



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**23.09.2015 Bulletin 2015/39**

(51) Int Cl.:  
**E04B 1/348 (2006.01) E04H 13/00 (2006.01)**

(21) Application number: **15160200.0**

(22) Date of filing: **21.03.2015**

(84) Designated Contracting States:  
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**  
Designated Extension States:  
**BA ME**  
Designated Validation States:  
**MA**

(71) Applicant: **Rivestimenti Plastici S.r.l.**  
**10121 Torino (IT)**

(72) Inventor: **Pennazio, Rinaldo**  
**10121 Torino (IT)**

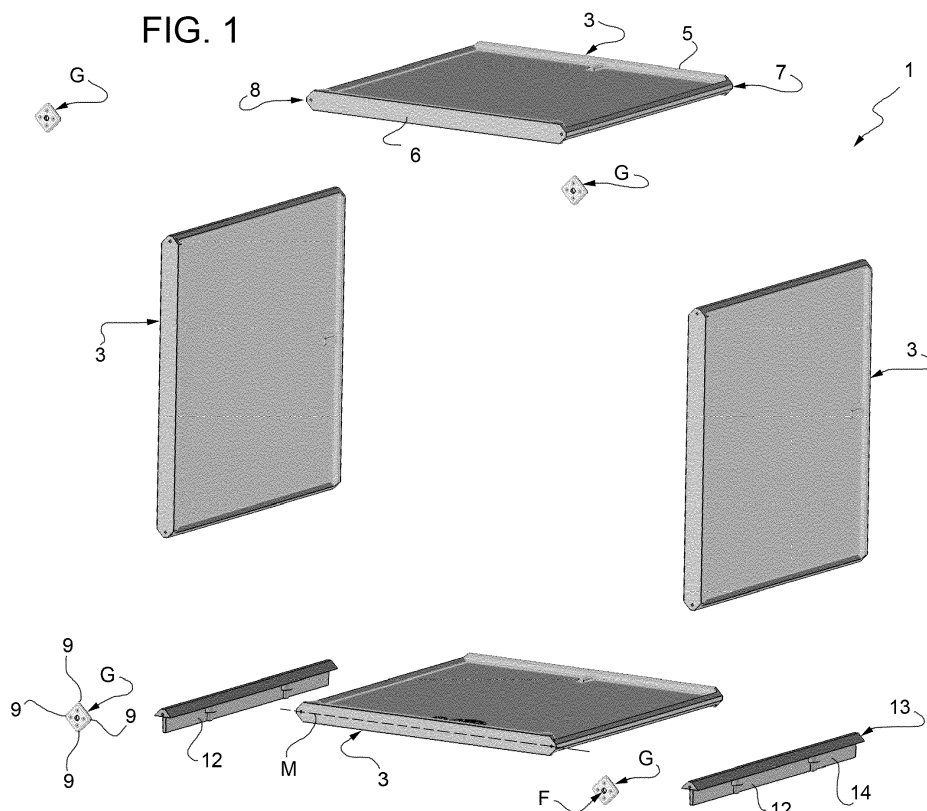
(74) Representative: **Mola, Edoardo et al**  
**Studio Torta S.p.A.**  
**Via Viotti, 9**  
**10121 Torino (IT)**

(30) Priority: **21.03.2014 IT TO20140233**

(54) **PREFABRICATED MODULAR STRUCTURE FOR CEMETRY**

(57) A module defining a parallelepiped space (2) for a prefabricated structure comprises a plurality of panels (3) of polymeric material and plate joints (G) to connect rigidly at least two front ribs (6) of respective adjacent panels (3) and at least a pair of spacers (12) rigidly con-

nected to respective plate joints (G) on opposite sides of the front rib (6). In particular, each spacer (12) projects with respect to the panel (3) outside the space (2) in a direction (T) perpendicular to a longitudinal median plane (M) of the panel (3).



## Description

**[0001]** The present invention concerns a prefabricated modular structure, preferably for use in a mortuary complex such as a cemetery or the like.

**[0002]** A prefabricated modular structure preferably has low production costs and, at the same time, simplicity and a reduced assembly time may be required. Therefore, the number of elements should not be high, and the assembly should be intuitive.

**[0003]** When a prefabricated structure is employed in a mortuary complex, there is also a need to provide for a side and/or top and/or front cover which is more valuable than the supporting structure. When the cover is made of stone, its considerable weight must be taken into account by planning the modular structure.

**[0004]** The purpose of the present invention is to provide a modular structure achieving, at least partially, the aforesaid requirements.

**[0005]** The invention will now be described with reference to the accompanying drawings which illustrate a non-limitative embodiment, wherein:

- Figure 1 is an exploded perspective view of a module for building a prefabricated structure according to the present invention;
- Figure 2 is an assembled perspective view of the module of Figure 1;
- Figure 3 is an exploded perspective view of a prefabricated structure comprising a plurality of modules according to figure 1;
- Figure 4 is an exploded view of a module according to a first embodiment of the present invention;
- Figure 5 is a perspective view of the module of Figure 4; and
- Figure 6 is a perspective view of a module according to a further embodiment of the present invention.

**[0006]** In Figure 1, the reference 1 indicates as a whole a module for defining a space 2, preferably sealed, e.g. for containing cinerary urns.

**[0007]** The module 1 comprises a plurality of panels 3 and a plurality of plate joints G assembled to define bottom, top and side walls of the space 2. The panels 3 are made of a polymeric material through a process of injection moulding. Preferably, the polymeric material is loaded with fibres or powders to increase its mechanical properties.

**[0008]** Each panel 3 comprises a preferably flat plate 4, a straight bottom rib 5, transversely coming out of the plate 4, and a straight front rib 6, transversely coming out of the plate 4 and opposed to the bottom rib 5 with respect to the plate 4.

**[0009]** The ribs 5 and 6 protrude on both faces of the plate 4, and are preferably the same.

**[0010]** Furthermore, the panel 3 comprises respective sides 7, 8 opposite with respect to the plate 4, having converging faces, preferably at 90°.

**[0011]** Each plate joint G defines a plurality of angularly equidistant holes 9 and at least one head hole F, preferably surrounded by holes 9. The holes 9 are arranged to screw a screw or to insert an interference pin or the like for fastening at least two panels 3 to the plate joint G, thus creating an L shape. When two panels 3 are L-shapingly fastened, two respective converging faces are in contact and matching (Figure 2). However, the faces of each side 8, 9 are connected so as to define a channel substantially coaxial with the head hole F when they are connected to the plate joint G.

**[0012]** Moreover, the plate joint G is shaped to be surrounded by or to be tangent to the front ribs 6. Preferably, the plate joint G does not protrude with respect to the front ribs 6 towards the space 2 (Figure 2).

**[0013]** According to an embodiment of the present invention, the module 1 is replicated in order to achieve the modular structure of Figure 3. The structure 10 comprises a bottom wall 11 and spacers 12 arranged in the peripheral joints of the structure 10 between two adjacent panels 3.

**[0014]** Each spacer 12 is fixed to the panels 3 by means of the plate joint G through a screw or an interference pin and has a T-shaped cross section. A head 13 of the T-shaped cross section comprises two converging wings, matching respective converging faces of the sides 7, 8 of two adjacent and coplanar panels 3, and a longitudinal rib 14 of the T-shaped cross section protrudes with respect to the wings. Preferably, the rib 14 comprises at least one projection B, in particular two projections, for fastening a side and/or upper cover C covering the panels 3.

**[0015]** Preferably, each projection B includes a step B' laterally protruding from the rib 14 to support the cover C. When two elements of the cover C are adjacent, a portion of the rib 14 is interposed between these elements, whereas the steps B' are interposed between the panel 3 and the corresponding cover C.

**[0016]** When two panels 3 are L-shapingly connected, two adjacent spacers 12 can be connected to the plate joint G. In this case, the relating ribs 14 are converging towards the plate joint G.

**[0017]** According to a preferred embodiment of the present invention, the ribs 5, 6 have a maximum size smaller than or equal to the one of the rib 14 when the module 1 is assembled, as shown in Figure 2, where the distance D is defined between a crest of the front rib 6 and a crest of the rib 14, respectively tangent to planes parallel to the plate 4. Therefore, the spacer 12 projects with respect to the panel 3 along a direction T perpendicular to a median longitudinal plane M of the panel 3. The distance D is zero or positive, as shown in Figure 2. In this way the ribs 5, 6 do not interfere with the cover C applied to the spacers 12 and designed to cover the module 1 with an aesthetic function. The cover C is fixed to the module 1 by using special brackets with hooks attached and tightened to the projections B.

**[0018]** Preferably, as shown in Figure 2, the four walls

of the module 1 are identical and are defined by four panels 3.

[0019] The spacers 12 further act as connecting elements with legs (not shown) to support the modular structure 10 on a floor.

[0020] To allow the manufacturing of a more robust structure, the bottom wall 11 may include one or more modules to connect at least the panels 3 of at least two adjacent modules 1. The bottom wall is also fixed to spacers 12. It is possible to provide other combinations by finding the best compromise between the need to reduce the number of components and the maximum size of each component, e.g. to simplify the transport conditions of the structure. According to the example shown in Figure 3, the bottom wall 11 is a single piece and connects all the modules 1 and the spacers 12.

[0021] Furthermore, each panel 3 is glued and/or sealed and/or coupled by means of a cold detachable mechanical connection, for example threaded, or permanent, e.g. riveted, to the bottom wall 11 through the bottom rib 5. The panels 3 along the sides 7, 8 can also be connected by means of a sealing and/or adhesive paste, e.g. a silicone paste.

[0022] Figure 4 illustrates a module 1 in which the space 2 is closed by a front plate 15 and by a plate 16 superimposed on the front plate 15. Preferably, both the front plate 15 and the front plate 16 rest on the lower front rib 6, and the front plate 15 and the plate 16 are surrounded by the front ribs 6. Therefore, these latter remain visible when the space 2 is closed. Preferably, stop pins transverse to the plate 4 are inserted in the panel 3 and are suited to stop the front plate 15 so that this latter rests on the front rib 6. Thereafter, the front plate 6 is fixed to the surrounding front ribs 6 by using an adhesive and/or cold sealing paste, e.g. a silicone paste.

[0023] As shown in Figure 5, the plate 16, for example made of stone, is fixed to the panels 3 by a rosette 17 screwed into the hole F and having a radius such as to protrude towards the space 2 with respect to the front ribs 6. In this way the corners S of the front plate 16 are closed, and preferably pressed by the rosette 17 against the front plate 15.

[0024] As shown in Figure 6, the module 1 may include, as an alternative to the front plate 15 and to the front plate 16, a swing door 18 resting on the lower front rib 6 and surrounded by front ribs 6. In particular, the swing door 18 is recessed inside the front ribs 6 of the module 1 so that the front ribs 6 are visible. Moreover, the swing door 18 opens to the outside of the space 2, and for this purpose the rosettes 17 have a diameter that does not interfere with the swing door 18 in the space 2 and, at the same time, preferably covers the plate joint G.

[0025] The advantages of the modular structure 10 here described and illustrated are as follows.

[0026] The modular structure 10 is particularly suitable for the fast realization of structures for cemeteries, in particular not exposed to atmospheric agents like precipitations.

[0027] Through the spacers 12 a cover C can be fastened to the structure 10, or the structure 10 can be fastened within a larger structure so that the panels 3 remain intact. In particular, the spacer 12 allows that fastening tools, such as screws or studs, are housed with the cover C and/or with the legs (not shown) and/or with other elements. Such fastening tools can be incorporated, hammered or screwed into the spacer 12, parallel to the direction T, until reaching the head 13, and the rib 14 forms a further support for such fastening tools. The spacers 12 protrude from a minimum of 1 cm to a maximum of 4 cm with respect to the front rib 6 so that the fastening tools are well anchored and, at the same time, are concealed when the covers C are mounted. In this way, the panels 3 and the front ribs 6 are relatively thin and, therefore, easy to transport.

[0028] The front ribs 6 form an effective support for closures defined both by the plate 16 and by the wing 18, whose weight can be considerable. In particular, both the plate 16 and the front plate 15, as well as the wing 18 are recessed, at least partially, between the panels 3.

[0029] Finally, it is clear that the modular structure 10 here described and illustrated can be subjected to modifications or variations without departing from the protection scope as defined by the appended claims.

[0030] The size of the spaces 2 may be different from the one shown and, for example, can have a non-cubic parallelepiped shape having a front rib 6 longer than the sides 7, 8.

[0031] Both the panels 3 and the spacers 12 may be made by injection moulding, preferably in the same polymeric material.

### Claims

1. A module defining a parallelepiped space (2) for a prefabricated structure comprising a plurality of panels (3) in polymeric material and plate joints (G) to connect rigidly to each other at least two front ribs (6) of respective adjacent panels (3) and at least one pair of spacers (12) rigidly connected to respective plate joints (G) by opposing parts of the front rib (6), each spacer (12) protruding with respect to the panel (3) outside the space (2) in a direction (T) perpendicular to a median longitudinal plane (M) of the panel (3).
2. A module according to claim 1, **characterised in that** each spacer (12) comprises a step (B') exiting towards a central plate (4) of the panel (3) and rests on a side (7; 8) of the panel (3).
3. A module according to claim 2, **characterised by** each spacer (12) comprising a head (13) in contact with a side (7; 8) of the panel (3) and a longitudinal rib (14) from which the step (B') laterally protrudes.

4. A module according to any one of the previous claims, **characterised by** the plate joint (G) having dimensions such as not to protrude with respect to the surrounding front ribs (6) towards the space (2). 5
5. A module according to claim 4, **characterised by** comprising a closure (15, 16; 18) for the space (2) surrounded by the front ribs (6) so that the front ribs (6) are visible and the closure (15, 16; 18) is at least partially recessed between the panels (3). 10
6. A module according to claim 5, **characterised by** the closure (15, 16; 18) resting on the front rib (6) of a panel (3) arranged beneath the closure (15, 16; 18). 15
7. A module according to claim 6, **characterised by** the plate joint (G) defining a front hook (F) and by comprising a rosette (17) connected to the front hook (F) and having dimensions such as to project with respect to the front ribs (6) towards the space (2) and intercepting a corner (S) of the closure (15, 16; 18). 20
8. A module according to claim 6, **characterised by** the closure (18) being a swing door. 25
9. A structure, preferably for a mortuary complex, comprising a plurality of modules according to any one of the previous claims and a bottom plate (11) fixed to panels (3) and to spacers (12) of at least two adjacent modules. 30
10. A structure according to claim 9, comprising a side and/or upper cover (C) attached to the spacers (12). 35

40

45

50

55

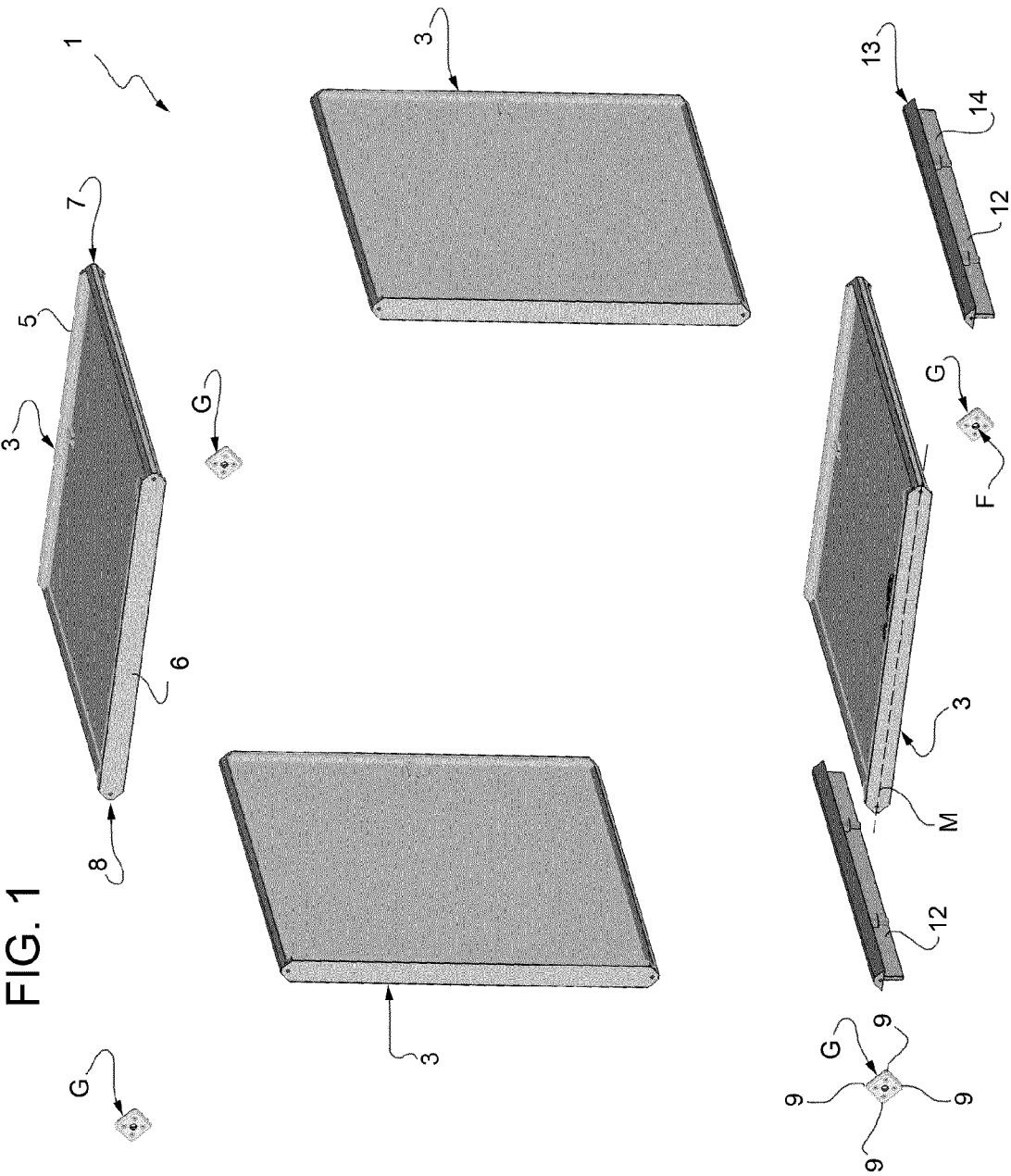
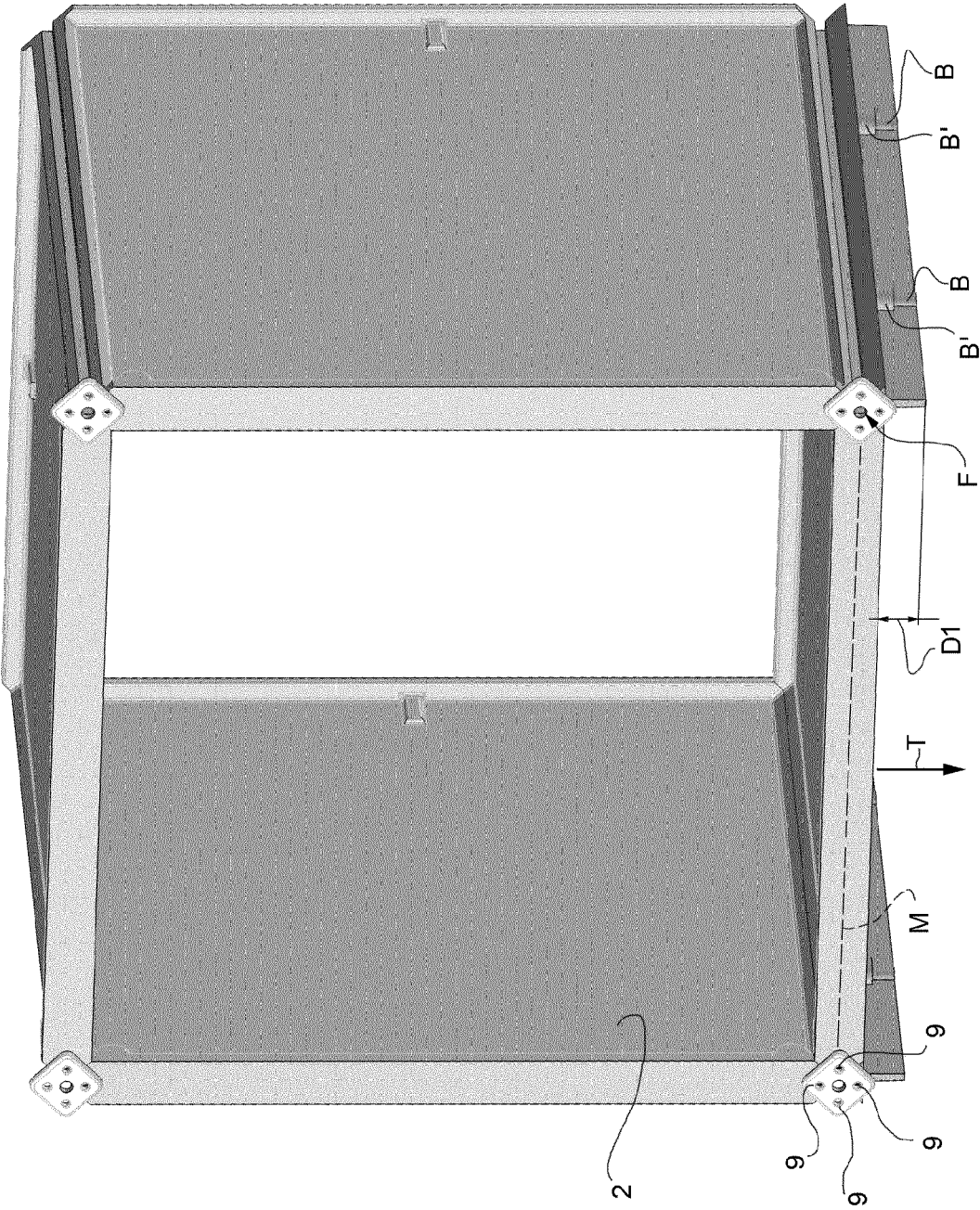


FIG. 2



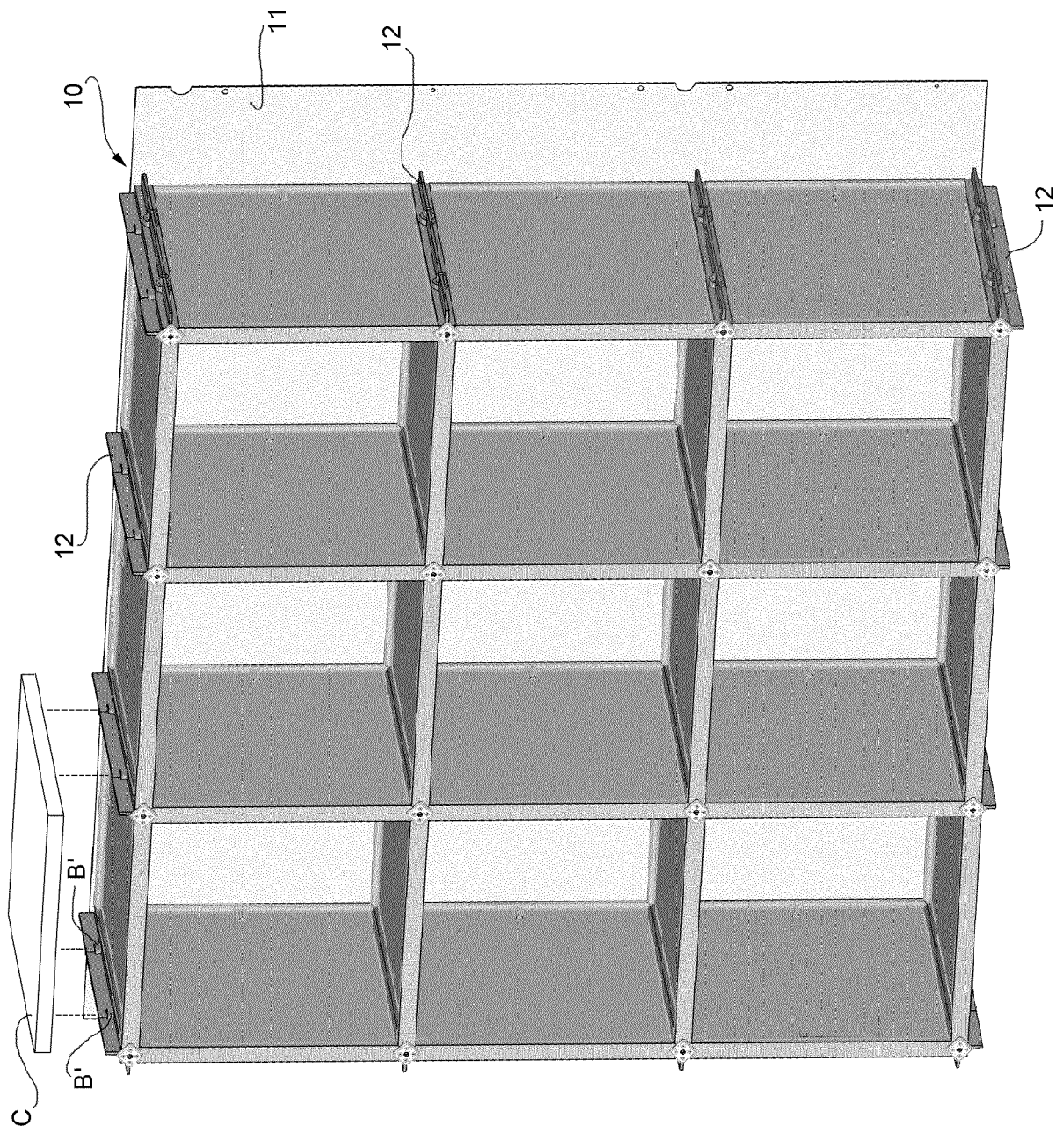


FIG. 3



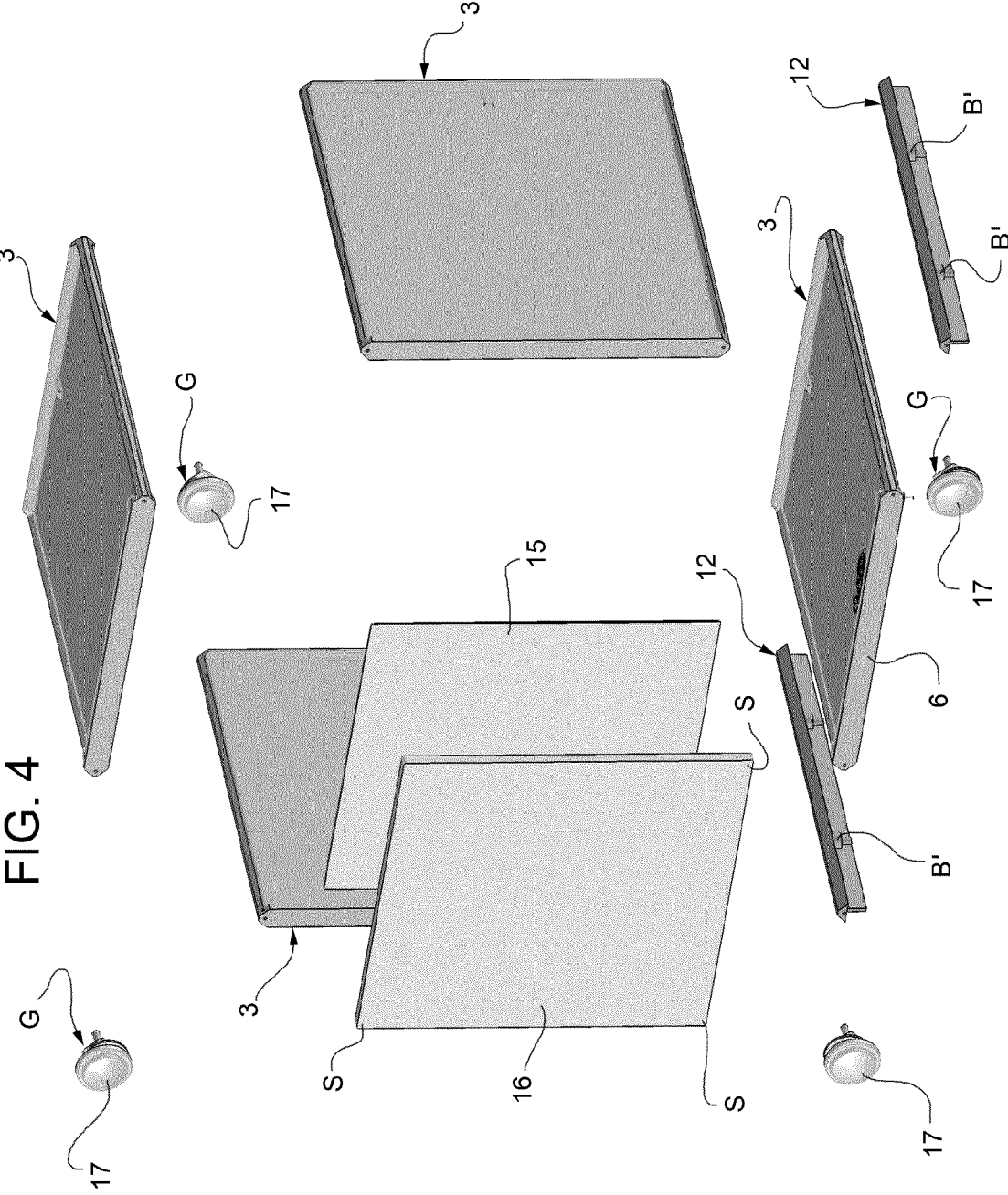




FIG. 5

