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(54) PREFABRICATED FINISHING ASSEMBLY PANEL AND CLOSED ROOM TRIM PREFABRICATION PANEL SYSTEM

(57) A prefabricated mounting panel comprising a plurality of construction and technological layers is characterized in that the panel (1, 17) comprises a construction core (2, 2a) connected on at least one side by a technological layer (8) to a finishing layer (10). The finishing layer may be in the form of ceramic or porcelain tiles or any other known finishing form.

The system of prefabricated mounting panels and / or walls is characterized in that it comprises a plurality of prefabricated mounting panels (1, 17), wherein the panel (1, 17) comprises a construction core (2, 2a) connected via a technological layer (8) to the finishing layer (10) and means for joining with other surfaces and for joining between these panels (1,17).

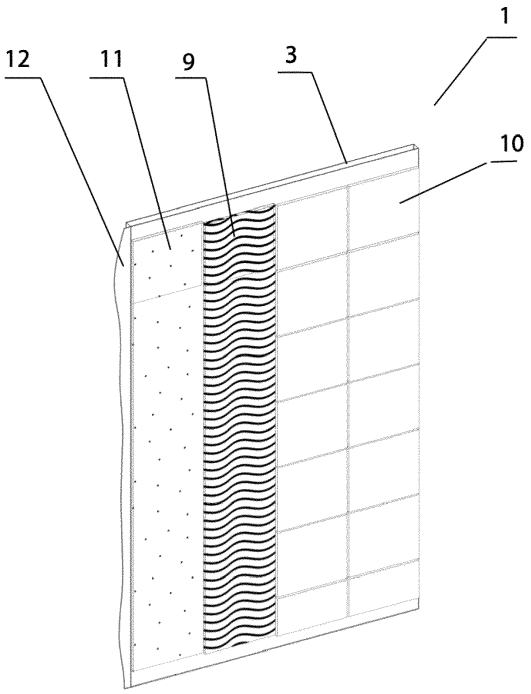

Fig. 2

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Description

[0001] The subject of the invention is a prefabricated mounting floor or wall panel intended for installation in closed rooms, in particular in sanitary rooms, e.g. bathrooms. The invention also relates to a system comprising a plurality of prefabricated finish mounting panels intended for use in finishing of these rooms.

[0002] In the current state of technology, the basic technology for lining walls and floors with ceramic tiles in closed facilities, i.e. in residential and commercial buildings with all walls, ceilings and floors at the time of commencement of works, is their laying on technological layers directly on the premises of the facility. Currently, the wall and / or floor cladding consists of the following layers: plaster or screed as the initial layer, waterproofing layer, tile adhesive layer, proper tiles, grouts between the tiles.

[0003] The individual layers are applied manually, similar to the processing of ceramic tiles, e.g. cutting, priming. Even in the case of simple solutions, the involvement of specialists in the field of plaster and / or plasterboard and tilers is required. Each of the above layers, depending on the detailed material, needs a time unit specified by the manufacturer in order to obtain full functional properties. It ranges from a few hours to several days, so the entire process from the base layer to the final finish may take up to 1 month. A long period of finishing works is a significant inconvenience of the construction or renovation process. Another inconvenience is the large amount of waste that has to be removed from the assembly site, as well as noise and dust resulting from cutting the materials.

[0004] In case of construction projects, e.g. hotels, dormitories in prefabricated technology with a repeatable layout of rooms, bathroom prefabrication solutions for open facilities are used. An open space is an object that has floors and walls, but no ceilings. Prefabrication of bathrooms takes place in the production plant inside a metal structure, e.g. a container, in accordance with the basic technology of lining walls and floors. The whole structure resembles a container and is mounted from the top and then the ceiling of a given floor is closed. The disadvantage of this method is the need to determine the final arrangement of the bathrooms before starting the construction process.

[0005] The object of the invention is to eliminate the indicated drawbacks resulting from the prior art. The aim of the invention is a structure and a system that significantly speeds up assembly work in rooms and provides flexibility in the arrangement of rooms.

[0006] The essence of the invention is a prefabricated mounting panel comprising a structural core connected on at least one side through a technological layer with a finishing layer.

[0007] Preferably, the prefabricated mounting panel includes openings for connection to another surface and to another panel.

[0008] Preferably, the construction core is a base plate, or a base plate connected to an intermediate plate.

[0009] Preferably, the construction core is a chipboard or a multi-layer gypsum plasterboard, a multi-layer board made of mechanically connected and glued two gypsum plasterboards, MDF board, construction board, silicate board, concrete, reinforced concrete, wood-based board.

[0010] Preferably, the construction core of the panel is in the form of a self-supporting wall, where the core consists of two or more vertical ribs and at least four horizontal reinforcement plates connected thereto , between which there is a filling, and on the outer sides of the core (2a) there are intermediate plates. Preferably, two reinforcements are provided at the bottom and top of the core and a horizontal longitudinal groove is provided between the two upper reinforcement plates and the two lower reinforcement plates .

[0011] Preferably, the intermediate plate of the prefabricated mounting panel is a gypsum plasterboard.

[0012] Preferably, the technological layer of the prefabricated mounting panel is an adhesive layer in the form of an adhesive.

[0013] Preferably, the technological layer of the prefabricated mounting panel comprises a hydro-insulating layer applied to the core and applied thereto, an adhesive layer in the form of an adhesive, preferably the technological layer also comprises a hydro-insulating tape applied to the edges of the core.

[0014] Preferably, the finishing layer of the prefabricated mounting panel comprises ceramic or stoneware or stone tiles with grouts therebetween.

[0015] Preferably, the corners of the core of the prefabricated mounting panel are provided with mechanical or chemical reinforcements.

[0016] The invention also relates to a system of prefabricated mounting panels and / or walls that comprises a plurality of prefabricated mounting panels. The single panel comprises a construction core connected via a technological layer to the finishing layer. The system also includes means for joining the panel to other surfaces and for joining between the panels.

[0017] The advantage of the invention is the possibility of quick final assembly of the wall and floor finishing of rooms, in particular bathrooms, directly to raw walls and floors and to frame structures. The invention also has the advantage that it can be used as a self-supporting structure, for example a finished partition wall within a system of finishing mounting panels.

[0018] The invention is shown in the drawings where:

Fig. 1 shows a pictorial drawing of a panelled bathroom,

Fig. 2 shows a fragment of a prefabricated finish mounting panel in an isometric view revealing individual layers,

Fig. 3 is a section of a wall with the prefabricated finish mounting panel fitted,

Fig. 4a is an isometric view of the core of the prefabricated panel 17 in the form of a partition wall.

Fig. 4b is a sectional view of a prefabricated panel 17 in the form of a partition wall,

Fig. 4c is an isometric view of the core of the prefabricated panel 17 in the form of a partition wall with a finishing layer.

Fig. 5 is a cross sectional view of a portion of a prefabricated finish mounting panel with a joining piece,

Fig. 6 is a cross-sectional view of portions of two joined prefabricated finish mounting panels with a connection member therein.

Fig. 7 shows the back side of two joined prefabricated finish mounting panels with their connection elements and wall connection elements.

[0019] Embodiments of the Invention.

[0020] Fig. 1 shows in an illustrative way the idea of building a room with prefabricated mounting panels 1, hereinafter referred to in short as panels 1. The system of panel building of walls and floors consists in joining a number of panels 1 containing a load-bearing construction core 2 and the required technological layers, such as primes, waterproofing, adhesives, plasters and the finishing layer, in particular in the form of grouted ceramic, stoneware or stone tiles or other top finishing layers. The panels 1, prefabricated according to needs and / or design, are joined at the installation site to one another and to the unfinished surfaces of the walls and / or floors. The panels 1 can also be applied to stud walls and to walls outside buildings.

[0021] Panel 1 (Fig. 1, Fig. 2, Fig. 3, Fig. 5, Fig. 6, Fig. 7) comprises a plurality of interconnected layers in the form of a construction core, panels, technological layers and finishing layers .

[0022] The construction core 2 (Fig. 3) is a base plate 3, or a base plate 3 connected to the intermediate plate 4, preferably the intermediate plate is a plasterboard. The base plate 3 can be a single chipboard, OSB board (Oriented Strand Board) or multi-layer OSB board, or a composite panel, or a multi-layer board made of mechanically connected and glued two plasterboards, MDF board or any other construction board, for example silicate, concrete, reinforced concrete board, wood-based board. The base plate 3 may be a combination of two or more of the above-mentioned boards. Construction core 2 is in a preferred embodiment self-supporting, i.e. it is strong and rigid enough to be loaded with successive layers. The intermediate board 4 may be a plasterboard.

[0023] Construction core 2 in a preferred embodiment has holes 5 (Fig. 7) for mechanical connection with the wall, e.g. in the form of a screw connection 16 or screws passing through sleeves embedded in the core 2, and for mechanical connection with the second construction core 2, e.g. in the form of a fastening connection 6. The mechanical connection with the wall should be strong enough to allow transferring the weight of the panel 1 to the existing wall 7. The clamping connection 6 may take the form of a turnbuckle or other known connection allowing the adjustment of e.g. bolts and spacers. In a preferred example the connection is removable in order to easily replace the previously seated panel 1. The openings 5 are most preferably at the top and bottom of the core 2 such that the openings 5 and the mechanical connections remain obscured by them after the floor and ceiling panel is applied.

[0024] Technological layer 8 in its simplest example is an adhesive coating, e.g. glue 9 under the finishing layer 10, e.g. glue under tiles. In the example for sanitary rooms, e.g. for bathrooms, the technological layer is also a hydro-insulating layer 11 beneath the adhesive coating 9. The hydro-insulating layer 11 can be any known and used non-moisture permeable coating, e.g. a liquid film or a non-woven fabric or insulating tape. The hydro-insulating layer can also consist of many layers, depending on the needs and conditions of the built room.

[0025] The finishing layer 10 is preferably ceramic tiles with a grout between them. The finishing layer can be stoneware or stone tiles, also with a grout. The finishing layer 10 can also be any other interior surface, such as a glass surface or a plastic surface.

[0026] The edges of panel 1 in an exemplary embodiment have a seal 12 which seals the connection to another panel 1. The seal 12 may also take the form of a gasket that can be attached to the core 2. An example of a gasket is a flexible PVC gasket, e.g. type H 4 mm. Another tight connection between the panels 1 can be sealing tapes and / or silicone grouts at the joints of the panels 1.

[0027] The panel 1, in the example of mounting to the wall (Fig. 3), is positioned on the wall or the floor by means of a leveling and plumbing system enabling the positioning of the panel with an accuracy of 0.1 mm in relation to three axes, in particular by means of positioning discs 13 and studs 14, fixed at the corners of the panel 1. The space between the wall 7 and the construction core 2 can be filled with a filling 15, for example with polyurethane foam. In another example, the rear and bottom surfaces of the construction core 2 have a surface that allows chemical bonding with the substrate - a wall or a floor, in particular in the form of an OSB board, primed for connection with a mounting foam.

[0028] The corners and edges of the construction core 2 of the panel 1, in an exemplary embodiment, may have mechanical reinforcements, in particular by mechanical embedding or gluing metal corners in the form of profiles made of aluminium sheet or galvanized sheet or plastic, or chemical - soaked with hardening agents such as a

chemical anchor, preventing deformation dimensional or mechanical damage that may affect the accuracy of connection with other panels 1.

[0029] Panel 1 may also have prefabricated openings and mounting means for connection to other prefabricated modules that may contain decorative coatings. An example of such additional modules are plasterboard modules according to application P.426380, which modules can be used to cover electrical or plumbing and gas installations. Panel 1 may have prefabricated openings for accommodating other indoor objects, e.g. etc.

[0030] The panelled prefabricated confinement system comprises a plurality of prefabricated panels 1 (Fig. 1) and means for joining and joining existing walls with the panels. The means of connection between panels and walls are indicated in the description of panel 1 (Fig. 3, Fig. 5-7) and at panel 17 (Fig. 4a, b, c).

[0031] The panel prefabrication system may also include a self-supporting panel 17 (Figs. 4a 4b, 4c) in the form of a wall. The panel 17 has a core 2a which consists of two or more vertical ribs 18 made of chipboard, e.g. OSB boards or boards with similar strength and technological properties, and at least four horizontal reinforcing plates 19 made of chipboard, e.g. OSB boards or boards with similar strength and technological properties. The reinforcing plates 19 are connected to the ribs 18 and preferably are provided at the bottom and top of the panel 17. The core 2a has a filling 20 between the ribs 18 and the plates 19. The filling 20 can be made of polystyrene, polyurethane foam, mineral wool or rock wool. Between the two upper reinforcement plates 19 and the two lower reinforcement plates 19 there is a horizontal longitudinal slot 21 acting as a groove for a corresponding connecting element, e.g. a tongue, for connection to the ceiling and the floor. The core 2a of the panel 17 has on the outside attached intermediate plates 4 in the form of plasterboards or boards of similar properties. On one or both sides, the panel 17 has a technological layer 8 and a finishing layer 10 similar to the panel 1.

[0032] In a panel prefabrication system, the individual panels 1 and 17 include seals 12. The seal 12 may also take the form of a gasket that can be attached to the core 2, 2a. An example of a gasket is a flexible PVC gasket, e.g. type H 4 mm. Another tight connection between the panels 1, 17 can be sealing strips and / or silicone grouts at the joints of the panels 1, 17.

[0033] The invention is used in construction.

Claims

1. A prefabricated mounting panel comprising a plurality of construction and technological layers, **characterized in that** the panel (1, 17) comprises a construction core (2, 2a) connected on at least one side by a technological layer (8) to a finishing layer (10).

2. The panel according to claim 1, **characterized in that** the construction core (2) is a base plate (3) or a base plate (3) connected to the intermediate plate (4).

3. The panel according to claim 1 or 2, **characterized in that** the construction core (2) comprises openings (5) for connection to another surface and to another panel (1).

4. The panel according to claim 3, **characterized in that** the construction core (2) is a chipboard or a multilayer gypsum plaster board, a sandwich board made of mechanically connected and glued two gypsum plasterboards, MDF board, construction board, silicate board, concrete, reinforced concrete, wood-based board.

5. The panel according to claim 1, **characterized in that** the construction core (2a) of the panel (17) is in the form of a self-supporting wall, where the core (2a) consists of two or more vertical ribs (18) and at least four horizontal reinforcing plates (19) connected to them , between which there are filling (20) and on the outer sides of the core (2a) there are intermediate plates (4).

6. The panel according to claim 5, **characterized in that** two reinforcing plates (19) are provided at the bottom and top of the core (2a) and there is a horizontal longitudinal slot (21) as a groove between the two upper reinforcing plates (19) and the two lower reinforcing plates (19) .

7. The panel according to claim 3 or 5, **characterized in that** the intermediate plate (4) is a plasterboard.

8. The panel according to claim 1, **characterized in that** the technological layer (8) is an adhesive layer (9) in the form of an adhesive.

9. The panel according claim 1, **characterized in that** the technological layer (8) comprises a hydro-insulating layer (11) applied to the core (2, 2a) and an adhesive layer (9) applied to this layer in the form of an adhesive, preferably the technological layer (8) also includes a hydro-insulating tape (12) applied to the edges of the core (2, 2a).

10. The panel according to claim 1, **characterized in that** the finishing layer (10) comprises ceramic or stoneware tiles or stone tiles with grout therebetween.

11. The panel according to claim 1, **characterized in that** the corners of the core (2) are provided with mechanical or chemical reinforcements.

12. A system of prefabricated mounting panels and / or

walls, **characterized in that** it comprises a plurality of prefabricated mounting panels (1,17) according to claims 1 to 11 and means for connecting to other surfaces and for connecting these panels (1,17).

13. The system according to claim 12, **characterized in that** the means of connection between the panels (1) are clamps (6) preferably in the form of a turnbuckle or other known adjustment connection.

14. The system according to claim 12, **characterized in that** the panels (17) are mounted on the existing surfaces by a leveling and plumbing system, preferably in the form of positioning discs (13) and leveling screws (14).

15. The system according to claim 12, **characterized in that** seals (12) are provided between the panels (1, 17), preferably in the form of sealing strips and / or silicone grouts.

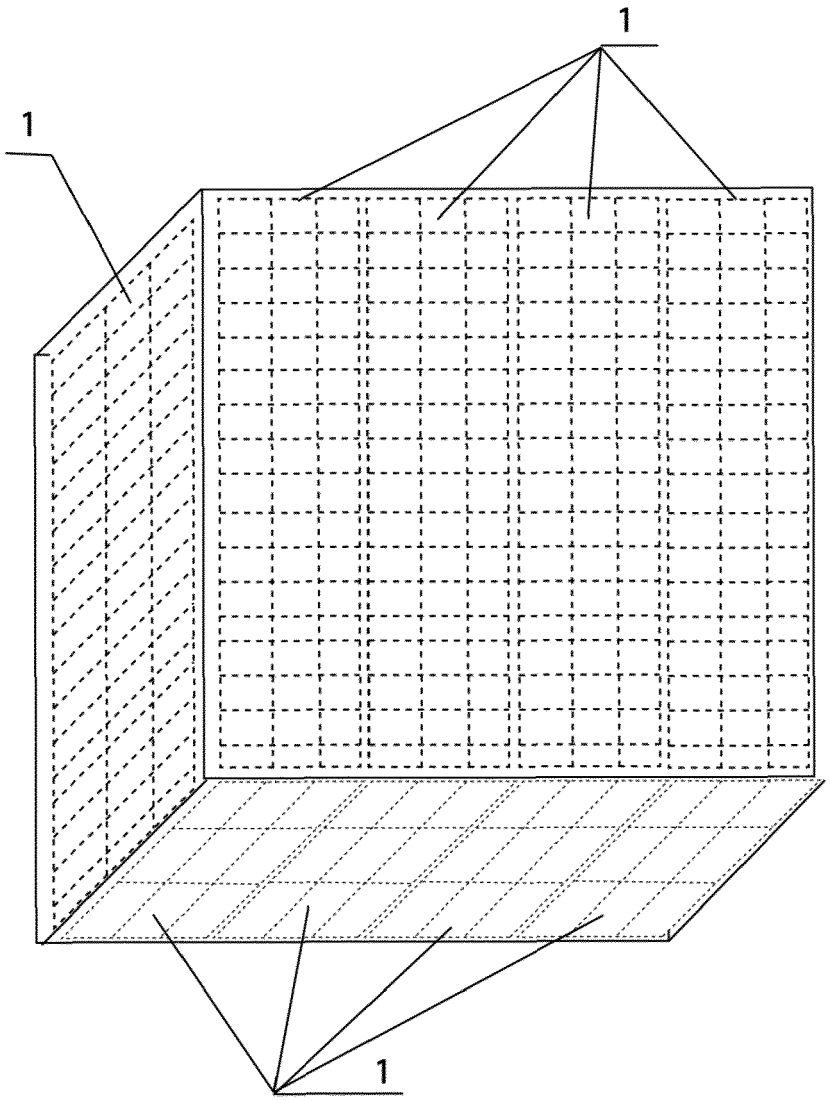

Fig. 1

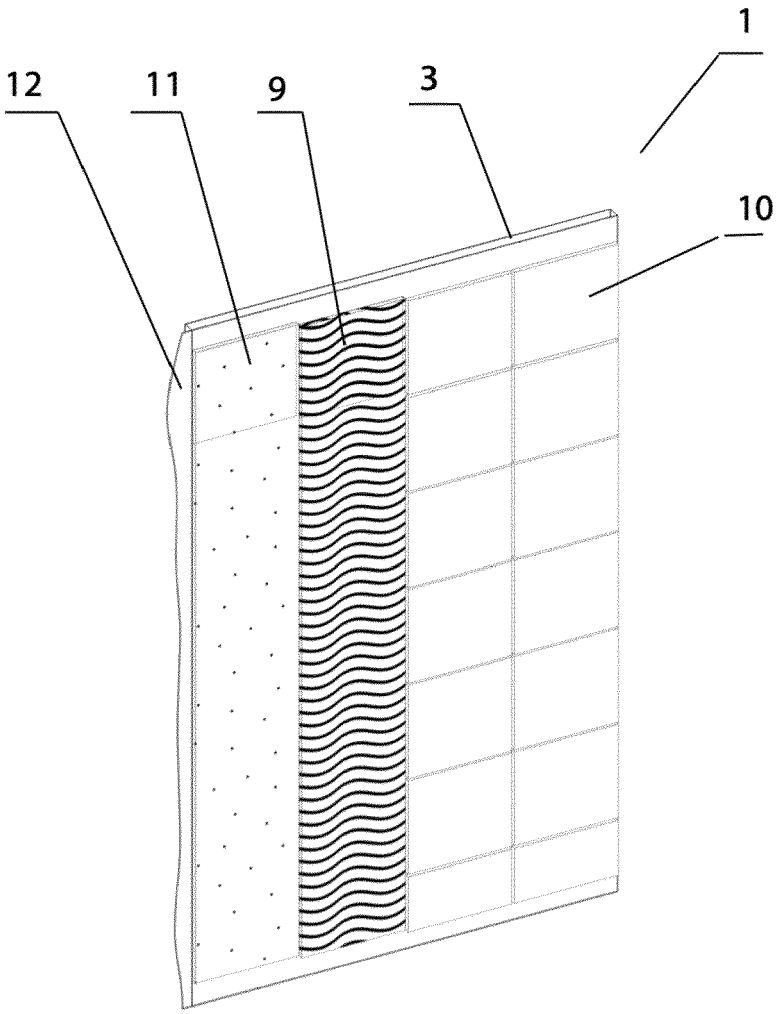

Fig. 2

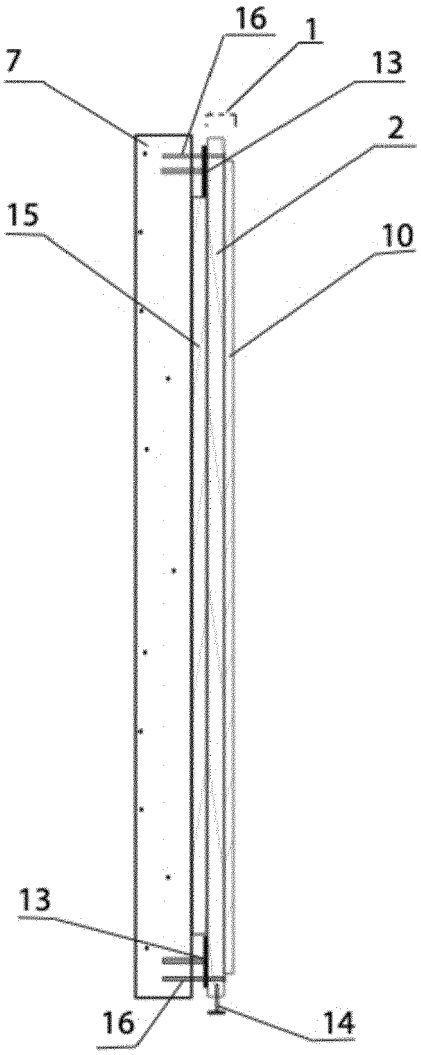

Fig. 3

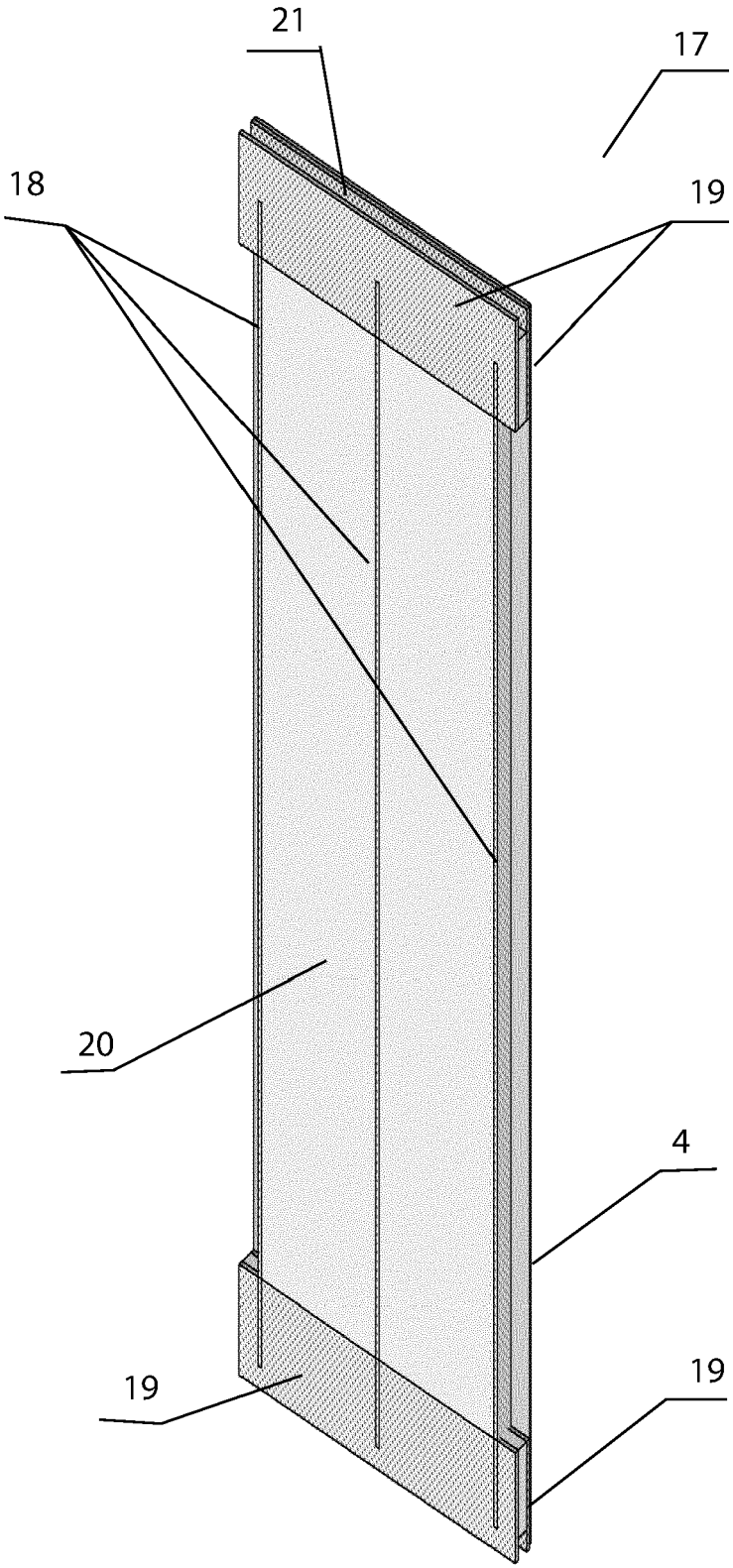

Fig. 4a

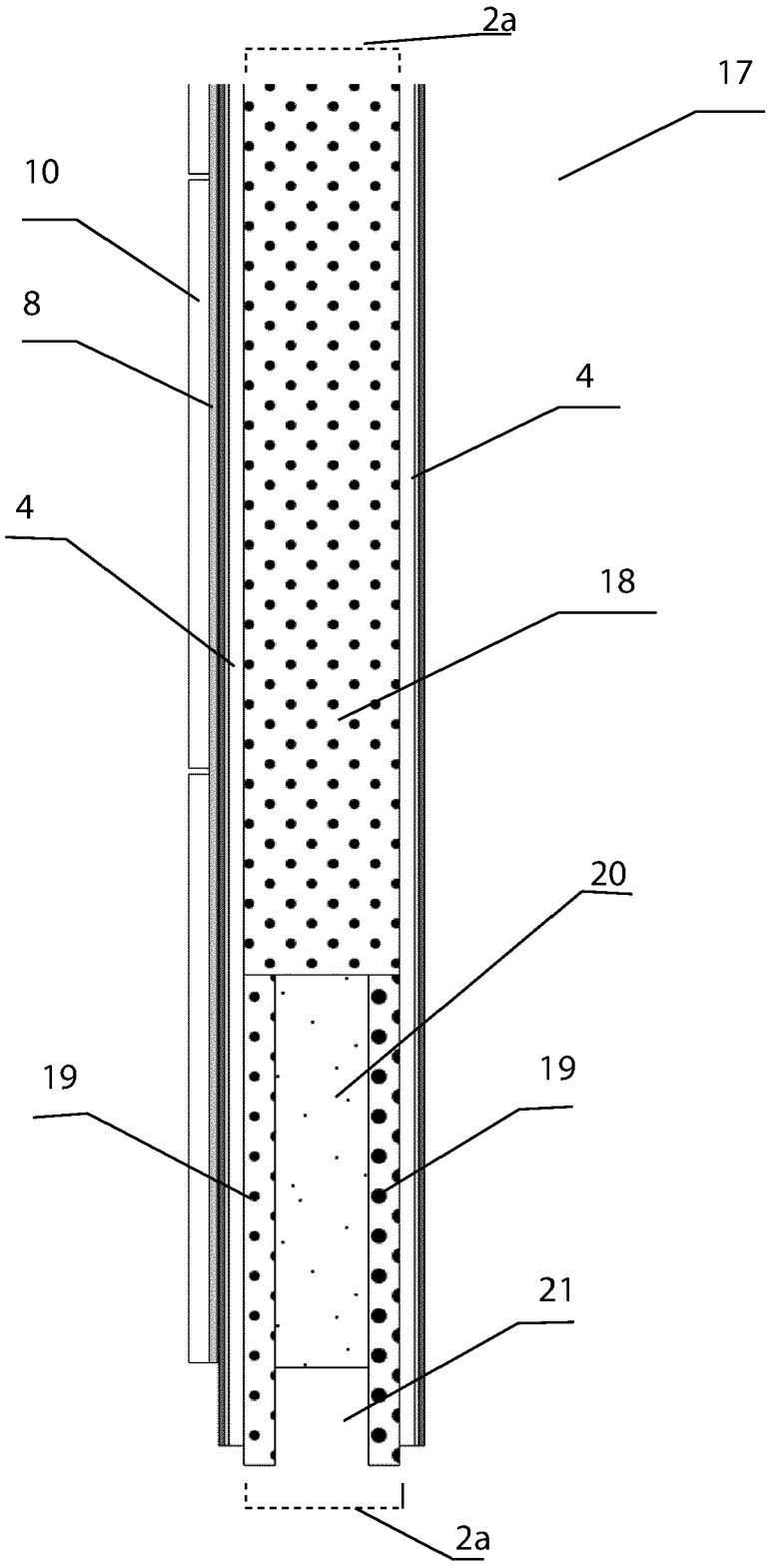

Fig. 4b

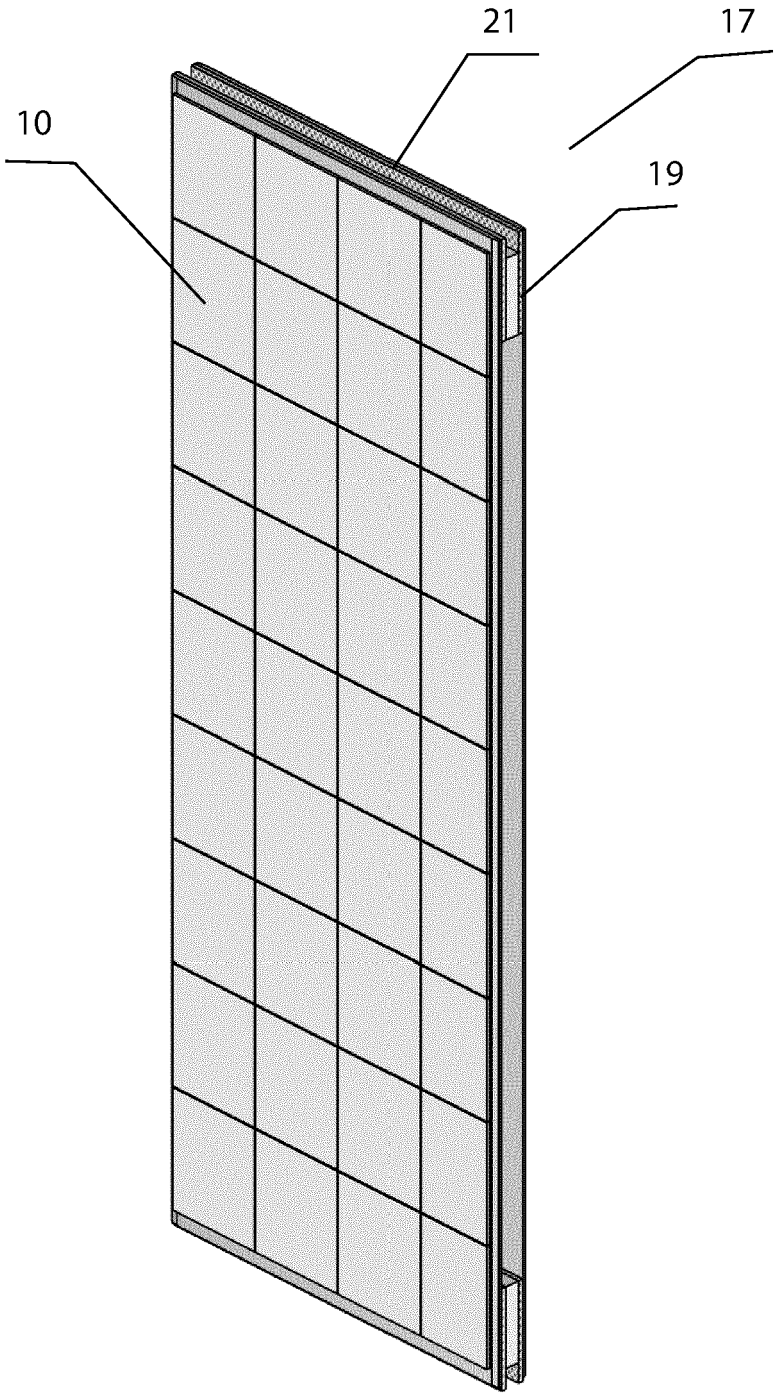

Fig. 4c

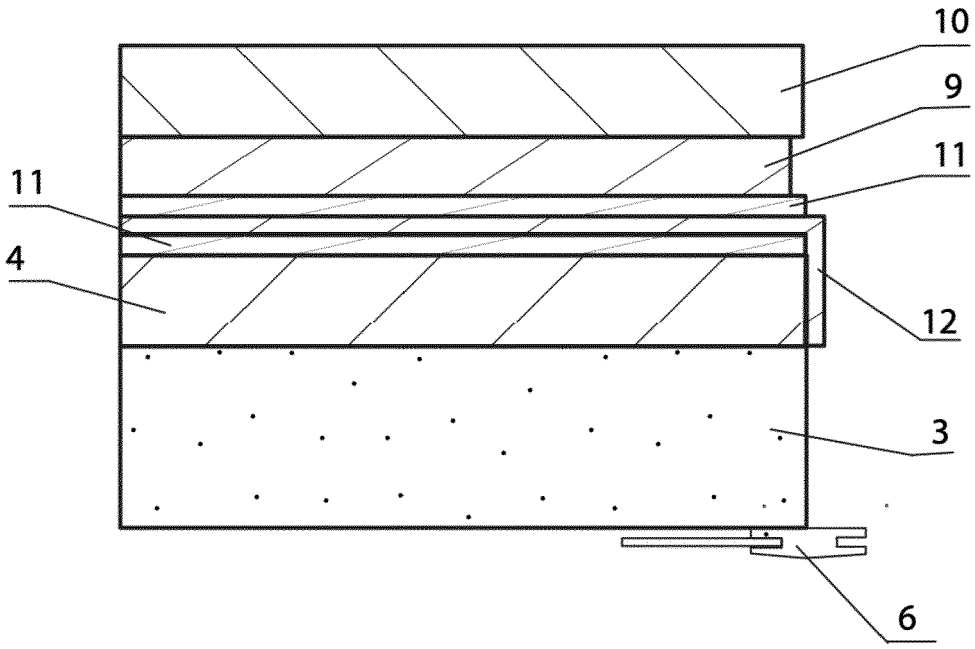

Fig. 5

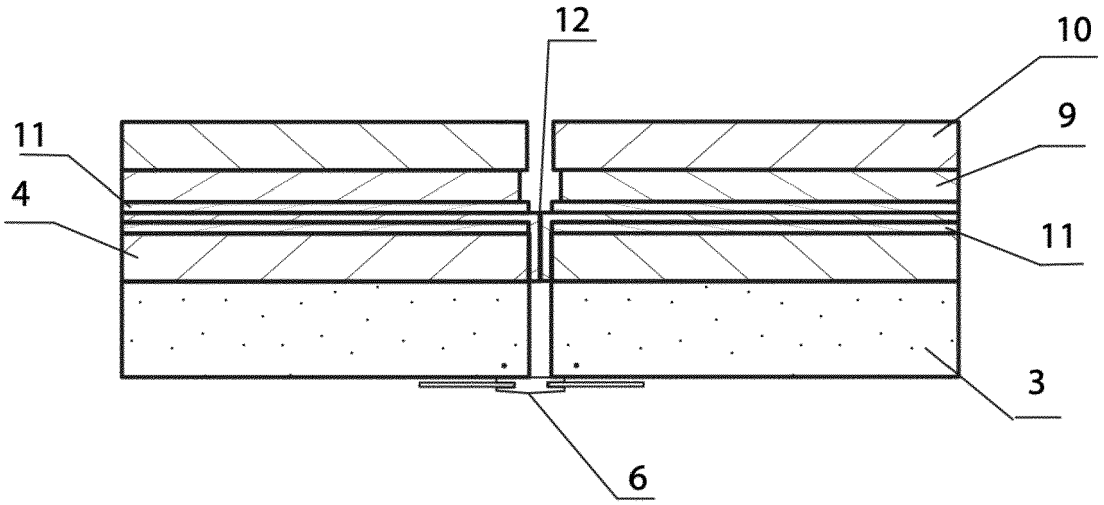

Fig. 6

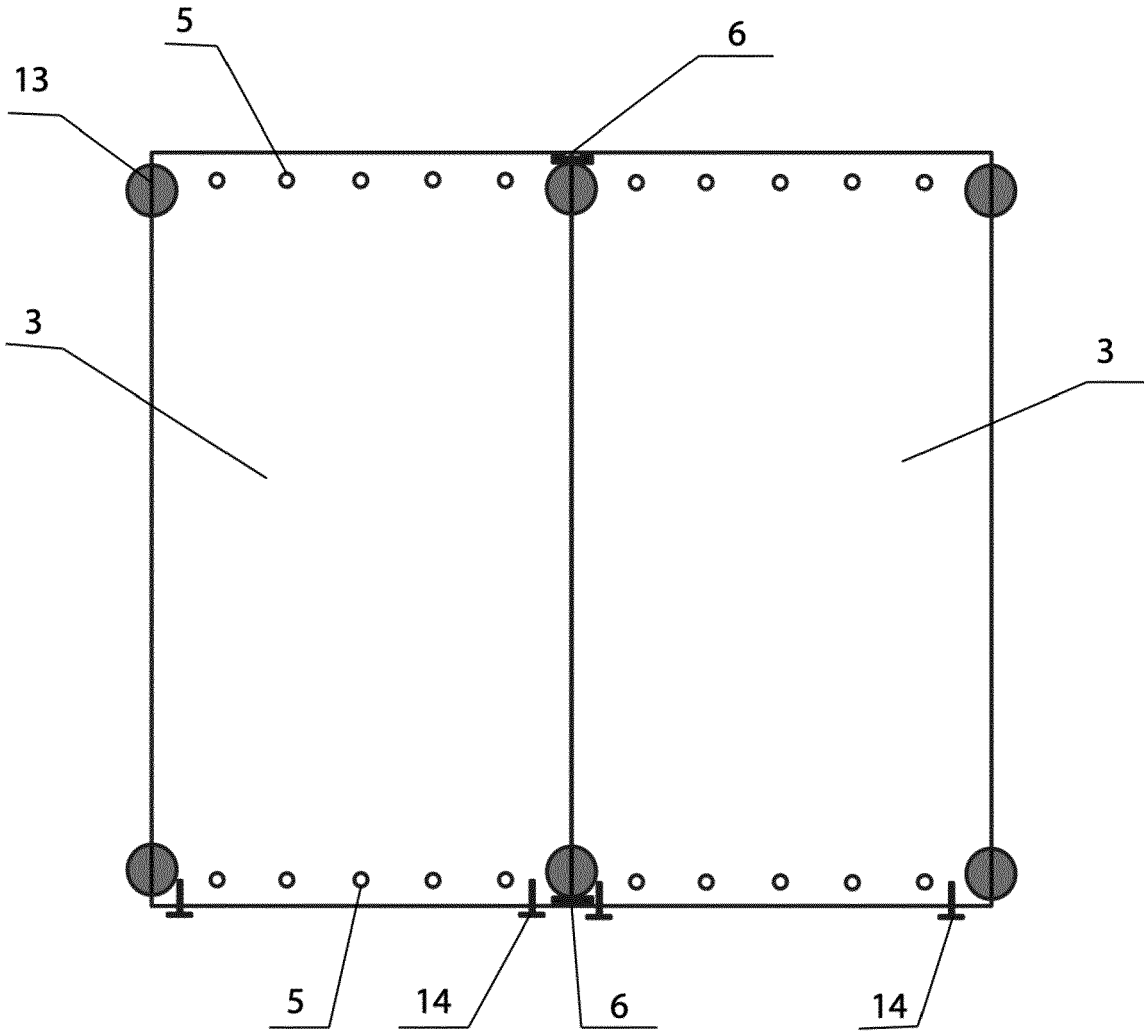

Fig. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 21 20 0264

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 2020/141128 A1 (WEDI STEPHAN [DE]) 7 May 2020 (2020-05-07) * paragraph [0016] - paragraph [0128] * * figures *	1-15	INV. E04C2/04 E04C2/00
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TECHNICAL FIELDS SEARCHED (IPC)

E04C
E04F
E02F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	3 February 2022	Durrenberger, Xavier

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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