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(72) Inventors:
• **GUERRINI, Luigi**
37135 Verona (IT)
• **TESSADORI, Andrea**
37135 Verona (IT)

(74) Representative: **Feltrinelli, Secondo Andrea**
APTA S.r.l.
Patent Department
Via Ca' di Cozzi, 41
37124 Verona (IT)

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(71) Applicant: **Isopan S.p.A.**
37135 Verona (IT)

(54) **SYSTEM FOR OBTAINING A DRY OR MECHANICAL BUILDING ENVELOPE OR A CLADDING OF BUILDING WALLS AS WELL AS BUILDING WITH CLADDED WALL AND METHOD THEREFORE**

(57) The present invention relates to a system for obtaining a dry or mechanical building envelope or a building wall cladding comprising:
- at least one bracket (2) that can be secured or connected to a component of a wall (W) of a building,

- at least one section bar component (3) that can be fastened or connected to said at least one bracket (2), and
- at least one sandwich panel (4).

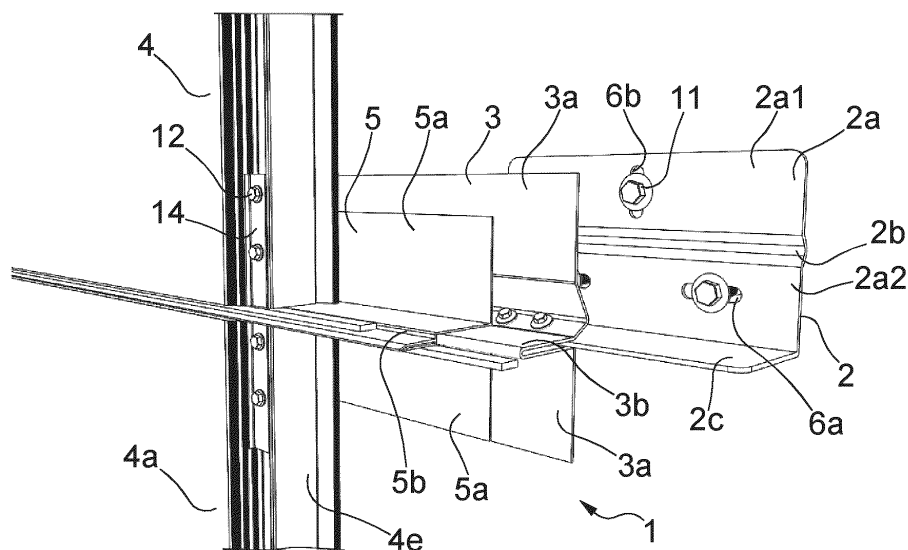


FIG.1

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Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to a system for obtaining a dry or mechanical building envelope or a cladding of building walls as well as a building with a cladded or covered wall and a method of cladding building walls.

[0002] It will be understood that the expression "dry" indicates that the system according to the present invention allows the construction of a building envelope or a cladding by means of steps actually mechanical, of connection of the various components, this unlike the "wet" systems in which the installation involves the application of liquid or pasty compounds, such as for example glue, cement, etc.

STATE OF THE PRIOR ART

[0003] Sandwich panels are usually used in the industrial sector, i.e. for the obtainment or cladding of industrial buildings, such as warehouses or similar.

[0004] In this regard, systems have been proposed that ensure both efficiency and rapid installation times.

[0005] However, in the industrial sector there are now many competing solutions with a consequent reduction in profit margins.

[0006] On the other hand, in the civil or architectural field, i.e. for cladding of walls of houses or buildings not for industrial use, but for example for offices, homes or the like, no satisfactory solutions are envisaged, neither from the point of view of time, nor of effectiveness, nor of costs.

[0007] CN113250399A and US2018216352A1 teach solutions according to the state of the prior art.

OBJECTS OF THE INVENTION

[0008] One object of the present invention is to provide a new system for the obtainment of a dry or mechanical building envelope or a cladding of building walls, in particular of buildings for civil or industrial, tertiary and/or residential use.

[0009] Another object of the present invention is to provide a system for the obtainment of a dry or mechanical building envelope or a cladding of building walls that ensures rapid installation.

[0010] Another object of the present invention is to provide a system for the obtainment of a dry or mechanical building envelope or a cladding of building walls that allows the aesthetic quality of buildings to be improved.

[0011] Another object of the present invention is to provide a system for the obtainment of a dry or mechanical building envelope or a cladding of building walls that allows the tilting to be adjusted, so as to manage the coplanarity of respective sandwich panels of the new wall or envelope or cladding with respect to the existing one.

[0012] Another object of the present invention is to

provide a system for the obtainment of a dry or mechanical building envelope or a cladding of building walls that allows the tolerances of displanarity of the existing load-bearing wall to be absorbed, with respect to the new cladding or envelope.

[0013] Another object of the present invention is to provide a system for the obtainment of a dry or mechanical building envelope or a cladding of building walls that has components that manage the breathability of the new wall or cladding with protection from atmospheric agents so as to also act as a drip tray.

[0014] Another object of the present invention is to provide a system for the obtainment of a dry or mechanical building envelope or a cladding of building walls that is able to improve the perception of coplanarity, avoiding the effect of shadow projection between adjacent panels.

[0015] Another object of the present invention is to provide a system for the obtainment of a dry or mechanical building envelope or a cladding of building walls that also provides a continuous thermal cut between the wall to be clad and the outside.

[0016] Another object of the present invention is to provide a system for the obtainment of a dry or mechanical building envelope or a cladding of building walls that provides special elements for quick and easy fixing for the completion tinsmithery.

[0017] Another object of the present invention is to provide a system for the obtainment of a dry or mechanical building envelope or of a cladding of building walls that also eliminates possible galvanic bridges between respective components made of different materials.

[0018] Another object of the present invention is to provide a new building with a cladded or covered wall as well as a new method for the obtainment of a dry or mechanical building envelope or of a cladding of building walls.

[0019] According to one aspect of the invention, a system according to claim 1 is provided.

[0020] According to another aspect of the invention, a building according to claim 20 is provided.

[0021] According to another aspect of the invention, a method according to claim 21 is provided.

[0022] The dependent claims refer to preferred and advantageous embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] Other features and advantages of the invention will be more evident from the description of embodiments of a system, building and method, illustrated for indicative purposes in the attached drawings in which:

- figures 1 and 2 are perspective views showing the components of a system according to the present invention constrained or connected,
- figures 3 and 4 are side views of a system according to the present invention,
- figures 5 and 6 show components of a system ac-

cording to the present invention in respective arrangements or positions,

- figure 7 shows components of a system according to the present invention constrained to a wall W with sections inclined to each other,
- figures 8 and 9 show details of constraint or connection of a tinsmithery or sheet to components of the system according to the present invention,
- figures 10 to 13 show a sequence of use of a system for the realization of a dry or mechanical building envelope or of a cladding of building walls according to the present invention.

[0024] In the attached drawings, identical parts or components are identified by the same reference numbers.

EMBODIMENTS OF THE INVENTION

[0025] In this description, "exterior" means the part of the envelope or cladding that, in use, will be exposed or in any case outside the building or the wall to be cladded and vice versa for "interior".

[0026] With reference first to the attached figures, a system 1 has been illustrated for the obtainment of a dry or mechanical building envelope or a cladding of walls W of buildings, in particular walls of a building that are vertical or inclined with respect to the vertical, but not horizontal, comprising at least one bracket 2, if desired made of metal, for example steel, which can be constrained or connected, in any suitable way, for example with dowels, fixings, anchors, bolts, screws or hooks 11, to a component of a wall W of a building, such as a slab, usually made of reinforced concrete or other structurally suitable material, of a building.

[0027] More specifically, a system according to the present invention is intended for the civil or architectural or residential field, i.e. for cladding walls of homes, offices or the like or in any case buildings as well as, if desired, for industrial use, such as warehouses or similar buildings.

[0028] The system 1 then comprises at least one section bar component 3, if desired made of metal, for example steel, which can be constrained or connected, in any suitable way, for example with bolts, screws or hooks or fitting or parts in engagement, to at least one bracket 2.

[0029] As will also be explained later, the section bar component 3 can be arranged with its main extension dimension horizontal (as in the example in the figures) or vertical.

[0030] The section bar component 3 can be for example a metal profile or a laminate, for example extruded.

[0031] At least one sandwich panel 4 is then provided in system 1. This component performs the function of opposing the thrust and depression of the wind.

[0032] The system 1 also includes at least one interface element 5 between the at least one sandwich panel 4 and the at least one section bar component 3.

[0033] The at least one interface element 5 is made of

plastic or composite material, for example a polymeric material, such as PVC, ABS, composite fiber, nylon and glass fiber, polycarbonate, etc., so as to prevent or contain the passage of temperature through it. The at least one interface element 5 is preferably also resistant to UV rays.

[0034] The at least one interface element 5 is configured as a suitably shaped sheet. Clearly, it can be made in a single piece or by means of multiple components suitably not-removably connected, for example by means of glue or welding.

[0035] The interface element 5 is essentially intended to provide a thermal break between the sandwich panel 4 and the substructure, i.e. the wall W to be cladded or the respective component (if desired, a slab) to which the bracket 2 is constrained or connected.

[0036] Moreover, the interface element 5 can also perform the function of limiting the projection of backlight or shadows between adjacent panels 4 and improve the perception of the coplanarity of the wall.

[0037] With regard to this aspect, the panels of a traditional envelope or cladding are not perfectly coplanar or aligned, but there is a difference of at least + or - 2 mm. This difference, although limited, in the conditions of the presence of grazing light (in the morning or in the evening), generates projections of shadows that affect the aesthetic quality of the building.

[0038] Thanks to the present invention, it is possible to limit problems of coplanarity of the panels thanks to the bracket 2 and furthermore, depending on the presence of the interface element 5, it allows to further reduce the problems deriving from the projection of shadows, at least in the joints or areas with a main vertical or horizontal extension between the panels, depending on which of these areas engage or are affected by the interface elements 5.

[0039] If desired, the interface element 5 performs also the function of interrupting the galvanic bridge, as it prevents the oxidation that could occur following contact between two components of different metallic nature.

[0040] More specifically, the at least one interface element 5 is mounted to or on a respective portion of the at least one section bar component 3 and is configured so as to separate or keep at a distance or not in contact the sandwich panel(s) 4 and the section bar component 3, as well as naturally the sandwich panel(s) 4 and the bracket 2.

[0041] Preferably, the at least one interface element 5 comprises at least one first wall section 5a, if desired, in use, with a vertical arrangement, interposed between the back, in use, of at least one sandwich panel 4 and a respective section bar component 3 as well as (comprises) a second enclosing section 5b, clearly partial, of a respective upper 4c, lower 4d or lateral 4e face of at least one sandwich panel 4.

[0042] If desired, the enclosing section 5b comprises a portion 5c fitted or mounted on a portion of section bar component 3. With regard to this aspect, the enclosing

section 5b is C- or U-shaped with an opening facing rearward or inward.

[0043] The at least one wall section 5a could include two flat wall sections, one extending, for example upwards or towards one side, from one end of the C or U and the other extending, for example downwards or towards the other side, from the other end of the C or U.

[0044] In this case, the two flat wall sections 5a would preferably be aligned with each other and each arranged between the back, in use, of a respective sandwich panel 4 and a respective section bar component 3, so that the same interface element 5 and preferably also the same first 2 and second 3 brackets are used for the fasten, clearly on the wall, of at least two adjacent and successive sandwich panels, in particular one next to the other and/or one above the other (one above the other according to the embodiment in the figures).

[0045] Preferably, the enclosing section 5b has a free front end 5b1 substantially aligned, with reference to a vertical plane parallel to the dimensions of greatest extension of the panel(s) 4, with the free external face 4a of the sandwich panel 4 either protruding towards the front or towards the outside with respect to it, for example by 1-30 or 1-20 or 1-10 mm. According to a less preferred variant, the enclosing section 5b protrudes towards the rear or inwards with respect to the free external face 4a of the sandwich panel 4 by, for example, 1-30 or 1-20 or 1-10 mm.

[0046] The possible enclosing section 5b can have from the inside towards the outside, the inserted or fitted portion 5c and then a projecting portion 5d ending with the free front end 5b1.

[0047] The projecting portion 5d can have a final segment 5e inclined, in the direction from the inside towards the outside, downwards, so as to perform the function of a drip tray.

[0048] If desired, the projecting portion 5d has two parallel wall parts 5d1, 5d2 defining between them a groove G facing towards the front or better towards the outside. This groove G could have a width between 0.5 and 2 mm.

[0049] Such possible groove G would be useful to allocate inside it a portion of engagement for the sheets or tinsmithery SH of a frame or hole pattern, that is to say any opening in the envelope or cladding (see figures 8 and 9). It would essentially be a thermal cut engagement point. Such portion of engagement of a sheet or tinsmithery could be blocked with suitable locking means, such as screws, mechanical fixings, adhesives or similar (not illustrated in the figures).

[0050] As it will be understood, this aspect would also be advantageous, since the constraint of the sheets or tinsmithery SH usually requires a lot of time.

[0051] The interface element 5 could have any suitable thickness constant or not, for example a constant thickness with a value between 0.5 and 2 mm.

[0052] With reference to the possible components of the interface element 5, for indicative and non-limiting

purposes, they can have the following dimensions:

- the at least one wall section 5a extension, in the direction from top to bottom (if the enclosing section 5b wraps an upper face 4c or lower face 4d of a panel 4) or from one side to the other (if the enclosing section 5b wraps a lateral face 4e of at least one sandwich panel 4) between 20 and 150 mm; and/or
- enclosing section 5b extension parallel to a respective upper face 4c, lower face 4d or lateral face 4e of a panel between 20 and 250 mm.

[0053] As regards the possible components of the enclosing section 5b, the same can have the following dimensions:

- inserted or fitted portion 5c extending parallel to a respective upper face 4c, lower face 4d or lateral face 4e of a panel 4 between 20 and 250 mm; and/or
- projecting portion 5d extending parallel to a respective upper face 4c, lower face 4d or lateral face 4e of a panel between 20 and 100 mm.

[0054] The interface element 5 has a configuration as above substantially in section, in particular in section in a vertical or horizontal plane (depending on the arrangement of the interface element) and orthogonal to the main extension plane of the respective sandwich panel or panels, which however remains constant along the entire respective extension, i.e. in the direction from one side to the other or in any case in the direction of the main extension of the upper face 4c, lower face 4d or lateral face 4e to which the element 5 is applied.

[0055] The interface element 5 has a suitable length, i.e. an extension in the direction from one side to the other or in any case in the direction of the main extension of the upper face 4c, lower face 4d or lateral face 4e to which the element 5 is applied, for example between 500 and 6000 mm.

[0056] If desired, the bracket 2 delimits at least one first slot 6a with a horizontal main extension or horizontally aligned holes and/or at least one second slot 6b with a vertical main extension or vertically aligned holes, if desired two first slots or holes, for example aligned with each other, in use, horizontally. The slots 6a, 6b are intended for the insertion of special fixing means, for example dowels, bolts, screws 11 or hooks, to a building slab. Clearly, the slots or holes (like all the other elements indicated as preferred, advantageous or optional) are not fixed and definitive, but can change based on the structural needs of the project.

[0057] Thanks to the engagement of such fixing means 11 in the slots or holes 6a, 6b, acting in particular on any recessed or protruding interference or segment 2b of the bracket 2, it is possible to absorb the so-called "out of plumb" and "out of square" that are found in existing buildings.

[0058] In essence, depending on the tightening or in-

section into the slots or holes 6a, 6b of the fastening means 11, it is possible to adjust the position or tilting of the bracket 2 and therefore of the sandwich panels 4 relatively to the respective slab or wall W to be cladded, so as to make the various panels 4 coplanar with each other or in any case with desired arrangement independently of the configuration of the wall W to be cladded.

[0059] The at least one bracket 2 advantageously has a main length 2a designed to be placed against or close to a wall W of a building to be covered, the main length 2a having at least one segment or interference 2b recessed or protruding and then an extension that is not entirely flat.

[0060] The length 2b can be configured substantially as a V with the vertex facing the back/inside (embodiment illustrated in the figures).

[0061] The length 2b actually separates the main length 2a into two parts, an upper one 2a1 and a lower one 2a2, both preferably substantially flat and, if desired, aligned with each other. If desired, the at least one first slot 6a is delimited in the lower part and the at least one second slot 6b in the upper part or vice versa.

[0062] Preferably, the at least one bracket 2 is configured as an L. In this case, a length 2c is provided that projects outwards from the main length 2a, for example from a lower, in use, edge of the latter. If desired, these lengths 2a, 2c are orthogonal to each other.

[0063] For illustrative and non-limiting purposes:

- the main length 2a may have an extension, in a top-down direction, between 20 and 100 mm; and/or
- the projecting length 2c may have an extension parallel to a respective upper face 4c, lower face 4d or lateral face 4e of a panel between 20 and 100 mm.

[0064] The bracket 2 has a configuration as above indicated substantially in section, in particular in a vertical or horizontal plane (depending on the arrangement of the section bar component 3) and orthogonal to the main extension plane of the respective sandwich panel or panels, which however remains constant along the entire respective extension, i.e. in the direction from one side to the other or in any case in a direction orthogonal to the aforementioned vertical or horizontal plane.

[0065] The bracket 2 could also be provided with stiffening ribs, for example on the respective main length 2a and/or projecting length 2c.

[0066] With reference to the section bar component 3, it may instead comprise at least one first portion of wall 3a with a substantially vertical main extension, at least one second portion of wall 3b with a substantially horizontal main extension if applied on an upper face 4c or lower face 4d of at least one sandwich panel 4 or vertical if applied on a lateral face 4e of at least one sandwich panel 4, at least one fitting portion 3c of means of constraint 7 of the at least one section bar component 3 to the at least one bracket 2.

[0067] The coupling portion 3c defines, preferably, a seat SE for the system's constraint means 7, such as one or more self-drilling screws or other suitable fixings, which extend in an inclined direction with respect to the vertical and the horizontal. The seat SE could have any suitable extension, for example it is hollowed out from the outside towards the inside.

[0068] If desired, the coupling portion 3c is provided at a lower, in use, end or base of a first portion of wall 3a or in any case between one first portion of wall 3a and at least one second portion of wall 3b.

[0069] According to the non-limiting embodiment illustrated in the figures, the second portion of the wall 3b is configured as a C or U with an opening facing the rear or inside for enclosing or the assembly or insertion of a projecting length 2c of the bracket 2, the latter 2c filling, substantially to size, the zone defined by the C or U-shaped enclosing section, if desired with slack which in any case constitutes less than 10% or 5% or 3% or 2% or 1% of the volume of that zone.

[0070] The distance of system 1 and in particular of panels 4 from the wall W or to be cladded can be adjusted, if desired, according to the extension of the projecting length 2c of the bracket 2. Thus, for example, with a projecting length 2c of greater extension (see figure 5) the distance of the panel(s) 4 is greater and with a projecting length 2c of lesser extension (see figure 6) the distance of the panel(s) 4 is less. In this case, it would also be possible to fit more or less - insert more or less the projecting length 2c in the C or U-shaped zone defined by the enclosing section 5 or by the respective second portion of wall 3b to vary the distance between panels 4 and wall W.

[0071] Preferably, the enclosing section 5b wraps or is mounted on or inserted into the second portion of wall 3b, the latter filling, substantially to size, the area defined by the C- or U-shaped winding section, if desired with slack which in any case constitutes less than 10% or 5% or 3% or 2% or 1% of the volume of such zone.

[0072] In this case, the first portion of wall 3a could comprise two sections, one extending, for example upwards or towards one side (depending on the face 4c, 4d, 4e of the panel 4 on which the interface element 5 and the section bar component 3 are applied), from one end of the C or U and the other extending, for example downwards or towards the other side, from the other end of the C or U. The L-shaped section bar component 3 (with a first portion 3a) is preferably used whenever there is a physical interruption of the facade in the direction of vertical installation, while the T-shaped one (with two first portions 3a) allows two consecutive rows of panels to be fixed.

[0073] According to this preferred variant, each first portion of wall 3a encloses, from the inside, a respective section of wall 5a.

[0074] For illustrative and non-limiting purposes:

- the first portion 3a may extend, in a top-down direction (if the section bar component 3 is applied to an

upper face 4c or lower face 4d of at least one sandwich panel 4) or from the outside to the inside (if the section bar component 3 is applied to a lateral face 4e of at least one sandwich panel 4) between 20 and 100 mm; and/or

- the second portion 3b may extend parallel to a respective upper face 4c, lower face 4d or lateral face 4e of a panel 4 between 20 and 250 mm.

[0075] The section bar component 3 can, among other things, perform the function of concealing the bracket 2 and in particular the fixing means 11.

[0076] The section bar components 3, preferably T- or L-shaped, allow the "level" and "square" to be identified, if desired with laser tools, without having to permanently fix them to the brackets 2, but by inserting them and then easily removing them once the brackets 2 have been fixed. These components 3 thus act as templates for the subsequent positioning of the panels 4.

[0077] As regards the sandwich panel 4, it, as already partly recalled, comprises two faces 4a, 4b of main extension with the main plane of arrangement substantially parallel to each other and then includes edge faces of lower extension including an upper face 4c, a lower face 4d parallel or in any case opposite to the upper face 4c as well as two lateral faces 4e.

[0078] Therefore, the panel 4 has a top and a bottom at the faces 4c, 4d, a front and a back or external and internal at the faces of main extension 4a, 4b, as well as two lateral ends at the lateral faces 4e, each extending between the front and the back.

[0079] Then special portions of connection to adjacent panels are provided at the faces 4c, 4d or 4e, while adjacent panels overlap each other at the others faces, thus the faces 4e or the faces 4c, 4d do not have connection portions.

[0080] The joint portions are usually made at respective male or female portions defined by faces 4c, 4d or 4e of the panels themselves.

[0081] The panel 4 may comprise at least one first layer or main block of support or insulation 8.

[0082] The first layer or main block of support or insulation 8 may for example be made of mineral wool, expanded polyurethane or glass wool.

[0083] Moreover, the first layer or main block of support or insulation 8 preferably has a constant or variable thickness, for example with raised zones alternating with recessed zones.

[0084] The panel 4 is then preferably provided with at least one first sheet 9, in use, internal, metallic or not, applied or adhered to a first main extension surface of the first main support layer 8 and/or at least one second sheet 10, metallic or not, applied or adhered to the other or second main extension surface of the first main support layer 8.

[0085] The internal surface of the possible first sheet 9 defines the inside or the internal, in use, face 4b of the panel 4, while the external surface of the possible second

sheet 10 defines the outside or the external, in use, face 4a of the panel 4.

[0086] The sheets 9, 10 can be made of any suitable material, for example steel, if desired galvanized, pre-painted, stainless steel, or pre-painted or natural aluminum, copper, or even non-metallic material, such as a polymeric or composite material or a material of another type.

[0087] At least one (but if desired both) sheets 9, 10 is adhered, glued or otherwise constrained, for example by means of adhesive, to one of the main surfaces of the first layer or main block 8.

[0088] Moreover, in particular in the case in which such layer or block 8 is made of mineral wool or glass wool, one face (respectively external and internal) of the sheets 9, 10 is preferably constrained, for example glued, for its entire extension in a substantially uniform manner to a main surface of the layer or block 8.

[0089] In the case in which the layer or block 8 is made of expanded polyurethane or another expandable component, then the constrain between the same and the sheets 9, 10 could be obtained by adhesion following the expansion of the polyurethane or expandable component close to such sheet before the final hardening or solidification of the polyurethane or expandable component.

[0090] The first internal, in use, sheet 9 can have any suitable configuration, but, preferably, does not have raised zones and/or recessed zone, but it is substantially flat.

[0091] The second sheet 4 can have any suitable configuration. Thus, for example, it can be a fretted or corrugated sheet with a plurality of connecting sections alternating with recessed sections or it can be a flat sheet, with slats, micro-ribs or be wavy or with another shape.

[0092] The system 1 is also provided with means of connection 12 of one or each panel to a section bar component 3 and/or to an interface element 5, for example one, two, three or four or more screws or similar 12 (two per panel according to the example in the figures) designed to pass transversally or in an external-internal direction through the body of the panel 4, i.e. the block 8, if desired the sheet/s 9, 10, as well as through the section bar component 3 and/or the interface element 5.

[0093] More specifically, such means of connection 12 can be made to pass through an edge portion of a panel 4 as well as through a first portion of wall 3a and/or a section of wall 5a. According to the non-limiting embodiment illustrated in the figures, the means of connection 12 are inserted at a female junction portion of a panel 4, if desired with the interposition of a reinforcing plate 14.

[0094] In this case, the connection means 12, if metallic, could constitute a thermal bridge, in which case washers made of polymeric or otherwise thermally insulating material could also be used.

[0095] A system according to the present invention can also be provided with one or more tape components, so-called expanding tapes 13 if desired, which ensure a seal

against rain from strong winds or wind, which are usually regulated up to 600 Pa and are designed to prevent water from entering into or through the cladding.

[0096] More specifically, a strip 13 as now indicated can be arranged between an interface element 5 or a projecting portion 5d thereof and a respective portion of a panel 4 or rather of the respective upper face 4c, lower face 4d or lateral face 4e of the sandwich panel 4.

[0097] According to the non-limiting embodiment illustrated in the figures, a strip 13 is provided above the projecting portion 5d and below a portion of a lower face 4d of an upper panel 4 and a strip below the projecting portion 5d and above an upper face 4c of a lower panel 4.

[0098] With specific reference to a system for the envelope or cladding of a sufficiently large wall W (schematically represented in figure 7 by means of blocks inclined with respect to each other), the system comprises a plurality of brackets 2, section bar components 3, sandwich panels 4 and interface elements 5.

[0099] In this case, a section bar component 3 or pairs of section bar components 3 or even more section bar components 3 are constrained or connected to the same bracket 2, at least one section bar component 3 is constrained or connected to two or four sandwich panels 4 with the interposition of the same or different interface elements 5.

[0100] With particular reference to figures 10 to 13, it will be noted that the brackets 2 could be arranged spaced apart and along horizontal rows or horizontal, the latter also suitably spaced.

[0101] The section bar components 3 instead can be arranged horizontally or vertically (with these terms we naturally refer to the main dimension), so as to constitute a series of horizontal or vertical rows appropriately spaced apart.

[0102] The present invention also concerns a building 15 with a wall W covered or cladded by a system 1, with at least one bracket 2 constrained or connected to a component of a building or a wall W of a building, for example to a slab.

[0103] Clearly, in this case, filling material could also be provided, such as interposition wool 16 between the panels 4 or better between the section bar components 5 and the wall W to be cladded, which material is designed to avoid or reduce the presence of air in the cavity between the wall to be cladded and the sandwich panels 4 of the cladding.

[0104] Subject-matter of the present invention is even a method for obtaining a dry or mechanical building envelope or for cladding a building wall W using a system 1, which method comprises the following steps, not necessarily in sequence:

- fastening or connecting one or more first brackets 2 to a component or slab of a wall W of a building, for example by inserting, fitting or engaging the fastening means 11 if desired in slots or holes 6a, 6b previously formed or delimited in the first bracket(s)

2, if necessary making the necessary adjustments to the position or tilting of the bracket 2 and then of the sandwich panels 4 with respect to the respective slab or wall W to be cladded (see figure 10),

- fastening or connecting one or more section bar component 3 to one or more first brackets 2, for example through the means of constraint 7, if desired in a fitting portion 3c (see figure 12)
- mounting the at least one interface element 5 to or on a respective portion of the at least one section bar component 3, so that the at least one interface element 5 separates or keeps at a distance or not in contact the at least one sandwich panel 4 and the at least one section bar component 3 and then, actually, the at least one bracket 2 (see always figure 12).

[0105] As it will be understood, the constraint or connection of at least one section bar component 3 on a bracket 2, before the use of constraint means 7, may involve (in accordance with the non-limiting embodiment illustrated in the figures) the assembly or insertion of a projecting length 2c of the bracket 2 into the second portion of wall 3b configured as a C or U.

[0106] Alternatively or in addition to this, the constraint or connection of at least one interface element 5 on a section bar component 3 may involve (in accordance with the non-limiting embodiment illustrated in the figures) an insertion or assembly of the second portion of wall 3b into an enclosing section 5b.

[0107] Of course, after the above-mentioned steps, the connection means 12 are used to connect one or each panel to a section bar component 3 and/or to an interface element 5 (see figure 13), for example one, two, three or four or more screws or similar 12 (two per panel according to the non-limiting embodiment in the figures) which are passed (for example as indicated above) transversely or in an external-internal direction through the body of the panel 4, i.e. the block 8 and the sheet(s) 9, 10, as well as through the interface element 5 and then the section bar component 3.

[0108] Furthermore, before the constraint or connection of the second section bar components 3, a filling material, such as interposition wool 16, could be applied to the wall to be cladded W on which the brackets 2 have been applied, in such a way that a respective part of the brackets 2, in particular the projecting length 2c of the same, protrudes externally with respect to the filling material 16 (see figure 11) and can then be engaged by a respective portion, such as for example the second wall portion 3b of the section bar components 3.

[0109] As it will be understood, the present invention ensures speed and rapidity of installation even in sectors, such as the residential and architectural ones, in which instead times are found even double compared to those obtainable as now proposed.

[0110] Moreover, the elements that allow the connection are not seen, as they are hidden, resulting in a notable improvement in aesthetics.

[0111] A system according to the present invention can also be used in energy requalification markets, that is, for the requalification of residential properties from the 70s or even from other periods, built with technologies that are now obsolete, in which tolerance deviations of cm occurred, which, thanks to a system according to the present invention, are reduced to the order of mm.

[0112] Furthermore, thanks to the present invention it is possible to foresee a new method for obtaining a dry or mechanical building envelope or cladding a wall of a building by means of, which is associated with a new method of design, installation and construction site preparation, since all or most of the possible so-called "wet" operations, such as the application of liquid or paste-like compounds, such as glue, cement, etc., are carried out in the factory, while the mechanical operations, such as those of connecting the various components of the system, are carried out on the construction site.

[0113] Modifications and variants of the invention are possible within the scope defined by the claims.

Claims

1. System for obtaining a dry or mechanical building envelope or a building wall cladding comprising:
 - at least one bracket (2) that can be secured or connected to a component of a wall (W) of a building,
 - at least one section bar component (3) that can be fastened or connected to said at least one bracket (2),
 - at least one sandwich panel (4),
 - at least one interface element (5) between said at least one sandwich panel (4) and said at least one section bar component (3),
 - means of connecting (12) said at least one sandwich panel (4) to said at least one section bar component (3) and/or to said at least one interface element (5),
 - said at least one interface element (5) being made of plastic or composite material so as to prevent or contain the temperature passage through it,
 - said at least one interface element (5) being mounted to or on a respective portion of said at least one section bar component (3) and being configured so as to separate or keep at a distance or not in contact said at least one sandwich panel (4) and said at least one section bar component (3) as well as said at least one sandwich panel (4) and said at least one bracket (2).
2. System according to claim 1, wherein said at least one interface element (5) comprises a first wall section (5a) interposed between the back, in use, of said at least one sandwich panel (4) and said at least one section bar component (3) as well as comprising a second enclosing section (5b) of a respective upper (4c), lower (4d) or lateral (4e) face of at least one sandwich panel (4).
3. System according to claim 2, wherein said enclosing section (5b) includes a portion (5c) fitted or mounted on a portion of said at least one section bar component (3).
4. System according to claim 2 or 3, wherein said second enclosing section (5b) is C-shaped or U-shaped with an opening facing rearward or inward for enclosing or mounting on a second wall portion (3b) of said section bar component (3) or for fitting therein a second wall portion (3b) of said section bar component (3).
5. System according to claim 4, wherein said at least one first wall section (5a) includes two segments of flat wall, one extending upwards or towards a side, from one end of the C or U and the other extending downwards or towards the other side from the other end of the C or U, these two segments of flat wall (5a) each being arranged between the back, in use, of a respective sandwich panel (4) and a respective section bar component (3), so that the same interface element (5) is used to fasten two adjacent and subsequent sandwich panels (4).
6. System according to claim 2, 3, 4 or 5, wherein said enclosing section (5b) has a free front end (5b1) substantially aligned with the external free face (4a) of said sandwich panel (4) or protruding towards the front or towards the outside with respect to it.
7. System according to any one of claims 3 to 6 when depending upon claim 3, wherein said enclosing section (5b) has, from the inside towards the outside, said fitted or mounted portion (5c) and then a projecting portion (5d) ending with a free front end (5b1).
8. System according to claim 7, wherein said projecting portion (5d) has a final segment (5e) inclined downwards, from the inside to the outside, so as to perform the function of a drip tray.
9. System according to claim 7 or 8, wherein said projecting portion (5d) has two parts of parallel walls (5d1, 5d2) defining between them a groove (G) facing towards the front or towards the outside and designed to allow housing therein a portion of engagement for sheets or tinsmithery (SH) of a frame.
10. System according to any one of the previous claims, wherein said at least one bracket (2) delimits at least one first slot (6a) with a main horizontal extension or

holes aligned horizontally and/or at least one second slot (6b) with a main vertical extension or vertically aligned holes.

11. System according to any one of the previous claims, wherein said at least one bracket (2) is L-shaped. 5
12. System according to any one of the previous claims, wherein said at least one bracket (2) has a main length (2a) designed to be placed against or close to a wall (W) of a building to be cladded, said main length (2a) having at least one length (2b) hollow or protruding and then said main length (2a) has an extension that is not entirely flat. 10
13. System according to any one of the previous claims, wherein said at least one section bar component (3) comprises at least one first wall portion (3a) with a substantially main vertical extension as well as at least one second wall portion (3b) with a substantially main horizontal or vertical extension, said at least one section bar component (3) further comprising at least one coupling portion (3c) of fastening means (7) of said at least one section bar component (3) to said at least one bracket (2). 20 25
14. System according to claim 13, wherein said at least one coupling portion (3c) defines a seat (SE) for constraint means (7) of the system which extend in a direction inclined with respect to the vertical and horizontal. 30
15. System according to claim 14, wherein said seat (SE) is hollowed from the outside towards the inside. 35
16. System according to claim 13, 14 or 15, wherein said second wall portion (3b) is C-shaped or U-shaped with an opening facing the rear or the inside for enclosing or mounting or inserting a projecting length (2c) of said at least one bracket (2). 40
17. System according to claim 16, wherein said first wall portion (3a) includes two lengths, one extending upwardly or sideways from an end of the C or U of said second wall portion (3b) and the other extending downwards or towards the other side, from the other end of the C or U of said second wall portion (3b). 45
18. System according to any one of the previous claims, wherein said means of connecting (12) are made to pass through an edge portion of said at least one panel (4) as well as through a first wall portion (3a) of said at least one section bar component (3) and/or a wall section (5a) of said at least one interface element (5). 50 55
19. System according to any one of the previous claims, comprising a plurality of brackets (2), section bar

components (3), sandwich panels (4) and interface elements (5),

pairs of section bar components (3) being fastened or connected to the same bracket (2), at least one section bar component (3) being fastened or connected to two or four sandwich panels (4) with the interposition of the same interface element or different interface elements (5).

20. Building having a wall (W) covered by a system according to any one of the previous claims, wherein said at least one bracket (2) is fastened or connected to a component of said wall (W) by fixing means (11).
21. Method for obtaining a dry or mechanical building envelope or for cladding a building wall using a system according to any one of claims 1 to 19, comprising the following steps:

- fastening or connecting said at least one bracket (2) to a component of a wall (W) of a building,
- fastening or connecting said at least one section bar component (3) to said at least one bracket (2),
- mounting said at least one interface element (5) to or on a respective portion of said at least one section bar component (3),
- connecting said at least one sandwich panel (4) to said at least one section bar component (3) and/or to said at least one interface element (5), said at least one interface element (5) separating or keeping at a distance or not in contact said at least one sandwich panel (4) and said at least one section bar component (3).

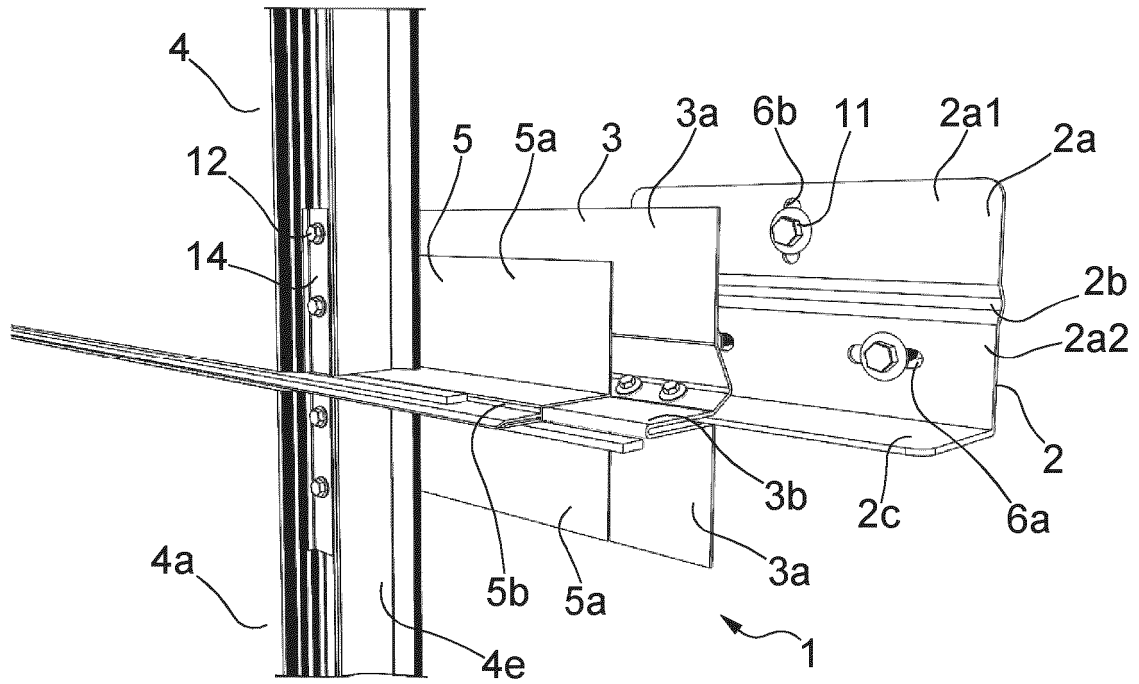


FIG.1

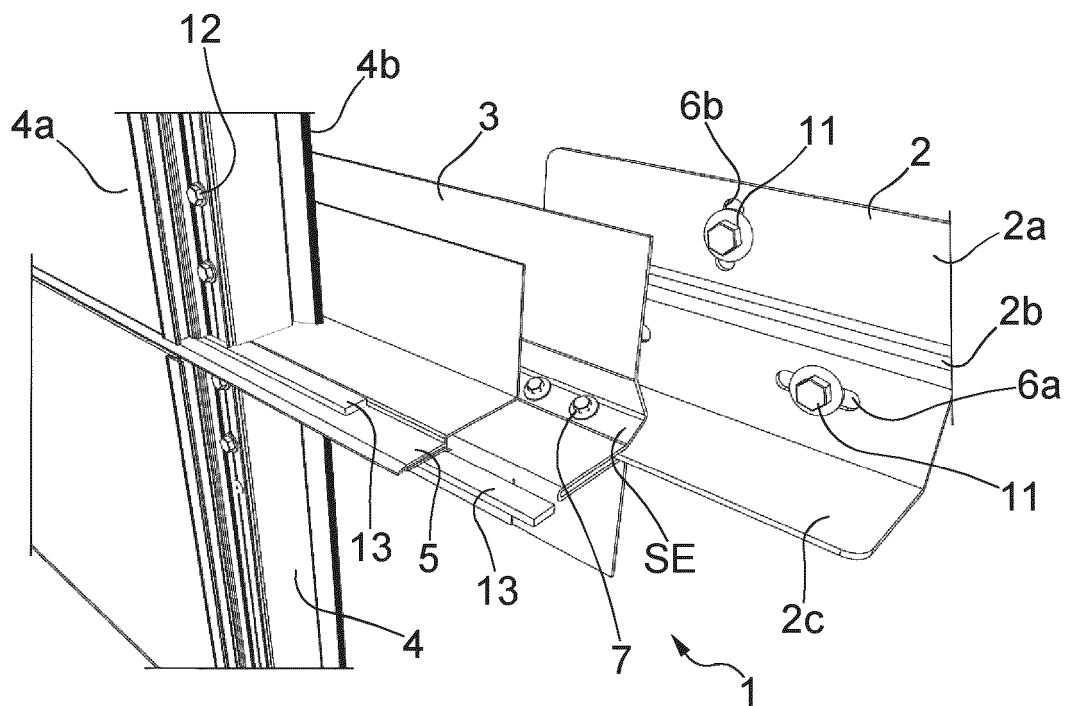


FIG.2

FIG.3

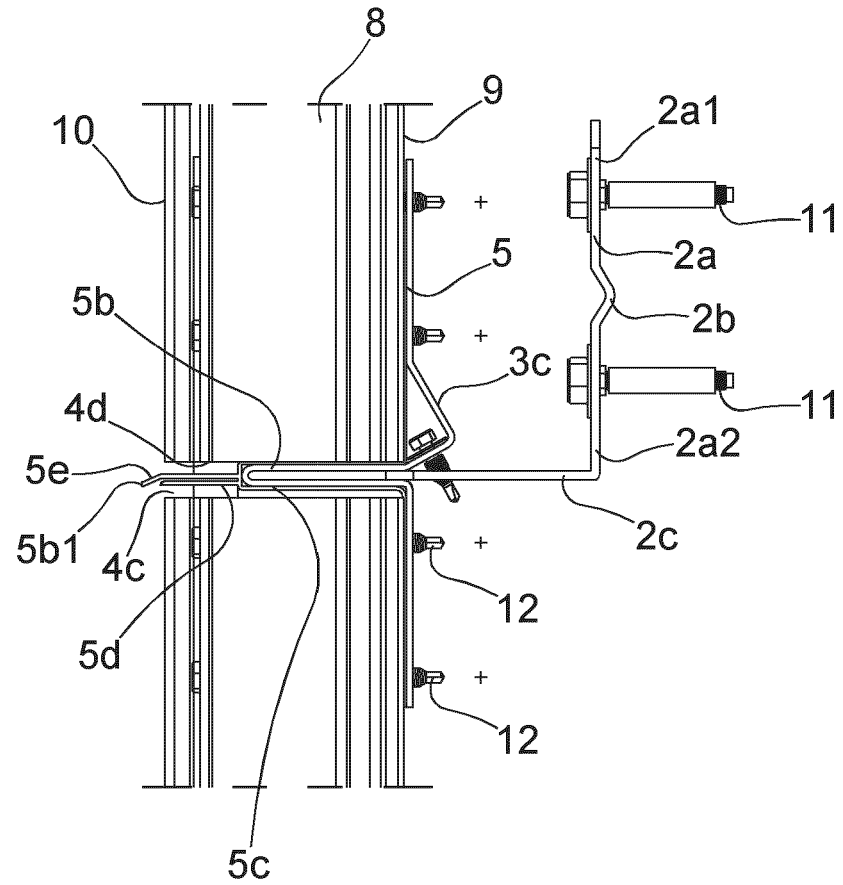


FIG.4

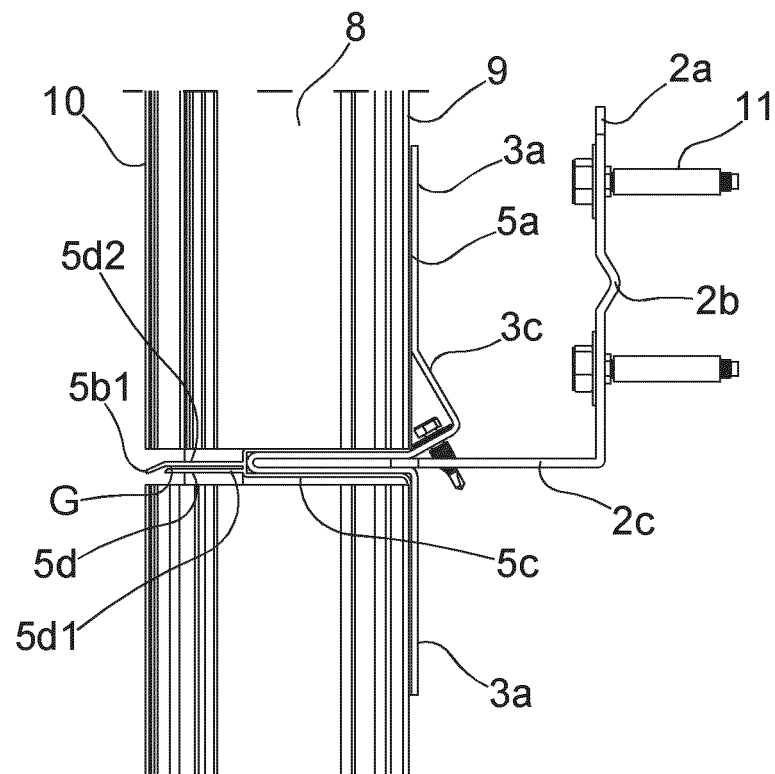


FIG.5

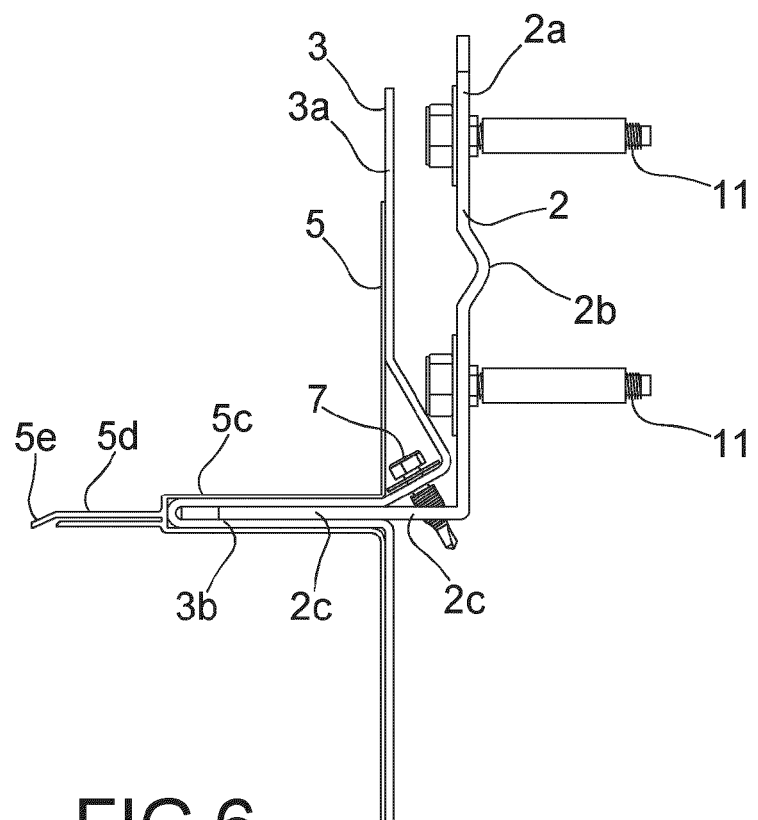
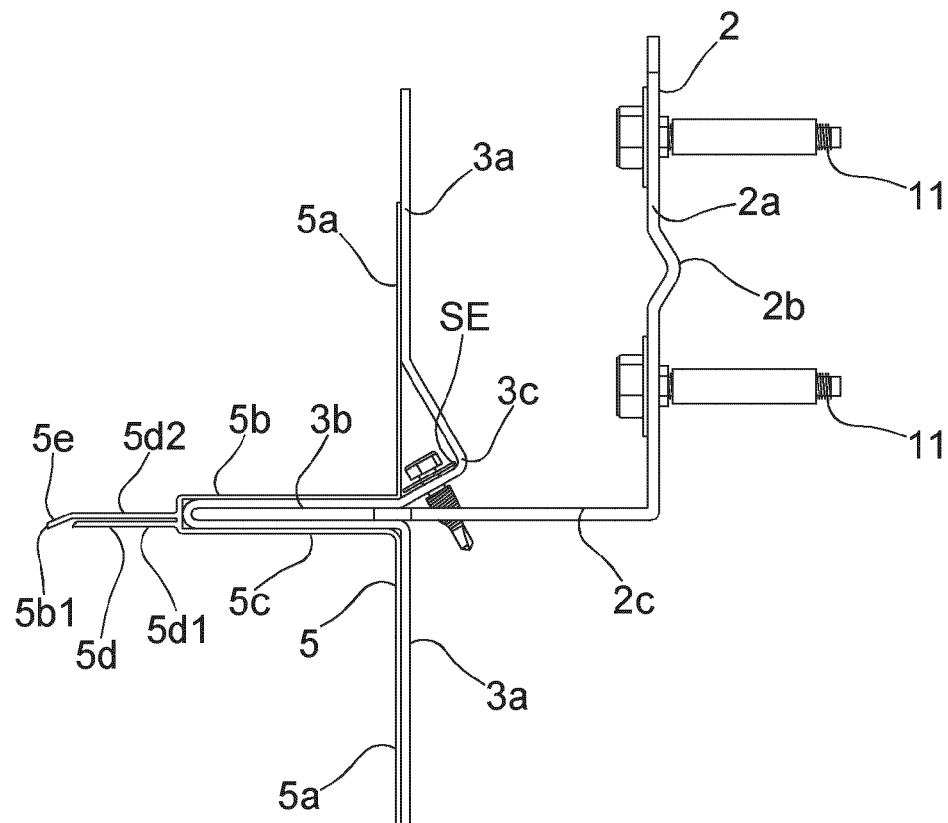


FIG.6

FIG.7

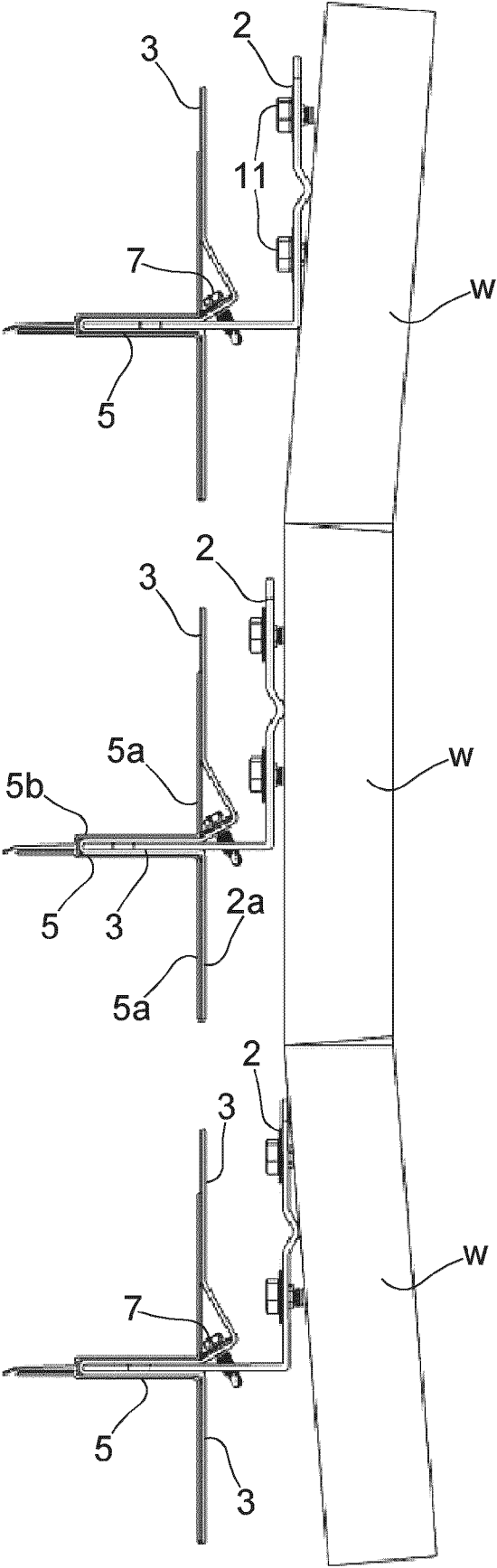


FIG.8

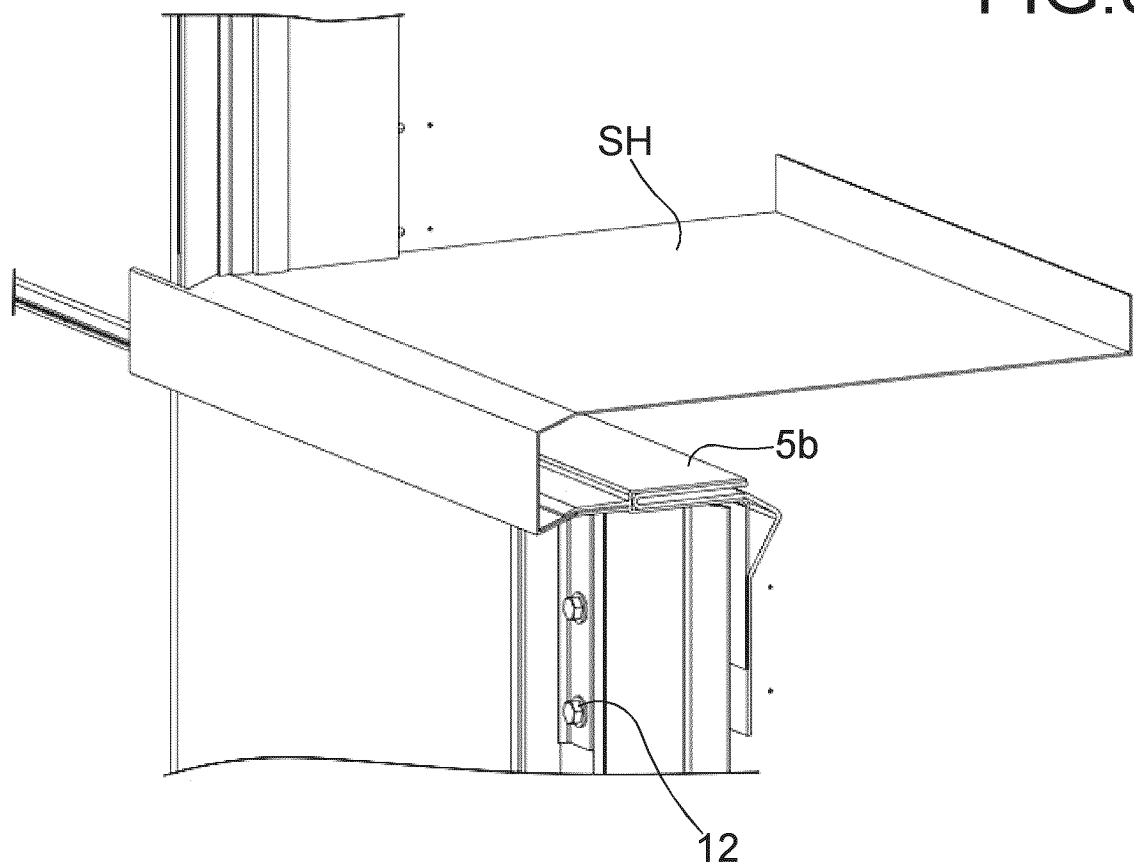


FIG.9

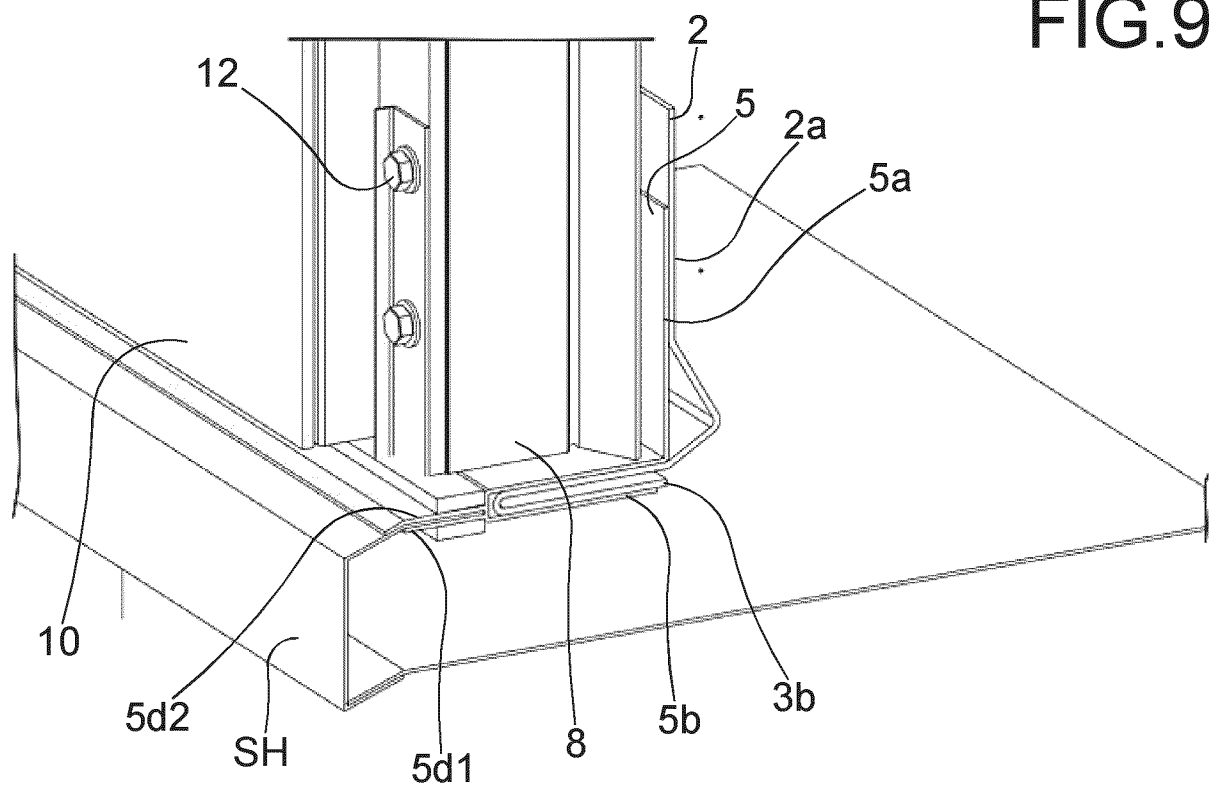


FIG.10

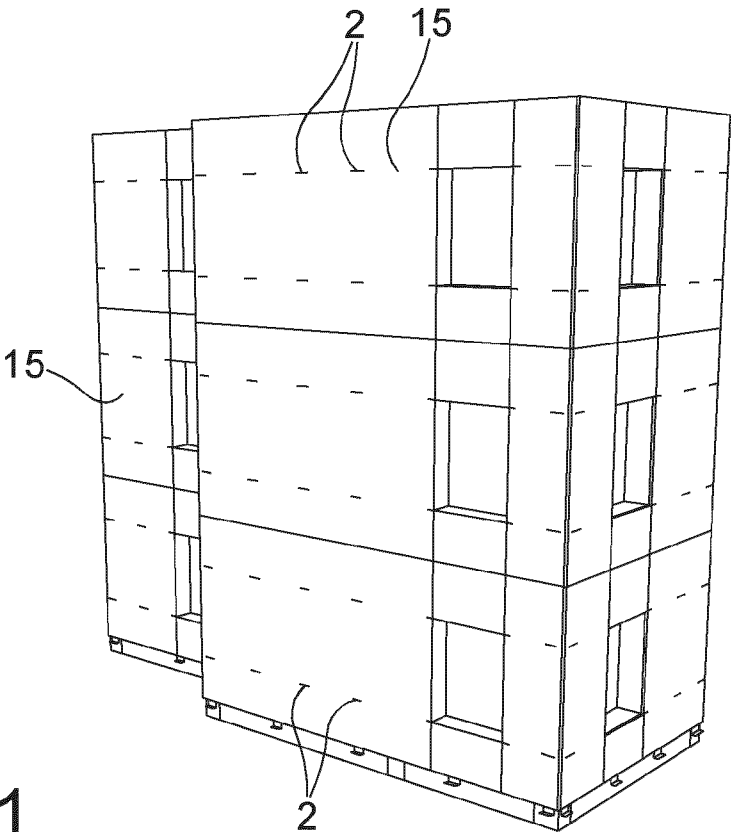
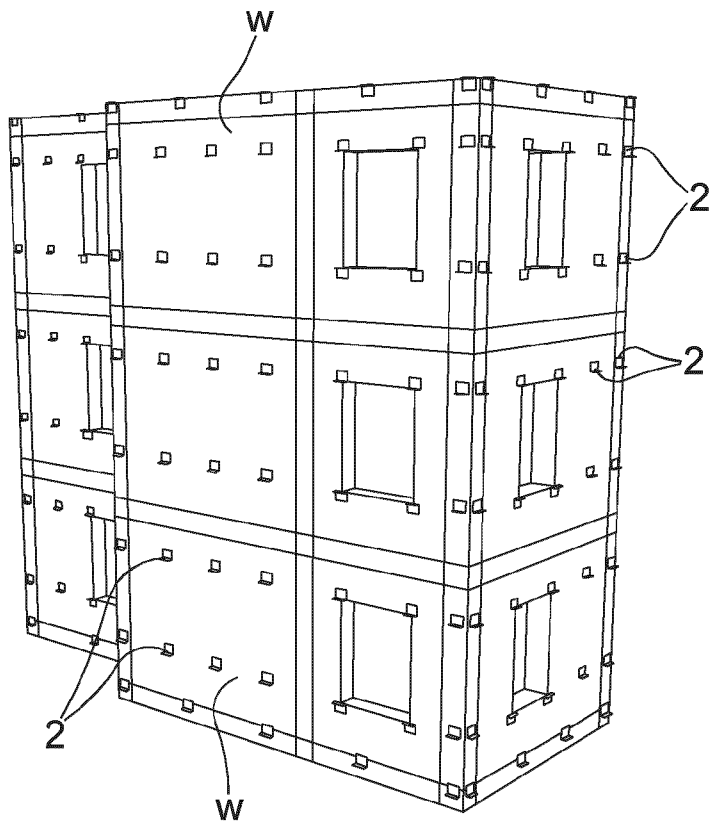


FIG.11

FIG.12

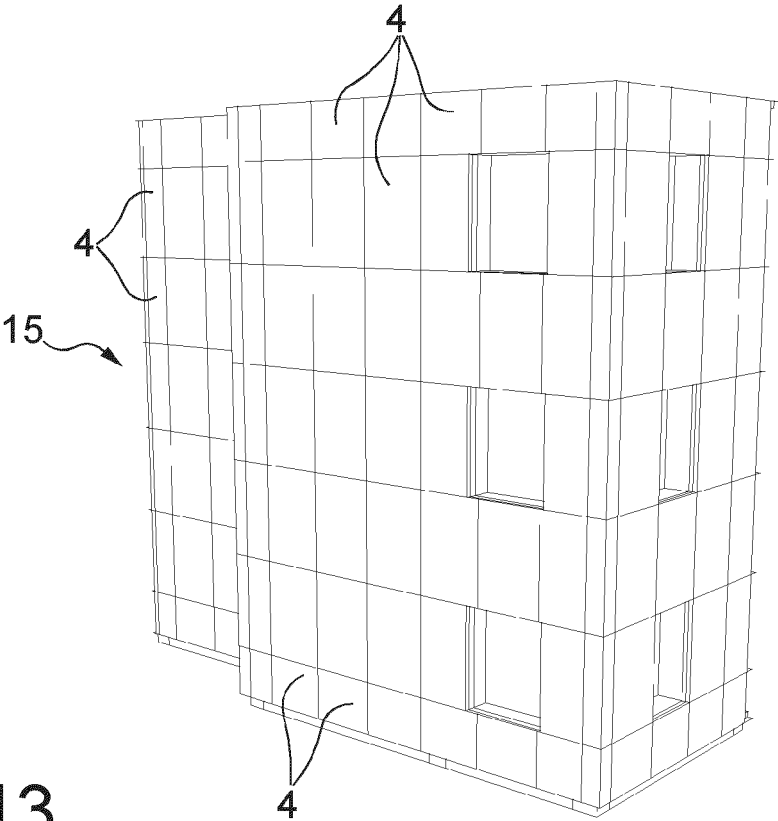
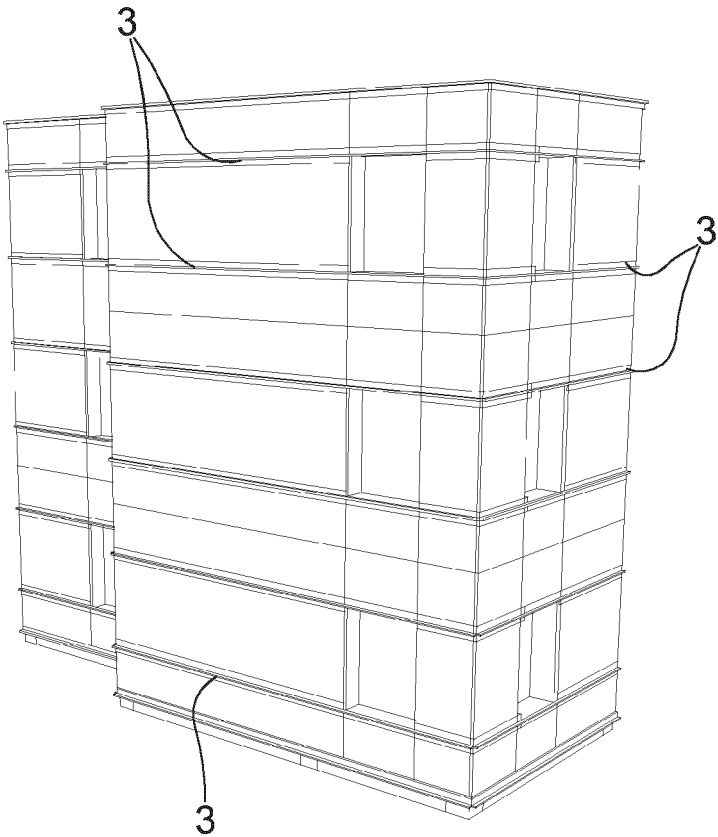


FIG.13



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Application Number

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Place of search		Date of completion of the search	Examiner
Munich		8 October 2024	Estorgues, Marlène
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