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(54) **COMPOSITE PANEL**

(57) A composite furnishing panel comprises a frame (2) and two glass slabs (3) that together define a closed chamber in which a plurality of parallel slats (4) is positioned, spaced apart so that in said composite panel (1) an alternation of substantially transparent strips without slats (4) and non-transparent strips at said slats (4) is found.

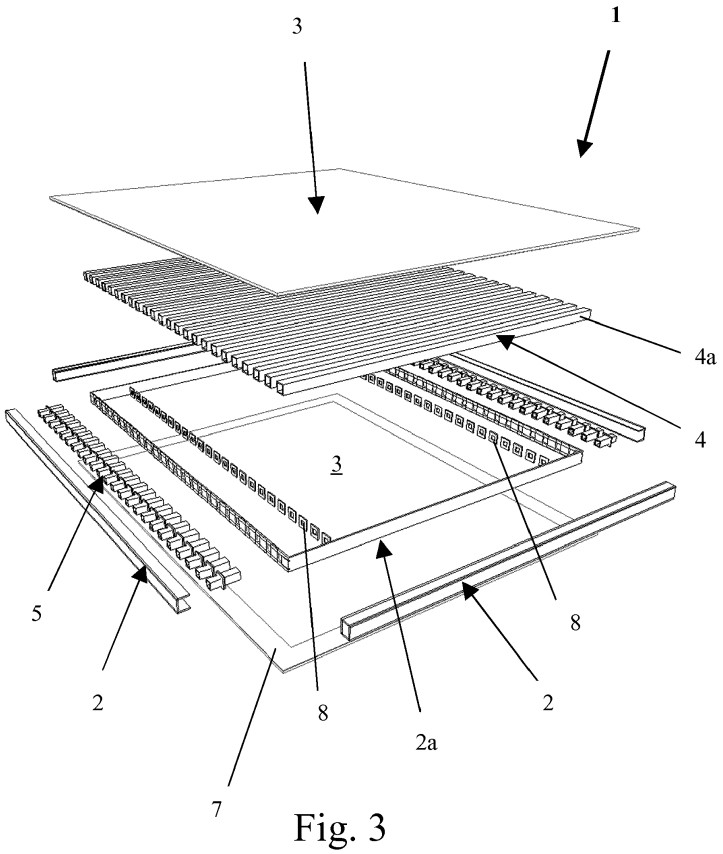

Fig. 3

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Description

[0001] This invention relates to a composite furnishing panel in accordance with the preamble of claim 1, in particular a composite panel intended to be used as a panel or dividing wall to delimit portions within an environment such as a room, a showroom, an office, a hotel lobby, a gallery and the like, as well as to constitute a portion of the outer facade of a building.

[0002] For simplicity of presentation, this description is made in a non-limiting way with particular reference to interior furnishings and to a composite furnishing panel intended to be used in an interior environment of a home to create a partial subdivision of that area, being however, possible to refer this invention also to a real wall, both fixed and sliding, to completely separate two areas from each other.

[0003] In interior design, the need is often felt to create partial subdivisions within an area, for example, by creating a masonry partition element or by placing a partition element such as a glass partition or a partition.

[0004] It is clear that the choice of the dividing element to be used must meet specific technical requirements, such as robustness, stability and safety, but having to take into account the aesthetic requirements as well. For example, it is necessary to avoid the presence of elements or dividing panels that penalize the areas in which they are located, for example, because they make these areas look narrow.

[0005] By way of example, it should be noted that the presence of a panel or a partition wall to separate the bath or shower area from the remaining area of a bathroom must avoid the formation of shadow areas inside the room and must not be oppressive to the view.

[0006] Currently, the panels or partition walls are made of masonry, possibly providing inside the presence of appropriate windows or grids, in plasterboard, wood and the like. In relation to partition walls of this type it is clear that "the screen effect", more or less accentuated based on the dimensions of the partition walls, is very strong.

[0007] Furthermore, there are known panels or partition walls made of polymeric material, for example, methacrylate, or glass, which can be treated by suitable opacification or surface roughening techniques, for example, by sandblasting or etching, in order to create all or partly non-transparent portions. In relation to panels or partitions of this type, it is necessary to consider how they are not optimal, since the non-transparent portions generate an out-of-focus effect, while the transparent parts do not appear to be detectable at sight, being in fact like non-existing portions.

[0008] Moreover, it should be pointed out that nowadays the need to have panels or partition walls capable of reproducing the nuances and the design of the wood in its various types, without showing problems regarding maintenance, ease of cleaning and dimensional stability over time of the panel is very felt, even with changes in temperature and humidity, and without creating an undesirable barrier effect that can determine the onset of shadow areas in the area where it is positioned.

[0009] The problem underlying the present invention is that of designing a composite furnishing panel that has structural and functional characteristics such as to meet the aforesaid requirement, at the same time obviating the aforementioned drawbacks with reference to the prior art.

[0010] This problem is solved by a composite furnishing panel according to the characteristics of claim 1.

[0011] Further characteristics and advantages of the composite furniture panel according to this invention will be apparent from the following description of a preferred embodiment thereof, given by way of non-limiting example, with reference to the attached figures, in which:

- Figure 1 shows a perspective view of a composite furnishing panel according to the invention as installed, by way of example, in a bathroom area;
- Figure 2 represents a schematic perspective view of a composite furnishing panel according to the invention;
- Figure 3 is an exploded perspective view of the composite furnishing panel in Figure 2;
- Figures 4 to 7 show perspective views of the composite furnishing panel in Figure 1 in different successive intermediate assembly steps comprised between the exploded shape of Figure 3 and the assembled shape of Figure 1 and
- Figure 8 in its five representations from A to E shows some details of the couplings that are implemented between the composite panel components in Figure 2.

[0012] With reference to the attached figures, a composite furnishing panel according to the invention is generally indicated with 1,

[0013] Panel 1 includes:

- a frame 2 that identifies a perimeter edge of the composite panel 1 and
- two substantially transparent opposing slabs 3 that identify respective side walls of said composite panel 1,

[0014] The slabs 3 are spaced apart from each other and are sealingly fixed to the frame 2, so that in the composite panel 1 a closed internal chamber is identified.

[0015] Preferably, the two opposite slabs 3 are slabs of glass, but it is also possible to use slabs of methacrylate or other substantially transparent polymeric material.

[0016] Although transparent, slabs 3 may have a slight color, for example, smoky, bronze or gold.

[0017] The composite panel 1 has a thickness of a few centimeters, for example, 5-10 centimeters or more, depending on the specific requirements of where it is intended for installation.

[0018] In accordance with the exemplary embodiment

of Figure 1, the panel 1, when installed in use, has an upper side, a lower side and two opposite vertical sides. As shown in the figures, the panel 1 is preferably of quadrilateral shape, in particular rectangular or quadrilateral having a side of 2 to 4 cm.

[0019] Advantageously, the panel 1 comprises a plurality of slats 4 housed inside the aforementioned internal chamber so as to extend between opposite sides of the composite panel 1 over the entire width of the panel.

[0020] In accordance with the shown embodiment, the slats 4 extend between the opposite vertical sides of the panel 1, so that they are extended according to a horizontal course.

[0021] Advantageously, the aforementioned slats 4 are all parallel to each other and are spaced apart, preferably they are equally spaced from each other in the direction orthogonal to their axis, so that in said panel 1 an alternation of substantially transparent strips without slats 4 and of non-transparent strips where the slats are visible 4 is found.

[0022] Preferably, said substantially transparent strips without slats extend without interruption between said opposite sides of the frame 2 of the composite panel 1; this advantageously avoids having an undesired "squaring" or "filing cabinet" effect for the whole width of the composite panel 1.

[0023] Preferably, the slats 4 are supported by the frame 2 at their opposite end ends 4a.

[0024] Preferably, the slats 4 are made of aluminium and have the outer surface moulded with a decoration, more preferably printed so as to reproduce the veins and colors of the wood.

[0025] Preferably, the outer surface of said slats 4 is entirely covered with a protective film, preferably suitable to counteract thermal expansions.

[0026] Alternatively, the slats 4 can be made with other suitable materials, for example, glass or polymeric material.

[0027] Preferably, the slats 4 have:

- a constant square or rectangular cross-section throughout their axial extension and
- they are positioned so as to present opposite flat sides facing the slabs 3 that identify the side walls of the composite panel 1.

[0028] Preferably, the slats 4 are internally hollow tubular slats and are open at the opposite end ends.

[0029] Preferably, the slats 4 are spaced apart, for example, at a distance of between 0.8 mm and 2 mm, from the opposite slabs 3 that identify the side walls of the composite panel 1, so as to prevent the slats 4 from coming into contact with the aforesaid slabs 3.

[0030] Preferably, the panel 1 also comprises a plurality of spacers, preferably transparent spacers, which are interposed:

- between adjacent slats 4 of the aforesaid plurality of slats 4 and
- between said frame 2, in particular, the upper and lower sides of said frame 2, and the end slats 4 of said plurality of slats 4 face and are parallel to these sides of the frame 2.

[0031] The aforementioned spacers are positioned at points of the slats 4 distal to the end ends 4a of the slats 4 and allow to avoid deflections in intermediate portions of said slats 4 comprised between the end ends 4a.

[0032] The presence of these spacers is particularly useful when the axial length of the slats 4 is greater than 1.5 meters.

[0033] Preferably, the spacers are arranged aligned according to one or more rows substantially perpendicular to the axis of the slats 4.

[0034] Preferably, the aforesaid spacers have opposite side walls that are parallel to the slabs 3 and, preferably, are also coplanar with the sides of the slats 4 that face the slabs 3

[0035] Preferably, the opposite end ends 4a of the slats 4 are supported by the frame 2 by means of support and centering 6 carried by the frame 2 and suitable for precisely defining the position of the slats 4 inside the closed inner chamber.

[0036] Preferably, the aforesaid support and centering means 6 comprise a plurality of holes 6 formed in opposite profile sections of the frame 2 that, in accordance with the preferred embodiment shown in the figures, constitute two opposite sides of a perimeter frame 2a supported at the inner side of the frame 2.

[0037] Preferably the aforesaid holes 6 have a square or rectangular cross section complementary to that of the slats 4, so as to prevent rotations of said slats with respect to the frame 2 that supports them.

[0038] Preferably, the end ends 4a of the slats 4 are supported by the aforesaid support and centering means 6 by interposition of respective connecting elements 5 that, preferably are of resilient, elastomeric and/or polymeric material, so as to avoid vibrations, interrupt thermal bridges and better absorb any thermal expansions.

[0039] Preferably, each of the aforesaid connecting elements 5 is inserted in a respective hole 6 to be supported by said frame 2.

[0040] In accordance with the shown embodiment, there is also provided the presence of gasket means 8, for example, a gasket having a thickness of 3mm, positioned between the slats 4 and the section 2a of the frame 2 to better absorb any axial thermal expansions of the slats 4.

[0041] Preferably, the aforesaid connecting elements 5 are inserted with a shape coupling in the open-end ends 4a of said tubular slats 4.

[0042] In the example, both the portions of the connecting elements 5 inserted in the end ends 4a of the slats 4 and the portions of the connecting elements 5 inserted in the aforesaid holes 6 of the sections of the perimeter frame 2a of the frame 2 have a quadrilateral

section to avoid rotations of the slats with respect to the frame 2.

[0043] Preferably, the two above-mentioned substantially transparent slabs 3 have a non-transparent perimeter edge 7, that is to say completely opaque, for example, black, having a thickness of, for example, 5-7 cm. This perimeter edge, which can be obtained by painting the inner side of the perimetral portion of the slabs 3, is useful for concealing from the point of view in which the end ends 4a of the slats 4 are connected to the frame 2.

[0044] As can be appreciated from what has been described, the composite furnishing panel according to this invention allows the aforesaid requirement to be met and at the same time to overcome the drawbacks referred to in the introductory part of this description with reference to the prior art. In particular, this panel allows two areas to be separated within an area without making the environment cramped and without showing problems or cleaning, since everything remains sealed inside the closed internal chamber, inside which it is also possible to foresee the presence of a gas with a low temperature condition coefficient.

[0045] Furthermore, the composite panel according to the invention can comprise a liquid crystal layer or the like, for example, a layer associated with the inner side of one of the two slabs 3, which can be polarized so as to become completely opaque for the time required by a user, for example, a person who accesses a shower cabin for washing.

[0046] Furthermore, the composite panel according to the invention can comprise lighting means, in particular LEDs.

[0047] Obviously, a person skilled in the art, in order to meet contingent and specific needs, will be able to make numerous changes and variations to the composite furnishing panel described above, all of which are included in the scope of protection of the invention as defined by the following claims.

Claims

1. **Composite furnishing panel** comprising:

    - a frame (2) that identifies a perimeter edge of the composite panel (1) and
    - two substantially transparent opposing slabs (3) that identify respective side walls of said composite panel (1),

    wherein said slabs (3) are spaced out from each other and are sealingly fixed to said frame (2), so that a closed internal chamber is identified within said composite panel (1),
    characterized in that:

    - said panel (1) comprises a plurality of slats (4) housed in said internal chamber so as to extend between opposing first sides of said composite panel (1);
    - said slats (4) are spaced from each other so that in said panel (1) can be identified an alternation of substantially transparent strips without slats (4) and non-transparent strips at which said slats (4) are visible.

2. Composite furnishing panel according to claim 1, wherein said slats (4) comprise opposing head ends (4a) at which they are supported by said frame (2).

3. Composite furnishing panel according to claim 1 or 2, wherein said slats (4) are made of aluminium and comprises an outer surface printed with decoration, preferably said outer surface is internally coated with a protective film.

4. Composite furnishing panel according to claim 1, 2 or 3 wherein said slats (4) are made of aluminium and the outer surface is printed so as to reproduce the veins and colors of wood.

5. Composite furnishing panel according to any one of claims 1 to 4, wherein said slats (4):

    - have a constant square or rectangular cross section along the whole axial extension thereof and
    - are positioned so as to have flat opposing sides facing said slabs (3) that identify the side walls of said composite panel (1), preferably said slats (4) are internally hollow tubular slats.

6. Composite furnishing panel according to any one of claims 1 to 5, wherein said substantially transparent strips without slats (4) extend without interruption between said opposite sides of the frame (2) of said composite panel (1).

7. Composite furnishing panel according to any one of claims 1 to 6, wherein said slats (4) are spaced, preferably by a distance comprised between 0.8 mm and 2 mm, from said opposing slabs (3) which identify the side walls of said composite panel (1), so as to prevent any contact between said slats (4) and said slabs (3).

8. Composite furnishing panel according to any one of claims 1 to 7, comprising a plurality of transparent spacers interposed:

    - between contiguous slats (4) of said plurality of slats (4) and
    - between said frame (2) and the end slats (4) of said plurality of slats (4)

    at distal points of said slats (4) from the head ends

(4a) of the slats (4) to prevent deflection at intermediate portions of the slats (4) comprised between said head ends (4a), said spacers preferably being aligned according to one or more substantially orthogonal rows to the axis of said slats (4) and preferably have opposing side walls parallel to said slabs (3), said spacers preferably being coplanar with the sides of said slats (4) facing said slabs (3).

9. Composite furnishing panel according to any one of claims 1 to 8, wherein opposing head ends (4a) of said plurality of slats (4) are supported by said frame (2) through support and centering means (6) carried by said frame (2) and suitable for exactly defining the position of said slats (4) inside said closed internal chamber.

10. Composite furnishing panel according to claim 9, wherein said support and centering means (6) comprise a plurality of holes (6) obtained in opposing profiles of said frame (2) preferably said holes (6) have a complementary square or rectangular cross section to that of the slats (4).

11. Composite furnishing panel according to claim 10, wherein said opposing profiles of said frame (2) are two opposite sides of a perimeter frame (2a) supported at the inner side of said frame (2).

12. Composite furnishing panel according to any one of claims 9 to 11, wherein said head ends (4a) of said slats (4) are supported by said support and centering means (6) through the interposition of respective connecting elements (5), preferably said connecting elements (5) being made of resilient, elastomeric material and/or polymeric material.

13. Composite furnishing panel according to claims 10 and 12, wherein each connecting element (5) is inserted, preferably with the interposition of sealing means (8), in a respective hole (6) to be supported by said frame (2).

14. Composite furnishing panel according to claim 5 and any one of claims 9 to 11, wherein said connecting elements (5) are inserted with shaped coupling in the open head ends (4a) of said tubular slats (4).

15. Composite furnishing panel according to any one of claims 1 to 13, wherein said two opposing slabs (3) are glass slabs, preferably said two opposing glass slabs (3) comprise each a non-transparent perimeter edge (7), more preferably said two opposing glass slabs (3) comprise a painted perimeter edge (7) at the perimeter edge of the inner side of the perimeter edge (7) of said composite furnishing panel (1).

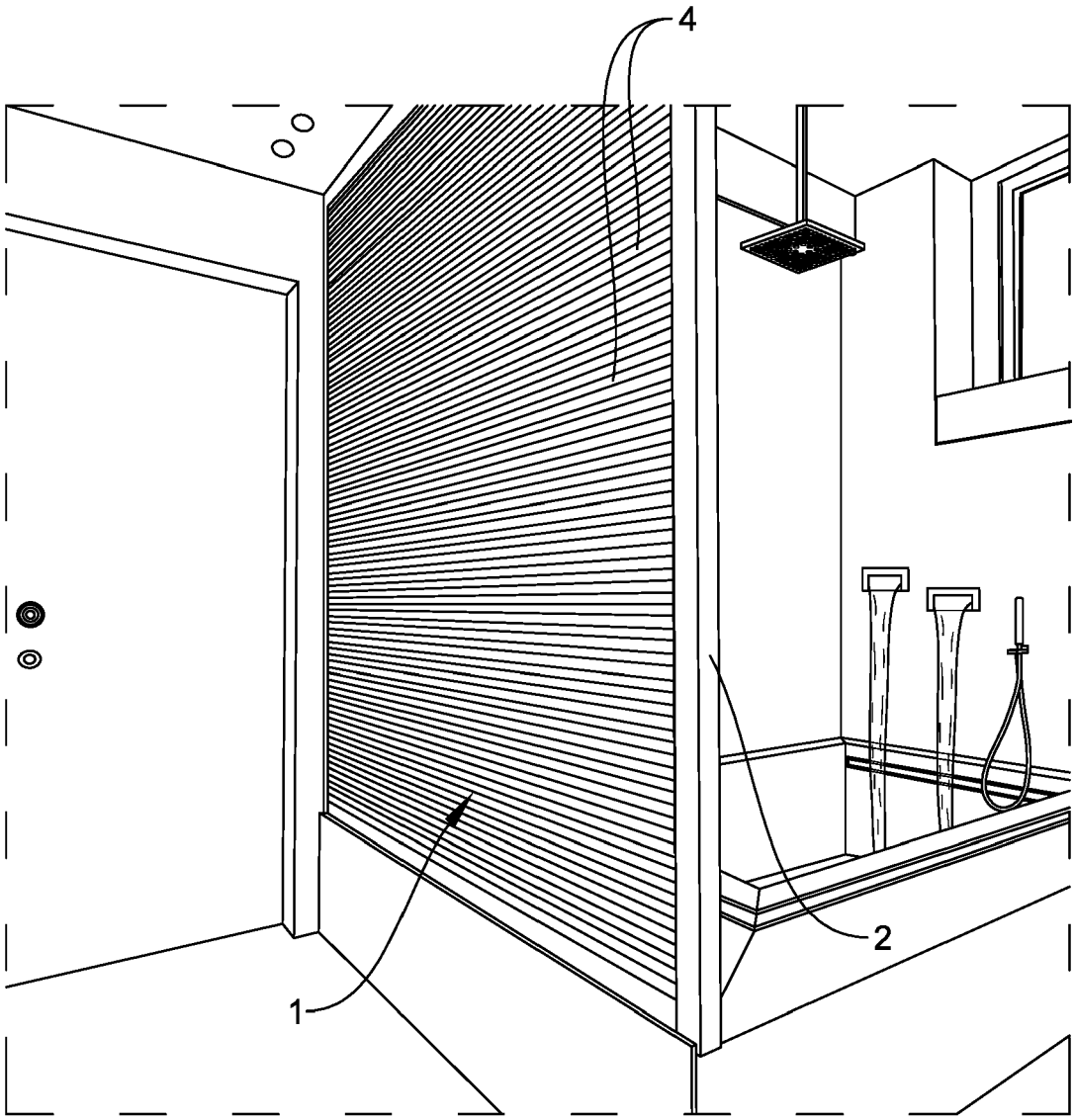

Fig. 1

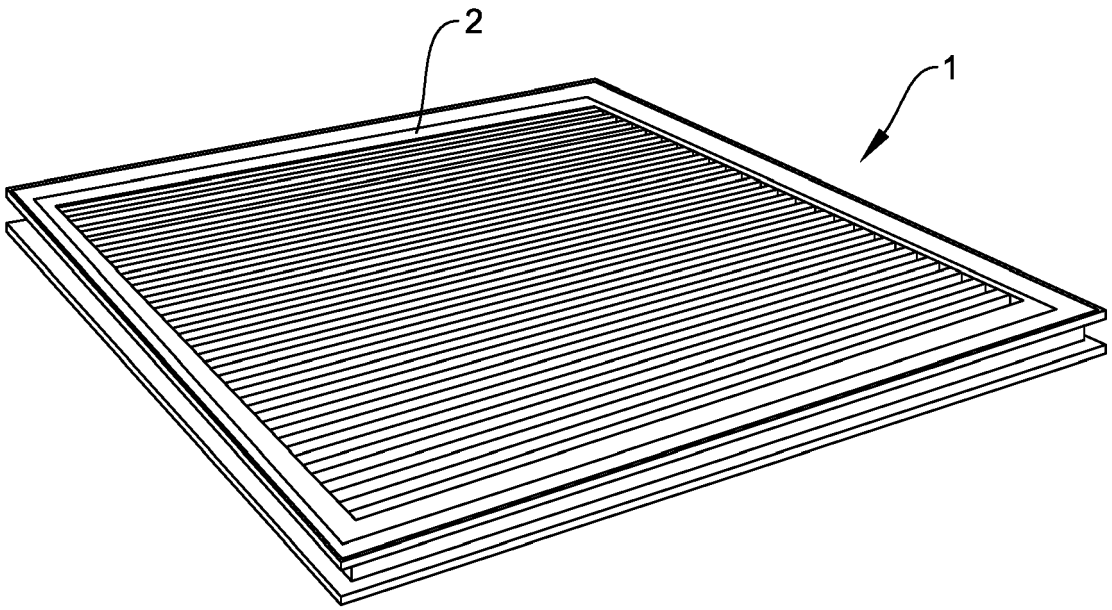

Fig. 2

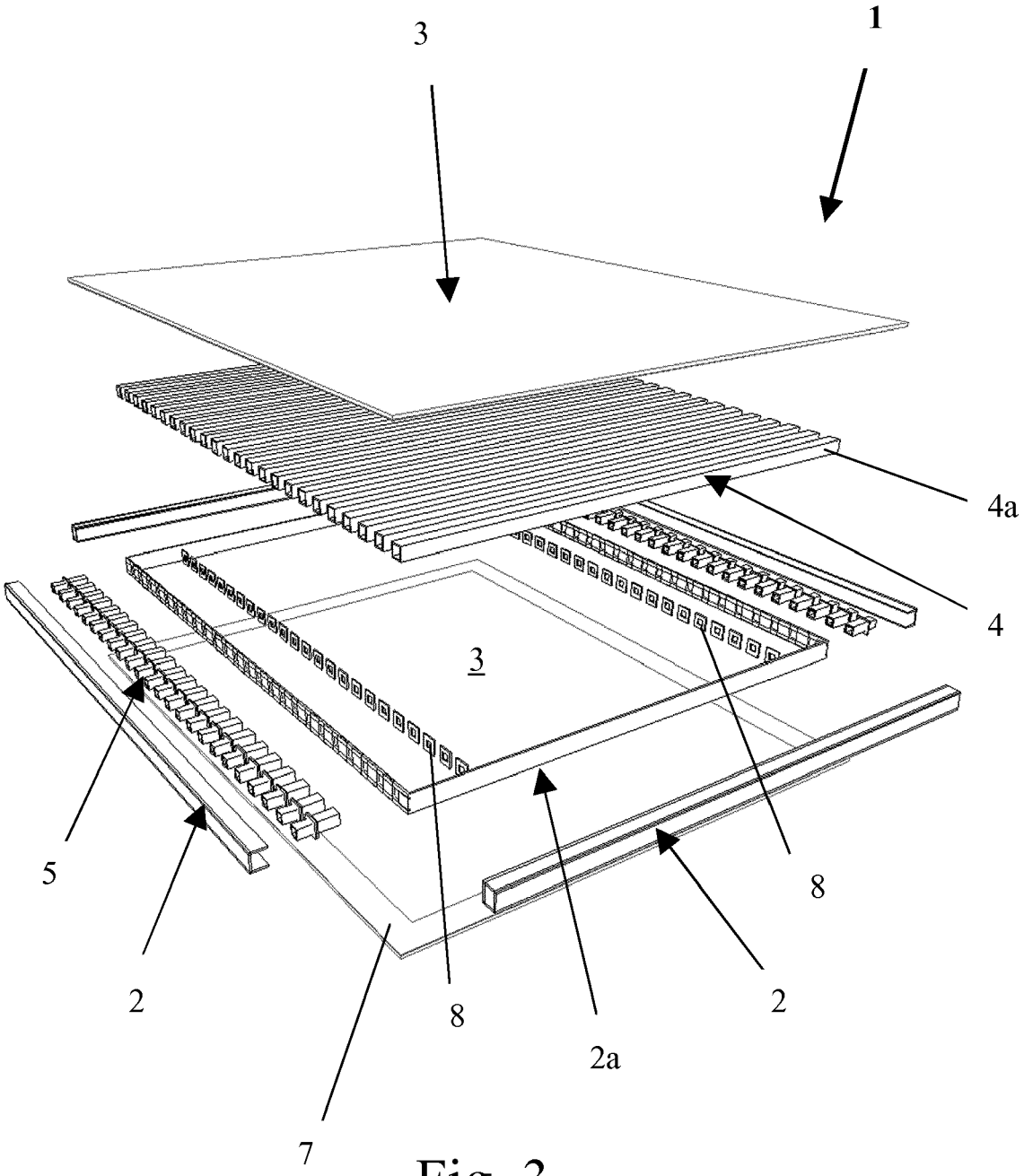

Fig. 3

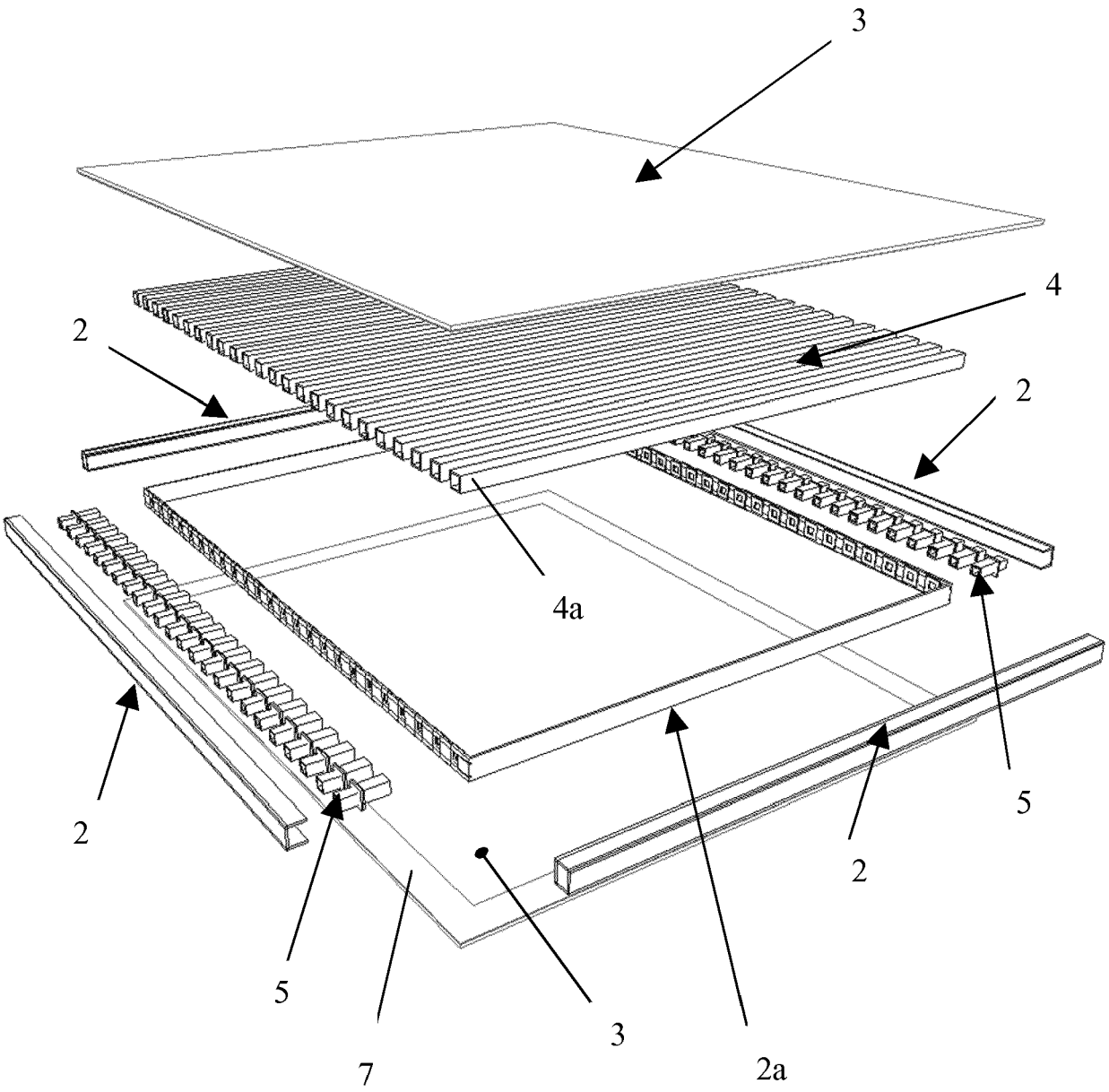

Fig. 4

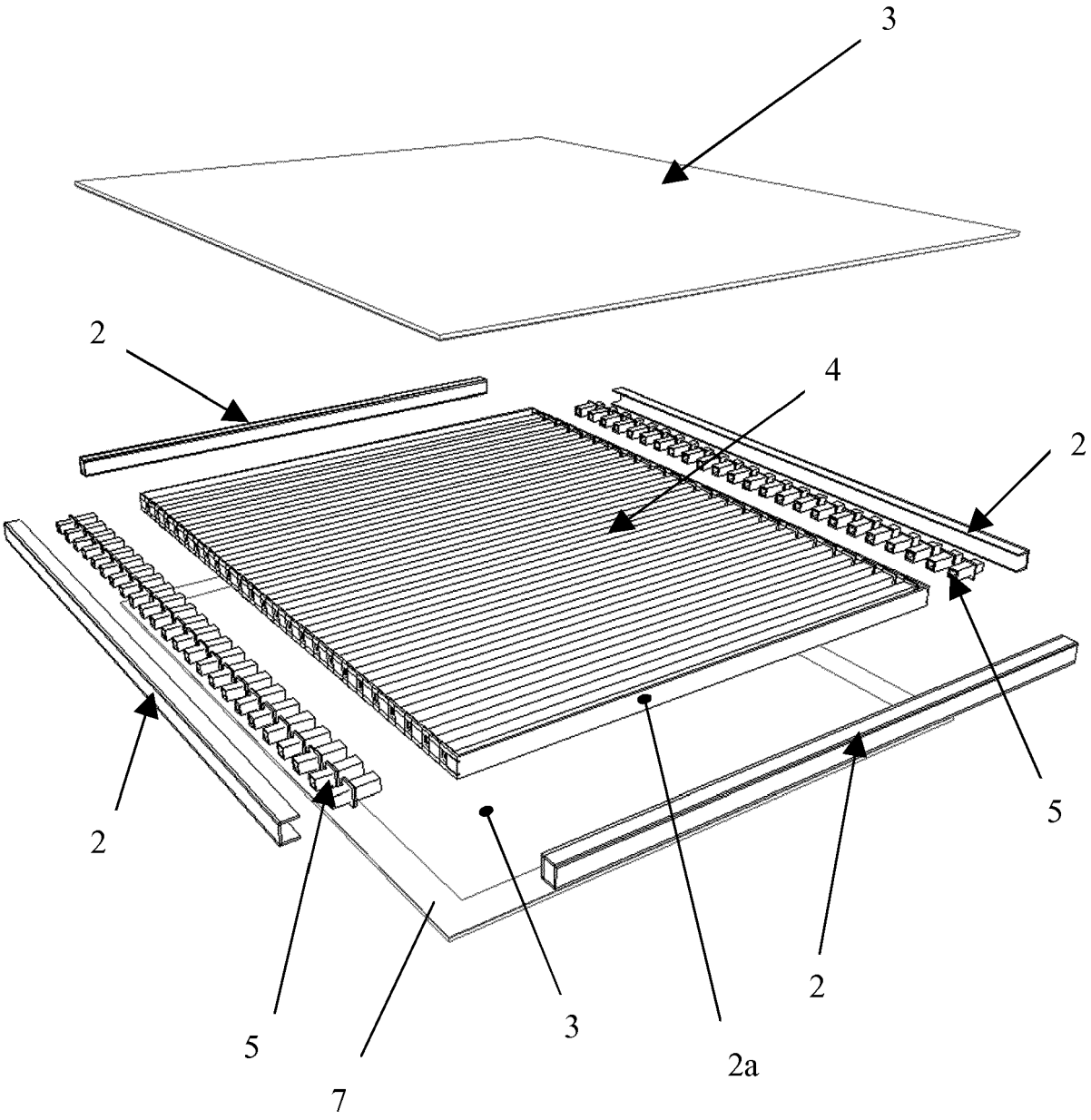

Fig. 5

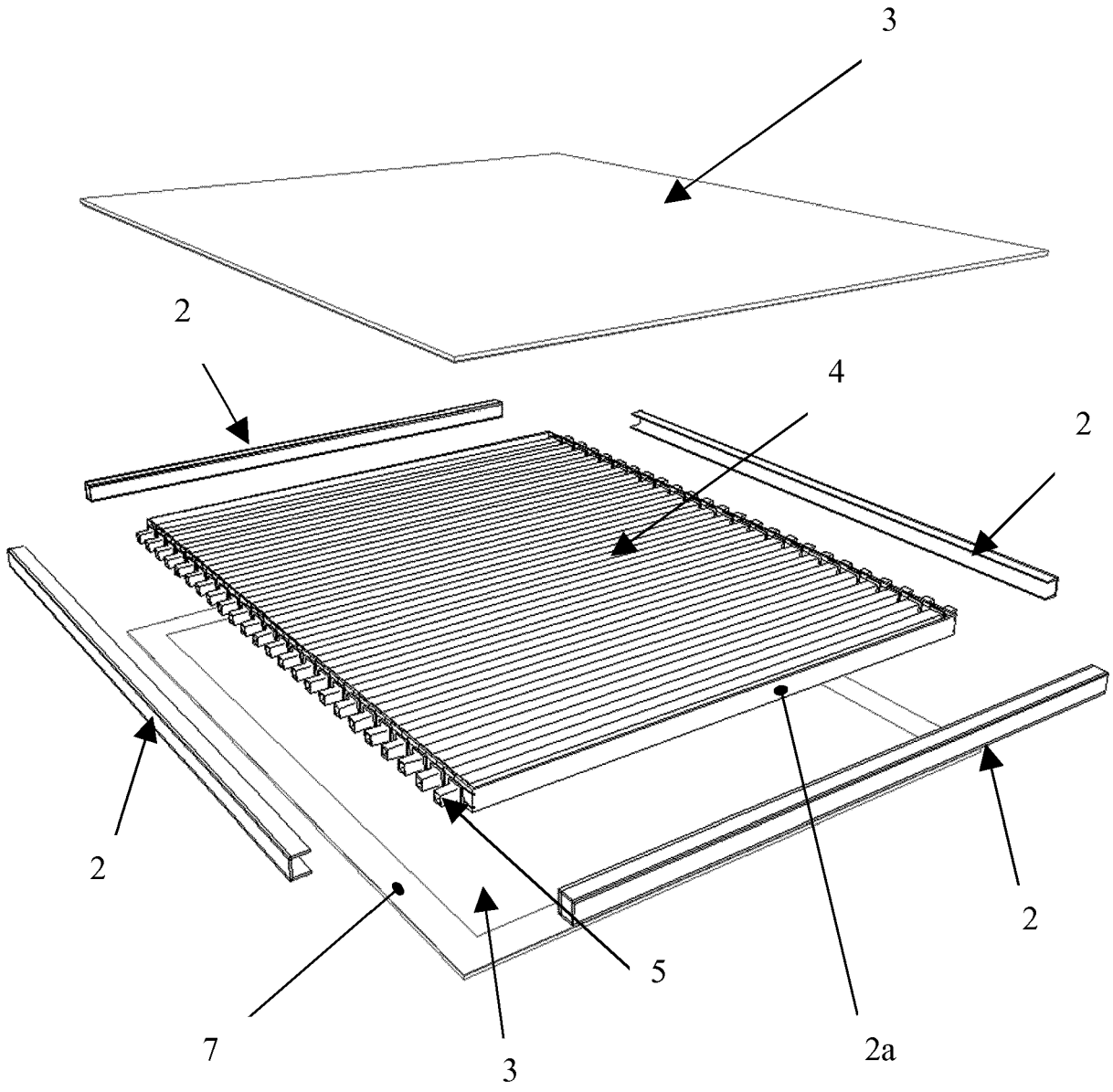

Fig. 6

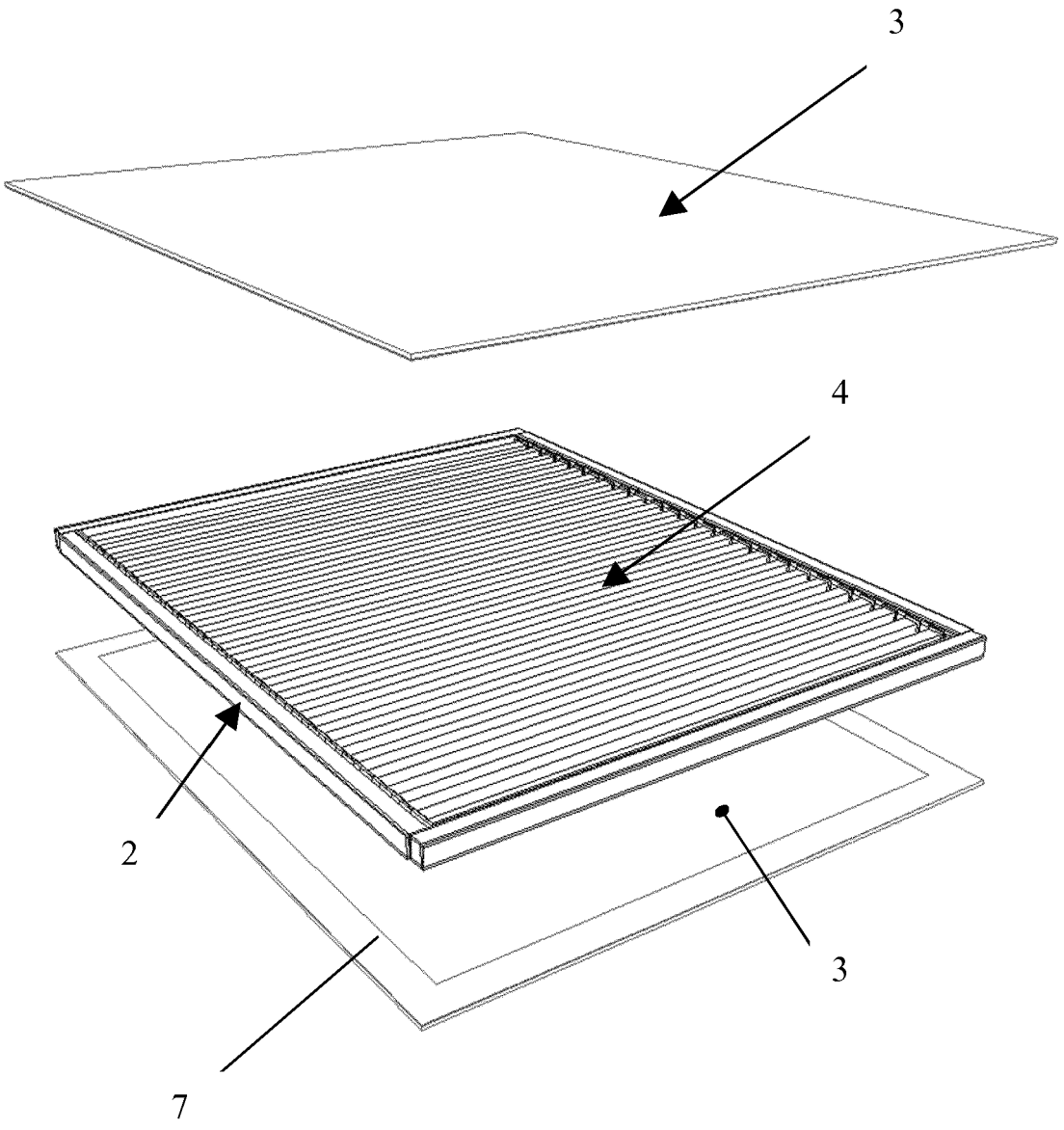

Fig. 7

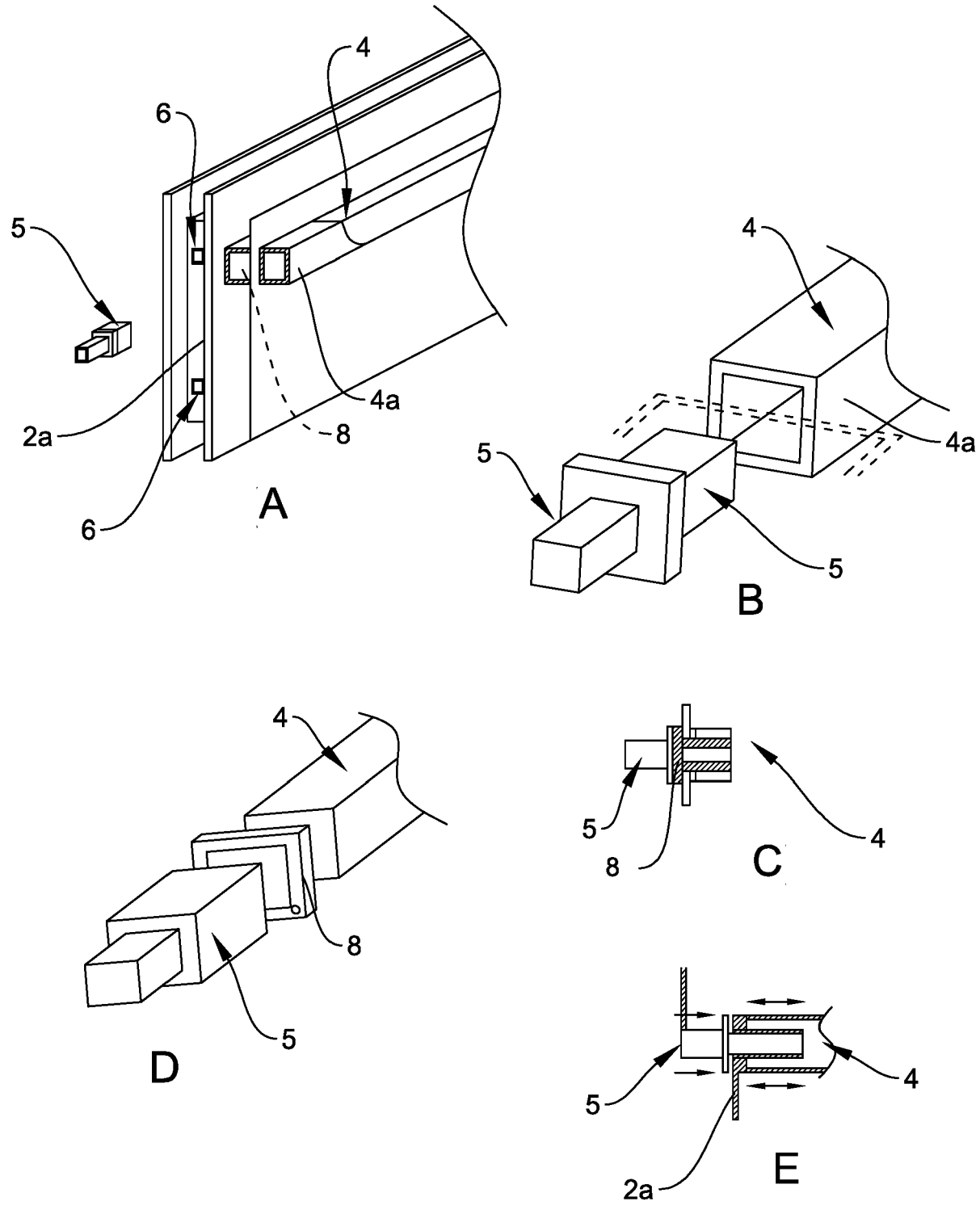

Fig. 8

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EUROPEAN SEARCH REPORT

Application Number
EP 19 16 9332

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	DE 19 47 666 U (MEINERS CARL OTTO DR [DE]; PFANNKUCH HEINRICH DIPL ING [DE]; SCHNEBEL) 13 October 1966 (1966-10-13)	1,5,8,15	INV. E04C2/54 A47K3/00 B44C5/04
A	* page 6, paragraph 2; claim 1; figures *	2	
X	DE 15 09 682 A1 (MEINERS DR C O; PFANNKUCH DIPL ING HEINRICH; SCHNEBEL FRITZ) 30 January 1969 (1969-01-30) * page 4, paragraph 2 * * page 6, paragraph 5; claims 1,2; figures *	1,2,5,15	
X	WO 2006/003199 A1 (GANDINI LUCA [IT]) 12 January 2006 (2006-01-12)	1	
A	* page 3, paragraph 6 - page 5, paragraph 3 * * page 7, paragraph 3-4; figures 1,2 *	2,4,5	

TECHNICAL FIELDS SEARCHED (IPC)

E04C
A47K
B44C
B44F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	5 July 2019	Stern, Claudio

CATEGORY OF CITED DOCUMENTS

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