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(71) Applicant: **Prefaxis**  
**7783 Ploegsteert (BE)**

(72) Inventors:  
• **COSNIER, Bernard**  
**59250 Halluin (FR)**  
• **BERGHMAN, Koenraad**  
**8830 Hooghelede (BE)**

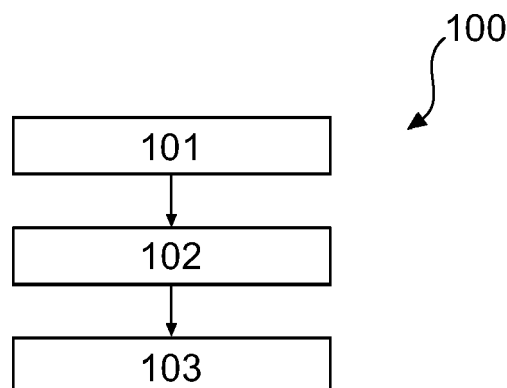
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(74) Representative: **Gevers Patents**  
**De Kleetlaan 7A**  
**1831 Diegem (BE)**

(54) **A METHOD OF ASSEMBLING A WALL ASSEMBLY AT A CONSTRUCTION SITE, A KIT THEREFOR AND A WALL ASSEMBLY THEREFROM**

(57) The invention provides a method of assembling a wall assembly at an assembly location, comprising placing a first prefabricated wall panel comprising a first recess at a recess height and a second prefabricated wall panel comprising a second recess at the recess height, next to each other, such that the first recess abuts the second recess, forming a joint recess, inserting a wall anchor in the joint recess, such that the first end of a wall anchor lies in the first recess and a second, distally

removed end of the wall anchor lies in the second recess, filling the joint recess with a binding material. The invention further provides a kit comprising the elements necessary to execute the method of assembling a wall assembly at an assembly location and further provides a wall assembly for constructing a wall according to the method of assembling a wall assembly at an assembly location.



**FIG. 1**

## Description

### Technical field

**[0001]** The present invention relates to a method for assembling a wall assembly at a construction site, and a wall assembly for constructing walls assembled according to said method.

### Background art

**[0002]** The ATG Certified Technical Approval ATG 2968, carried out by the UBAtc asbl, relates to prefabricated clay masonry wall panels and their installation on a construction site.

**[0003]** The method to assemble a load-bearing or non-load-bearing wall assembly at a construction site described therein involves placing a first and second prefabricated wall panel on a levelled base, in particular a floor plate, and mechanically filling the vertical joint between the prefabricated wall panels with injection mortar. The injection mortar, having specific mechanical properties (average compressive strength: 15 N/mm<sup>2</sup>, volumetric mass density: > 2000 kg/m<sup>3</sup>, bonding strength: >= 0.6 N/mm<sup>2</sup>, flexural strength: >= 4.5 N/mm<sup>2</sup>), provides stability and strength to the vertical joint and the wall assembly.

**[0004]** The method known from the ATG Certified Technical Approval ATG 2968, has the disadvantage that mechanically applying injection mortar requires the use of mortar injection machines on the construction site. These machines need to be transported to and from the construction site and need to be carried to the different vertical joints to be filled by the operators doing the filling. Additionally, these machines are unwieldy when the operators use them to fill the joints and need to be cleaned out after use. This makes for a complicated assembly process and slows down the installation of wall assemblies at construction sites (including preparation and clean up).

### Disclosure of the invention

**[0005]** It is an aim of the present invention to overcome at least some of the disadvantages of the state of the art, simplifying and speeding up the installation of wall assemblies for shearing, load-bearing and non-load-bearing walls at a construction site.

**[0006]** This aim is achieved, according to the invention, with a method of assembling a wall assembly at an assembly location, preferably a construction site, comprising the actions described in the first claim.

**[0007]** In particular, the invention discloses a method of assembling a wall assembly at an assembly location, preferably a construction site, comprising:

- a wall panel placement of placing a first prefabricated wall panel comprising a first recess at a recess height

and a second prefabricated wall panel comprising a second recess at the recess height, next to each other, such that the first recess abuts the second recess, forming a joint recess,

- an anchor insertion of inserting a wall anchor in the joint recess, such that the first end of a wall anchor lies in the first recess and a second, distally removed end of the wall anchor lies in the second recess,
- a recess filling of filling the joint recess with a binding material, preferably an adhesive mortar, more preferably a cement-based mortar.

**[0008]** This method results in a wall assembly that derives its strength and that of the vertical joint between the prefabricated wall panels from the wall anchors enveloped in the binding material, such as mortar. In the current state of the art, wall assemblies from prefabricated wall panels derive their strength and that of the vertical joint between the prefabricated wall panels from the injection mortar injected in the vertical joint. As a result, the wall assembly assembled with the method according to the present invention displays the necessary strength without requiring the injection of injection mortar in the vertical joint, removing the need to use a mortar injection machine. This has the advantage that the assembly method according to the invention simplifies the assembly or installation of walls at a construction site and speeds it up. It is an added advantage of the method according to the invention that the method reduces the risk of adverse ergonomic effects on the operator during the assembly, because they don't have to handle a unwieldy and heavy mortar injection machine.

**[0009]** In an embodiment of the present invention the first recess and the second recess in the first prefabricated wall panel, respectively the second prefabricated wall panel, used in the method, have a parallelepipedal shape. The recesses by preference have dimensions (length x depth x height) 12 - 20 cm x 3 - 6 cm x 3 - 6 cm and by further preference 15 cm x 4 cm x 4 cm. The wall anchor used in the method comprises a steel reinforcement bar, for example a rebar, by preference with a diameter of 12 mm and a length of 30 cm, and the binding material used in the method is a cement-based mortar. This has a dual advantage. Firstly, the parallelepipedal shape facilitates the mechanical creation of the recesses. Secondly, the preferred dimensions of the recesses, in combination with the use of a steel rebar of the preferred dimensions as a wall anchor and in combination with the use of cement-based mortar as a binding material, results in an advantageous ratio of the amount of mortar used to the required strength of the anchoring, when the wall anchor is positioned centrally in the joint recess and enveloped by mortar filling the joint recess.

**[0010]** In an embodiment of the present invention, the wall anchor used in the method is bent, preferably such that the two ends of the wall anchor are positioned under an angle of substantially 90 degrees with respect to each other. This has the advantage that the method can be

applied to prefabricated wall panels that are positioned under an angle with respect to each other, preferably to prefabricated wall panels that are positioned perpendicular to each other, in addition to prefabricated wall panels that lie flush with each other.

**[0011]** In an embodiment of the present invention, the wall anchor used in the method comprises a first and a second spacer for positioning the wall anchor centrally in the joint recess. This has the advantage that the wall anchor can be easily positioned centrally in the joint recess and remains at that central position when filling the recess with binding material. This promotes an advantageous envelopment of the wall anchor by the binding material and, consequently, of an advantageous strength of the anchoring.

**[0012]** In an embodiment of the present invention, the method further comprises the step of prefilling the joint recess with the binding material. This has a dual advantage. Firstly, the wall anchor can be pushed into a central position after prefilling the joint recess with the binding material and will remain centrally when subsequently filling the joint recess with binding material. Secondly, prefilling the joint recess facilitates advantageously enveloping the wall anchor.

**[0013]** In an embodiment of the present invention, the method further comprises the step of smoothing out the binding material that fills the joint recess and ensuring that the fill is substantially flush with a face of the respective prefabricated wall panels. This promotes an advantageous envelopment of the wall anchor by the binding material and, consequently, of an advantageous strength of the anchoring. In addition, it facilitates applying finishing when the building of the wall advances to the finishing phase.

**[0014]** In an embodiment of the present invention, the prefabricated wall panels used in the method each further comprise an upright side and two opposing upright faces, the upright side connecting the two opposing faces. The method further comprises placing the first prefabricated wall panel and the second prefabricated wall panel such that the upright side of the prefabricated wall panel, called the abutting side, abuts the second prefabricated wall panel, forming a vertical joint between the prefabricated wall panels at the abutting side. The method also further comprises filling the vertical joint with a construction foam, preferably an expansive construction foam, more preferably a polyurethane foam, more preferably a fire-proof foam, for example, fire-resistant foam. This has the advantage that when closing the undesired opening in the wall formed by the vertical joint, no injection mortar machine is required. This has the advantage that the assembly method according to the invention simplifies the assembly or installation of walls at a construction site and speeds it up. It is an added advantage of the method according to the invention that it reduces the risk of adverse ergonomic effects on the operator during the assembly, because they don't have to handle an unwieldy and heavy mortar injection machine. An additional ben-

efit when using a fire-proof or fire-resistant foam is that the method can be used in locations where fire-proofing is required, for example on request of the party commissioning the build or because of building regulations.

5 **[0015]** In an embodiment of the present invention, the method further comprises building a first and a second prefabricated wall panel in a prefabrication location, wherein the prefabrication location is preferably different from the installation location, applying a first recess at a recess height to the first prefabricated wall panel, applying a second recess at the recess height to the second prefabricated wall panel, and transporting the first and second prefabricated wall panel to the assembly location. This has the advantage that wall panels can be built and recesses applied to the wall panels in a location different from the installation location, with the possibility to do this mechanically under controlled circumstances. This is an opportunity to get wall panels with fewer defects and recesses that are clean and ready for applying subsequent steps in the method.

10 **[0016]** The invention also provides for a kit for constructing walls made with the method according to any of the previous claims, comprising a first prefabricated wall panel, a second prefabricated panel, a wall anchor and binding material, characterized in that the first prefabricated wall panel comprises a first recess at a recess height and the second prefabricated wall panel comprises a second recess at the recess height. This kit has the advantage that the required elements necessary to apply the method disclosed by the invention, are jointly made available and the method steps can be executed without having to interrupt the method for getting supplies.

25 **[0017]** In an embodiment of the present invention, the kit further comprises a construction foam, preferably an expansive construction foam, more preferably a polyurethane foam. This kit has the advantage that any embodiment of the method in which a construction foam is required, can be executed without having to interrupt the method for getting supplies.

30 **[0018]** The invention also provides for a wall assembly for constructing walls made with any method according to the invention, comprising any kit according to the second aspect of the invention, wherein the first prefabricated wall panel abuts the second prefabricated wall panel, characterized in that the first recess abuts the second recess, forming a joint recess, and the wall anchor is positioned in the joint recess, enveloped by binding material, wherein the binding material enveloping the wall anchor fills the joint recess. This has the advantage that the wall assembly derives its strength, and that of the vertical joint between the prefabricated wall panels, from the wall anchors enveloped in binding material, such as mortar. As such, injection mortar and a mortar injection machine as employed in the state of the art are not required during the installation, speeding up the assembly process and reducing the risk of adverse ergonomic effects on the operator during the assembly, because

they don't have to handle an unwieldy and heavy mortar injection machine.

**[0019]** In an embodiment of the present invention, the wall assembly has the following features: the first recess and the second recess have a parallelepipedal shape; the recesses by preference have dimensions (length x depth x height) 12 - 20 cm x 3 - 6 cm x 3 - 6 cm and by further preference 15 cm x 4 cm x 4 cm; the wall anchor comprises a steel reinforcement bar, for example a rebar, by preference with diameter of 12 mm and a length of 30 cm, and is centrally positioned in the joint recess; the binding material is a cement-based mortar. This has the advantage that the connection is constructed in a controlled way, enabling the calculation of how many connections are needed to ensure the necessary tensile, shearing and flexural strength to adhere to the building norms or regulations that are in vigor at the installation location.

**[0020]** In an embodiment of the present invention, the wall assembly comprises a kit according to the invention that also comprises a construction foam, preferably an expansive construction foam, more preferably a polyurethane foam, more preferably a fire-proof foam, for example, fire-resistant foam. The prefabricated wall panels each further comprise an upright side and two opposing upright faces, the upright side connecting the two opposing upright faces. The upright side of the first prefabricated wall panel, called the abutting side, abuts the second prefabricated wall panel, forming a vertical joint between the prefabricated wall panels at the abutting side, wherein the construction foam substantially fills the vertical joint. This has the advantage that the wall assembly does not have any unwanted openings connecting the spaces on either side of the wall. An additional benefit when using a fire-proof or fire-resistant foam is that the wall assembly can be built in locations where fire-proofing is required, for example on request of the party commissioning the build or because of building regulations.

### **Brief description of the drawings**

**[0021]** The invention will be further elucidated by means of the following description and the appended figures.

Figure 1 shows a flow diagram of a first embodiment of the method of assembling a wall assembly at an assembly location.

Figure 2 shows a flow diagram of a second embodiment of the method of assembling a wall assembly at an assembly location.

Figure 3 shows a flow diagram of a third embodiment of the method of assembling a wall assembly at an assembly location.

Figure 4 shows a flow diagram of a fourth embodiment of the method of assembling a wall assembly at an assembly location.

Figure 5 shows a flow diagram of a fifth embodiment of the method of assembling a wall assembly at an assembly location.

Figure 6 shows a flow diagram of a sixth embodiment of the method of assembling a wall assembly at an assembly location.

Figure 7 shows intermediate results of executing a seventh embodiment of the method of assembling a wall assembly at an assembly location.

Figure 8 shows a first embodiment of the wall assembly for constructing walls, wherein the first prefabricated wall panel and the second prefabricated wall panel lie flush with each other.

Figure 9 shows a second embodiment of the wall assembly for constructing walls, wherein the first prefabricated wall panel and the second prefabricated wall panel are perpendicular to each other.

Figure 10 shows different embodiments of the prefabricated wall panels for use in embodiments of the method of assembling a wall assembly at an assembly location, and comprised by the kit for constructing walls made with the method of assembling a wall assembly at an assembly location and comprised by the wall assembly for constructing walls.

Figure 11 shows a first embodiment of the wall anchor for use in embodiments of the method of assembling a wall assembly at an assembly location, and comprised by the kit for constructing walls made with the method of assembling a wall assembly at an assembly location and comprised by the wall assembly for constructing walls.

Figure 12 shows a second embodiment of the wall anchor for use in embodiments of the method of assembling a wall assembly at an assembly location, and comprised by the kit for constructing walls made with the method of assembling a wall assembly at an assembly location and comprised by the wall assembly for constructing walls.

### **Modes for carrying out the invention**

**[0022]** The present invention will be described with respect to particular embodiments and with reference to certain drawings but the invention is not limited thereto but only by the claims. The drawings described are only schematic and are non-limiting. In the drawings, the size of some of the elements may be exaggerated and not drawn on scale for illustrative purposes. The dimensions and the relative dimensions do not necessarily correspond to actual reductions to practice of the invention.

**[0023]** Furthermore, the terms first, second, third and the like in the description and in the claims, are used for distinguishing between similar elements and not necessarily for describing a sequential or chronological order. The terms are interchangeable under appropriate circumstances and the embodiments of the invention can operate in other sequences than described or illustrated herein.

**[0024]** Moreover, the terms top, bottom, over, under and the like in the description and the claims are used for descriptive purposes and not necessarily for describing relative positions. The terms so used are interchangeable under appropriate circumstances and the embodiments of the invention described herein can operate in other orientations than described or illustrated herein.

**[0025]** The term "comprising", used in the claims, should not be interpreted as being restricted to the means listed thereafter; it does not exclude other elements or steps. It needs to be interpreted as specifying the presence of the stated features, integers, steps or components as referred to, but does not preclude the presence or addition of one or more other features, integers, steps or components, or groups thereof. Thus, the scope of the expression "a device comprising means A and B" should not be limited to devices consisting only of components A and B. It means that with respect to the present invention, the only relevant components of the device are A and B.

**[0026]** We will first explain figures 1 to 7, showing embodiments of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. In this explanation some references are made to figures 8 and 9, which will be explained later, showing embodiments of the wall assembly 700 for constructing walls according to this invention resulting from an embodiment of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. Other references are made to figure 10, which will be explained later, showing embodiments of the prefabricated wall panels 801 for use in embodiments of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention, and comprised by the kit for constructing walls made with the method 100 of assembling a wall assembly 700 at an assembly location according to this invention and comprised by the wall assembly 700 for constructing walls according to this invention. Additional references are made to figures 11 and 12, which will be explained later, showing embodiments of the wall anchor 709 for use in embodiments of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention, and comprised by the kit for constructing walls made with the method 100 of assembling a wall assembly 700 at an assembly location according to this invention and comprised by the wall assembly 700 for constructing walls according to this invention.

**[0027]** Figure 1 shows a flow diagram of a first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. The first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location comprises a wall panel placement 101 of placing a first prefabricated wall panel 704 comprising a first recess 702 at a recess height h and a second prefabricated wall panel 705 comprising a second recess 703 at the recess height h, next to each other, such that the first recess 702 abuts the second recess 703, forming a joint recess 706, an

anchor insertion 102 of inserting a wall anchor 709 in the joint recess 706, such that the first end of a wall anchor 1101 lies in the first recess 702 and a second, distally removed end of the wall anchor 1102 lies in the second recess 703, and a recess filling 103 of filling the joint recess 706 with binding material 802.

**[0028]** Preferably, the wall panel placement 101 precedes the anchor insertion 102. Also preferably, the anchor insertion 102 precedes the recess filling 103.

**[0029]** The assembly location is preferably a construction site and by further preference the location of the wall that is constructed from the wall assembly 700. The wall that is constructed from the wall assembly 700 is a load-bearing wall, a non-load bearing wall or a shearing wall. Preferably, the wall that is constructed from the wall assembly 700 is for separating the outside from the inside from a building or for separating two spaces on the inside of the building.

**[0030]** The prefabricated wall panels 801 preferably each further comprise an upright side 806 and two opposing upright faces 807, the upright side 806 connecting the two opposing upright faces 807. The two opposing upright faces 807 are for separating spaces if the wall that is constructed separates spaces. Preferably, the two opposing upright faces 807 of one or both of the prefabricated wall panels 801, and hence one or both of the prefabricated wall panels 801 themselves, are rectangular. Alternatively, the two opposing upright faces 807 of one or both of the prefabricated wall panels 801, and hence one or both of the prefabricated wall panels 801 themselves, are triangular or trapezoidal, for example when the wall that is constructed from the wall assembly 700 is a gable wall.

**[0031]** Furthermore, the prefabricated wall panels 801 are by preference prefabricated masonry wall panels. Masonry wall panels are wall panels that comprises masonry units 804, such as masonry bricks, and a jointing material 805, such as an adhesive mortar or building glue. The masonry units are for example masonry units described in the specification for masonry units by the European Committee for Standardization in EN 771-1:2011+A1:2015, EN 771-2:2011+A1:2015, EN 771-3:2011+A1:2015, EN 771-4:2011+A1 :2015, such as clay masonry units, calcium silicate masonry units, aggregate concrete masonry units, autoclaved aerated concrete masonry units. Colloquially, masonry units comprise bricks, for example clay bricks also called terracotta bricks, concrete bricks, sand lime bricks or fly ash clay bricks. By preference, the masonry units in the masonry wall panels are clay masonry units 701. Alternatively the prefabricated wall panels 801 are concrete wall panels.

**[0032]** Preferably, the first recess 702 and the second recess 703 have a parallelepipedal shape. The recesses by preference have dimensions (length x depth x height) 12 - 20 cm x 3 - 6 cm x 3 - 6 cm and by further preference 15 cm x 4 cm x 4 cm.

**[0033]** Preferably, the wall panel placement 101 further comprises placing the first prefabricated wall panel 704

and the second prefabricated wall panel 705 on a base 803, such as a floor plate, a foundation, a construction beam, or a wall.

**[0034]** Preferably, the wall panel placement 101 further comprises placing the first prefabricated wall panel 704 and the second prefabricated wall panel 705 such that the upright side 806 of the first prefabricated wall panel, called the abutting side 808, abuts the second prefabricated wall panel 705, forming a vertical joint 708 between the prefabricated wall panels 801 at the abutting side 808. By preference, the thickness of the vertical joint 708, in particular the distance between the abutting first prefabricated wall panel 704 and the second prefabricated wall panel 705 is on average between 0 cm and 5 cm, by preference between 1 cm and 4 cm and by further preference between 1.5 and 2.5 cm.

**[0035]** Preferably, the wall panel placement 101 further comprises placing the first prefabricated wall panel 704 and the second prefabricated wall panel 705 such that the first prefabricated wall panel 704 and the second prefabricated wall panel 705 lie substantially flush with each other. For example, the first prefabricated wall panel 704 and the second prefabricated wall panel 705 are placed such that the first prefabricated wall panel 704 abuts the second prefabricated wall panel 705 at an upright side 806 of the first prefabricated wall panel 704 and at an upright side 806 of the second prefabricated wall panel 705. Alternatively, the wall panel placement 101 further comprises placing the first prefabricated wall panel 704 and the second prefabricated wall panel 705 such that the first prefabricated wall panel 704 and the second prefabricated wall panel 705 are substantially perpendicular to each other. For example, the first prefabricated wall panel 704 and the second prefabricated wall panel 705 are placed such that the first prefabricated wall panel 704 abuts the second prefabricated wall panel 705 at an upright side 806 of the first prefabricated wall panel 704 and at an upright face of the second prefabricated wall panel 705. Alternatively, the wall panel placement 101 further comprises placing the first prefabricated wall panel 704 and the second prefabricated wall panel 705 such that the first prefabricated wall panel 704 and the second prefabricated wall panel 705 are under an angle with respect to each other.

**[0036]** The wall anchor 709 is configured for being received in a joint recess 706 of by preference (length x depth x height) 24 - 40 cm x 3 - 6 cm x 3 - 6 cm and by further preference 32 cm x 4 cm x 4 cm. The wall anchor 709 comprises a reinforcement bar 710, for example a rebar, made from metal, for example steel, or made from a composite material, for example a glass fiber reinforced polymer. Preferably, the reinforcement bar 710 is made from steel and has a diameter of 12 mm and a length of 30cm. The wall anchor 709 is a straight reinforcement bar 710 or alternatively it is bent, for example having the two ends of the wall anchor 709 positioned under an angle of substantially 90 degrees with respect to each other.

**[0037]** Preferably, the wall anchor 709 further com-

prises a first spacer 711 and/or a second spacer 712 for positioning the reinforcement bar 710 centrally in the joint recess 706. To this end, preferably, the first and the second spacer 712 are planar. Furthermore, preferably they are symmetrical, for example substantially rotationally symmetrical or substantially disc-shaped. Further to this end, preferably the reinforcement bar 710 is positioned through the centers of the first and the second spacers and the first and the second spacers are perpendicular to the reinforcement bar 710. Further to this end, preferably the first spacer 711 is positioned closer to a first end of the reinforcement bar 1103 than to the center of the reinforcement bar c between the first end of the reinforcement bar 1103 and a second end of the reinforcement bar 710 being distally removed from the first end of the reinforcement bar 1103, and the second spacer 712 is positioned closer to the second end of the reinforcement bar 710 than to the center of the reinforcement bar c.

**[0038]** The binding material 802 by preference is a mortar, by further preference an adhesive mortar, for example a cement-based mortar 713.

**[0039]** Figure 2 shows a flow diagram of a second embodiment of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. The second embodiment of the method 100 of assembling a wall assembly 700 at an assembly location comprises the wall panel placement 101, the anchor insertion 102 and the recess filling 103 according to the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, and further comprises a recess prefilling 201 of prefilling the joint recess 706 with binding material 802.

**[0040]** Preferably, the wall panel placement 101 precedes the recess prefilling 201. Also preferably, the recess prefilling 201 precedes the anchor insertion 102. Also preferably, the anchor insertion 102 precedes the recess filling 103.

**[0041]** The assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 are respectively similar to the assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 defined in the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location.

**[0042]** Figure 3 shows a flow diagram of a third embodiment of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. The third embodiment of the method 100 of assembling a wall assembly 700 at an assembly location comprises the wall panel placement 101, the anchor insertion 102 and the recess filling 103 according to the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the recess prefilling 201 according to the second embodiment of the

method 100 of assembling a wall assembly 700 at an assembly location and further comprises a filler smoothing 301 of ensuring that the fill of the binding material 802 that fills the joint recess 706 is substantially flush with a face of the respective prefabricated wall panels 801.

**[0043]** Preferably, the wall panel placement 101 precedes the recess prefilling 201 and the anchor insertion 102. Also preferably, the recess prefilling 201 precedes the anchor insertion 102. Also preferably, the anchor insertion 102 precedes the recess filling 103. Also preferably, the recess filling 103 precedes the filler smoothing 301.

**[0044]** The assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 are respectively similar to the assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 defined in the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location.

**[0045]** Figure 4 shows a flow diagram of a fourth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. The fourth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location comprises the wall panel placement 101, the anchor insertion 102 and the recess filling 103 according to the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the recess prefilling 201 according to the second embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the filler smoothing 301 according to the third embodiment of the method 100 of assembling a wall assembly 700 at an assembly location and further comprises a joint foaming 401 of filling the vertical joint 708 with a construction foam 809.

**[0046]** Preferably, the wall panel placement 101 precedes the recess prefilling 201 and the anchor insertion 102. Also preferably, the recess prefilling 201 precedes the anchor insertion 102. Also preferably, the anchor insertion 102 precedes the recess filling 103. Also preferably, the recess filling 103 precedes the filler smoothing 301 and the joint foaming 401. Also preferably the filler smoothing 301 precedes the joint foaming 401.

**[0047]** The assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 are respectively similar to the assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 defined in the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location.

**[0048]** The construction foam 809 is preferably an

expansive construction foam 809, more preferably a polyurethane foam. Preferably, the construction foam 809 is a fire-proof foam, for example a fire-resistant foam.

**[0049]** Figure 5 shows a flow diagram of a fifth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. The fifth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location comprises the wall panel placement 101, the anchor insertion 102 and the recess filling 103 according to the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the recess prefilling 201 according to the second embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the filler smoothing 301 according to the third embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the joint foaming 401 according to the fourth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location and further comprises a wall panel construction 501 of building a first and a second prefabricated wall panel 705 in a prefabrication location, wherein the prefabrication location is preferably different from the installation location, a first recess application 502 of applying a first recess 702 at the recess height  $h$  to the first prefabricated wall panel, a second recess application 503 of applying a second recess 703 at the recess height  $h$  to the second prefabricated wall panel 705, and a wall panel transport 504 of transporting the first and second prefabricated wall panel to the assembly location.

**[0050]** Preferably, the wall panel construction 501 precedes the first recess application 502. Also preferably, the first recess application 502 precedes the second recess application 503. Also preferably the second recess application 503 precedes the wall panel transport 504. Also preferably, the wall panel transport 504 precedes the wall panel placement 101. Also preferably the wall panel placement 101 precedes the recess prefilling 201 and the anchor insertion 102. Also preferably, the recess prefilling 201 precedes the anchor insertion 102. Also preferably, the anchor insertion 102 precedes the recess filling 103. Also preferably, the recess filling 103 precedes the filler smoothing 301 and the joint foaming 401. Also preferably the filler smoothing 301 precedes the joint foaming 401.

**[0051]** The assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 are respectively similar to the assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 defined in the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location.

**[0052]** The construction foam 809, if applicable, is similar to the construction foam 809 defined in the fourth

embodiment of the method 100 of assembling a wall assembly 700 at an assembly location.

**[0053]** Figure 6 shows a flow diagram of a sixth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. The sixth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location comprises the wall panel placement 101, the anchor insertion 102 and the recess filling 103 according to the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the recess pre-filling 201 according to the second embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the filler smoothing 301 according to the third embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the joint foaming 401 according to the fourth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, optionally comprises the wall panel construction 501, the first recess application 502, the second recess application 503 and the wall panel transport 504 of the fifth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, and further comprises a binding material application 601 of applying binding material 802 to the base 803 for placing the first and the second prefabricated wall panel 705 on, a shore application 602 of applying shores for providing stability to the first and the second prefabricated wall panel 705, and a shore adjustment 603 of adjusting the shores for positioning the first and second prefabricated wall panel substantially plumb.

**[0054]** Preferably, the wall panel construction 501, precedes the first recess application 502. Also preferably, the first recess application 502 precedes the second recess application 503. Also preferably the second recess application 503 precedes the wall panel transport 504. Also preferably, the wall panel transport 504 precedes the binding material application 601. Also preferably, the binding material application 601 precedes the wall panel placement 101. Also preferably, the wall panel placement 101 precedes the shore application 602. Also preferably, the shore application 602 precedes the shore adjustment 603. Also preferably, the shore adjustment 603 precedes the recess prefilling 201 and the anchor insertion 102. Also preferably, the recess prefilling 201 precedes the anchor insertion 102. Also preferably, the anchor insertion 102 precedes the recess filling 103. Also preferably, the recess filling 103 precedes the filler smoothing 301 and the joint foaming 401. Also preferably the filler smoothing 301 precedes the joint foaming 401.

**[0055]** The assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding material 802 are respectively similar to the assembly location, the wall that is constructed, the prefabricated wall panels 801, the first recess 702, the second recess 703, the wall anchor 709 and the binding

material 802 defined in the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location.

**[0056]** The construction foam 809, if applicable, is similar to the construction foam 809 defined in the fourth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location.

**[0057]** Figure 7 shows intermediate results of executing a seventh embodiment of the method 100 of assembling a wall assembly 700 at an assembly location according to this invention. The seventh embodiment of the method 100 of assembling a wall assembly 700 at an assembly location comprises the wall panel placement 101, the anchor insertion 102 and the recess filling 103 according to the first embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, the filler smoothing 301 according to the third embodiment of the method 100 of assembling a wall assembly 700 at an assembly location, and the joint foaming 401 according to the fourth embodiment of the method 100 of assembling a wall assembly 700 at an assembly location.

**[0058]** Preferably, the wall panel placement 101 precedes the anchor insertion 102. Also preferably, the anchor insertion 102 precedes the recess filling 103. Also preferably, the recess filling 103 precedes the filler smoothing 301. Also preferably the filler smoothing 301 precedes the joint foaming 401.

**[0059]** The prefabricated wall panels 801 each further comprise an upright side 806 and two opposing upright faces 807, the upright side 806 connecting the two opposing upright faces 807. The two opposing upright faces 807 are for separating spaces if the wall that is constructed separates spaces. The two opposing upright faces 807 of the prefabricated wall panels 801, and hence the prefabricated wall panels 801 themselves, are rectangular. In other embodiments, the two opposing upright faces 807 of one or both of the prefabricated wall panels 801, and hence one or both of the prefabricated wall panels 801 themselves, are triangular or trapezoidal, for example when the wall that is constructed from the wall assembly 700 is a gable wall.

**[0060]** Furthermore, the prefabricated wall panels 801 are prefabricated masonry wall panels, comprising clay masonry units 701. In other embodiments, the prefabricated wall panels 801 are concrete wall panels.

**[0061]** The first recess 702 and the second recess 703 have a parallelepipedal shape with dimensions (length x depth x height) 15 cm x 4 cm x 4 cm.

**[0062]** The wall panel placement 101 further comprises placing the first prefabricated wall panel 704 and the second prefabricated wall panel 705 on a concrete floor plate 707. In other embodiments, the base 803 could be a foundation, a construction beam, or a wall.

**[0063]** The wall panel placement 101 further comprises placing the first prefabricated wall panel 704 and the second prefabricated wall panel 705 such that the first prefabricated wall panel 704 and the second prefabricated wall panel 705 lie substantially flush with

each other. In particular, the first prefabricated wall panel 704 and the second prefabricated wall panel 705 are placed such that the first prefabricated wall panel 704 abuts the second prefabricated wall panel 705 at an upright side 806 of the first prefabricated wall panel, called the abutting side 808, and at an upright side 806 of the second prefabricated wall panel 705, forming a vertical joint 708 between the prefabricated wall panels 801 at the abutting side 808. The thickness of the vertical joint 708, in particular the distance between the abutting first prefabricated wall panel 704 and the second prefabricated wall panel 705 is on average between 1.5 and 2.5 cm. In other embodiments, the wall panel placement 101 further comprises placing the first prefabricated wall panel 704 and the second prefabricated wall panel 705 such that the first prefabricated wall panel 704 and the second prefabricated wall panel 705 are substantially perpendicular to each other. In yet other embodiments, the wall panel placement 101 further comprises placing the first prefabricated wall panel 704 and the second prefabricated wall panel 705 such that the first prefabricated wall panel 704 and the second prefabricated wall panel 705 are under an angle with respect to each other.

**[0064]** The wall anchor 709 comprises a straight reinforcement bar 710 made from steel, with a diameter of 12 mm and a length of 30 cm. In other embodiments, alternative reinforcement bars for reinforcing concrete or cement-based mortars known in the state of the art are used. In other embodiments, the reinforcement bar 710 is bent, for example having the two ends of the wall anchor 709 positioned under an angle of substantially 90 degrees with respect to each other.

**[0065]** The wall anchor 709 further comprises a first spacer 711 and a second spacer 712 for positioning the reinforcement bar 710 centrally in the joint recess 706. The first and the second spacer 712 are substantially disc-shaped. The reinforcement bar 710 is positioned through the centers of the first and the second spacers and the first and the second spacers are perpendicular to the reinforcement bar 710. The first spacer 711 is positioned closer to a first end of the reinforcement bar 1103 than to the center of the reinforcement bar c between the first end of the reinforcement bar 1103 and a second end of the reinforcement bar 1104, the second end of the reinforcement bar 710 being distally removed from the first end of the reinforcement bar 1103, and the second spacer 712 is positioned closer to the second end of the reinforcement bar 710 than to the center of the reinforcement bar c.

**[0066]** The binding material 802 is a cement-based mortar 713. In other embodiments, this is another binding material 802 for binding building materials known in the state of the art.

**[0067]** The construction foam 809 is a fire-resistant polyurethane foam 714. In other embodiments, the construction foam 809 is another construction foam 809 known in the state of the art.

**[0068]** Figure 7a shows the result of the wall panel

placement 101. In particular, it shows a detail of a wall assembly 700 comprising a first prefabricated wall panel 704 and a second prefabricated wall panel 705, with respective first and second recesses at a recess height h, forming a joint recess 706, placed on a concrete floor plate 707, such that the prefabricated wall panels 801 lie flush with each other. The gap between the two prefabricated wall panels 801 is a vertical joint 708.

**[0069]** Figure 7b shows the result of the anchor insertion 102. In particular, it shows a wall anchor 709 comprising a reinforcement bar 710 and a first and a second spacer 712 positioned in the joint recess 706.

**[0070]** Figure 7c shows the result of the recess filling 103 and the recess smoothing. In particular, it shows the joint recess 706 filled with a cement-based mortar 713 and the fill of the cement-based mortar 713 that is substantially flush with a face of the respective prefabricated wall panels 801.

**[0071]** Figure 7d shows the result of the joint foaming 401. In particular, it shows the vertical joint 708 that is filled with a fire-resistant polyurethane foam 714.

**[0072]** Figure 8 shows a first embodiment of the wall assembly 700 for constructing walls according to the present invention, wherein the first prefabricated wall panel 704 and the second prefabricated wall panel 705 lie flush with each other. The first embodiment of the wall assembly 700 for construction walls, comprises a first prefabricated wall panel, a second prefabricated panel, a wall anchor 709, a binding material 802, and a construction foam 809, such that the first prefabricated wall panel 704 comprises four first recesses at respective recess heights h, and the second prefabricated wall panel 705 comprises four second recesses at the respective recess heights h. The first prefabricated wall panel 704 abuts the second prefabricated wall panel 705, such that the first recesses abut the second recesses, forming joint recesses, and such that the wall anchors are positioned in the joint recess 706, enveloped by binding material 802 (for the purpose of the drawing, the binding material 802 and the construction foam 809 is taken to be transparent). A first end of the wall anchor 709 lies in the first recess 702, a second end of the wall anchor 709, distally removed from the first end of the wall anchor 709, lies in the second recess 703. The binding material 802, in particular cement-based mortar 713, enveloping the wall anchor 709 fills the joint recess 706. The first prefabricated wall panel 704 and the second prefabricated wall panel 705 are substantially flush with each other.

**[0073]** The first prefabricated wall panel 704 and the second prefabricated wall panel 705 each further comprise an upright side 806 and two opposing upright faces 807, the upright side 806 connecting the two opposing upright faces 807. The first prefabricated wall panel 704 abuts the second prefabricated wall panel 705 at an upright side 806 of the first prefabricated wall panel, called the abutting side 808, and at an upright side 806 of the second prefabricated wall panel 705, forming a vertical joint 708 between the prefabricated wall panels

801 at the abutting side 808. The thickness of the vertical joint 708, in particular the distance between the abutting first prefabricated wall panel 704 and second prefabricated wall panel 705, is on average between 1.5 and 2.5 cm.

**[0074]** The prefabricated wall panels 801 are prefabricated masonry wall panels, comprising clay masonry units 701. In another embodiment, the prefabricated wall panels 801 are prefabricated concrete wall panels or other prefabricated wall panels for building load bearing and/or non-load bearing walls known in the state of the art. The opposing upright faces 807 of the prefabricated wall panels 801 are rectangular. In other embodiments, the opposing upright faces 807 are triangular or trapezoidal.

**[0075]** The first recesses and the second recesses have a parallelepipedal shape with dimensions (length x depth x height) 15 cm x 4 cm x 4 cm.

**[0076]** The wall anchor 709 is configured for being received in a joint recess 706 of 32 cm x 4 cm x 4 cm. In particular, it comprises a straight steel reinforcement bar 710 with a diameter of 12 mm and a length of 30 cm. The wall anchor 709 further comprises a first spacer 711 and a second spacer 712 for positioning the reinforcement bar 710 centrally in the joint recess 706. The first spacer 711 and the second spacer 712 are substantially disc-shaped. The reinforcement bar 710 is positioned through the centers of the first and the second spacer 712 and the first and the second spacers are perpendicular to the reinforcement bar 710. The first spacer 711 is positioned closer to a first end of the reinforcement bar 1103 than to the center of the reinforcement bar c between the first end of the reinforcement bar 1103 and a second end of the reinforcement bar 1104, the second end of the reinforcement bar 710 being distally removed from the first end of the reinforcement bar 1103, and the second spacer 712 is positioned closer to the second end of the reinforcement bar 710 than to the center of the reinforcement bar c.

**[0077]** In other embodiments, the wall anchor 709 could be any wall anchor 709 for connecting two walls known in the state of the art, for example comprising a glass fiber reinforced polymer reinforcement bar 710.

**[0078]** The binding material 802 is cement-based mortar 713. In other embodiments, the binding material 802 is another mortar, preferably an adhesive mortar, or any other binding material 802 for binding building materials, known in the state of the art.

**[0079]** The construction foam 809 substantially fills the vertical joint 708. The construction foam 809 is a fire-proof polyurethane foam. In other embodiments, the construction foam 809 is another construction foam 809 known in the state of the art, for example an expansive fire-resistant foam. In other embodiments, the vertical joint 708 is not filled with a construction foam 809.

**[0080]** Figure 9 shows a second embodiment of the wall assembly 700 for constructing walls according to the present invention, wherein the first prefabricated wall

panel 704 and the second prefabricated wall panel 705 are perpendicular to each other. The second embodiment of the wall assembly 700 for construction walls, comprises the first prefabricated wall panel, the second prefabricated panel, the binding material 802, and the construction foam 809 according to the first embodiment of the wall assembly 700 for constructing walls.

**[0081]** The first prefabricated wall panel 704 comprises four first recesses at respective recess heights h, and the second prefabricated wall panel 705 comprises four second recesses at the respective recess heights h. The first prefabricated wall panel 704 abuts the second prefabricated wall panel 705, such that the first recesses abut the second recesses, forming joint recesses, and such that the wall anchors are positioned in the joint recess 706, enveloped by binding material 802 (for the purpose of the drawing, the binding material 802 and the construction foam 809 is taken to be transparent). A first end of the wall anchor 709 lies in the first recess 702, a second end of the wall anchor 709, distally removed from the first end of the wall anchor 709, lies in the second recess 703. The binding material 802, in particular cement-based mortar 713, enveloping the wall anchor 709 fills the joint recess 706. The first prefabricated wall panel 704 and the second prefabricated wall panel 705 are substantially perpendicular to each other.

**[0082]** The first prefabricated wall panel 704 abuts the second prefabricated wall panel 705 at an upright side 806 of the first prefabricated wall panel, called the abutting side 808, and at an upright face of the second prefabricated wall panel 705, forming a vertical joint 708 between the prefabricated wall panels 801 at the abutting side 808. The thickness of the vertical joint 708, in particular the distance between the abutting first prefabricated wall panel 704 and second prefabricated wall panel 705, is on average between 1.5 and 2.5 cm.

**[0083]** The first recesses and the second recesses have a parallelepipedal shape with dimensions (length x depth x height) 15 cm x 4 cm x 4 cm.

**[0084]** The wall anchor 709 is configured for being received in a joint recess 706 with an L-shape. In particular, it comprises a bent steel reinforcement bar 710 with a diameter of 12 mm and a length of 30 cm. The two ends of the wall anchor 709 are positioned under an angle of substantially 90 degrees with respect to each other. The wall anchor 709 further comprises a first spacer 711 and a second spacer 712 for positioning the reinforcement bar 710 centrally in the joint recess 706. The first spacer 711 and the second spacer 712 are substantially disc-shaped. The reinforcement bar 710 is positioned through the centers of the first and the second spacer and the first and the second spacers are perpendicular to the reinforcement bar 710. The first spacer 711 is positioned closer to a first end of the reinforcement bar 1103 than to the center of the reinforcement bar c between the first end of the reinforcement bar 1103 and a second end of the reinforcement bar 1104, the second end of the reinforcement bar 710 being distally removed from the first end of

the reinforcement bar 1103, and the second spacer 712 is positioned closer to the second end of the reinforcement bar 710 than to the center of the reinforcement bar c.

[0085] In other embodiments, the wall anchor 709 could be any wall anchor 709 for connecting two perpendicular walls known in the state of the art, for example comprising a glass fiber reinforced polymer reinforcement bar 710.

[0086] Figure 10 shows different embodiments of the prefabricated wall panels 801 for use in embodiments of the method 100 of assembling a wall assembly 700 at an assembly location according to the present invention, and comprised by the kit for constructing walls made with the method 100 of assembling a wall assembly 700 at an assembly location according to the present invention and comprised by the wall assembly 700 for constructing walls according to the present invention.

[0087] A prefabricated wall panel comprises an upright side 806 and two opposing upright faces 807, the upright side 806 connecting the two opposing upright faces 807. Preferably, the opposing upright faces 807 are rectangular. Alternatively, the opposing upright faces 807 are triangular, trapezoidal, arced or of any other shape for creating a gable or ornamental wall.

[0088] Figure 10a shows a first embodiment of a prefabricated wall panel with rectangular opposing upright faces 807.

[0089] Figure 10b shows a second embodiment of a prefabricated wall panel with triangular opposing upright faces 807.

[0090] Figure 10c shows a third embodiment of a prefabricated wall panel with trapezoidal opposing upright faces 807.

[0091] Figure 11 shows a first embodiment of the wall anchor 709 for use in embodiments of the method 100 of assembling a wall assembly 700 at an assembly location according to the present invention, and comprised by the kit for constructing walls made with the method 100 of assembling a wall assembly 700 at an assembly location according to the present invention, and comprised by the wall assembly 700 for constructing walls according to the present invention.

[0092] The first embodiment of the wall anchor 709 comprises a straight steel reinforcement bar 710 with a diameter of 12 mm and a length of 30 cm. The wall anchor 709 further comprises a first spacer 711 and a second spacer 712 for positioning the reinforcement bar 710 centrally in the joint recess 706. The first spacer 711 and the second spacer 712 are substantially disc-shaped, with protrusions around the edge giving a star-like appearance. The reinforcement bar 710 is positioned through the centers of the first and the second spacer 712 and the first and the second spacers are perpendicular to the reinforcement bar 710. The first spacer 711 is positioned closer to a first end of the reinforcement bar 1103 than to the center of the reinforcement bar c between the first end of the reinforcement bar 1103 and a second end of the reinforcement bar 1104,

the second end of the reinforcement bar 710 being distally removed from the first end of the reinforcement bar 1103, and the second spacer 712 is positioned closer to the second end of the reinforcement bar 710 than to the center of the reinforcement bar c.

[0093] In other embodiments the reinforcement bar 710 is made from another material than steel, such as from another metal or a composite material, for example a glass fiber reinforced polymer reinforcement bar 710. In other embodiments, the spacers are planar, for example symmetrical, for example rotationally symmetrical. In other embodiments the spacers and the reinforcement bar 710 are integrated.

[0094] In other embodiments, the wall anchor 709 comprises a reinforcement bar 710 with zero or one spacer(s).

[0095] Figure 12 shows a second embodiment of the wall anchor 709 for use in embodiments of the method 100 of assembling a wall assembly 700 at an assembly location according to the present invention, and comprised by the kit for constructing walls made with the method 100 of assembling a wall assembly 700 at an assembly location according to the present invention, and comprised by the wall assembly 700 for constructing walls according to the present invention.

[0096] The second embodiment of the wall anchor 709 comprises a bent steel reinforcement bar 710 with a diameter of 12 mm and a length of 30 cm. The two ends of the wall anchor 709 are positioned under an angle of substantially 90 degrees with respect to each other. The wall anchor 709 further comprises a first spacer 711 and a second spacer 712 for positioning the reinforcement bar 710 centrally in the joint recess 706. The first spacer 711 and the second spacer 712 are substantially disc-shaped. The reinforcement bar 710 is positioned through the centers of the first and the second spacer 712 and the first and the second spacers are perpendicular to the reinforcement bar 710. The first spacer 711 is positioned closer to a first end of the reinforcement bar 1103 than to the center of the reinforcement bar c between the first end of the reinforcement bar 1103 and a second end of the reinforcement bar 1104, the second end of the reinforcement bar 710 being distally removed from the first end of the reinforcement bar 1103, and the second spacer 712 is positioned closer to the second end of the reinforcement bar 710 than to the center of the reinforcement bar c.

[0097] In other embodiments the reinforcement bar 710 is made from another material than steel, such as from another metal or a composite material, for example a glass fiber reinforced polymer reinforcement bar 710. In other embodiments, the spacers are planar, for example symmetrical, for example rotationally symmetrical. In other embodiments the spacers and the reinforcement bar 710 are integrated.

[0098] In other embodiments, the wall anchor 709 comprises a reinforcement bar 710 with zero or one spacer(s).

## Claims

1. A method (100) of assembling a wall assembly (700) at an assembly location, preferably a construction site, comprising:
  - a wall panel placement (101) of placing a first prefabricated wall panel (704) comprising a first recess (702) at a recess height (h) and a second prefabricated wall panel (705) comprising a second recess (703) at the recess height (h), next to each other, such that the first recess (702) abuts the second recess (703), forming a joint recess (706),
  - an anchor insertion (102) of inserting a wall anchor (709) in the joint recess (706), such that the first end of a wall anchor (1101) lies in the first recess (702) and a second, distally removed end of the wall anchor (1102) lies in the second recess (703),
  - a recess filling (103) of filling the joint recess (706) with a binding material (802), preferably an adhesive mortar, more preferably a cement-based mortar (713).
2. A method (100) according to the previous claim wherein
  - the first prefabricated wall panel (704) and the second prefabricated wall panel (705) each further comprise an upright side (806) and two opposing upright faces (807), the upright side (806) connecting the two opposing upright faces (807),
  - the wall panel placement (101) further comprises placing the first prefabricated wall panel (704) and the second prefabricated wall panel (705) such that the upright side (806) of the first prefabricated wall panel (704), called the abutting side (808), abuts the second prefabricated wall panel (705), forming a vertical joint (708) between the prefabricated wall panels (801) at the abutting side (808),
  - the method (100) further comprises a joint foaming (401) of filling the vertical joint (708) with a construction foam (809), preferably an expansive construction foam (809), more preferably a fire-proof expansive construction foam (809), for example a fire-resistant polyurethane foam (714).
3. A method (100) according to any of the previous claims, further comprising a recess prefilling (201) of prefilling the joint recess (706) with the binding material (802).
4. A method (100) according to any of the previous claims, further comprising a filler smoothing (301) of smoothing out the binding material (802) that fills the joint recess (706) and ensuring that the fill is substantially flush with a face of the respective prefabricated wall panels (801).
5. A method (100) according to any of the previous claims, wherein the wall anchor (709) comprises a reinforcement bar (710) and a first spacer (711) for positioning the reinforcement bar (710) centrally in the joint recess (706).
6. A kit for constructing walls made with the method (100) according to any of the previous claims, comprising a first prefabricated wall panel (704), a second prefabricated wall panel (705), a wall anchor (709) and binding material (802), **characterized in that**
  - the first prefabricated wall panel (704) comprises a first recess (702) at a recess height (h),
  - the second prefabricated wall panel (705) comprises a second recess (703) at the recess height (h),
  - the wall anchor (709) preferably comprises a reinforcement bar (710) and a first spacer (711) for positioning the reinforcement bar (710) centrally in the joint recess (706).
7. A kit according to claim 6, further comprising a construction foam (809), preferably an expansive construction foam, more preferably a fire-proof expansive construction foam, for example a fire-resistant polyurethane foam (714).
8. A wall assembly (700) for constructing walls made with the method (100) according to any of the claims 1 to 5, comprising the kit of claim 6, wherein the first prefabricated wall panel (704) abuts the second prefabricated wall panel (705), **characterized in that**
  - the first recess (702) abuts the second recess (703), forming a joint recess (706),
  - the wall anchor (709) is positioned in the joint recess (706), enveloped by a binding material (802), preferably an adhesive mortar, more preferably a cement-based mortar (713).
9. A wall assembly (700) according to the previous claim, wherein the binding material (802) enveloping the wall anchor (709) fills the joint recess (706).
10. A wall assembly (700) according to any of the claims 8 to 9, wherein:
  - the first prefabricated wall panel (704) and the second prefabricated wall panel (705) each further comprise an upright side (806) and two

opposing upright faces (807), the upright side (806) connecting the two opposing upright faces (807),

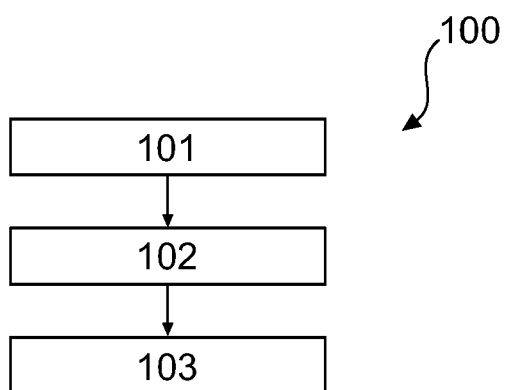
- the upright side (806) of the first prefabricated wall panel (704), called the abutting side (808),  
abuts the second prefabricated wall panel (705),  
forming a vertical joint (708) between the prefabricated wall panels (801) at the abutting side (808),
- the wall assembly (700) further comprises the kit according to claim 7,
- the construction foam (809) substantially fills the vertical joint (708).

11. A wall assembly (700) according to any of the claims 8 to 10, wherein the prefabricated wall panels (801) are prefabricated masonry wall panels, preferably comprising clay masonry units (701). 15
12. A wall assembly (700) according to any of the claims 8 to 11, wherein the first recess (702) and the second recess (703) have a parallelepipedal shape. 20
13. A wall assembly (700) according to any of the claims 8 to 12, wherein the first and the second prefabricated wall panel (705) each further comprises multiple first, respectively second recesses, at respective recess heights, forming multiple joint recesses, and the wall assembly (700) further comprises multiple wall anchors respectively positioned in the joint recesses, enveloped by the binding material (802). 25  
30
14. A wall assembly (700) according to any of the claims 8 to 13, wherein the first and the second prefabricated wall panel (705) are substantially flush with each other. 35
15. A wall assembly (700) according to any of the claims 8 to 13, wherein the first and the second prefabricated wall panel (705) are substantially perpendicular to each other. 40

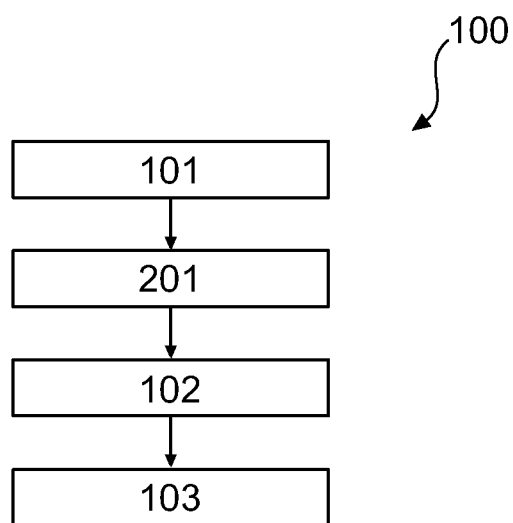
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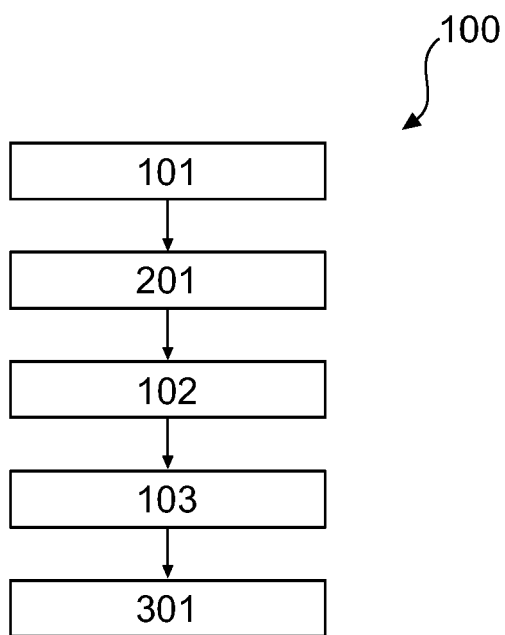
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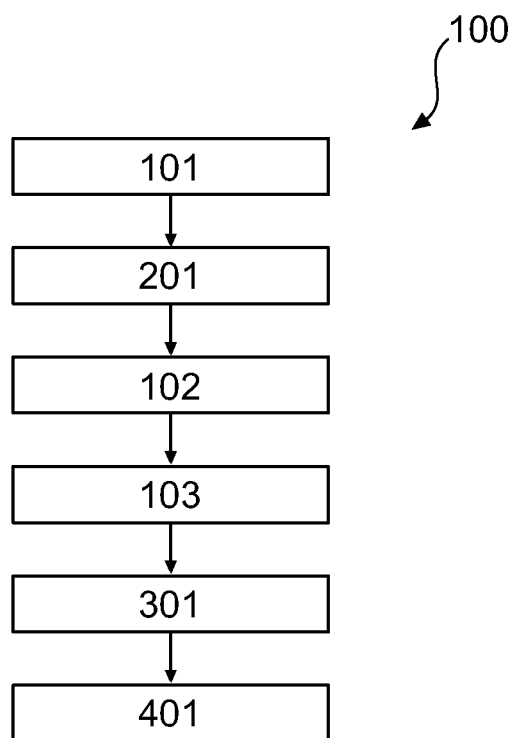
**FIG. 1**



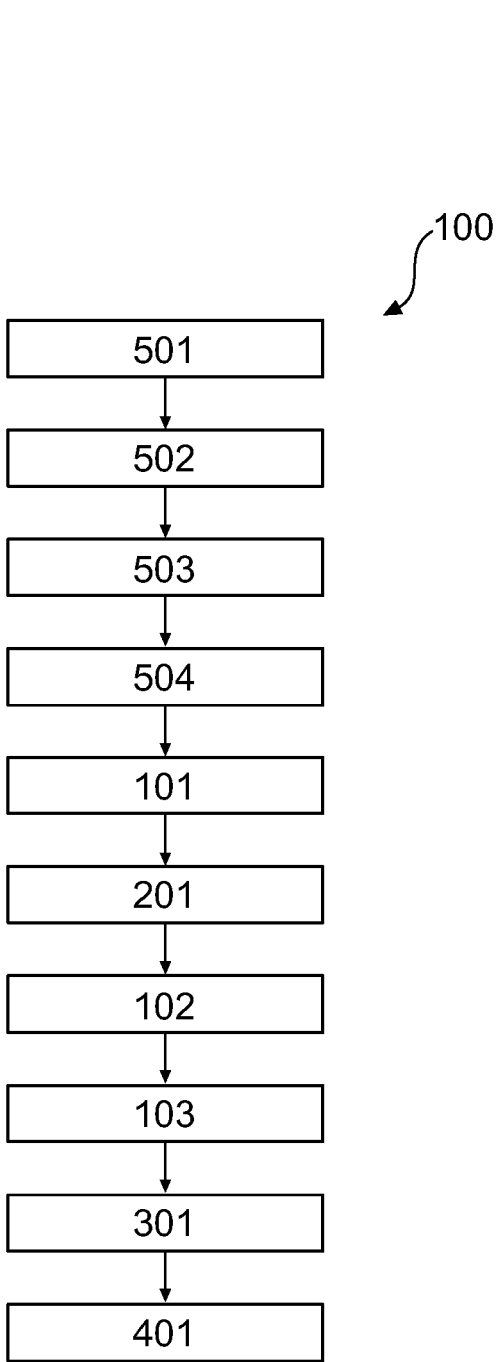
**FIG. 2**



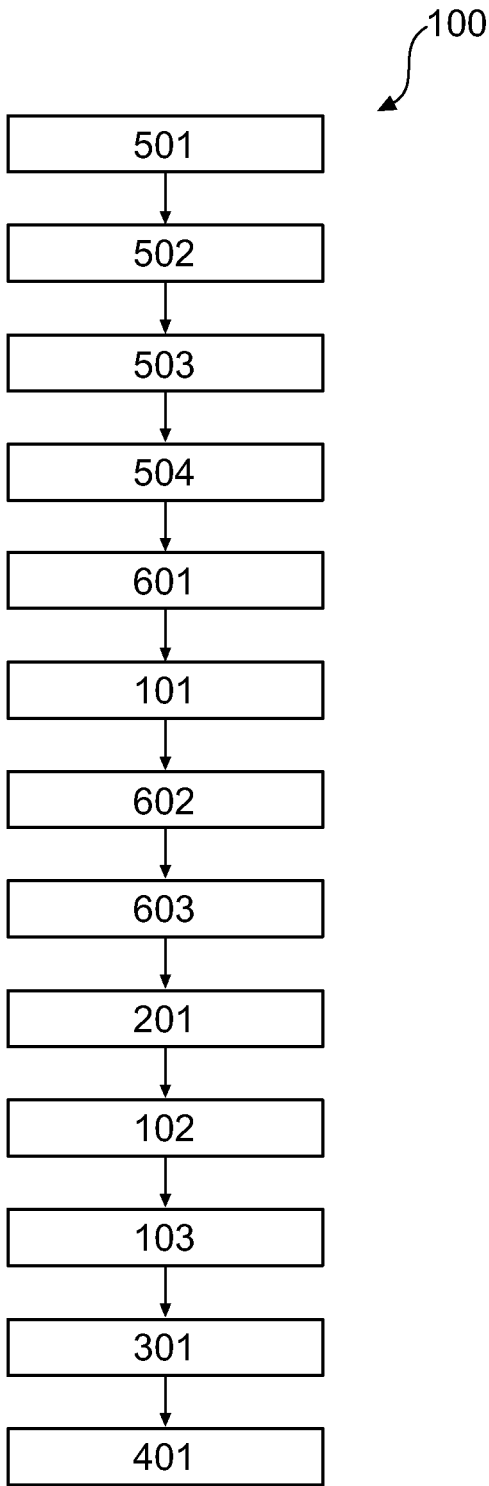
**FIG. 3**



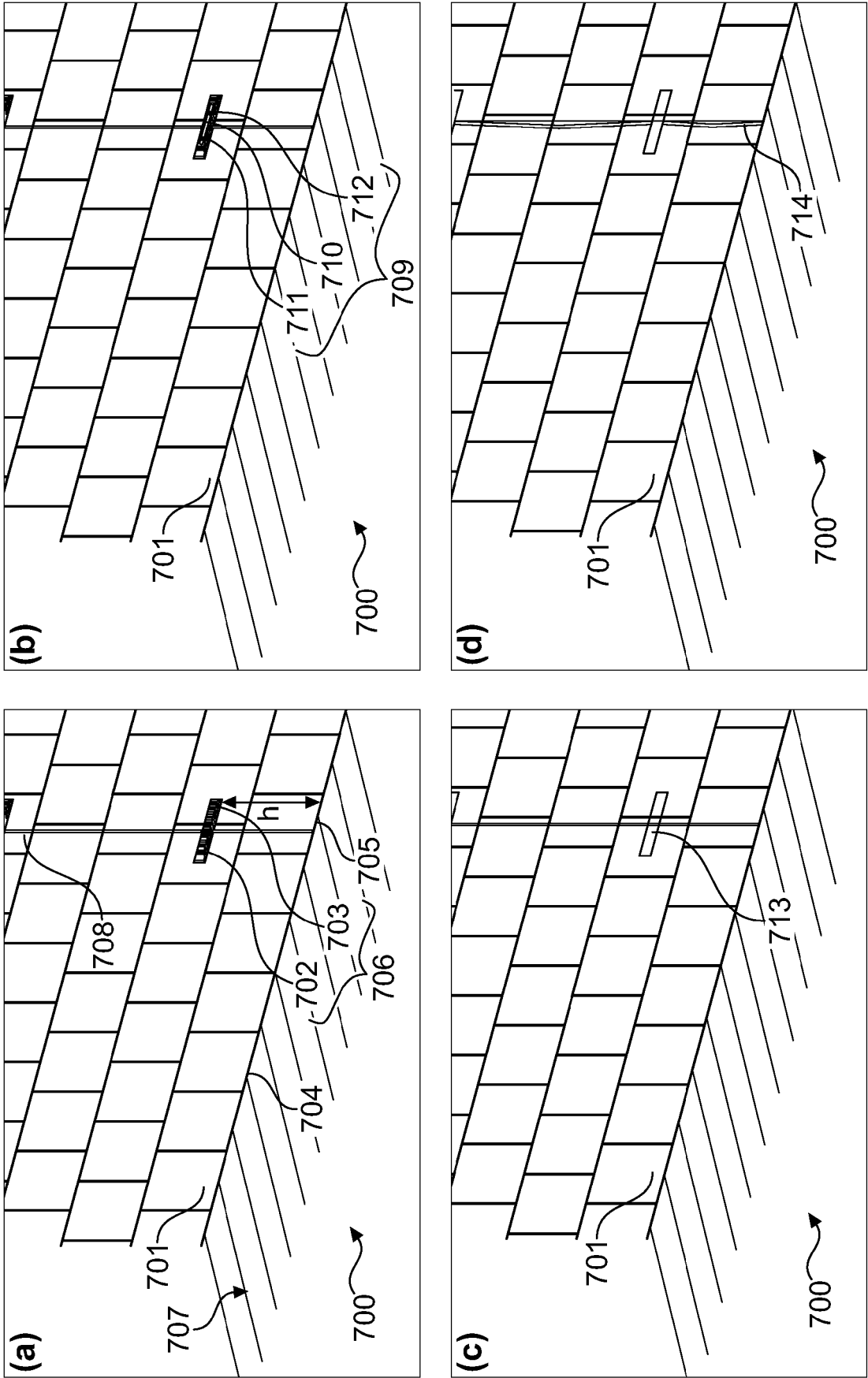
**FIG. 4**

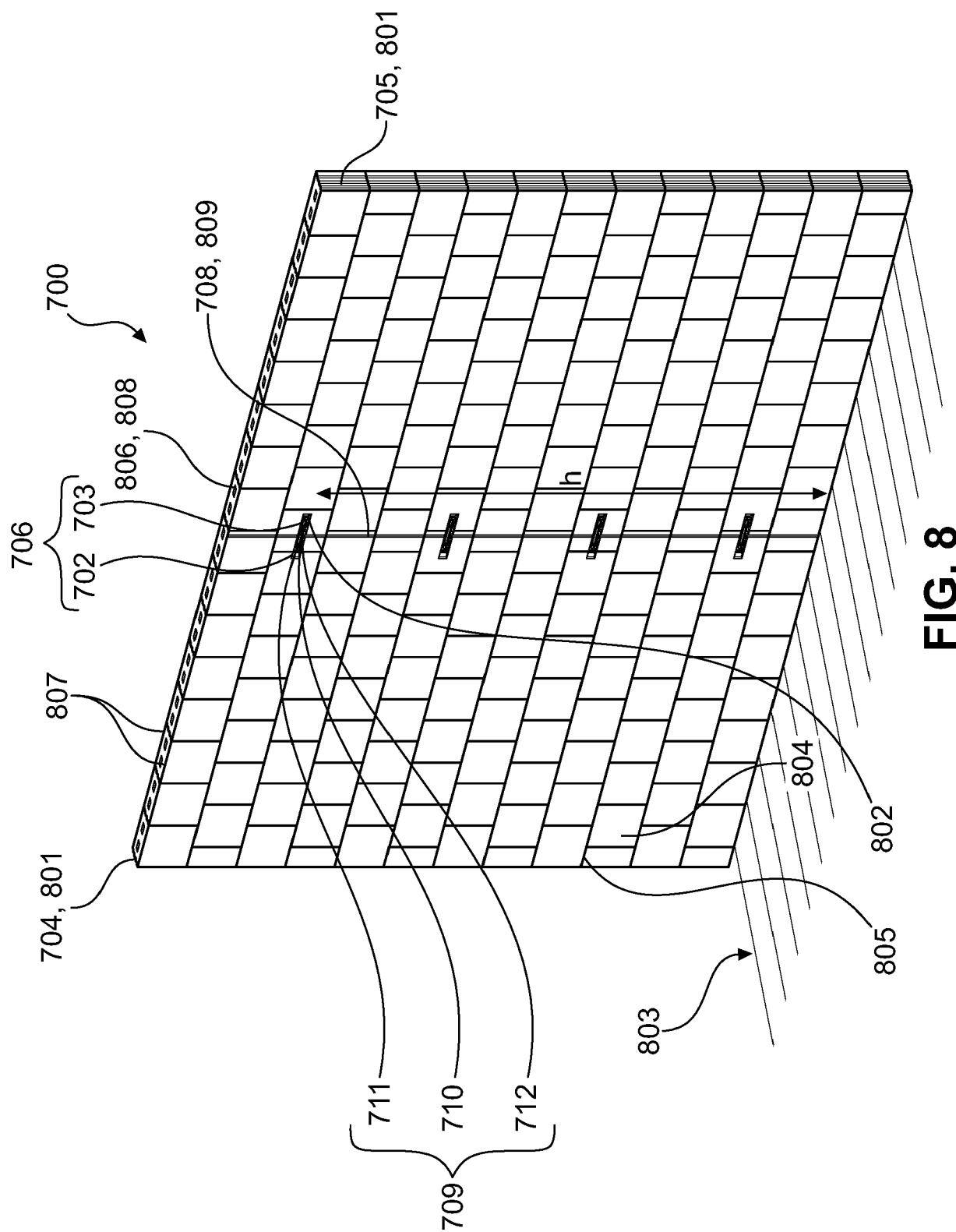


**FIG. 5**

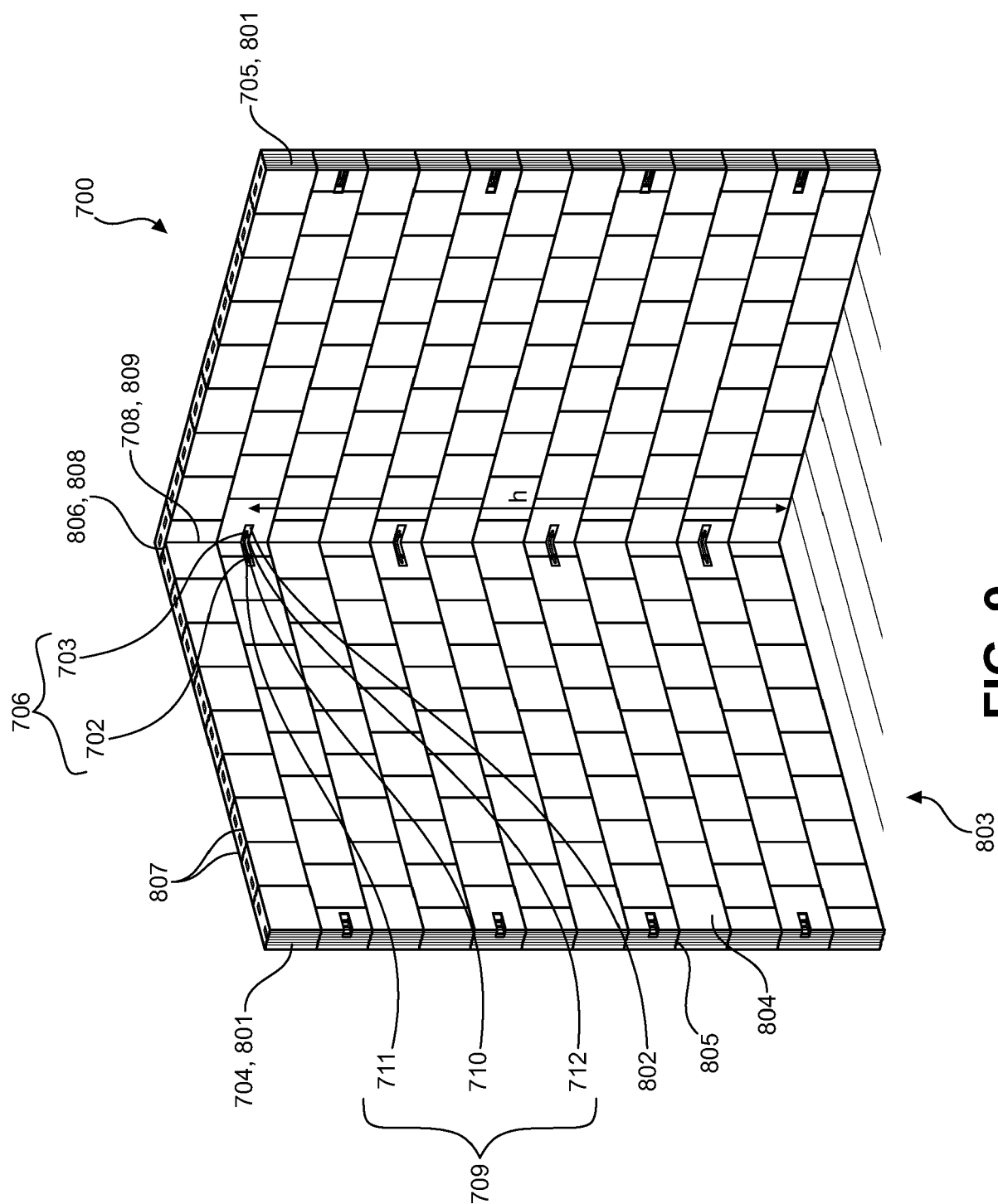


**FIG. 6**





**FIG. 8**



**FIG. 9**

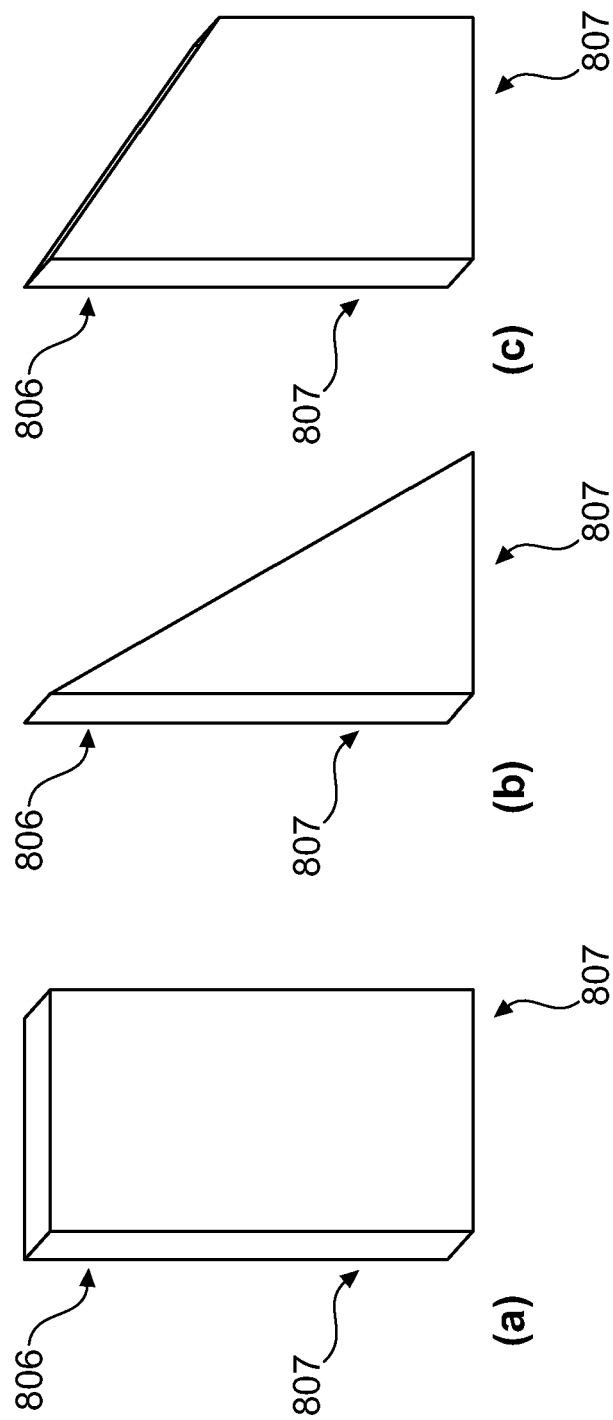
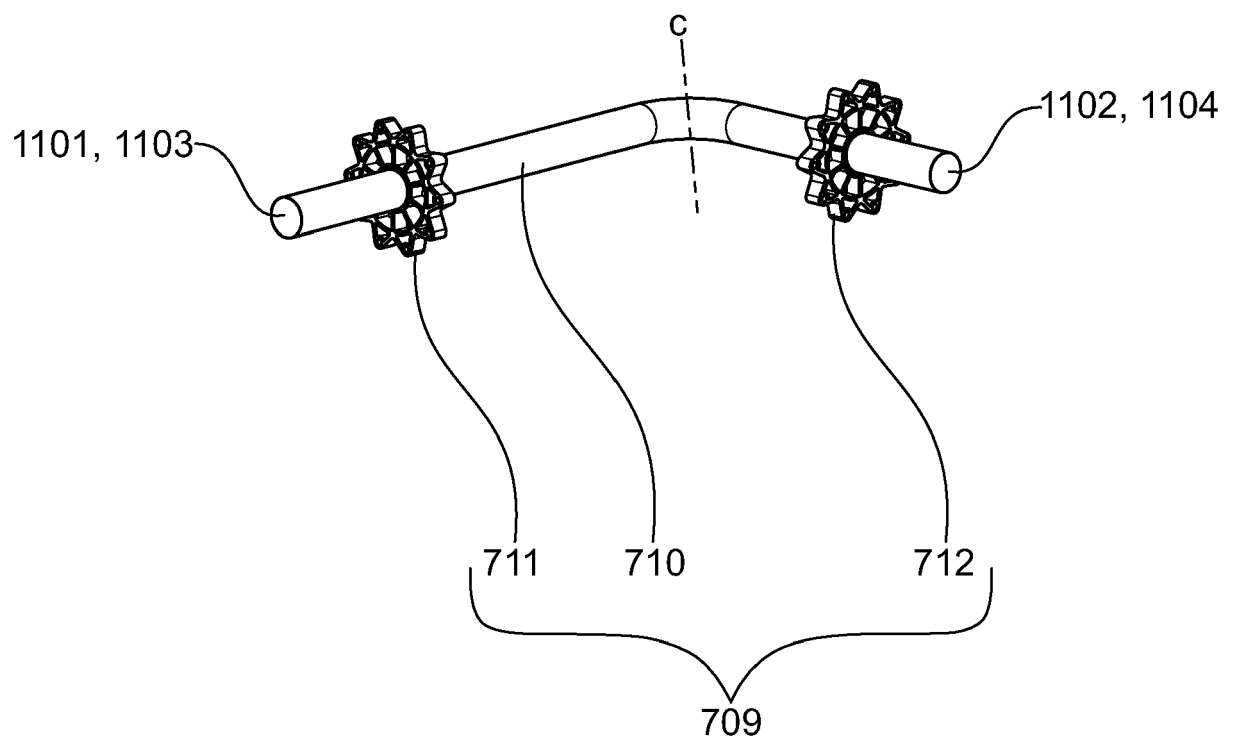
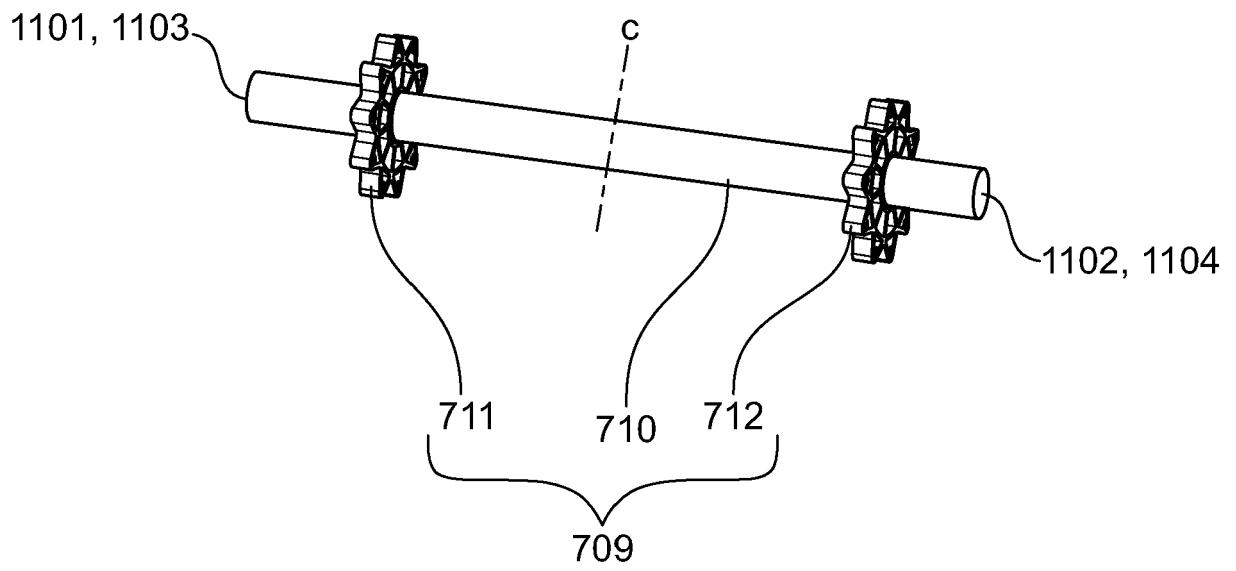


FIG. 10





## EUROPEAN SEARCH REPORT

Application Number

EP 24 18 8662

## 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 2022/316210 A1 (ARGYROU GEORGE [AU])<br>6 October 2022 (2022-10-06)<br>* paragraph [0086] - paragraph [0131];<br>figures *       | 1-15                             | INV.<br>E04B1/04<br>E04B1/12<br>E04C2/04<br>E04C5/16 |
| A                                                                                                                                                                                                                                                                                     | US 10 087 643 B2 (LUBBERTS MATTHEW JOHN [CA]) 2 October 2018 (2018-10-02)<br>* column 5, line 50 - column 12, line 46;<br>figures * | 2,7,10                           |                                                      |
| A                                                                                                                                                                                                                                                                                     | FR 2 496 736 A1 (DEGRYSE REGIS [FR])<br>25 June 1982 (1982-06-25)<br>* page 3, line 1 - page 5, line 26;<br>figures *               | 11,12,15                         |                                                      |
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