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(54) **COVERING-PANEL MODULE**

(57) The proposed cover panel-module structure comprises a base frame comprising horizontal laths and vertical laths on which cover elements are attached and

which together form a module. Each subsequent cover panel-module is sealed both on horizontal and vertical installation with a pre-installed cover panel-module.

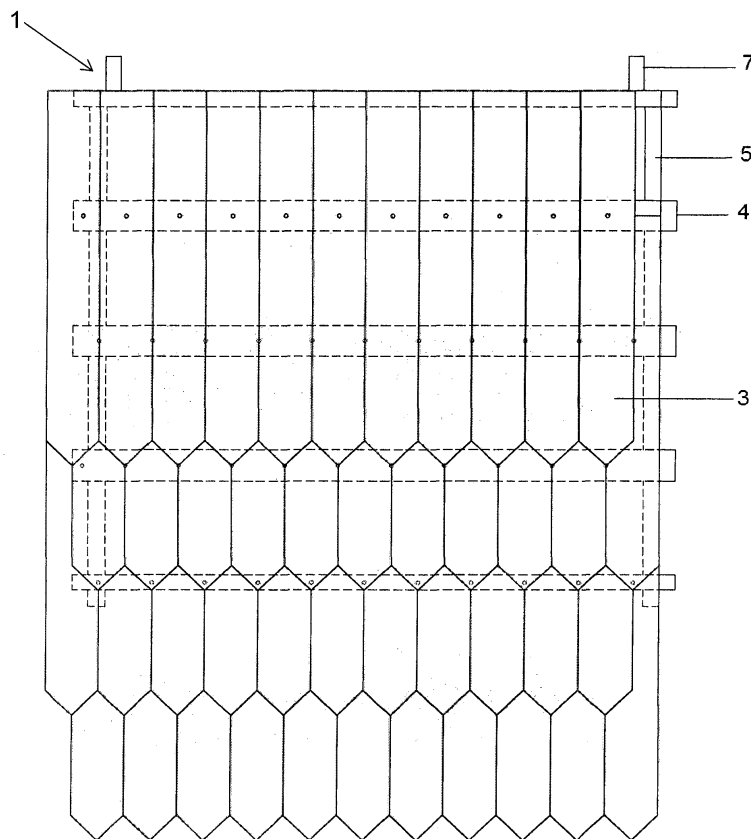


FIG 1

EP 3 556 962 A1

Description

Technical field

[0001] The invention belongs to the scope of the construction, more particularly, the invention concerns a cover panel-module with a decorative natural coating, with a wind and water-retardant base frame made of wood, metal and/or wood-metal and/or other artificial material and covered with coating elements.

Prior Art

[0002] The currently used wooden cover panels, such as roof bilges or bilge roofs have historically very long traditions in Estonia. Roof bilges are valued construction material in buildings, especially in rural buildings. The bilges are basically wedge-shaped boards that are sawn or split from selected wood, which are nowadays widely used:

- [http://www.puitkatused.ee/ee/kimmkatused/;](http://www.puitkatused.ee/ee/kimmkatused/)
- [http://sindelkimm.ee/?page_id=83.](http://sindelkimm.ee/?page_id=83)

[0003] A known solution (US3720031, Wilson R, Naden R, published March 13, 1973) relates to a coating of a building surface and a method for producing a coating element, wherein the coating elements comprise a conical panel and are arranged adjacent to each other and overlapped in rows. A ribbon is placed under the roof covering elements that binds the elements in the roof surface and also drives the rainwater away. The coating does not form a single whole of the elements, and their installation takes a lot of time and labor costs.

[0004] In a known solution (US 4065899, Kirkhuff William, published January 03, 1978), there is a two-composite coating material element, the lower layer of which is a foam polyester element imitating a roof chip and the top layer is a wooden coating material. There is no ventilation gap between the two layers, and it is, therefore, therefore a non-breathing material. It is also a single coating element, not an integral module of these.

[0005] The closest solution to the invention in terms of its engineering nature is the protective and decorative coating system for walls and roofs (EP1000206, Libratalo Giuseppe, published May 17, 2000), in which the system is formed of wedge-shaped coating elements which may be of different shapes and trimmed from the tip. The system is mounted on the surface on the trued vertical frame, on which a separate horizontal frame is attached, to which the coating elements are secured individually with special fasteners. The disadvantage of this solution is that the truing of the horizontal frame and the installation of the vertical frame and the installation of the covering elements require the presence of a qualified workforce, which requires a lot of work time and labor cost.

Summary of the invention

[0006] The proposed cover panel-module is a structure comprising of a base frame formed of vertical laths and horizontal spacers, on which the cover elements-thin sections are installed and which, as a whole, form a module. The sides of the module have different planes, covering the side and top of the previous module with each subsequent module. The cover panel-modules are mounted adjacent to each other (both horizontally and vertically) on the prepared base layer such that each mounted cover panel-module seals with the lap joint the previous cover panel-module in the mounting rack, both horizontally and vertically, in order to form a complete cover after the mounting of cover panel-modules and protecting the base layer. In addition, the cover panel-module is provided with fastening means for mounting on a base layer.

List of drawings

[0007]

Figure 1 shows a cover panel-module;

Figure 2 shows the base frame of the cover panel-module;

Figure 3 shows a horizontal lath of the base frame along B-B;

Figure 4 shows a vertical lath of the base frame along A-A.

Embodiment of the invention

[0008] The proposed cover panel-module 1 comprises a base frame 2 and a cover elements 3 attached thereto. The cover elements may be bilges, boards or decorative cover elements made of artificial material. Preferably they are bilges. The base frame 2 comprises at least two, preferably four or more, horizontal laths 4 (main grooves, horizontal spacers) and two or more vertical laths 5 (vertical barks), whereas the end horizontal laths 4a, 4b each are for half of the integral horizontal plate 4. The cover elements 3 are fixed to the horizontal lath 4 of the base frame 2 by mechanical fastening means, the base frame 2 is fixed to the base layer by mechanical fasteners through the vertical laths 5. The cover elements 3 are placed adjacent to each other in rows, the rows being overlapping. The rows form a module. The module has at least four rows, and each row has an odd number of cover elements 3. In a preferred embodiment, there are at least eleven or thirteen cover elements 3. The horizontal laths 4 and the vertical laths 5 are overlapping with each other for joining the adjacent (both horizontally and vertically) cover panel-module.

[0009] Covering the base layer (e.g., the roof or wall),

the cover panel-modules 1 are mounted either directly on the rafters of the base layer, on the spacer lath mounted on them, or directly on the smooth base layer starting from the lower one, with the installation direction to the right of the installer, so that the edge of each subsequent cover panel 1 covers the edge of the previous cover panel both horizontally as well as vertically and depending on the size of the surface over the entire base layer to be covered (according to the principle of roofing).

[0010] With the solution, according to the invention, the coating material can easily be mounted as cover panel-modules by means of frame balks formed from the vertical and horizontal laths of the base frame, which seals each of the following cover panel-modules on both horizontal and vertical installation with the previously installed cover panel-module.

[0011] The cover panel-modules 1 can be connected to each other by a horizontal mounting row as well as a vertical mounting row. To this end, the ends of the horizontal laths 4 and the vertical laths 5 are cut at an angle of inclination 6 and overlapping with each other. The vertical lath 5 of the base frame 2 of the cover panel-module 1 to be installed is placed adjacent the vertical lath 5 of the base frame 2 of the already installed cover panel-module 1. The vertical laths 5 of the two cover panel-modules 1 are sealed together at their ends by the inclined angles 6 with an inclined lap joint. The horizontal lath 4 of the base frame 2 of the cover panel-module 1 is placed adjacent to the horizontal lath 4 of the base frame 2 of the already installed cover panel-module 1, with the horizontal laths 4a and 4b of the two cover panel-modules 1 are installed adjacent to each other. The horizontal laths 4 of the two cover panel-modules 1 are sealed at each end by an angle of inclination 6 with an inclined lap joint. In order to achieve greater rigidity, the lap joints are, if necessary, further joined with a separate fastener.

[0012] The cover panel-module 1 is attached to the base layer by the mounting brackets 7 and mechanical fasteners attached to the upper end of the vertical lath 5 of the base frame 2. The lower part of the bottom base frame of the cover panel-module 1 is attached to the base layer also with mechanical fasteners.

[0013] If necessary, a horizontal board can be added to the upper so-called rafter cover panel-module or an additional row of bilges may be manually added to it for aesthetic purposes.

[0014] The cover panel-modules have been pre-fabricated for installation on site. A preferred embodiment of the cover panel-module is from one end a roof cover-panel module made of wedge-shaped boards thinning in the end, i.e., bilges, where the width of the roof bilge is 80-100 mm, the length is 550-700 mm, the thickness in the thicker end being between 13 and 15 mm and in the thinner end between 3 and 5 mm. The length of the cover panel-module is between 1000 and 1050 mm, the width is between 900 and 920 mm. The cover panel-module is mounted on the base layer for covering (the roof or the

wall) on a base frame with dimensions 250X500. For normal installation, 1 m² of bilge roof is installed on the base layer in about 30-40 minutes. The solution according to the invention, allows the pre-fabricated cover panel-module to be attached to the base layer in, for example, 30 seconds, which significantly shortens the time and energy spent on the construction object. When taking a 100 m² gable roof, covering it with bilges will take about 100 hours (1.5 workweeks) with the alignment-installation of the balking, drilling and nailing of bilges. However, the coating of the roof with the cover panel-modules according to the invention takes about 3 to 4 hours (0.5 workdays). The same criteria applies to the installation of wall cover panel-modules, although the installation of wall cover panel-modules requires less time in conventional installation.

[0015] The cover panel-modules are pre-fabricated at the factory, where they are assembled and covered with a protective coating (e.g., tarred or other protective equipment are used) and then undergo a drying process, whereupon the cover panel-modules are ready to be transported to an object where they are mounted on the roof or walls in a short time. The installation will take into account the features of the object, where the sizes of the cover panel-modules will be adjusted according to the doors and window openings, and the cover panel-modules will be delivered to the object numbered and installed according to the design and installation instructions.

[0016] Cover panel-modules are designed for both interior and exterior finishing of traditional and modern buildings, for installation on walls and roofs, partly also to function as a windscreen element. For example, the proposed cover panel-modules can also be used extensively to cover the walls and roofs of prefabricated concrete buildings, giving them a natural and unique look, and shortening the time of manual exterior and interior finish at the construction site, i.e., the time required for the installation of the balking and coating material.

Claims

1. Cover panel-module, comprising a base frame which includes horizontal laths, vertical laths, and on which the covering elements are arranged in rows adjacent and overlapping, and secured with fastening means, **characterized in that** the integral cover panels with cover elements (3) and the base frame (2) are mounted on the base layer as cover panel-modules (1) by means of a frame balking formed from the horizontal laths (4) and the vertical laths (5) of the base frame (2), sealing each subsequent cover panel-module (1), both on horizontal and vertical installation with the pre-installed cover panel-module (1).
2. Cover panel-module accordingly to claim 1, **characterized in that** the covering elements (3) are on the base frame (2) in two to four rows, each row having

an odd number of cover elements (3) and each row is covered by the next row of cover elements (3) and the cover elements (3) are secured to the base frame (2) by mechanical fasteners.

5 mm and of the other end between 13 and 15 mm.

3. Cover panel-module accordingly to claim 2, **characterized in that** the cover elements (3) preferably are in four rows, preferably each having eleven or thirteen cover elements (3).

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4. Cover panel-module accordingly to claims 1 to 3, **characterized in that** the base frame (2) comprises at least three, preferably four, horizontal laths (4) and preferably at least two vertical laths (5) with fastening clips (7) attached to the upper end thereof.

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5. Cover panel-module accordingly to claims 1 to 4, **characterized in that** the extreme horizontal laths (4a, 4b) of the base frame (2) form half of the complete horizontal lath (4).

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6. Cover panel-module accordingly to claims 1 to 5, **characterized in that** the horizontal laths (4) and the vertical laths (5) are overlapping with each other and the ends thereof are cut at an angle of inclination (6).

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7. Cover panel-module accordingly to claims 1 to 6, **characterized in that** several cover panel-modules (1) are connected horizontally when the ends of the horizontal laths (4) are sealed by angles of inclination (6) by inclined lap joints, and several cover panel-modules (1) are connected vertically when the ends of the vertical laths (5) are sealed by way of angles of inclination by inclined lap joints (6).

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8. Cover panel-module accordingly to claims 1 to 7, **characterized in that** the upper part of the base frame (2) of the cover panel-module (1) is attached to the base layer also by fastening clips (7) and the mechanical fasteners and the bottom part of the base frame (2) of the bottom cover panel-module (1) of the cover panel-module (1) is secured to the base layer by mechanical fasteners.

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9. Cover panel-module accordingly to claims 1 to 8, **characterized in that** the cover element (3) is made of wood.
10. Cover panel-module accordingly to claims 1 to 8, **characterized in that** the cover element (3) is a decorative coating element of artificial material.

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11. Cover panel-module accordingly to claims 1 to 9, **characterized in that** the cover element (3) is a wedge-like board (bilge) thinning at one end having a width of 80 to 100 mm, a length of between 550 and 700 mm, a thickness of one end between 3 and

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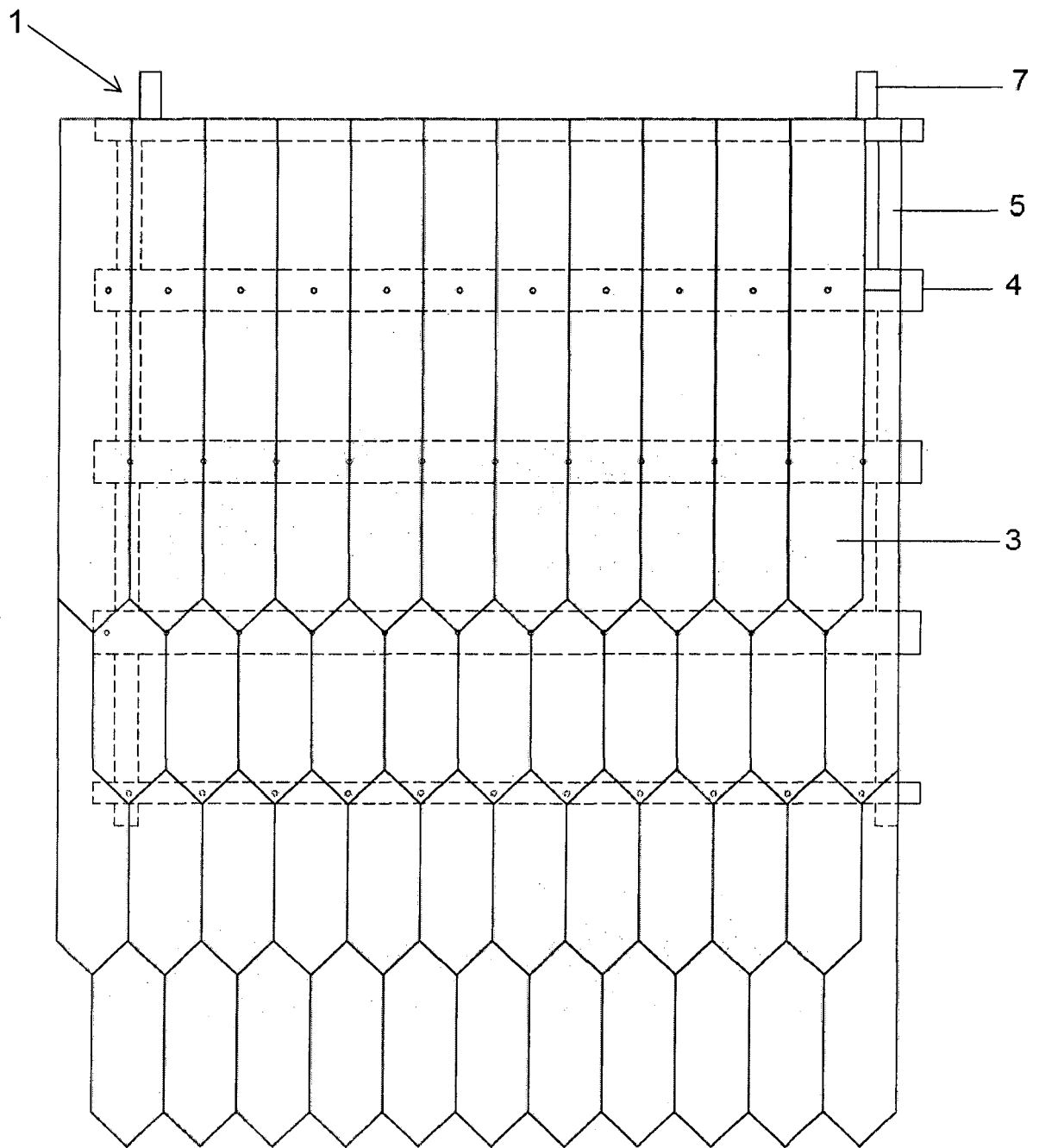


FIG 1

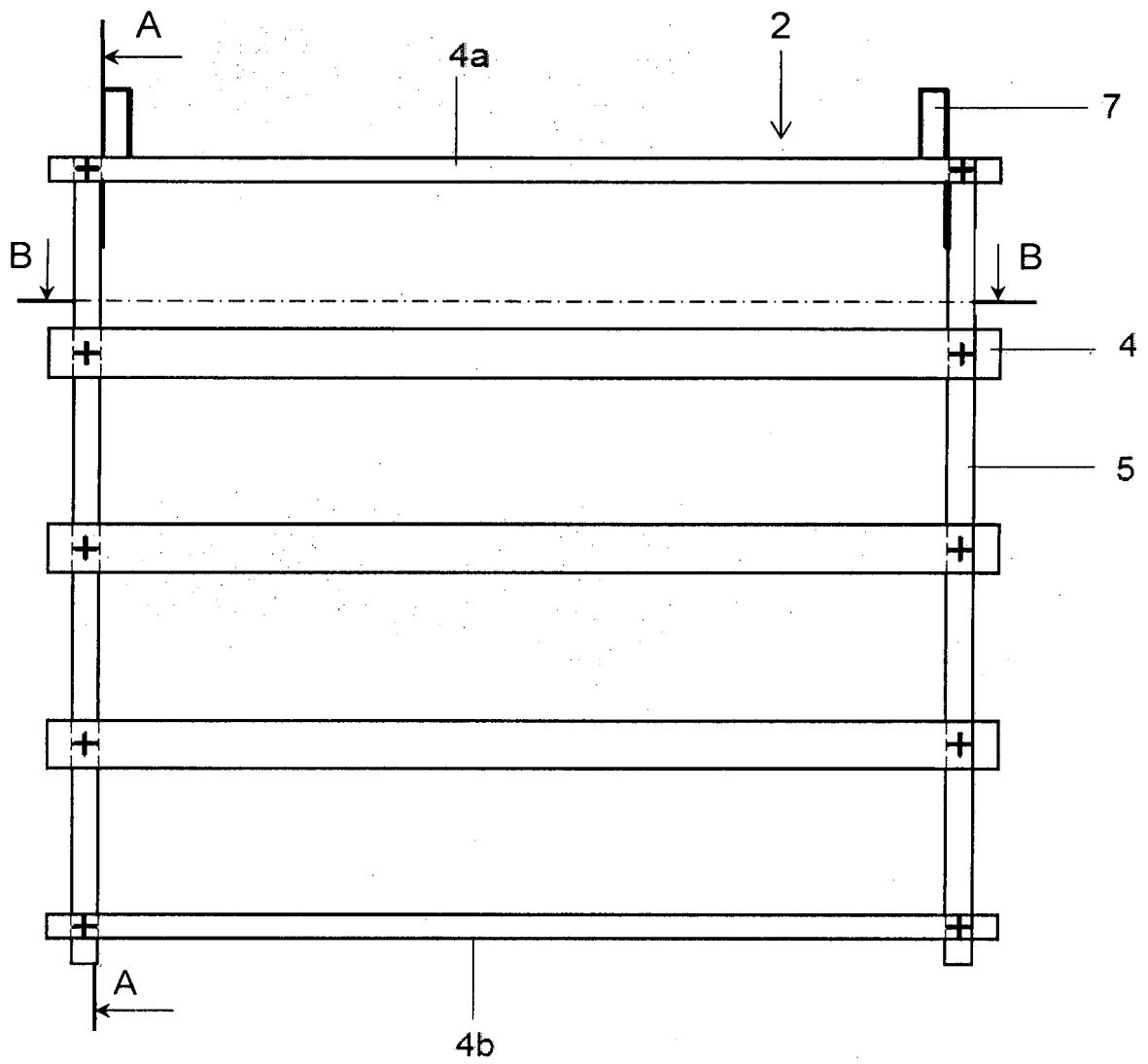


FIG 2

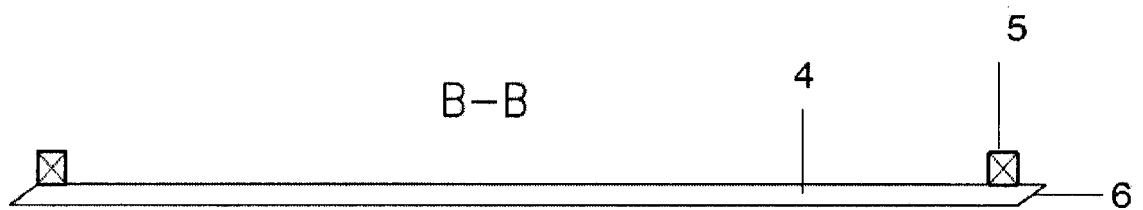


FIG 3

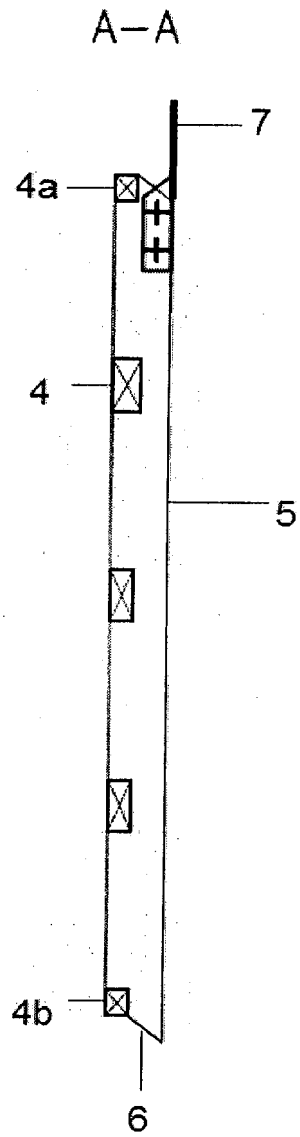


FIG 4



EUROPEAN SEARCH REPORT

Application Number
EP 19 00 0191

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Place of search		Date of completion of the search	Examiner
The Hague		7 August 2019	Demeester, Jan
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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