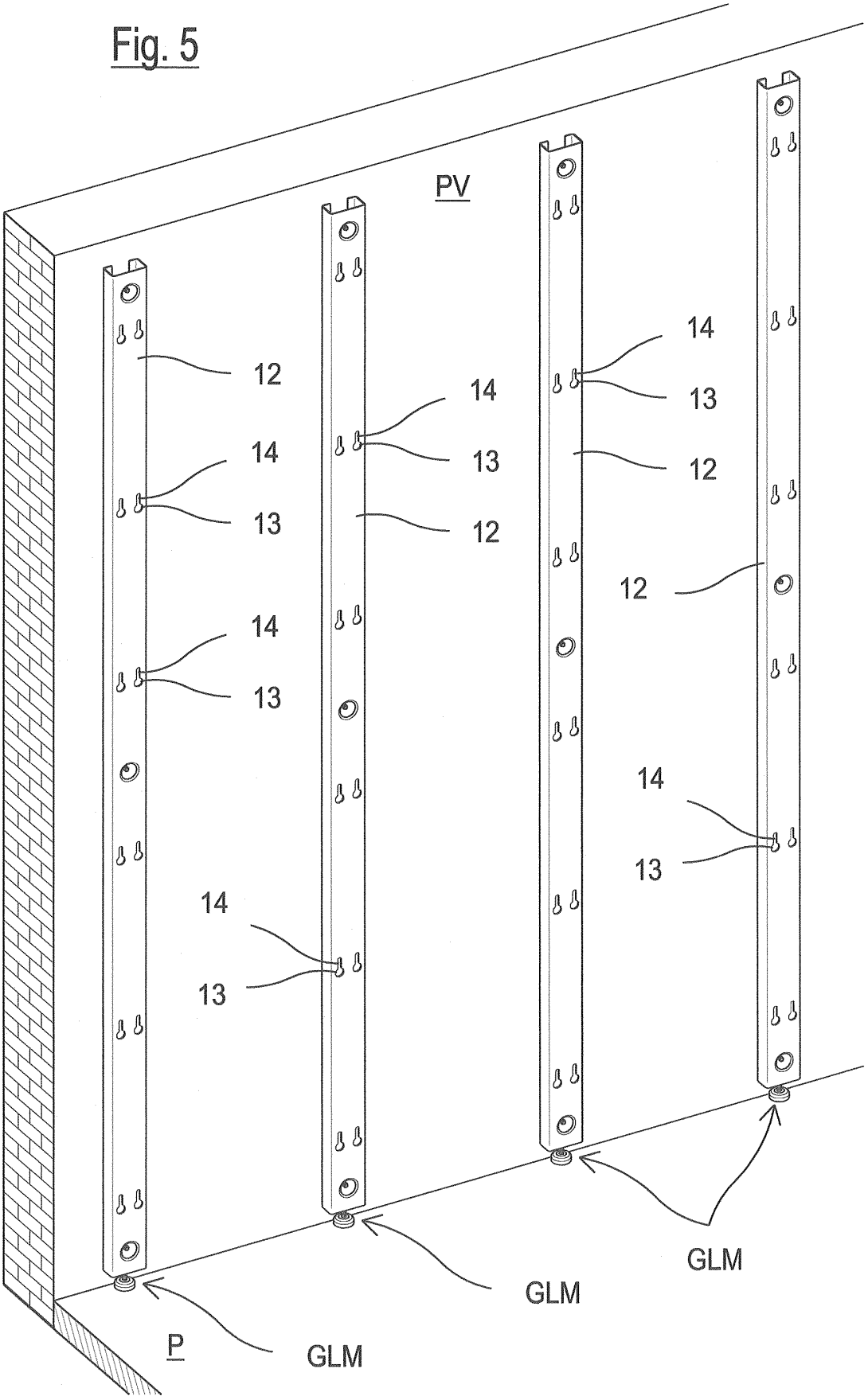
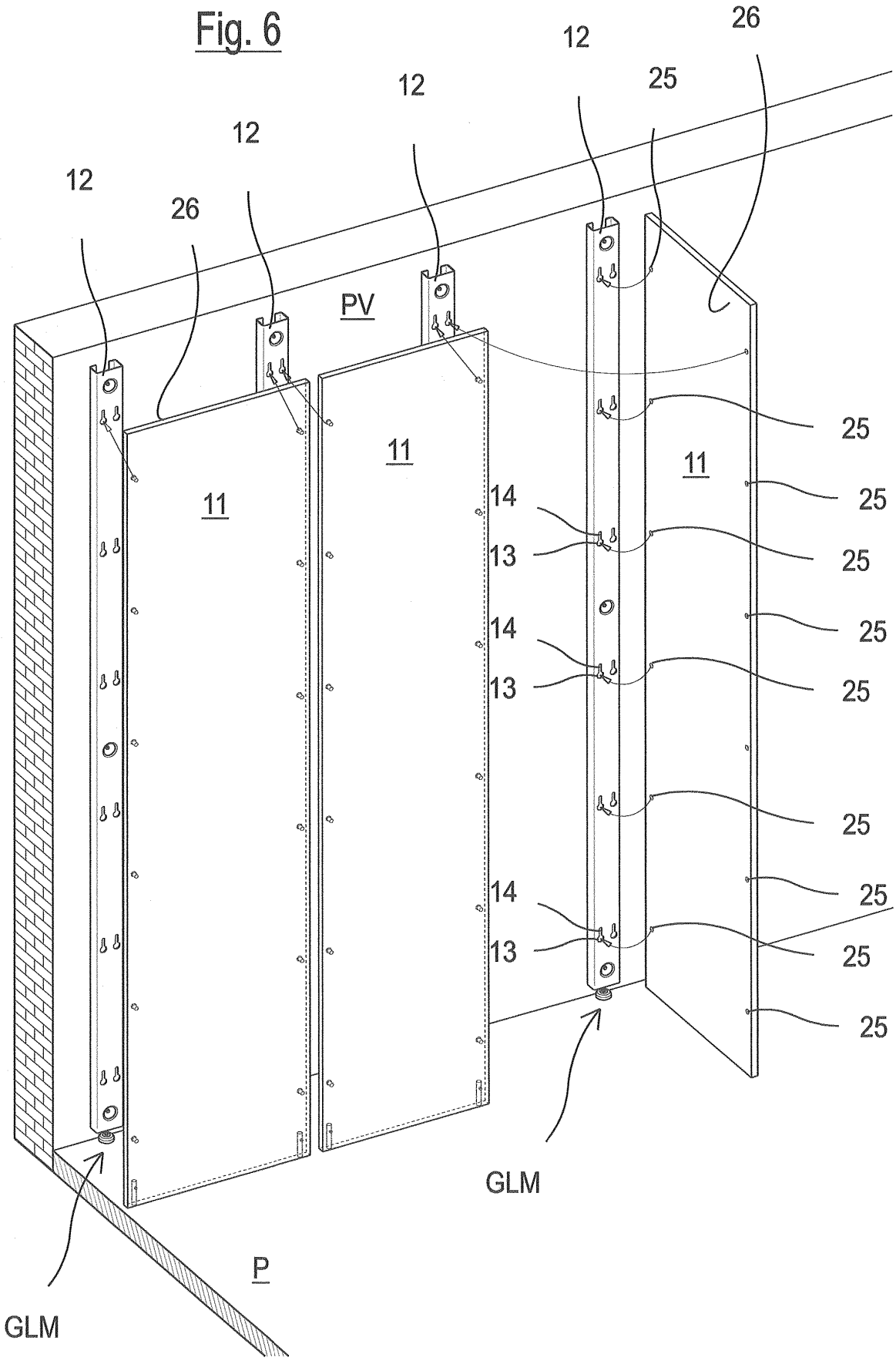


Fig. 6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26
12
12
12
25
26
PV
11
11
11
25
25
14
13
25
14
13
25
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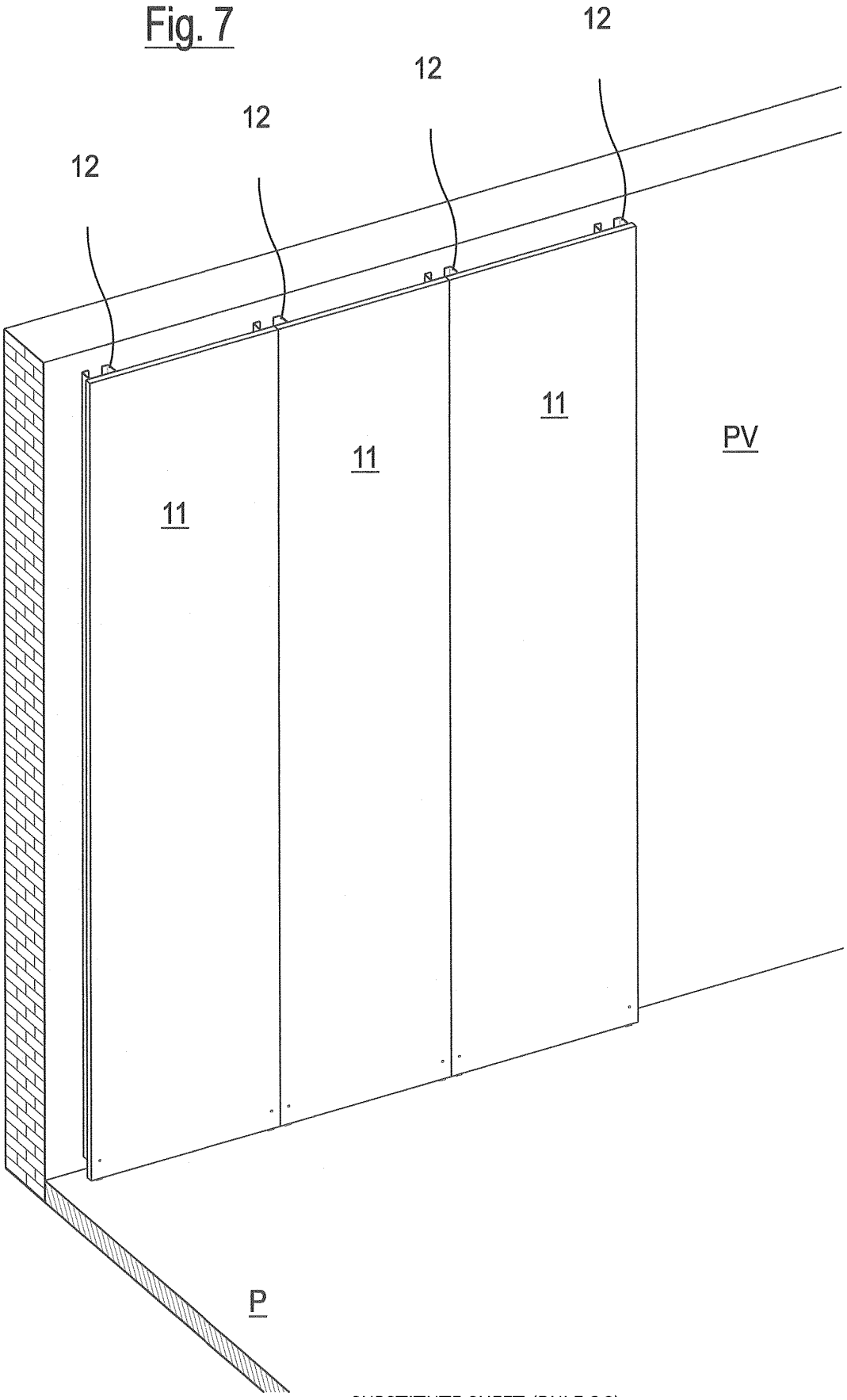
14
13
25
25
GLM
GLM
P

Fig. 7



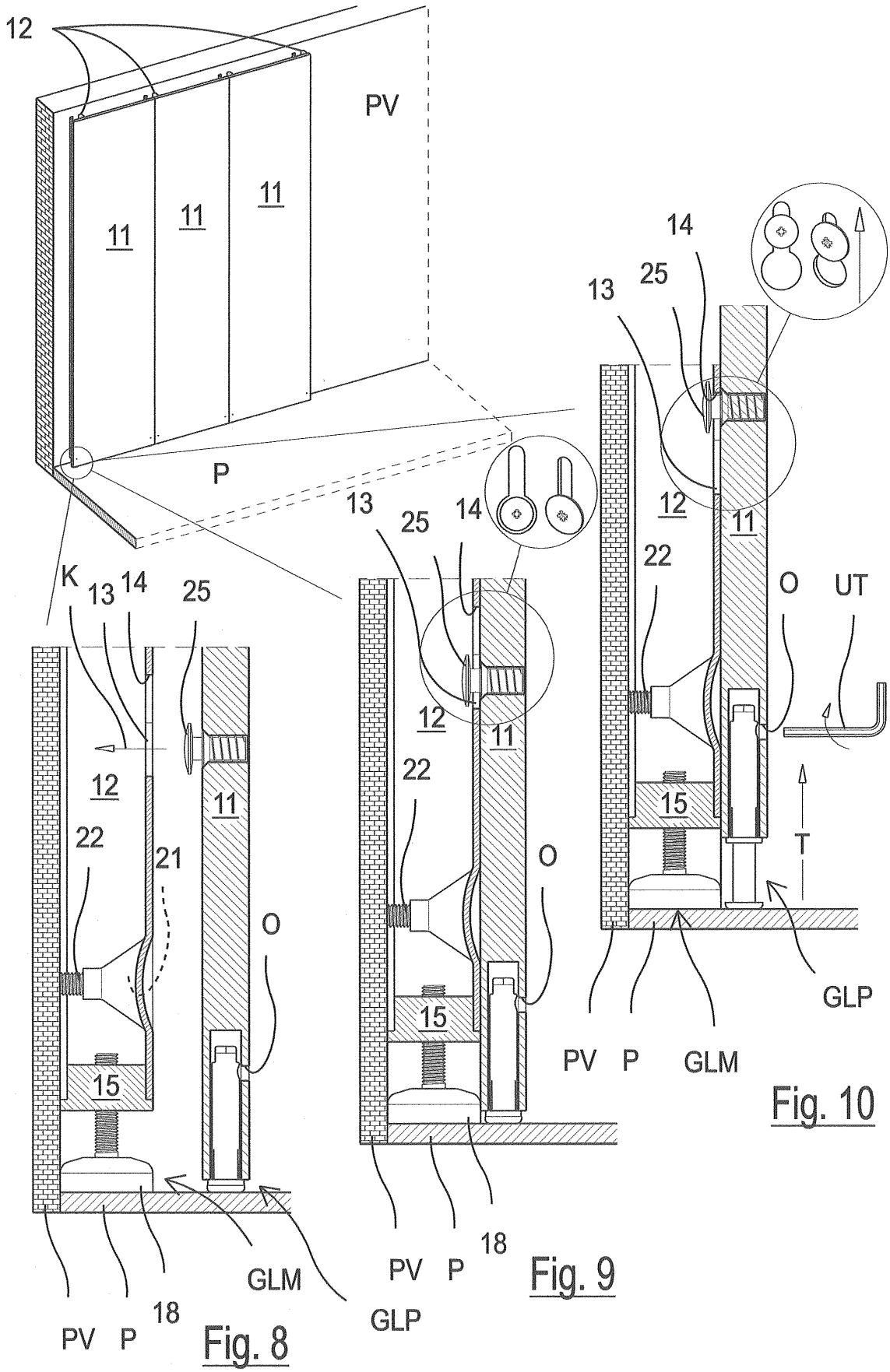


Fig. 8

Fig. 9

Fig. 10

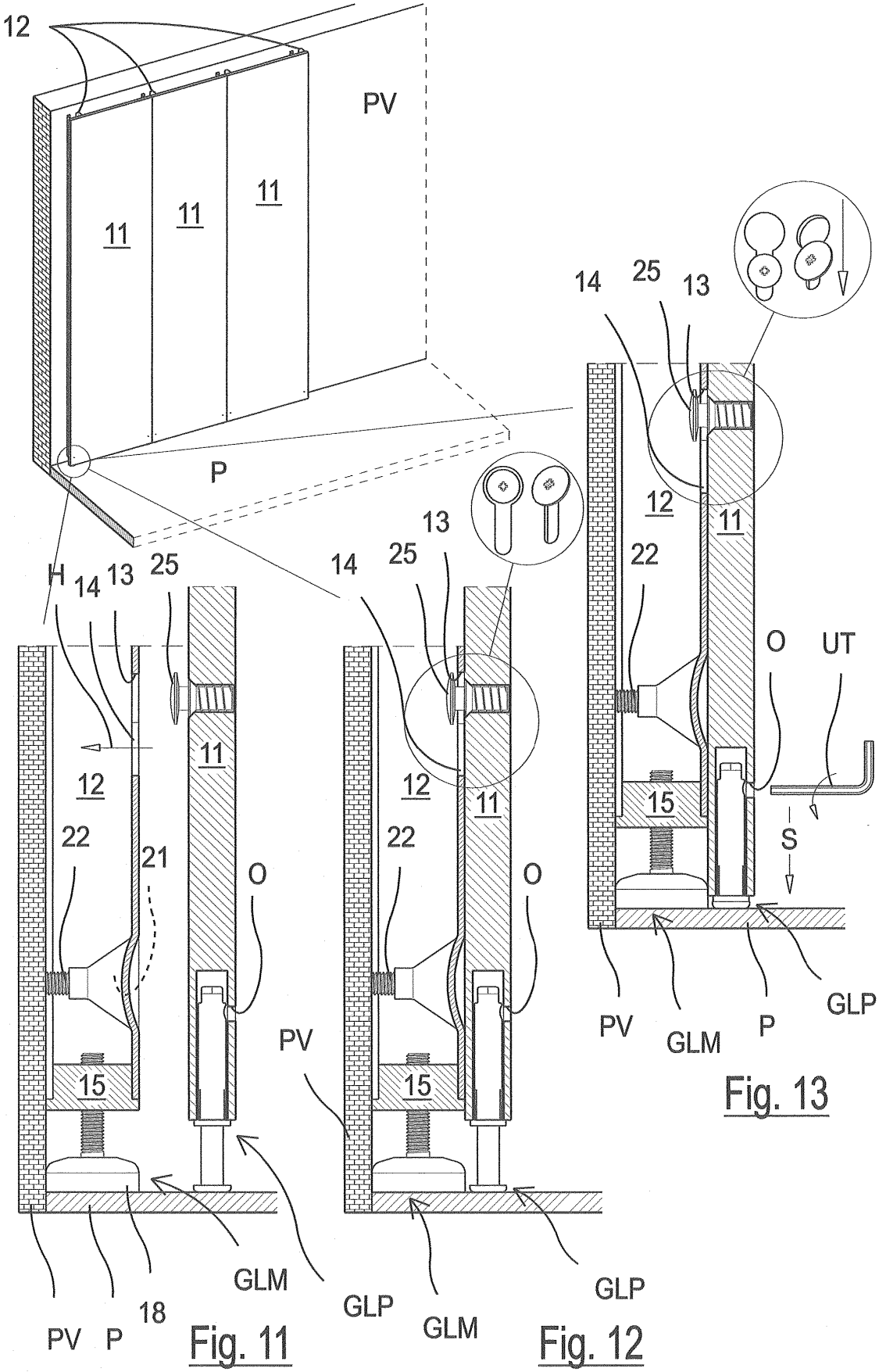

12
PV
11
11
11
P
H
14
13
25
12
11
22
21
O
15
PV
P
18
GLM
GLP
Fig. 11
14
25
13
12
11
22
O
15
PV
GLM
GLP
Fig. 12
14
25
13
12
11
22
O
UT
15
S
PV
GLM
P
GLP
Fig. 13

Fig. 14

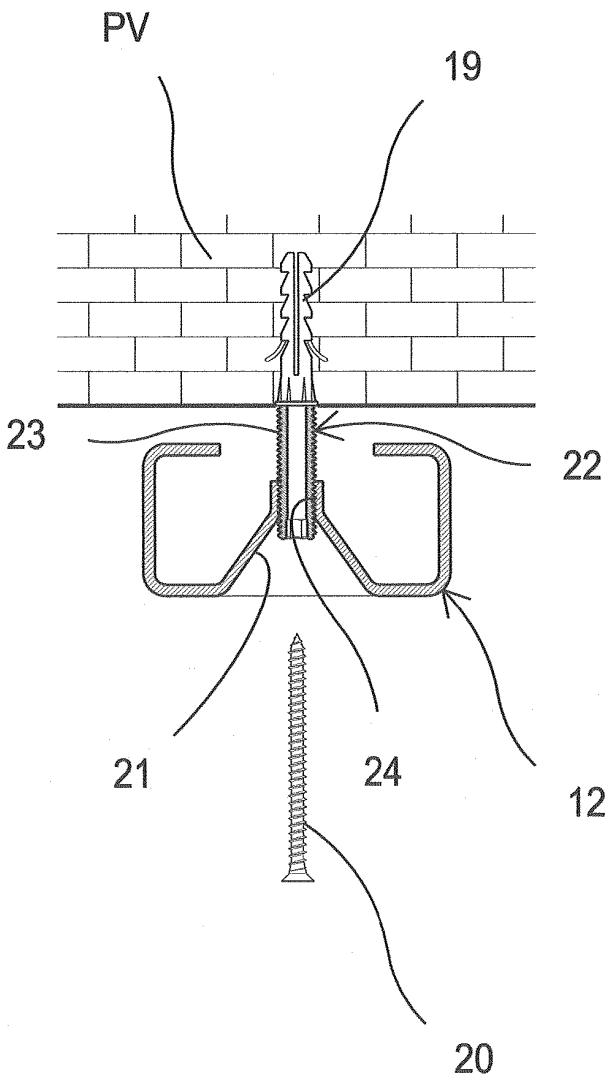


Fig. 15

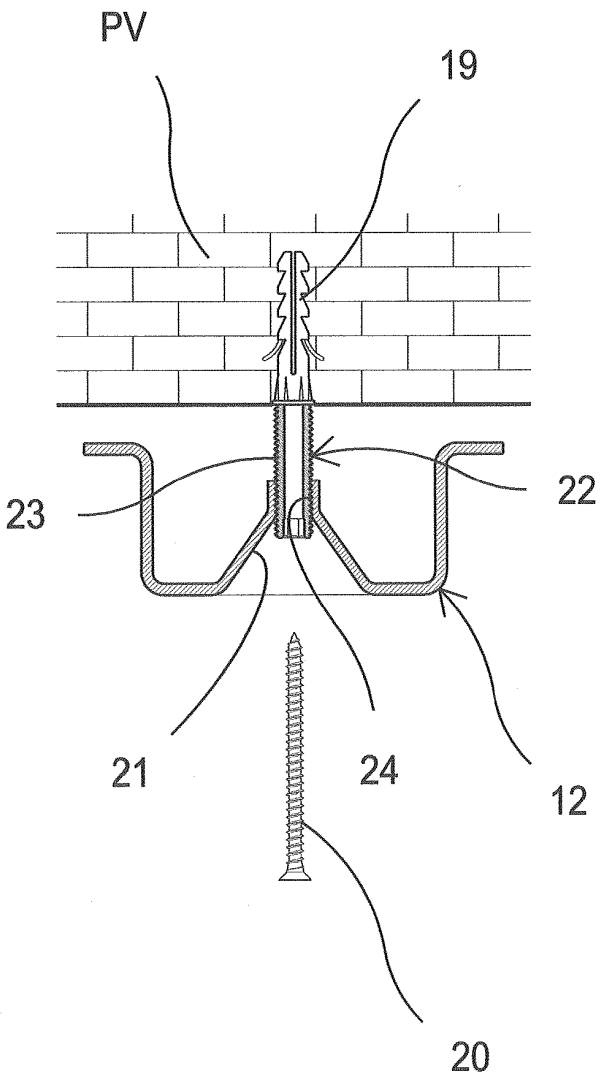


Fig. 16

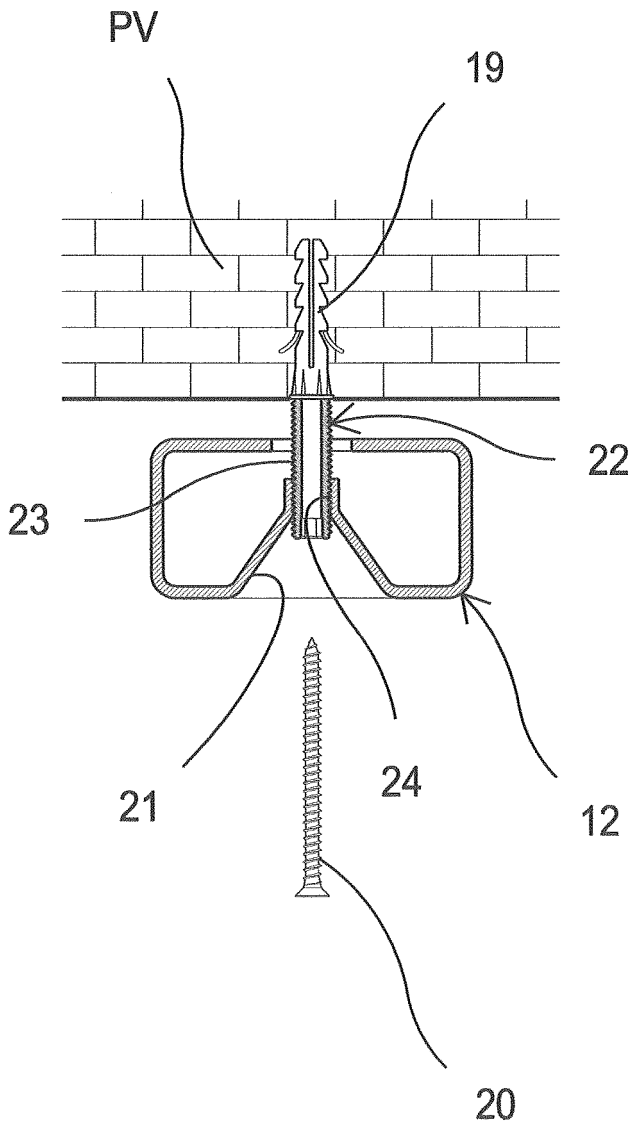


Fig. 17

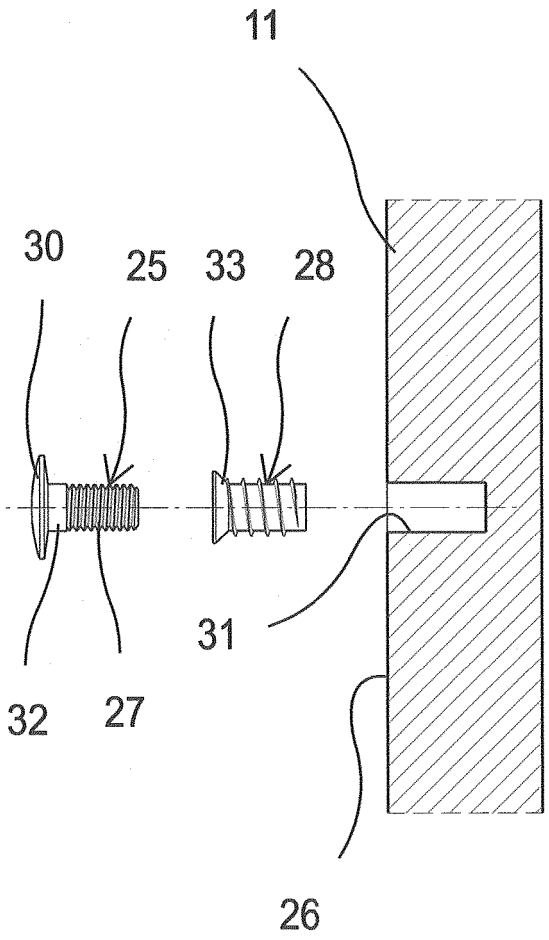


Fig. 18

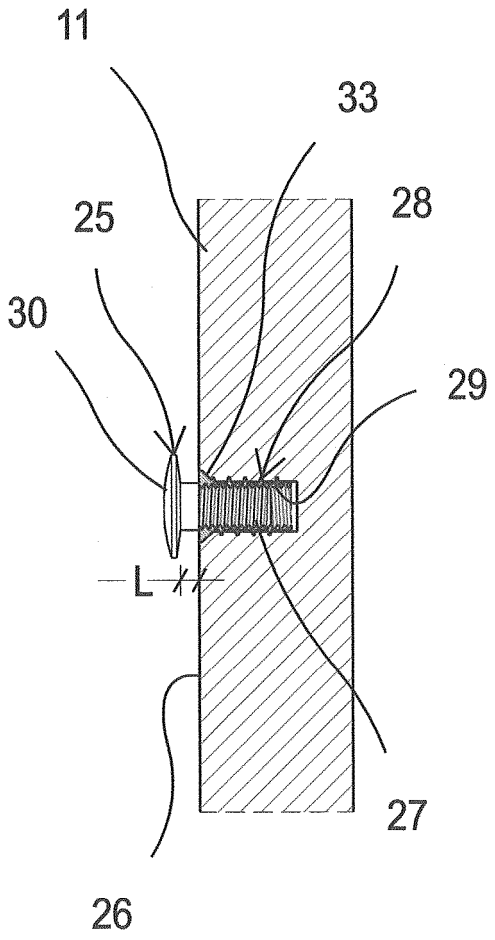


Fig. 19

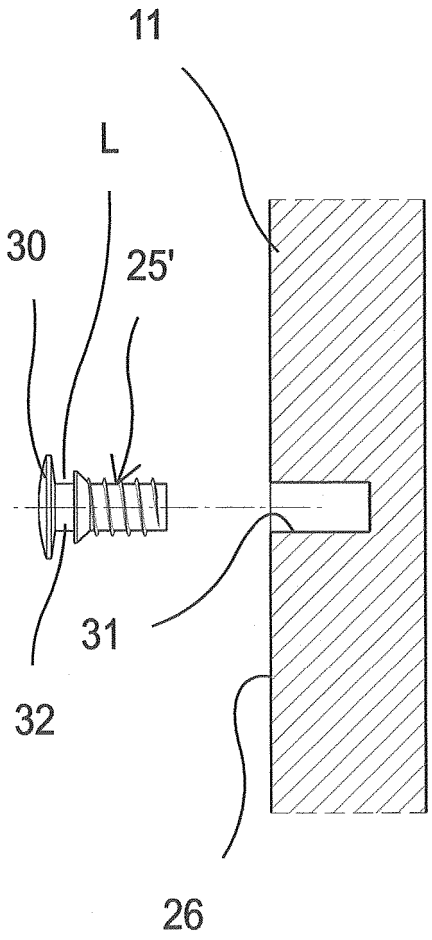
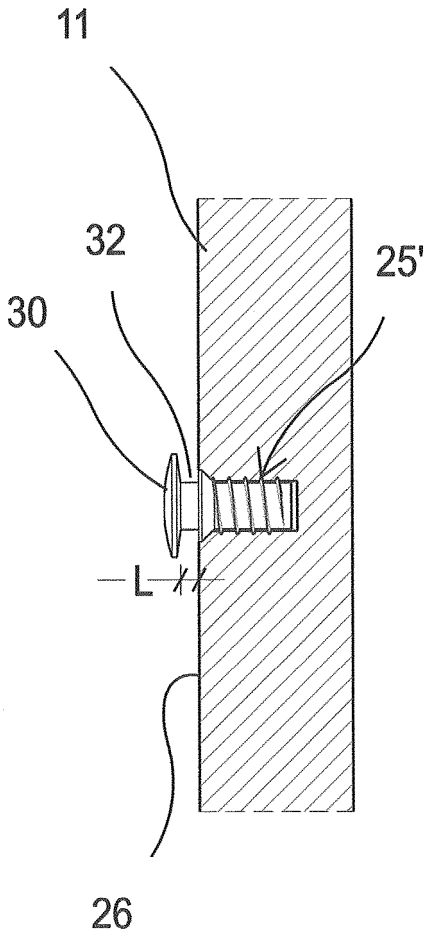


Fig. 20



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- US 2001011443 A **[0004]**
- EP 2199488 A **[0007]**