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CONFIGURABLE MODULAR TECHNICAL WORKBENCH

- (57)

Workbench that comprises: one or several manhole modules (1, 2 ,8) equipped with manhole covers (4, 6, 9) on at least one of the sides and with removable sides fixed by magnetic means; a first wiring level that comprises at least horizontal wirings (5) between the manhole modules and is equipped with inlets (5.1) at the ends and outlets at the front (5.3), and a closing top panel (7), (15); moreover, it may further comprise a second wiring level, for which reason the support modules are accessible manhole modules and are equipped with
- manhole and inlet covers on at least one of the sides, and the second level comprises manhole boxes (12), horizontal wirings (13), and angled and final sections (14), all of them equipped with inlets (12.1), (13.1) and (14.1), which face one another in order to allow for cable pass-through. The workbench presents a high level of connectivity between the modules, configuration flexibility and easy access to the equipment housed in the modules.

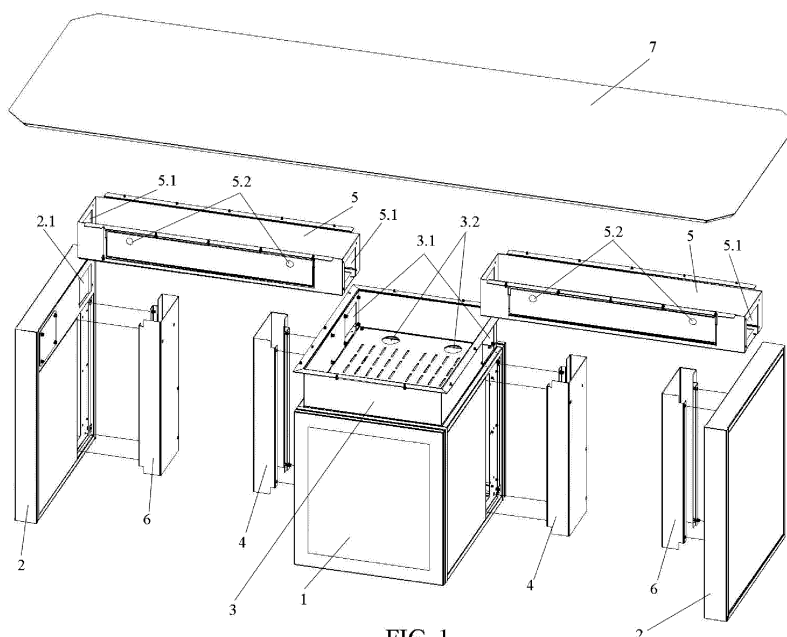


FIG. 1

Description**OBJECT OF THE INVENTION**

[0001] As the title of the invention specifies, the object of the present invention is a configurable modular technical workbench, i.e. a workbench that is the result of the joining of different modules, which allow for wiring between cable modules, whether data or power supply cables, and where the modules are manhole modules, accessible from the sides.

[0002] The present invention is characterised by the special configuration and design of the parts and elements that make up the object of the invention, such that a workbench is obtained that is especially designed for technical work and connectivity between computer equipment components, which makes it possible to design one or several wiring levels, in addition to being adaptable to different geometries according to the users' needs and requirements.

[0003] Therefore, the present invention is framed within the scope of workbenches; in particular, technical workbenches for computer equipment or similar elements.

BACKGROUND OF THE INVENTION

[0004] In general, those workbenches designed for technical equipment present in the prior art are conceived for single computer devices and, at best, are equipped with some cable pass-through holes, but in no case are they conceived for different equipment components with the possibility to interconnect them, in addition to allowing for pass-through of the connection cables between them.

[0005] Moreover, there are no workbenches that allow for flexibility in the configuration of the modular geometry.

[0006] In addition, sometimes it is difficult to access the connection points of the important equipment housed on the racks or the technical workbenches, with the consequent time required for assembly and verification of the connectivities.

[0007] Therefore, the object of the present invention is to develop a technical workbench that overcomes the aforementioned disadvantages, i.e. lack of wirings and connectivity between the elements, lack of flexibility in the configuration and difficulty to access the equipment housed in the housing modules, by developing a workbench such as the one described below, the essentiality whereof is contained in the first claim.

DESCRIPTION OF THE INVENTION

[0008] The object of the present invention is a configurable modular technical workbench characterised by the modularity of the elements that make up the workbench, which results in multiple configuration possibilities in terms of the final geometry, in addition to allowing for the wiring of cables between the different modules.

[0009] The workbench comprises:

- One or several manhole modules equipped with manhole covers on at least one of the sides.
- a first wiring level which comprises, at least, horizontal wirings between the manhole modules and is equipped with inlets at the ends and outlets at the front.
- a closing top panel.

[0010] In a first embodiment, the workbench is equipped with one wiring level and the support modules may be wide or narrow support modules, whilst the first wiring level may be equipped with a manhole box placed on the wide manhole module and inlets that may be directly connected to the inlets at the ends of the horizontal wiring.

[0011] The narrow manhole modules are equipped with inlets arranged in such a way that, when the workbench is assembled, they face the horizontal wiring inlets.

[0012] In a second embodiment, the workbench is equipped with a double wiring level, where the first wiring level is configured by the support modules, which are accessible manhole modules and are equipped with manhole and inlet covers on at least one of the sides, said covers being equipped with inlets, in such a way that, when the ensemble is assembled, they face the inlets at the ends of the first-level horizontal wirings.,

[0013] The second wiring level is composed by, among other elements, manhole boxes, horizontal wirings and angled and final sections, all of them equipped with inlets for cable pass-through which face one another.

[0014] Finally, the second wiring level is covered by a panel.

[0015] Except as otherwise specified, all the technical and scientific elements used in the present specification have the meaning that is habitually understood by normal persons skilled in the art whereto this invention belongs. In the implementation of the present invention, similar or equivalent processes and materials to those described in the specification may be used.

[0016] Throughout the description and the claims, the word "comprises" and variants thereof are not intended to exclude other technical characteristics, additives, components or steps. For persons skilled in the art, other objects, advantages and characteristics of the invention will arise, partly from the description and partly from the implementation of the invention.

DESCRIPTION OF THE FIGURES

[0017] In order to supplement the description being made, and to contribute to a better understanding of the characteristics of the invention, according to a preferred embodiment thereof, a set of drawings is attached to said description as an integral part thereof, where the following is represented for illustrative, non-limiting purposes:

In Figure 1, we may observe an exploded view diagram of the parts that make up a first embodiment of the invention.

Figure 2 shows a detail of the aforementioned embodiment.

Figure 3 shows a construction detail of a narrow support.

Figure 4 shows a partial representation of a second embodiment.

Figure 5 shows a detail of the joint between an accessible manhole module and the cross beam, in the form of a wire cable tray.

Figure 6 shows a second wiring level.

[0018] En la Figure 7 shows a workbench with two cable wiring levels.

PREFERRED EMBODIMENT OF THE INVENTION

[0019] In light of the figures, below we describe a preferred embodiment of the proposed invention.

[0020] In Figures 1 to 3, we may observe a first embodiment of the workbench of the invention, which presents one wide support module (1) and two narrow support modules (2). The number and the location of each type of support module are non-limiting.

[0021] The wide support module (1) presents one lateral manhole cover (4) on at least one of the sides, which moreover serves to support the horizontal wirings (5). The narrow support module (2) presents one lateral manhole cover (6) on at least one of the sides, which moreover serves to support the horizontal wirings (5).

[0022] In order to facilitate wiring of the cables, whether communication or power supply cables, the workbench is equipped with:

- one manhole box (3) placed on the wide support module (1), which is equipped with inlets (3.1) on the sides and outlets at the back (3.2).
- horizontal wirings (5) equipped with inlets (5.1) at the ends and outlets at the front (5.2), which are placed on the upper part of the lateral manholes (6) and (4).
- inlets (2.1) placed on the narrow support modules (2).

wherein adjacent inlets face one another; thus, the inlets (3.1) of the manhole box (3.1) face the inlets (5.1) of the horizontal wirings, and the latter face the inlets (2.1) of the narrow support modules.

[0023] The ensemble is covered by a panel (7), such that the wirings are placed just beneath the panel (7); they remain covered and provide for continuous wiring

between the support modules.

[0024] In Figure 2, it is worth noting that the horizontal wirings are equipped with horizontal flaps (5.3) that emerge from the upper edge, and said horizontal flaps (5.3) present holes (5.4) that serve to attach the panel to this first wiring level.

[0025] The manhole box (3) also presents horizontal flaps (3.3) equipped with holes (3.4) designed to provide support and attachment for the panel (7).

[0026] In Figure 3, we may observe a narrow support module (2) at an intermediate location, and not at the ends, as the one shown in the other figures; consequently, both sides are equipped with manhole covers (6) and inlets on the upper part (2.1).

[0027] Figures 4 to 7 show a second embodiment, which follows the same principles of the invention and is characterised by having a double wiring level; consequently, the support modules are accessible manhole modules (8) that present manhole covers and inlets (9) on at least one of the sides, for which reason the upper parts of these covers (9) are equipped with inlets (9.1) that allow for access into the support modules.

[0028] Moreover, it is equipped with a lower cross beam or horizontal wiring (10) that is equipped with inlets at the ends (10.1) and outlets at the front (10.2).

[0029] The inlets at the ends (10.1) are arranged in such a way that they face the inlets (9.1) of the manhole and inlet covers (9) once the horizontal wiring is assembled (10).

[0030] The lower horizontal wiring (10) is equipped with horizontal flaps (10.3) that emerge from the upper edge, and said horizontal flaps (10.3) present holes (10.4).

[0031] Figure 5 shows a detail of the ensemble assembled in Figure 4. Figure 6 shows a second wiring level (11), which comprises:

- one manhole box (12), equipped with inlets (12.1) on the sides and one outlet at the back (12.2).
- horizontal wirings (13) equipped with inlets (13.1) at the ends and outlets at the front (13.2).
- angled sections (14) or final sections connected to the horizontal wirings (13) and equipped with inlets (14.1).

[0032] This second wiring level (11) is placed just above the first level, as may be observed in Figure 7, and have outlets (14.2) and (12.2) at the back, which allow for connection to the next-lower level.

[0033] This second level is covered by a top panel (17).

[0034] The support modules are designed to house computer equipment in the interior thereof, for which reason the walls of these support modules, preferably the wide support modules (1), are equipped with removable sides attached by magnetic means, which facilitate the assembly and withdrawal thereof.

[0035] Since it is modular, the ensemble may be configured, in terms of geometry, as desired, with "U"-shaped, "L-shaped", circular assembly configurations or

any other geometry being possible.

[0036] Having sufficiently described the nature of the present invention, as well as the way to implement it, we state that, within its essentiality, it may be implemented in other embodiments that may differ in some details from the one described as an example, and which will equally receive the protection being requested, provided that they do not alter, change or modify the fundamental principle thereof.

Claims

1. Configurable modular technical workbench **characterised in that** it comprises:

- one or several manhole modules (1,2,8) equipped with manhole covers (4, 6, 9) on at least one of the sides and with removable sides attached by magnetic means.
- a first wiring level which comprises at least horizontal wirings (5) between the manhole modules and is equipped with inlets (5.1) at the ends and outlets at the front (5.3).
- a closing top panel (7), (15).

2. Configurable modular technical workbench, according to claim 1, wherein the workbench is equipped with one wiring level and the support modules are one or several wide support modules (1) and narrow support modules (2), where the wide support module (1) presents a lateral manhole cover (4) on at least one of the sides, which moreover serves to support the horizontal wirings (5); and the narrow support module (2) presents a lateral manhole cover (6) on at least one of the sides, which moreover serves to support the horizontal wirings (5), and, in order to facilitate the wiring, the workbench comprises:

- one manhole box (3) placed on a wide support module (1), which is equipped with inlets (3.1) on the sides and outlets at the back (3.2).
- horizontal wirings (5) which are supported on the upper part of the lateral manholes (6) and (4).
- inlets (2.1) placed on the narrow support modules (2)

3. Configurable modular technical workbench, according to claim 2, wherein the horizontal wirings are equipped with horizontal flaps (5.3) that emerge from the upper edge, and said horizontal flaps (5.3) present holes (5.4)

4. Configurable modular technical workbench, according to claim 1, wherein the workbench is equipped with two wiring levels, where the first wiring level is configured by means of the support modules, which are accessible manhole modules (8) and are

equipped with manhole and inlet covers (9) on at least one of the sides, said covers being equipped with inlets (9.1), in such a way that, once the ensemble is assembled, they face the inlets at the ends of the first-level horizontal wirings (10.1); the second wiring level is made up of, among other elements, manhole boxes (12), horizontal wirings (13), and angled and final sections (14), all of them equipped with inlets (12.1), (13.1) and (14.1), which face one another for cable pass-through, and a closing top panel (17).

5. Configurable modular technical workbench, according to claim 1, wherein the manhole box (12) is equipped with inlets (12.1) on the sides and an outlet at the back (12.2); the horizontal wirings (13) are equipped with inlets (13.1) at the ends and outlets at the front (13.2), and the angled sections (14) or final sections connected to the horizontal wirings (13) are equipped with inlets (14.1).

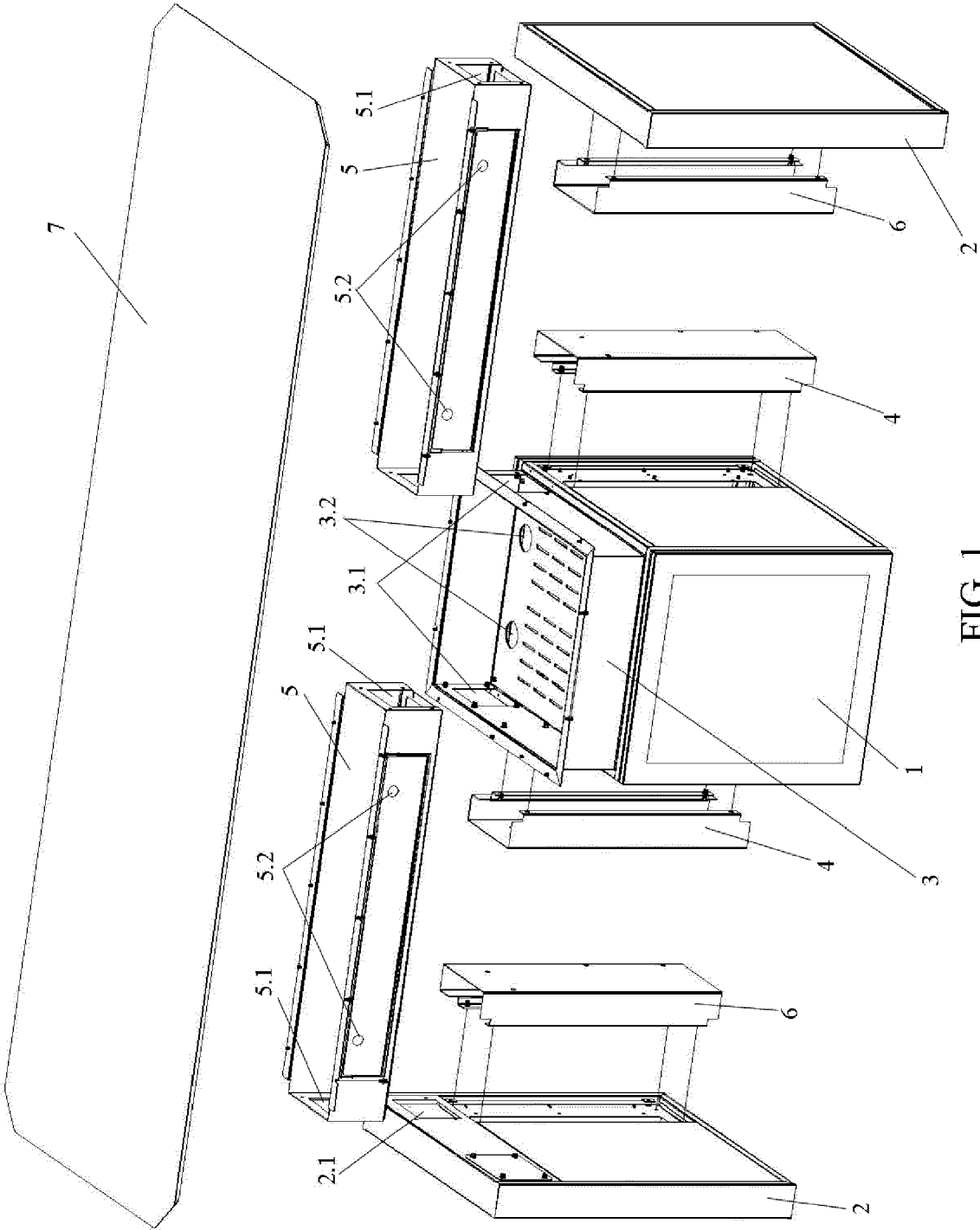


FIG. 1

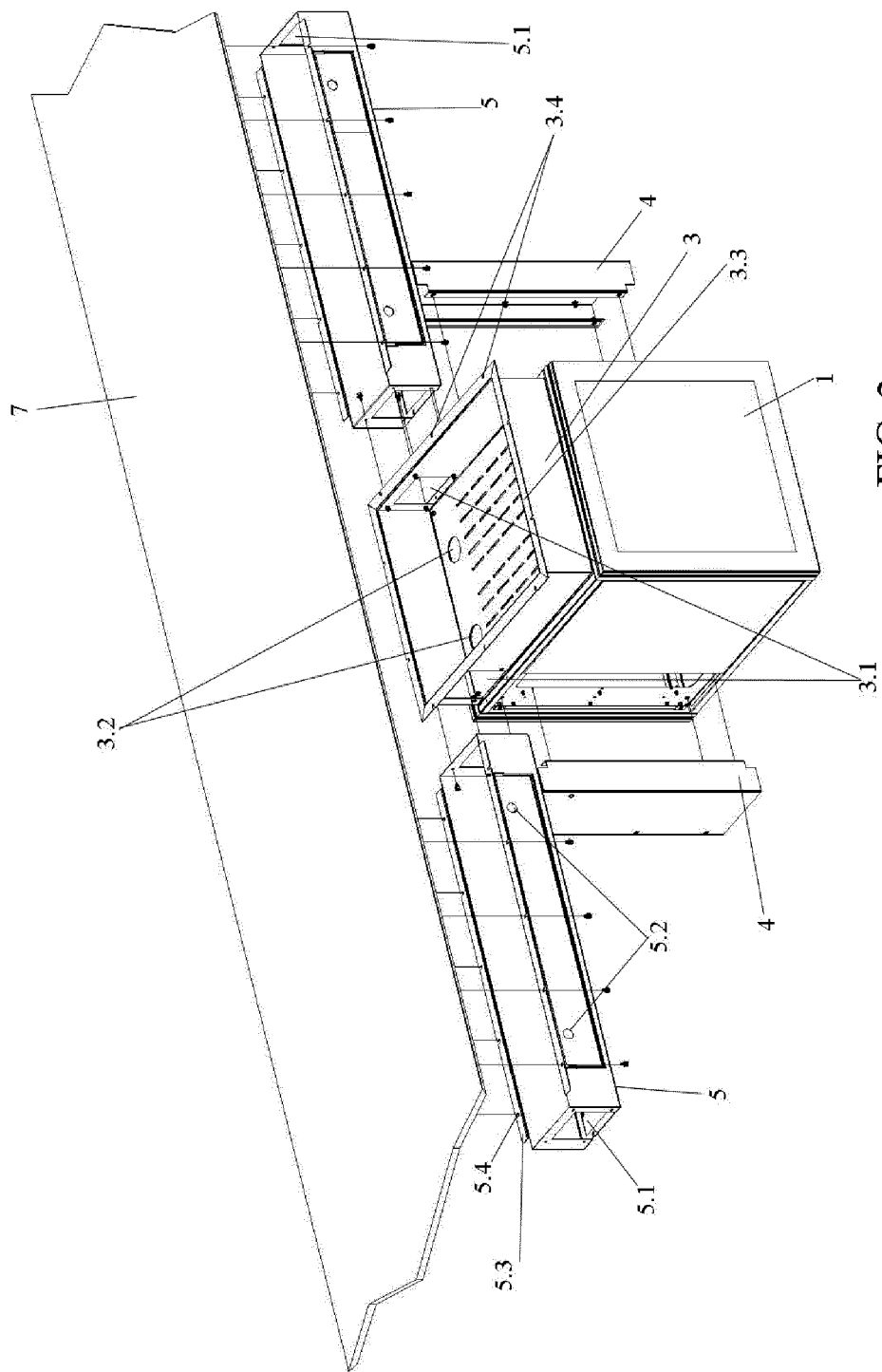


FIG. 2

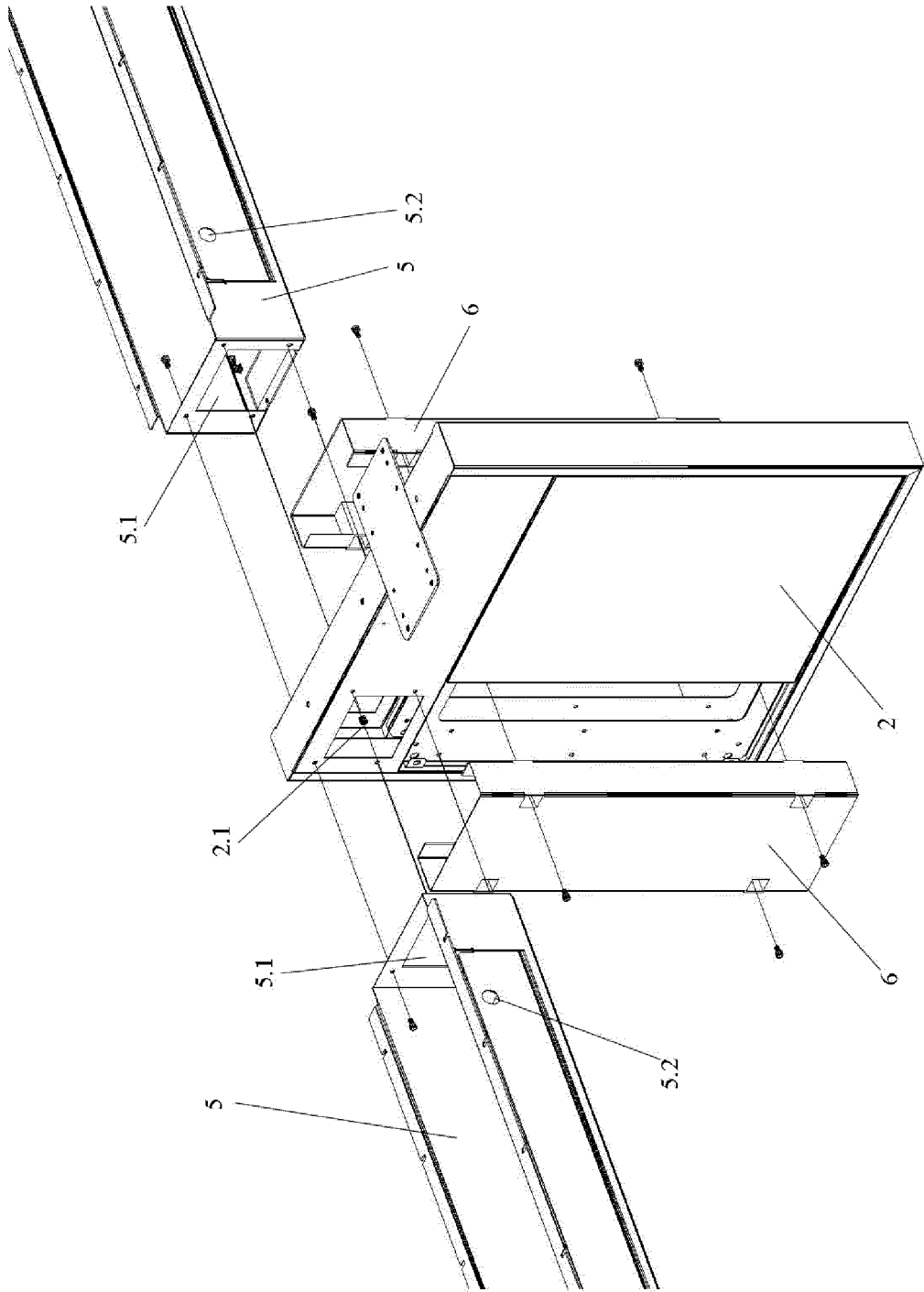


FIG. 3

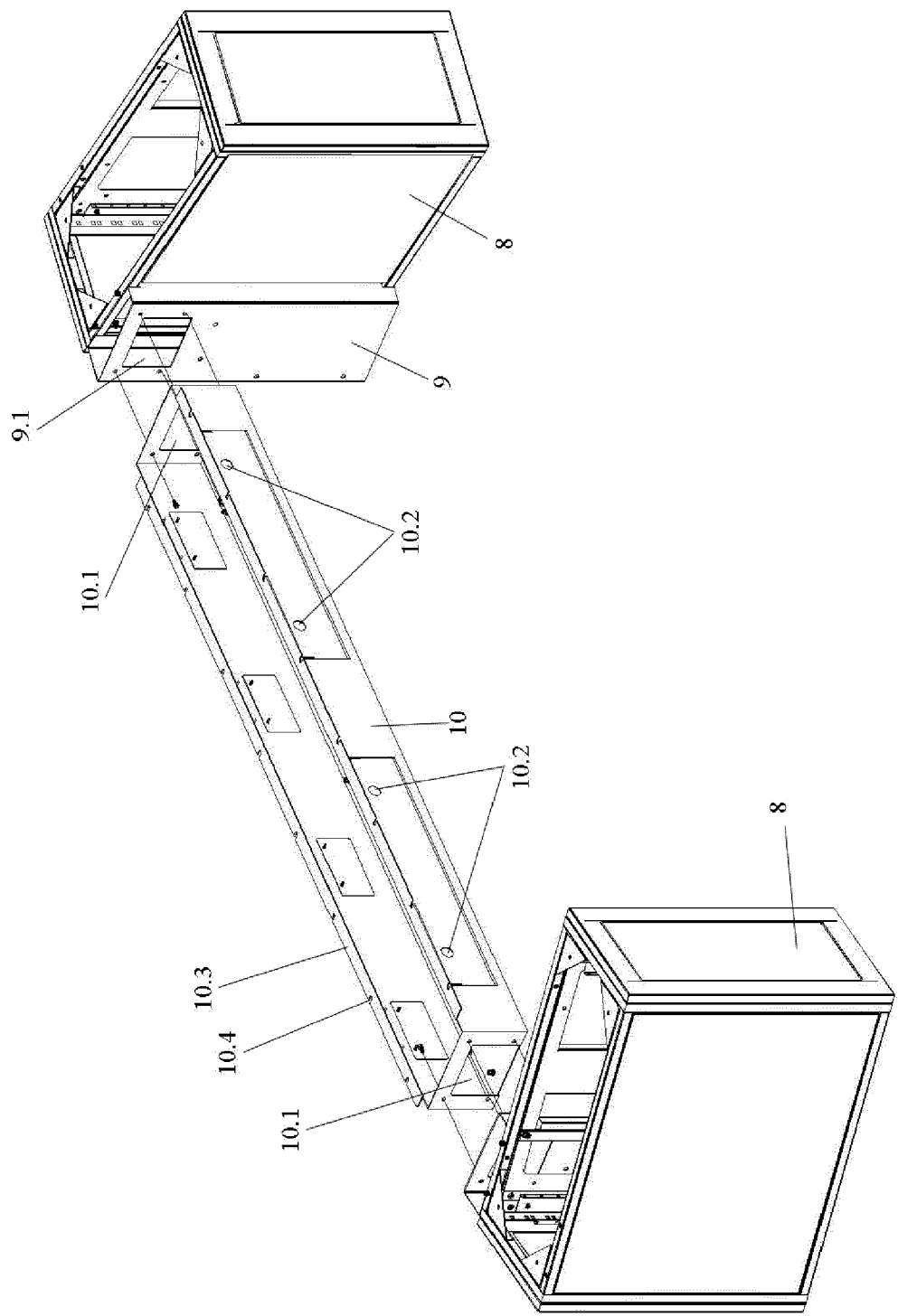


FIG. 4

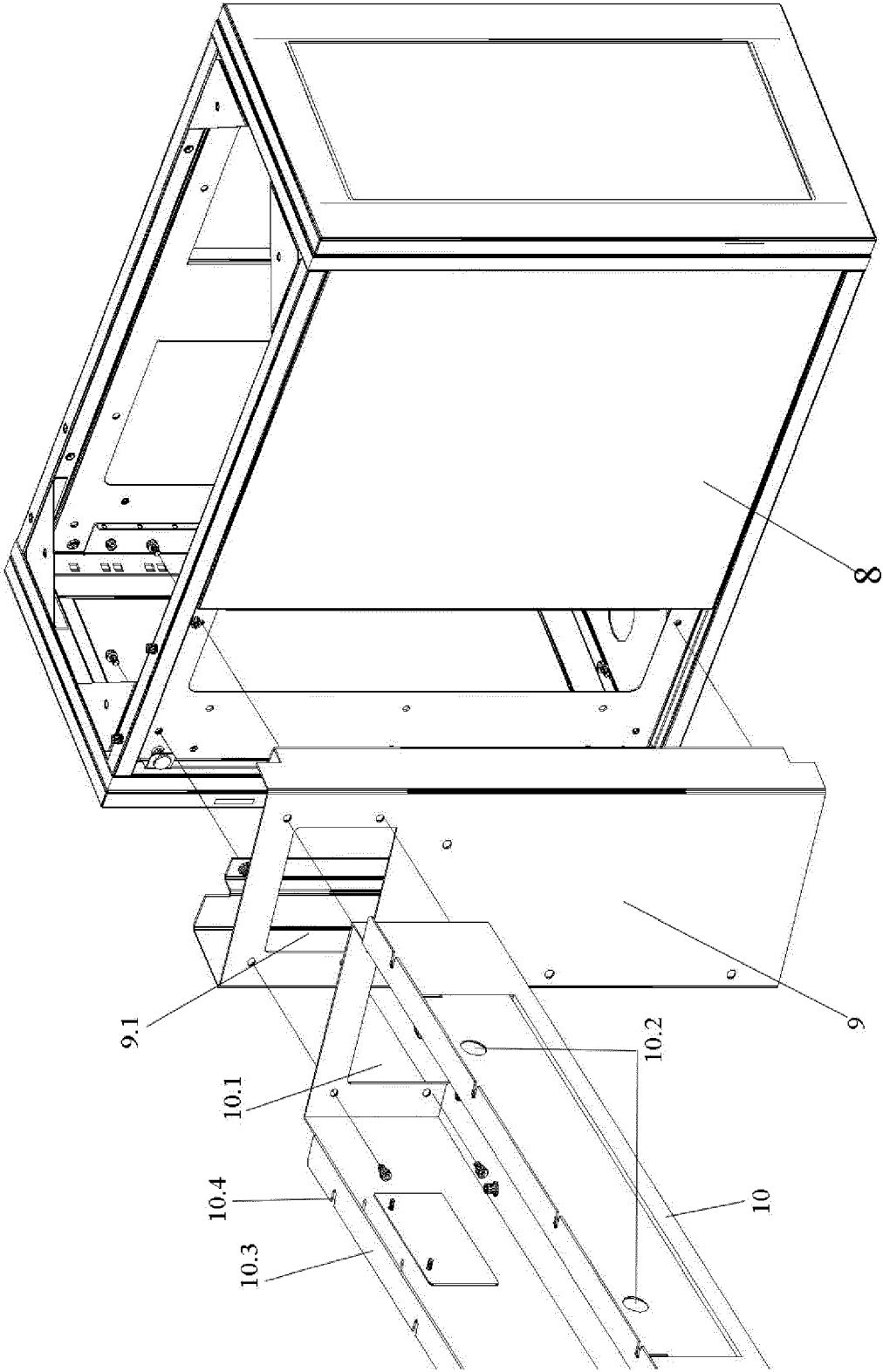


FIG. 5

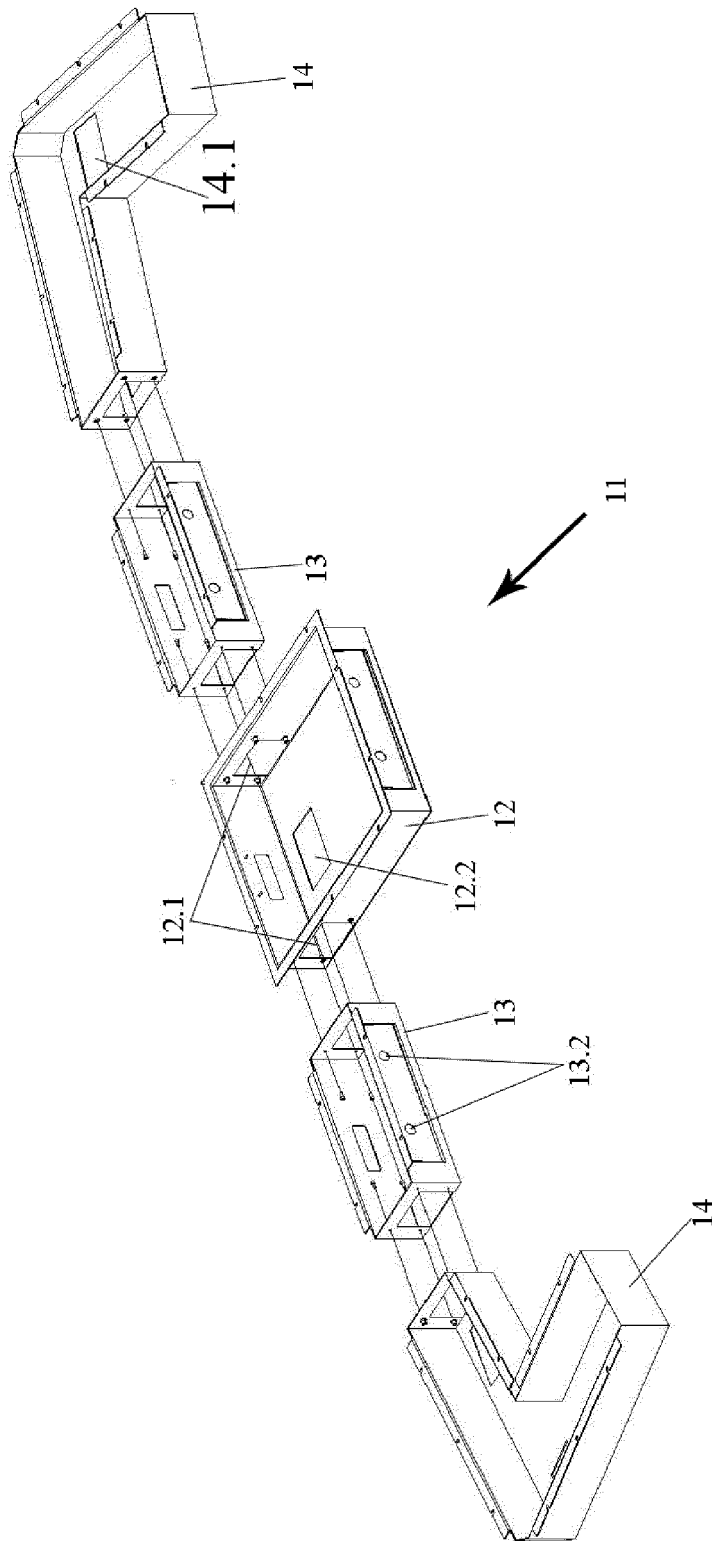


FIG. 6

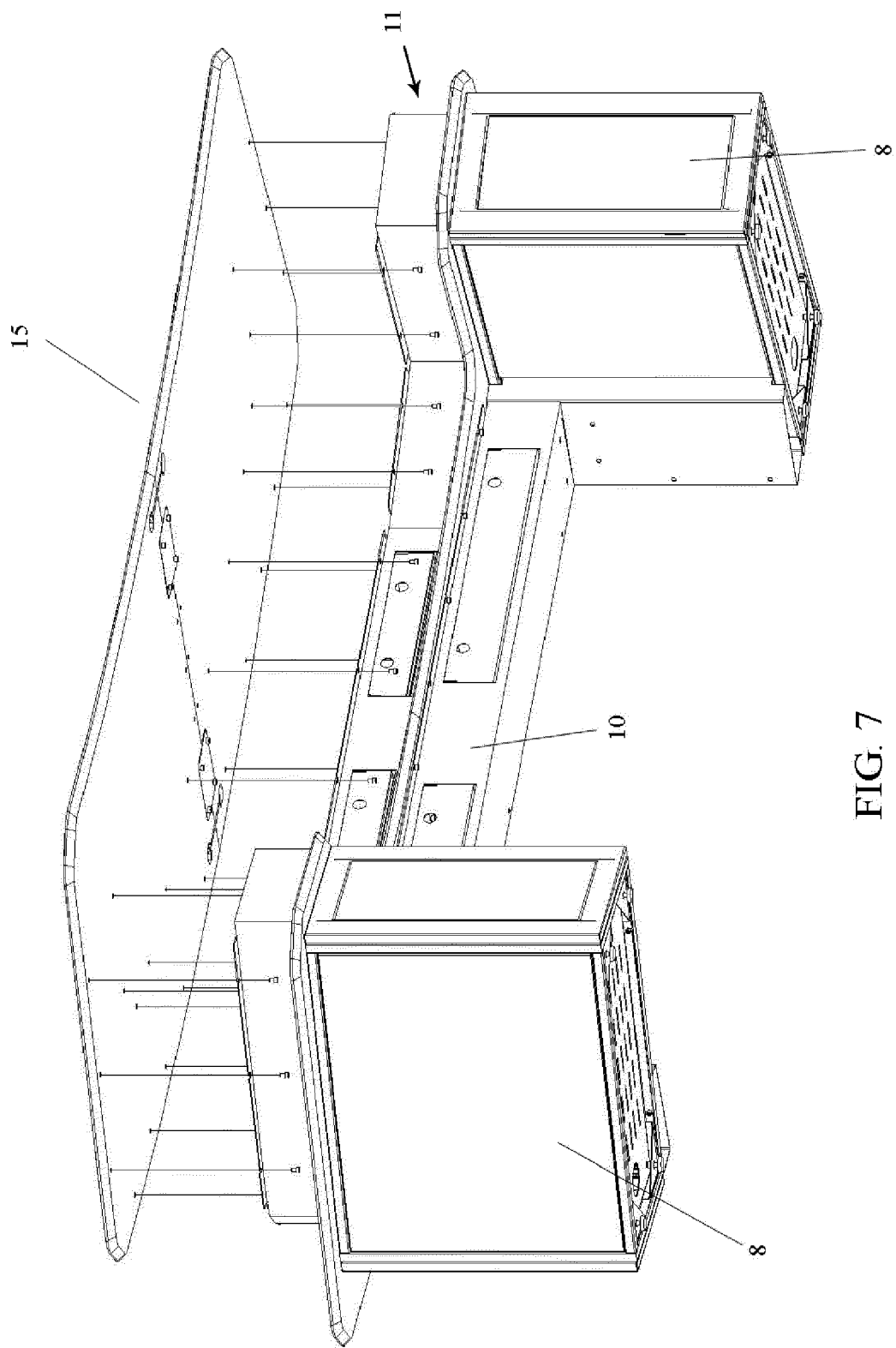


FIG. 7



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 Application Number
 EP 16 38 2243

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 25 October 2016	Examiner Bitton, Alexandre
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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