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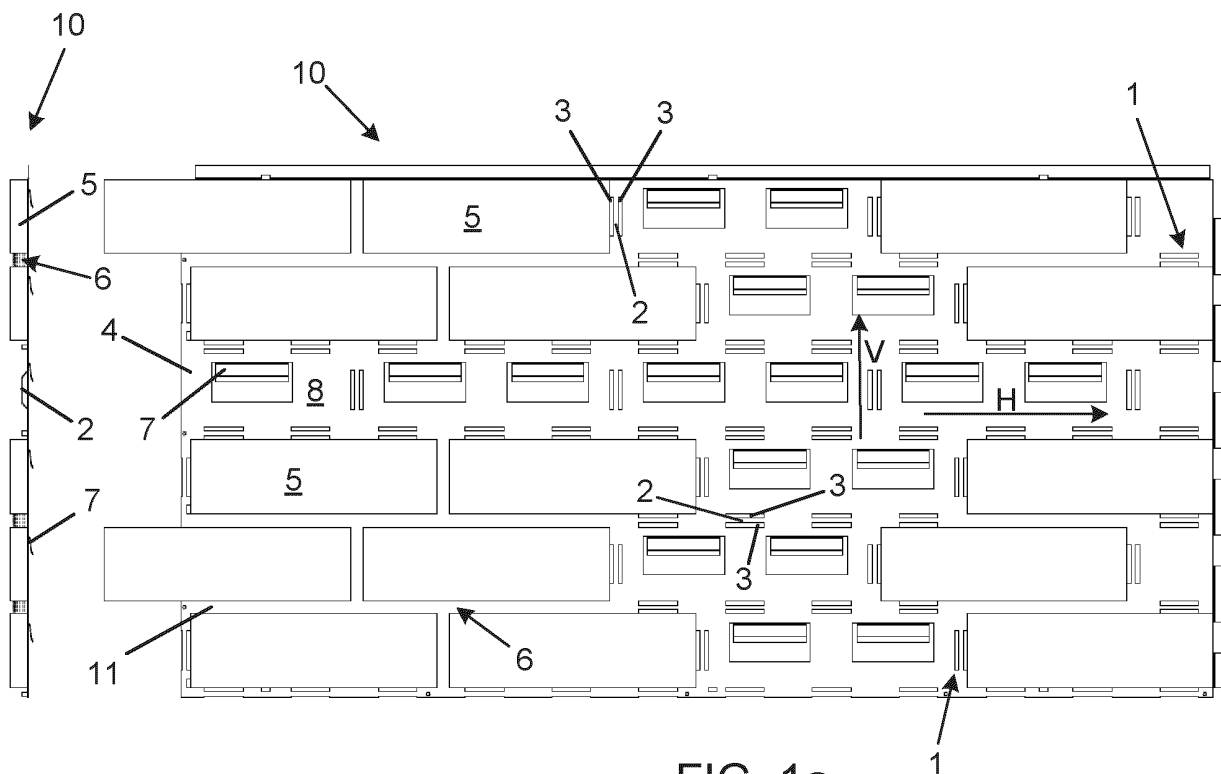
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(54) FRAME GRIP FOR ATTACHING MORTAR TO FRAME, AND TILE BOARD HAVING SUCH GRIP

(57) The proposed solution provides a frame grip (1) for attaching mortar (6) to a frame (1). The frame grip (1) comprises a frame (4) and at least one unitary fastener (2) therein. In the frame (4) on at least one side of the at least one fastener (2) there is at least one opening (3), and which at least one fastener (2) is arranged to project

outward (U) from a front side (8) of the frame (4) and form a projection adjacent to the at least one opening (3). The at least one fastener (2) is arranged to provide adhesion with the mortar (6) being applied to the front side (8) of the frame (4). Further, a tile board (10) is described.

**FIG. 1a****EP 4 575 134 A1**

Description

FIELD OF THE INVENTION

[0001] Different example embodiments relate in general to facade cladding in which a tile board is attached to a wall frame of a building. Some example embodiments relate to a frame grip for attaching mortar to a frame of the tile board.

BACKGROUND OF THE INVENTION

[0002] Tile boards may be used in façade cladding, which tile boards may comprise a frame and tiles attached thereto. The frame may be attached by means of mortar that is used in jointing the tiles. Adhesion of the mortar to the frame is important for durability of the tile board. Therefore, attachment of the frame to the mortar may further be improved.

SUMMARY OF THE INVENTION

[0003] The objective of the invention is to develop a new frame grip for attaching mortar to a frame as well as a tile board, which are characterized by features of the independent claims. Some preferred embodiments of the invention are claimed in the dependent claims.

[0004] The example embodiments of the proposed solution provide for a new frame grip and tile board by which the adhesion of mortar to a frame may be improved.

[0005] A first solution comprises a frame grip for attaching mortar to a frame. The frame grip may comprise a frame and at least one unitary fastener therein, in which frame on at least one side of the at least one fastener there may be at least one opening, and which at least one fastener may be arranged to project outward from a front side of the frame and form a projection adjacent to the at least one opening; and provide adhesion with the mortar being applied to the front side of the frame. The size of the frame may vary and it may have one or more frame grips. The fastener may improve adhesion of the mortar to the frame, because the mortar may have better access to the back of the fastener.

[0006] According to an example embodiment of the first solution, in the frame on either side of the at least one fastener there may be at least one opening, and which at least one fastener may be arranged to project outward from a front side of the frame and form a projection between the at least one opening on either side of the fastener. There may be at least one opening on either side of the fastener, which may facilitate passage of the mortar penetrating through the openings to a back part of the fastener.

[0007] According to an example embodiment of the first solution, the at least one fastener forms a unitary bridge structure. The unitary structure may mean that the fastener is formed of one part. The unitary structure of the

fastener prevents turning of the fastener and loosening of the adhesion. Additionally, the unitary structure of the fastener increases the adhering surface enabling better adhesion between the mortar and the frame.

5 [0008] According to an example embodiment of the first solution, the fastener may be arranged to be formed by stretching material of the frame outward. Thus the fastener may project outward from the front side of the frame. The fastener may be formed by pressing outward
10 the material of the frame adjacent to the at least one opening. In the pressing, a tool designed for that purpose may be used. The tool may be installed to the back of the fastener. By means of the tool, the fastener may be stretched by pressing the fastener outward from a back
15 side of the frame. Thus the fastener may rise outward from the front side of the frame forming a unitary projection. A bridge-type structure of the fastener made of the frame by stretching may speed up manufacture, because no welding or other additional work stages are needed.

20 [0009] According to an example embodiment of the first solution, the mortar may be arranged to cover a back part of the at least one fastener. The mortar may be arranged to cover at least partly the back part of the at least one fastener. The strength of adhesion between the
25 mortar and the frame may increase when the mortar covers fully the back part of the fastener.

[0010] According to an example embodiment of the first solution, the mortar may be arranged to move to the back part of the fastener through the at least one opening
30 on at least one side of the fastener. The mortar penetrating through the at least one hole may have better access to the back part of the fastener and may increase the adhering surface. One or more openings on one or more sides of the fastener may also facilitate placement and
35 removal of a tool being used in shaping the fastener and reduce wearing and breakage of the tool.

[0011] According to an example embodiment of the first solution, the frame may comprise at least one fastener disposed in a horizontal line; at least one fastener
40 disposed in a vertical line; and/or at least one fastener disposed in a diagonal line. The diagonal line means a diagonally disposed line which is not vertical or horizontal. The fasteners may be disposed at a joint location of at least one tile. The tile may have different shapes, for
45 example a rectangular shape or a rhombus. The fasteners may also be disposed in formations differing from horizontal or vertical, depending on the shape of the tile. By the number of the fasteners, the strength of adhesion between the mortar and the frame may be adjusted. The
50 more there are fasteners, the stronger the adhesion that may be achieved. Due to a unitary structure of the fastener of the frame grip, it may be possible that the number of the fasteners may be reduced while still reaching sufficient strength goals in wind suction tests for attachment between the frame and the mortar.

[0012] According to an example embodiment of the first solution, the frame may comprise at least one fastener disposed in a horizontal line; at least one fastener

disposed in a vertical line; and/or at least one fastener disposed in a diagonal line. In lines having different directions, an orientation of the at least one fastener may be changed from horizontal to vertical or vice versa. In a horizontal line the at least one fastener may be disposed in a horizontal orientation, in a diagonal line the at least one fastener may be disposed in a diagonal orientation and/or in a vertical line the at least one fastener may be disposed in a vertical orientation. When the fastener is in the horizontal orientation, the at least one opening may be disposed thereabove and/or -below. When the fastener is in the vertical orientation, the at least one opening may be disposed on its right and/or left side. When the fastener is in the diagonal orientation, the at least one opening may be disposed diagonally thereabove and/or -below.

[0013] According to an example embodiment of the first solution, above and/or below at least one tile there may be at least one fastener in a horizontal line. In this case, the at least one fastener may be in a horizontal orientation. In the horizontal orientation, the at least one opening of the fastener may be above and/or below the fastener. Additionally, the fastener may extend in a horizontal joint in the direction of the upper or lower joint of the tile.

[0014] According to an example embodiment of the first solution, on a right and/or left side of at least one tile there may be at least one fastener in a vertical line. In this case, the at least one fastener may be disposed in a vertical orientation. In the vertical orientation, the at least one opening of the fastener may be on a right and/or left side of the fastener. Additionally, the fastener may extend in a vertical joint in the direction of a side wall of the tile.

[0015] When the fastener is in a vertical orientation in a vertical joint between two tiles, it may provide for a larger attachment surface than a fastener in a horizontal orientation in a narrow joint. Also, fewer fasteners may be needed, because a vertically oriented fastener may cover a larger part of the joint than several horizontally oriented ones.

[0016] According to an example embodiment of the first solution, the frame may comprise at least two fasteners disposed in a horizontal line; and/or at least two fasteners disposed in a vertical line; and/or at least two fasteners disposed in a diagonal line.

[0017] According to an example embodiment of the first solution, the material of the frame may be at least one of the following: metal, alloy, steel, and/or sheet metal. Different materials may be used in the frame and they are not limited to the examples mentioned above.

[0018] According to an example embodiment of the first solution, the fastener has a height of 3-15 mm. The height is for example 5 mm, 7 mm or 9 mm. The height, width and length of the fastener may be determined for enough mortar to be able to move to the back part of the fastener to achieve sufficient adhesion.

[0019] According to an example embodiment of the first solution, the fastener may have a length of 30-60

mm. The length of the fastener is for example 45 mm. The fastener must be sufficiently long, such that it may be easily made and enough mortar may attach to the back part of the fastener.

[0020] According to an example embodiment of the first solution, the fastener may have a width of 3-10 mm. The width of the fastener is for example 5 mm. A sufficiently wide fastener may ensure strength of the fastener under forces acting thereon in different directions and enable adhesion of the mortar on the back part of the fastener.

[0021] According to an example embodiment of the first solution, the shape of the fastener as seen from the side may be a trapezoid or an arc. A fastener shaped as a trapezoid may enable sufficient adhesion and strength to be achieved.

[0022] According to an example embodiment of the first solution, the at least one fastener may be arranged to at least one joint location of at least one tile being attached to the frame. The at least one fastener may be arranged to at least one vertical, diagonal and/or horizontal joint of at least one tile being attached to the frame. The diagonal joint means a diagonally disposed joint which is not vertical or horizontal. By positioning one or more fasteners to the joint location of the tile, adhesion of the mortar to the frame may be improved.

[0023] A second solution comprises a tile board, comprising at least one frame grip according to an example embodiment of the first solution as described above and at least one tile attached to a frame. The size of the tile board may vary and it may comprise one or more frame grips and tiles. By means of the frame grip, adhesion of mortar to the frame may be improved while achieving better values in wind suction tests performed on the tile board.

[0024] According to an example embodiment of the second solution, the at least one tile of the tile board may be a natural stone tile, a clinker tile or a brick tile. All the tiles of one tile board may be made from one material. Tiles made from different materials may also be used in one tile board. The tile board enables tiles manufactured from different materials to be used. Also, tiles having different sizes and shapes may be used.

[0025] According to an example embodiment of the second solution, the tile board may be arranged to be attached to a wall frame. The tile board may be attached directly to a wall frame. The tile boards may hang from a wall frame on installation rails, whereby the façade may be genuinely separated from the frame. Thereby the wall frame may be able to be directly ventilated from a back surface of the tile structure. The at least one tile being attached to the tile board may be arranged to be attached to the frame by means of mortar.

LIST OF THE FIGURES

[0026] The invention will now be explained in more detail in connection with preferred embodiments, with

reference to the accompanying drawings, in which

Fig. 1a schematically shows one tile board as seen from the front according to an example embodiment; Fig. 1b schematically shows the tile board in Fig. 1a as seen from the side according to an example embodiment;

Fig. 1c schematically shows the tile board in Fig. 1a as seen from above according to an example embodiment;

Fig. 2a schematically shows one frame grip as seen from the side according to an example embodiment; and

Fig. 2b schematically shows the frame grip in Fig. 2a as seen from the front according to an example embodiment.

DETAILED DESCRIPTION OF THE INVENTION

[0027] The detailed description of the invention presented below with reference to the examples in the figures brings out different implementations of the invention. However, the invention is not limited to these examples only, but the implementations of the invention may vary within the scope of the claims.

[0028] According to one example embodiment, openings in connection with previously used fasteners have been so small that mortar has not had access to the back of the fasteners. The fasteners used may have been non-unitary hooks or barbs cut from a frame, which may have turned or bent up under forces acting thereon. Also, the hooks or barbs that are too short and narrow may have prevented the access of mortar to the back thereof and to provide sufficient adhesion. As a result, the frame may have been able to come off the mortar, and strength of a tile board may have suffered.

[0029] A solution according to one example embodiment comprises a frame grip for attaching mortar to a frame. The frame grip may comprise a frame and at least one fastener therein. In the frame on at least one side of the at least one fastener there may be at least one opening. The at least one fastener may be arranged to project outward from a front side of the frame and form a projection adjacent to the at least one opening. In addition, the at least one fastener may be arranged to provide adhesion with the mortar being applied to the front side of the frame.

[0030] According to one example embodiment, the fastener is made by first forming at least one opening on one or either side of the fastener. After this, the fastener may be stretched so as to form a projection to the front side of the frame. Thus a unitary bridge-type projection may be formed adjacent to the at least one opening on one side of the fastener or between the at least one opening on either side of the fastener. By means of one or more openings, the mortar may be able to flow to the back of the fastener, integrating tiles and the frame to each other. In addition, the fastener projecting

outward from the front side of the frame may also improve access of the mortar to the back of the fastener. By means of the unitary fastener projecting outward from a front surface of the frame, the mortar may have easier access to the back of the fastener. The unitary fastener may also provide more adhering surface between the mortar and the frame, increasing the strength and stability of adhesion. The values obtained in wind suction tests are the better the better is the strength between the frame and the mortar. The better the values are, the higher are the buildings in which tile boards may be installed. Compared to a non-unitary hook or barb, the unitary fastener may also prevent upward bending of the fastener and prevent loosening of adhesion of the mortar from the frame. A unitary structure of the fastener may be easier to make, and no welding or other such intermediate stages are needed. The at least one opening on at least one side of the fastener may facilitate placement of a tool in its place. The tool may also be easily pulled out, which may prevent the tool from breaking.

[0031] The example of Fig. 1a shows a tile board 1 as seen from a front side 8 of a frame. The example of Fig. 1b shows the tile board in Fig. 1a as seen from the side. The example of Fig. 1c shows the tile board in Fig. 1a as seen from above. In the example of Fig. 1a, mortar 6 and tiles 5 are attached only over part of a surface of the tile board 10 to illustrate the position of frame grips 2.

[0032] According to one example embodiment, the tile board 10 shown in Fig. 1a-1c comprises at least one frame grip 1 as illustrated in Fig. 2a or 2b and at least one tile 5 attached to a frame 4.

[0033] According to one example embodiment, the tile board 10 comprises at least one tile 5 which is a natural stone tile, a clinker tile or a brick tile.

[0034] According to one example embodiment, the tile board 10 is attached to a wall frame.

[0035] According to one example embodiment, the tile board 10 is manufactured at a factory where the tiles 5 are laid into a mould with the façade side facing down. After this, for example cement-based mortar 6 may be poured over and between the tiles 5. Finally, the frame 4 may be pressed to the mortar 6. At a worksite, the tile boards 10 may be installed to a wall frame of a building by an attachment system in which projections 7 in the frame 4 may be attached to rails on the wall frame, whereby no separate bearing beams or foundations are needed. After this, joints between the tile boards 10 may be grouted to finish the surface. Advantages of a wall made with the tile boards 10 may be a quicker installation time, a reliably functioning ventilation and routing of water, and possibility for straightening the wall surfaces and better thermal insulation.

[0036] According to one example embodiment, the tile board 10 comprises one or more frame grips 1 arranged for attaching mortar 6 to a frame 4. The frame grip 1 may comprise a frame 4 and at least one unitary fastener 2 therein. In the frame 4 on at least one side of the at least one fastener 2 there may be at least one opening 3. The at

least one fastener may be arranged to project outward U from a front side 8 of the frame 4 and form a projection adjacent to the at least one opening 3. The at least one fastener 2 may be arranged to provide adhesion with the mortar 6 being applied to the front side 8 of the frame 4. The at least one fastener 2 may be arranged to form a projection adjacent to the at least one opening 3 on at least one side of the fastener 2.

[0037] According to one example embodiment, the material of the frame 4 is at least one of the following: metal, alloy, steel, and/or sheet metal.

[0038] In the examples of Fig. 1a-2b, in the frame 4 on either side of the fastener 2 there is one opening 3. The fastener 2 may be arranged to project outward from a front side of the frame 4 and form a projection between the openings 3 on either side of the fastener 2.

[0039] In the example of Fig. 1a-1c, the tile board 10 comprises several frame grips 1 disposed in a horizontal line H and several frame grips 1 disposed in a vertical line V. If adhesion between the frame 4 and the mortar 6 provided by means of at least two frame grips 1 is sufficiently good, the number of the frame grips 1 may be reduced.

[0040] In the example of Fig. 1a-1c, the frame grips 1 are positioned at a mortar joint outside edges of the tiles 5.

[0041] According to one example embodiment, the tile board 10 may be attached to a wall frame. The frame 4 may have one or more projections 7 by means of which the tile board 10 may be attached to the wall frame. The wall frame may have one or more rails which may receive the one or more projections 7.

[0042] According to one example embodiment, the frame 4 may comprise at least two fasteners 2, wherein the at least two fasteners 2 are disposed in a horizontal line H, the at least two fasteners 2 are disposed in a vertical line V, and/or the at least two fasteners 2 are disposed in a diagonal line. If adhesion between the frame 4 and the mortar 6 provided by means of the at least two fasteners 2 is sufficiently good, the number of the fasteners or the frame grips 1 may be reduced. For example, the fasteners 2 or the frame grips 1 in a vertical line may be omitted altogether. Thereby manufacture is speeded up and costs are reduced. The frame 4 may comprise at least one fastener 2, wherein the at least one fastener 2 may be disposed in a horizontal line H, the at least one fastener 2 may be disposed in a vertical line V; and/or the at least one fastener 2 may be disposed in a diagonal line.

[0043] According to one example embodiment, the at least one fastener 2 is arranged to a joint location 11 of at least one tile 5 being attached to the frame 4.

[0044] According to one example embodiment, above and/or below the at least one tile 5 there may be at least one fastener 2 disposed in a horizontal line and orientation, and/or on a right and/or left side of the at least one tile 5 there may be at least one fastener 2 disposed in a vertical line and orientation.

[0045] In the example of Fig. 1a it is shown that above and below the tile 5 there are several fasteners 2 disposed in a horizontal line and orientation. In the horizontal orientation, the at least one opening 3 may be above and/or below the fastener 2. In the horizontal orientation, the fastener 2 may extend horizontally in the direction of the upper or lower edge of the tile 5. As can be seen in the example of Fig. 1a, the fastener 2 is horizontally at the horizontal joint and thereabove and -below there are horizontal openings 3 parallel to the fastener 2. In addition, on a right and left side of the at least one tile 5 there may be fasteners 2 disposed in a vertical line and orientation. In the vertical orientation, the at least one opening 3 may be on a right and/or left side of the fastener 2. As can be seen in the example of Fig. 1a, the fastener 2 is vertically at the lateral joint and on the right and left side thereof there are vertical openings 3 parallel to the fastener 2. The length of the fastener may be adjusted, whereby only one fastener 2 may be needed for the lateral joint. For the widest and highest tiles 5, one or more fasteners 5 may be needed at a horizontal and/or vertical joint. The fastener 2 may be an elongated bridge-type structure. A length P of the fastener 2 in a horizontal direction may be greater than a width L thereof. In this case, also the length of the opening or openings 3 may correspond to the length P of the fastener 2.

[0046] The example of Fig. 2a shows the frame grip 1 as seen from the side. The example of Fig. 2b shows the frame grip 1 illustrated in Fig. 2a as seen from the front side 8. The frame grip comprises a frame 4 and a fastener 2. In the example of Fig. 2a it is shown that a projection is formed of the fastener 2 on the front side 8 of the frame 4. The shape of the fastener as seen from the side may be a trapezoid. The fastener 2 shaped as a trapezoid may enable strong adhesion between the fastener 2 and the mortar 6. A back part 9 of the fastener 2 may be filled with the mortar 6 in order to form strong adhesion between the mortar 6 and the frame 4.

[0047] According to one example embodiment, the at least one fastener 2 forms a unitary bridge structure.

[0048] According to one example embodiment, the shape of the fastener 2 as seen from the side is a trapezoid or an arc.

[0049] According to one example embodiment, the fastener 2 is arranged to be formed by stretching material of the frame 4 outward U.

[0050] According to one example embodiment, the mortar is arranged to cover a back part 9 of the at least one fastener 2.

[0051] According to one example embodiment, the mortar 6 is arranged to move to the back part of the fastener through the at least one opening on at least one side of the fastener.

[0052] According to one example embodiment, the fastener 2 has a height K of 3-15 mm. The height K of the fastener 2 may also be for example 5 mm, 7 mm or 9 mm. The height of the fastener may be measured outward U from the front side 8 of the frame 4.

[0053] According to one example embodiment, the fastener 2 has a length P of 30-60 mm. The length P of the fastener 2 may be for example 45 mm.

[0054] According to the example of Fig. 2b, there are openings 3 on either side of the fastener 2. The mortar 6 may move to the back part 9 of the fastener 2 from the front side of the fastener through the openings 3 on either side of the fastener 2. The mortar 6 may be able to move to the back part also from one or two open sides of the fastener 2.

[0055] According to one example embodiment, the fastener 2 has a width L of 3-10 mm. The width L of the fastener 2 is for example 5 mm.

[0056] All ranges or device values given herein may be extended or changed without losing the intended effect. Further, any embodiment may be combined with another embodiment, unless explicitly disallowed.

[0057] Although the subject has been described in language specific to the structural features and/or functions, it will be understood that the subject defined in the accompanying claims is not necessarily limited to the specific features or functions described above. Rather, the specific features and functions described above are given as an example of implementing the claims, and other corresponding features and functions are intended to fall within the scope of the claims.

[0058] It will be understood that the benefits described above may relate to one embodiment or may relate to multiple embodiments. The embodiments are not limited to those that solve some or all of the stated problems, or to those that have some or all of the stated benefits. It will also be understood that a reference to "a device or an assembly" may refer to one or more of these devices or assemblies.

[0059] The steps or functions of the methods described herein may be performed in any suitable order or simultaneously, if necessary. Additionally, individual steps may be omitted from any method without departing from the scope of the subject described herein. The features of any embodiment described above may be combined with the features of any other embodiment as described to create additional embodiments without losing the intended effect.

[0060] It will be obvious for a person skilled in the art that with the advancement of technology, the basic idea of the invention may be implemented in many different ways. The above specification, examples and information provide a description of the structure and use of the example embodiments. Although various embodiments have been described above on a specific level or with reference to one or more individual embodiments, persons skilled in the art may make numerous changes to the embodiments presented herein without departing from the scope of application of this specification. The invention and its embodiments are thus not limited to the examples described above, but may vary within the scope of the claims.

Claims

1. A frame grip (1) for attaching mortar (6) to a frame (4), which frame grip (1) comprises a frame (4) and at least one unitary fastener (2) therein, in which frame (4) on at least one side of the at least one fastener (2) there is at least one opening (3), and which at least one fastener (2) is arranged to
 - project outward (U) from a front side (8) of the frame (4) and form a projection adjacent to the at least one opening (3); and
 - provide adhesion with the mortar (6) being applied to the front side (8) of the frame (4).
2. The frame grip (1) according to claim 1, wherein the at least one fastener (2) forms a unitary bridge structure.
3. The frame grip (1) according to claim 1 or 2, wherein the fastener (2) is arranged to be formed by stretching material of the frame (4) outward (U).
4. The frame grip (1) according to any preceding claim, wherein the mortar (6) is arranged to cover a back part (9) of the at least one fastener (2).
5. The frame grip (1) according to any preceding claim, wherein the mortar (6) is arranged to move to the back part (9) of the fastener (2) through the at least one opening (3) on at least one side of the fastener (2).
6. The frame grip (1) according to any preceding claim, wherein the frame (4) comprises
 - at least one fastener (2) disposed in a horizontal line (H);
 - at least one fastener (2) disposed in a vertical line (V); and/or
 - at least one fastener (2) disposed in a diagonal line.
7. The frame grip (1) according to any preceding claim, wherein the material of the frame (4) is at least one of the following: metal, alloy, steel, and /or sheet metal.
8. The frame grip (1) according to any preceding claim, wherein the fastener (2) has a height (K) of 3-15 mm.
9. The frame grip (1) according to any preceding claim, wherein the fastener (2) has a length (P) of 30-60 mm.
10. The frame grip (1) according to any preceding claim, wherein the fastener (2) has a width (L) of 3-10 mm.
11. The frame grip (1) according to any preceding claim,

wherein the shape of the fastener (2) as seen from the side is a trapezoid or an arc.

- 12.** The frame grip (1) according to any preceding claim, wherein the at least one fastener (2) is arranged to at least one joint location (11) of at least one tile (5) being attached to the frame (4). 5
- 13.** A tile board (10), comprising at least one frame grip (1) according to any of the claims 1-12 and at least one tile (5) attached to a frame (4). 10
- 14.** The tile board (10) according to claim 13, wherein the at least one tile (5) is a natural stone tile, a clinker tile or a brick tile. 15
- 15.** The tile board (10) according to any preceding claim 13 or 14, which is arranged to be attached to a wall frame. 20

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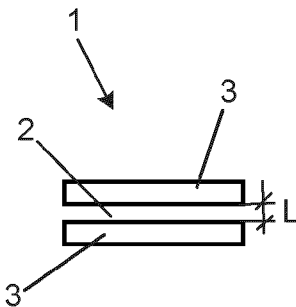
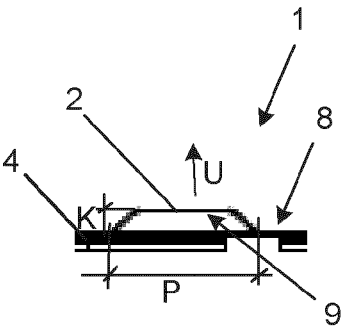
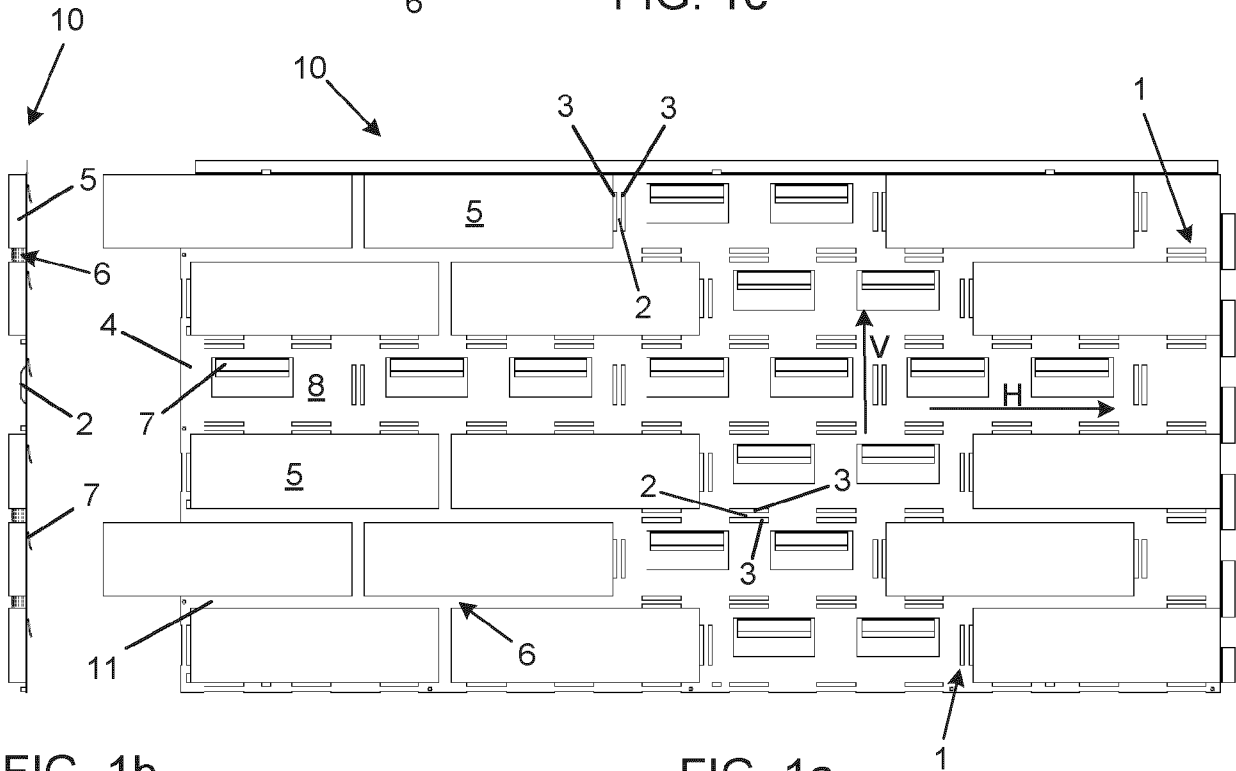
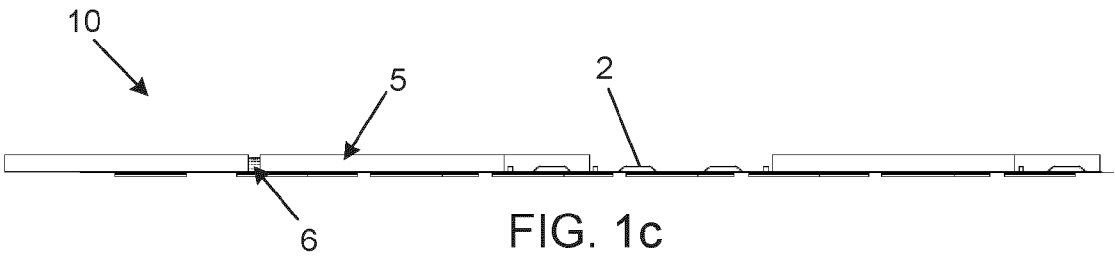
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EUROPEAN SEARCH REPORT

Application Number

EP 24 21 5630

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2020/063438 A1 (BOLIN JOEL W [US]) 27 February 2020 (2020-02-27)	1-5, 7-15	INV. E04F13/08 E04F13/14
Y	* figures 4-7 * * paragraph [0023] - paragraph [0025] * * paragraph [0030] - paragraph [0031] * * paragraph [0042] - paragraph [0047] * -----	6	
Y	DE 44 16 516 A1 (HEINEMANN HERBERT [DE]) 16 November 1995 (1995-11-16) * figures 1-6 * * column 2, line 61 - column 3, line 4 * -----	6	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04F
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		25 March 2025	Estorgues, Marlène
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 24 21 5630

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82