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(54) **PERGOLA**

(57) Pergola with profiles that are easier to install and less expensive than current ones, and with sturdier closing elements, comprising an upper frame that includes at least four longitudinal members. The pergola also comprises at least two supporting means connected to the frame, and between the two supporting means a lateral space is defined that is covered by an enclosure comprising at least one closing element having a glass pane with an upper edge, and each longitudinal member comprises at least one lower wall from the upper face of which protrudes at least one side wall and from the lower face of which protrude at least two guide walls, such that between two adjacent guide walls a guide space is defined in which the upper edge of the closing element can move, such that the lower wall, the side wall and the guide walls are integrated arrangements of each longitudinal member.

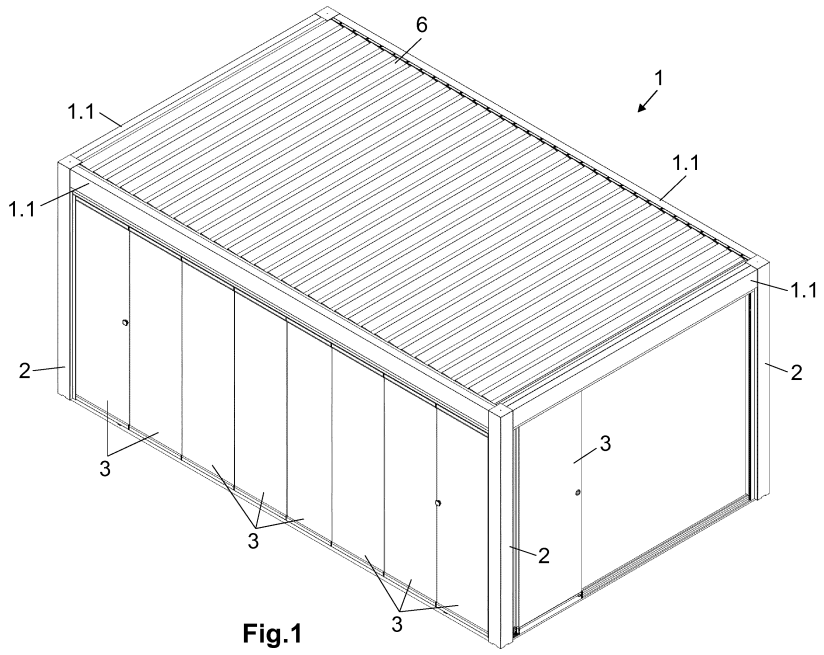

Fig.1

EP 3 636 850 A1

Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention belongs to the field of constructions for limited occupation, specifically such as pergolas and with lateral enclosures.

BACKGROUND OF THE INVENTION

[0002] Small constructions or constructions for limited occupation such as pergolas are known.

[0003] Pergolas create lateral spaces that are normally closed by enclosures comprising closing elements for protection from the sun, such as blinds or awnings. For this purpose it is common to bolt the necessary profiles to the longitudinal profiles of the upper frame of the pergola, which is labour intensive and expensive.

[0004] The closing elements are suitable for providing intimacy or protection from the sun, but are not sufficient for protection from more severe weather conditions or more sturdy enclosures; in addition, said closing elements typically limit or impede the view from inside.

[0005] For example, patent FR2970495 describes a pergola with an upper frame and four supporting pillars. Enclosures for lateral spaces are of the blinds type, housed in profiles connected to the longitudinal members of the upper frame.

[0006] No pergolas are known with an upper frame having longitudinal members with the necessary arrangement in which the closing elements of the enclosures are present, nor such closing elements being made of glass.

DESCRIPTION OF THE INVENTION

[0007] The present invention is established and characterised in the independent claims, while the dependent claims describe additional characteristics thereof.

[0008] The subject matter of the invention is a pergola with an enclosure, which includes an upper frame with longitudinal members that require less installation effort and are less expensive than current ones, as well as closing elements that are sturdier than known ones and which allow the user to see through them. The technical problem addressed is how to configure the pergola in order to achieve the aforementioned result.

[0009] In view of the above, the present invention relates to a pergola comprising an upper frame with at least four longitudinal member, which is the usual arrangement, arranged in a quadrangular manner, although they could be arranged in a rhombus, trapezoidal or other manner. The pergola also comprises at least two supporting means connected to the upper frame by any known attachment method, such as by direct screwing or using a specific anchoring part. The "two supporting means" intends to indicate that there must be at least two supporting means, and does not indicate here that there must be two different types of supporting means, as in some examples of embodiments described below.

[0010] A lateral space is created between the two supporting means, where "lateral" is used to describe the position with respect to the pergola arranged on the ground in the usual manner, covered by an enclosure that comprises at least one closing element.

[0011] The invention is characterised in that each closing element comprises a glass pane with an upper edge. This means that these elements are essentially a glass pane, but are not limited to being only a glass pane as it may consist in a laminate including plastic layers to prevent projection of pieces in case of breaking, or may be part of another type of enclosure such as a frame or mask made of plastic or metal, etc.

[0012] The invention is also characterised by each longitudinal member comprising at least one lower wall from the upper side of which extends at least one side wall, and from the lower side of which extend at least two guide walls, such that between two adjacent guide walls a space is configured in which the upper edge of the closing element can move, such that the lower wall, the side wall and the guide walls are integrated elements of each longitudinal member.

[0013] The lower wall has a substantially flat arrangement as known, and the upper and lower faces thereof are designated with respect to their orientation to each longitudinal member in their final position on the pergola.

[0014] That is, each longitudinal member integrates the necessary arrangement, the guide walls, in which moves each closing element, and there is no need for profiles connected as in the prior art; in addition, the closing elements are glass panes, establishing a sturdy and improved closure compared to known blinds and the like.

[0015] Other advantages related to characteristics described in the dependent claims are cited in the detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] This specification is supplemented with a set of drawings illustrating the preferred embodiment, which are never intended to limit the invention.

Figure 1 shows a perspective view of a pergola where the supporting means are four pillars.

Figure 2 shows a perspective view of a pergola where the supporting means are two pillars and one supporting surface.

Figure 3 shows a perspective view of a pergola where the supporting means are one pillar and two supporting surfaces.

Figure 4 shows a perspective view of a pergola where the supporting means are two supporting surfaces.

Figures 5, 6 and 7 show perspective views of extended pergolas, meaning that the relatively large size acquired allows doubling, tripling, etc. the pergola configurations of Figures 1 and 2.

Figure 8 shows a cross-sectional view of a longitudinal member, where the upper edge of the closing element moves directly in the guide opening of the longitudinal member; said longitudinal member has a closed drawer arrangement.

Figures 9 and 10 show cross-sectional views of a longitudinal member, where the upper edge of the closing element presents an upper profile above which there is a rolling and rotation assembly that moves inside the guide opening of the longitudinal member; said longitudinal member has an L-shaped configuration in Figure 9 and a closed drawer arrangement in Figure 10.

Figure 11 shows a cross-sectional view of a longitudinal member, where the upper edge of the closing element presents an upper profile above which is an expansion profile that houses the rolling and rotation assembly that moves inside the guide opening of the longitudinal member; said longitudinal member has a closed drawer arrangement.

DETAILED DESCRIPTION OF THE INVENTION

[0017] An embodiment of the invention is described below with reference to the figures.

[0018] Figures 1 to 4 show a pergola comprising an upper frame (1), normally with a cover such as the slats (6) shown, although this could be of a different type, such as a tarpaulin or rigid roof, which in turn comprises four longitudinal member (1.1) in the embodiment described arranged in a rectangular shape, although there could be a different number larger than four and could have a different arrangement; the pergola also comprises at least two supporting means (2, 4, 5), such that between the two supporting means (2, 4, 5) a lateral space is created that is covered by an enclosure comprising at least one closing element (3). For example and more specifically, Figure 1 shows that the supporting means consist in four pillars (2); Figure 2 shows that the supporting means consist in at least two pillars (2) and a first supporting surface (4) connected to at least one longitudinal member (1.1), the latter being one of the longitudinal member that is not in contact with any of the pillars (2), in the embodiment shown arranged aligned and coinciding with the corners of the frame (1), although there could be a different number larger than two with a different arrangement; Figure 3 shows supporting means that are at least one pillar (2), a first supporting surface (4) connected to at least one longitudinal member (1.1), a second supporting surface (5) connected to at least one longitudinal member (1.1), where the longitudinal members are in contact with the supporting surfaces (4, 5) some of which are not in contact with any of the pillars (2); Figure 4 shows that the supporting means are a first supporting surface (4) connected to at least one longitudinal member (1.1), a second supporting surface (5) connected to at least one longitudinal member (1.1), said longitudinal member (1.1) not being adjacent to each other, such that the supporting surfaces (4, 5) do not touch each other.

[0019] Although it is not shown, the supporting means can be only two pillars (2) such that they are sufficient to support the upper frame (1).

[0020] Thus, between two adjacent pillars (2), between a pillar (2) and a supporting surface (4, 5), or between two supporting surfaces (4, 5) a lateral space is created that is covered by an enclosure that comprises at least one closing element (3). As shown in Figures 1 to 3, by way of illustration, the greater side comprises eight closing elements (3), and in Figures 1 and 4 the smaller side comprises four elements, although only one is seen as the other three are stacked on the visible one.

[0021] Figures 5 to 7 show extended pergolas, meaning that the relatively large size acquired allows doubling, tripling, etc. the aforementioned pergola configurations according to need and in any direction. Thus, Figure 5 shows an extended pergola based on the one shown in Figure 1; as can be seen, the front and rear longitudinal members (1.1) according to the figure extend along the entire dimension of the pergola for an increased sturdiness, while for the same purpose an intermediate longitudinal member (1.1) and two intermediate pillars (2) are provided, which may or not be necessary depending on each specific arrangement; analogously, in Figure 6 the pergola of Figure 2 is extended, and in Figure 7 the pergola of Figure 5 is extended. For sake of clarity the closing elements (3) have not been shown in said Figures 5 to 7.

[0022] As shown in Figures 8 to 11, each closing element (3) comprises a glass pane with an upper edge (3.11), each longitudinal member (1.1) comprises at least one lower wall (1.11) from the upper side of which extends at least one side wall (1.12) and from the bottom side of which extend at least two guide walls (1.13).

[0023] As shown in Figures 8 to 11, two adjacent guide walls (1.13) configure a guide space (1.14) in which the upper edge (3.11) of the closing element (3) can move, opening and closing the enclosure at will by sliding each closing element (3), such that the lower wall (1.11), the side wall (1.12) and the guide walls (1.13) are integrated configurations of each longitudinal member (1.1), that is, they form part of the same piece, normally made from an extruded metal, such as aluminium.

[0024] Figure 8 shows how six guide walls (1.13) extend from the lower wall (1.11), although at least two guide walls (1.13) could extend therefrom, which is the simplest embodiment with regard to the closing element (3), the upper edge (3.11) thereof moving directly for example by fitting in brush (1.15) configurations in a known manner.

[0025] An embodiment with more elements with regard to the closing element (3) is shown in Figures 9 and 10, where in the upper edge (3.11) an upper profile (3.2) is arranged and above this a rolling and rotation assembly (3.3) such that it can move in the guide space (1.14). Optionally, this rotation and rolling assembly (3.3) comprises, as shown, at least one carriage or roller (3.31), two carriages in the embodiment shown, which can move above tabs (1.16) that protrude from the guide walls (1.13), in the form of a rolling path. This arrangement implies more elements than in Figure 3, but the sliding of the closing elements (3) is smoother, which is highly desirable when they are large and therefore relatively heavy.

[0026] An embodiment with even more elements regarding the closing element (3) is shown in Figure 11, where above the upper profile an extension profile (3.4) is arranged that houses the rolling and rotation assembly (3.3) such that said extension profile (3.4) can move in the guide space (1.14); specifically, the extension profile (3.4) comprises two side partitions (3.41) between which the rolling and rotation assembly are placed (3.3), which comprises a carriage or roller (3.31), two carriages in the embodiment shown, that can move above tabs (3.43) protruding from the partitions (3.41), said partitions move in the guide space (1.14) such that it is possible to adjust the relative height of the guide walls (1.13) and the partitions (3.41), in a telescopic manner. This arrangement is highly advantageous for achieving an arrangement in which each closing element (3) can be levelled regardless of whether the pergola is levelled, due to irregular ground, or when attached to one or several supporting surfaces (4,5), at the position in which these have been secured. This is further optimised in that the lower wall (1.11), as shown in Figure 11, forms a line that is not in the same direction throughout its length, instead forming part of the guide space (1.14) such that it is inserted into the longitudinal member (1.1) thereby providing an upper space in which it is possible to fit the closing elements (3), which is at times essential when the ground does not allow increasing the height in the installation of the pergola.

[0027] Figures 9 to 11 show guide walls (1.13) on the left part of each longitudinal member (1.1), although it is possible to place these on the right side and in any position between these as desired.

[0028] With regard to the arrangement of the longitudinal members (1.1), the figures show various embodiments that will be described below. Each arrangement of the closing element (3) can be combined with any of the configurations explained below. For the sake of brevity, the figures show the embodiments of Figures 8 to 11.

[0029] Said Figures 8 to 11 show longitudinal members (1.1) in which two side walls (1.12) are arranged, one on each end of the upper face of the lower wall (1.11). Figures 8, 10 and 11 also show, in addition to the lower wall (1.11), other secondary walls (1.19) above to thereby form a longitudinal member (1.1) in the form of a closed drawer. However, in figure 9 the longitudinal member (1.1) has a C-shaped arrangement with a lower inner wall (1.17) for each side wall (1.12). Although not shown, this arrangement can also be L-shaped simply by not placing, in Figure 9, the side wall (1.12) and the inner side wall (1.17) on the right end of the lower wall (1.11).

[0030] Figure 10 shows a reinforced arrangement of the longitudinal member (1.1) where under the lower wall (1.11) a reinforcing wall is placed (1.18) that connects one end of the lower wall (1.11) to at least one guide wall (1.13). In this way, a more solid structure is obtained by integrating fully in the structure of the longitudinal member (1.1) the arrangement with the guide walls (1.13)

Claims

1. Pergola comprising an upper frame (1) that in turn comprises at least four longitudinal members (1.1), the pergola also comprises at least two supporting means (2,4,5) connected to the upper frame (1) such that between the two support means (2,4,5) a lateral space is formed that is covered by an enclosure comprising at least one closing element (3), **characterised in that** each closing element (3) comprises a glass pane with an upper edge (3.11), each longitudinal member (1.1) comprises at least one lower wall (1.11) from the upper face of which emerges at least one side wall (1.12) and from the lower face of which emerge at least two guide walls (1.13), such that between two adjacent guide walls (1.13) a guide space (1.14) is defined in which the upper edge (3.11) of the closing element (3) can move, such that the lower wall (1.11), the side wall (1.12) and the guide walls (1.13) are integrated arrangements of each longitudinal member (1.1).

2. Pergola according to claim 1 where an upper profile (3.2) is present on the upper edge (3.11) and above the former there is a rolling and rotation assembly (3.3) that can move in the guide space (1.14).

3. Pergola according to claim 2 where an extension profile (3.4) is present above the upper profile housing the rolling and rotation assembly (3.3), such that said extension profile (3.4) can move in the guide space (1.14).

4. Pergola according to claim 3 where the extension profile (3.4) comprises two side partitions (3.41) between which the rolling and rotation assembly (3.3) is placed, said partitions may move in the guide space (1.14) such that the relative height between the guide walls (1.13) and the partitions (3.41) can be adjusted.

5. Pergola according to claim 2 where the rolling and rotation assembly (3.3) comprises a carriage (3.31)

that can move on tabs (1.16) that protrude from the guide walls (1.13).

6. Pergola according to claim 4 where the rolling and rotation assembly (3.3) comprises a carriage (3.31) that can move on tabs (3.43) that protrude from the partitions (3.41) .

7. Pergola according to any of the preceding claims where two side walls (1.12) are arranged, one on each end of the lower wall (1.11).

8. Pergola according to claim 7 where under the lower wall (1.11) a reinforcing wall is placed(1.18) that connects one end of the lower wall (1.11) to at least one guide wall (1.13).

9. Pergola according to any of claims 1 to 8 where the supporting means are at least four pillars (2).

10. Pergola according to any of claims 1 to 8 where the supporting means are at least two pillars (2) and a first supporting surface (4) connected to at least one longitudinal member (1.1), which is one of the longitudinal members that is not in contact with any of the pillars (2).

11. Pergola according to any of claims 1 to 8 where the supporting means are at least one pillar (2), a first supporting surface (4) connected to at least one longitudinal member (1.1), a second supporting surface (5) connected to at least one longitudinal member (1.1), where the longitudinal members in contact with the supporting surfaces (4, 5) are some of those that are not in contact with any of the pillars (2).

12. Pergola according to any of claims 1 to 8 where the supporting means are a first supporting surface (4) connected to at least one longitudinal member (1.1), a second supporting surface (5) connected to at least one longitudinal member (1.1), where said longitudinal members (1.1) are not adjacent to each other.

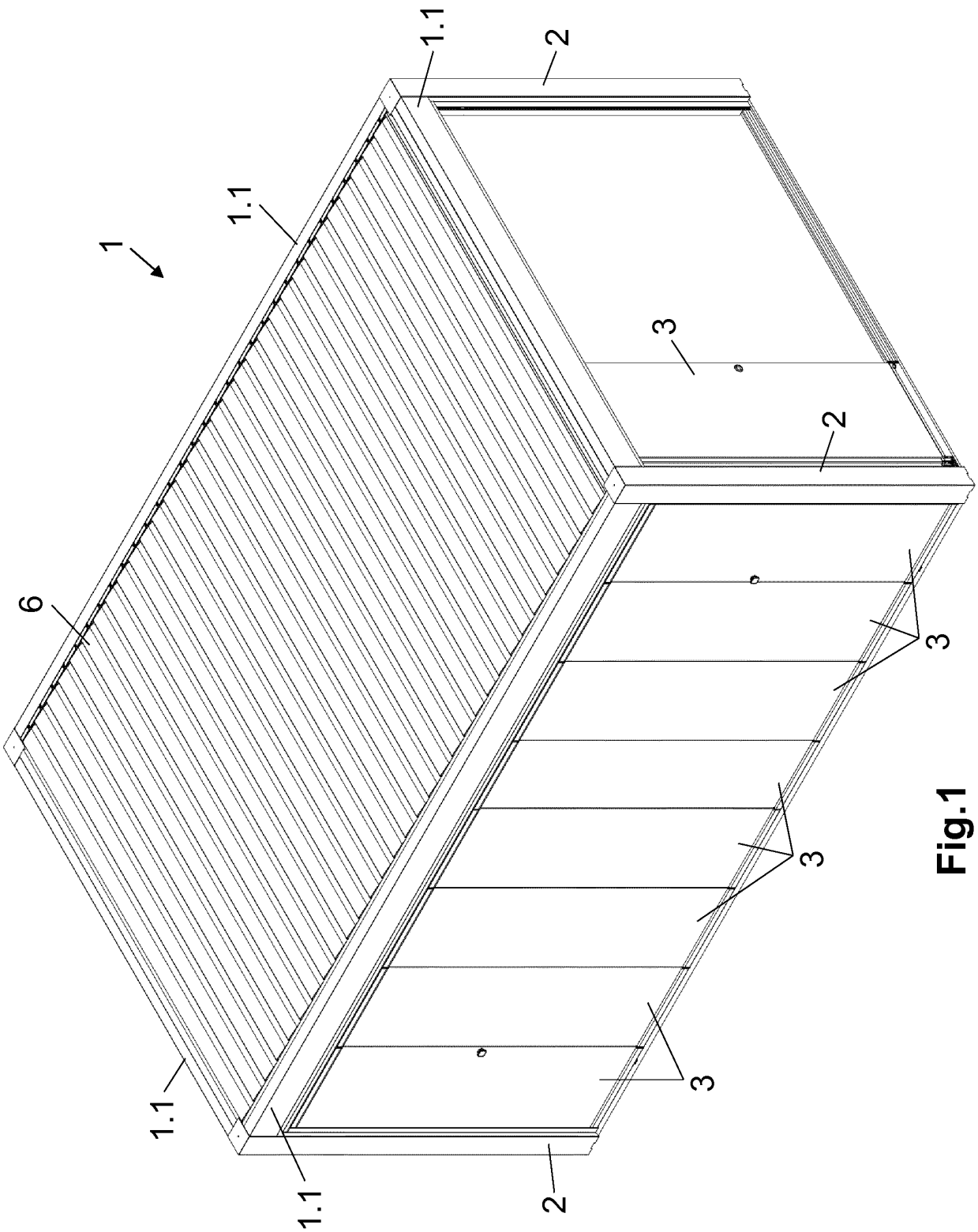

Fig.1

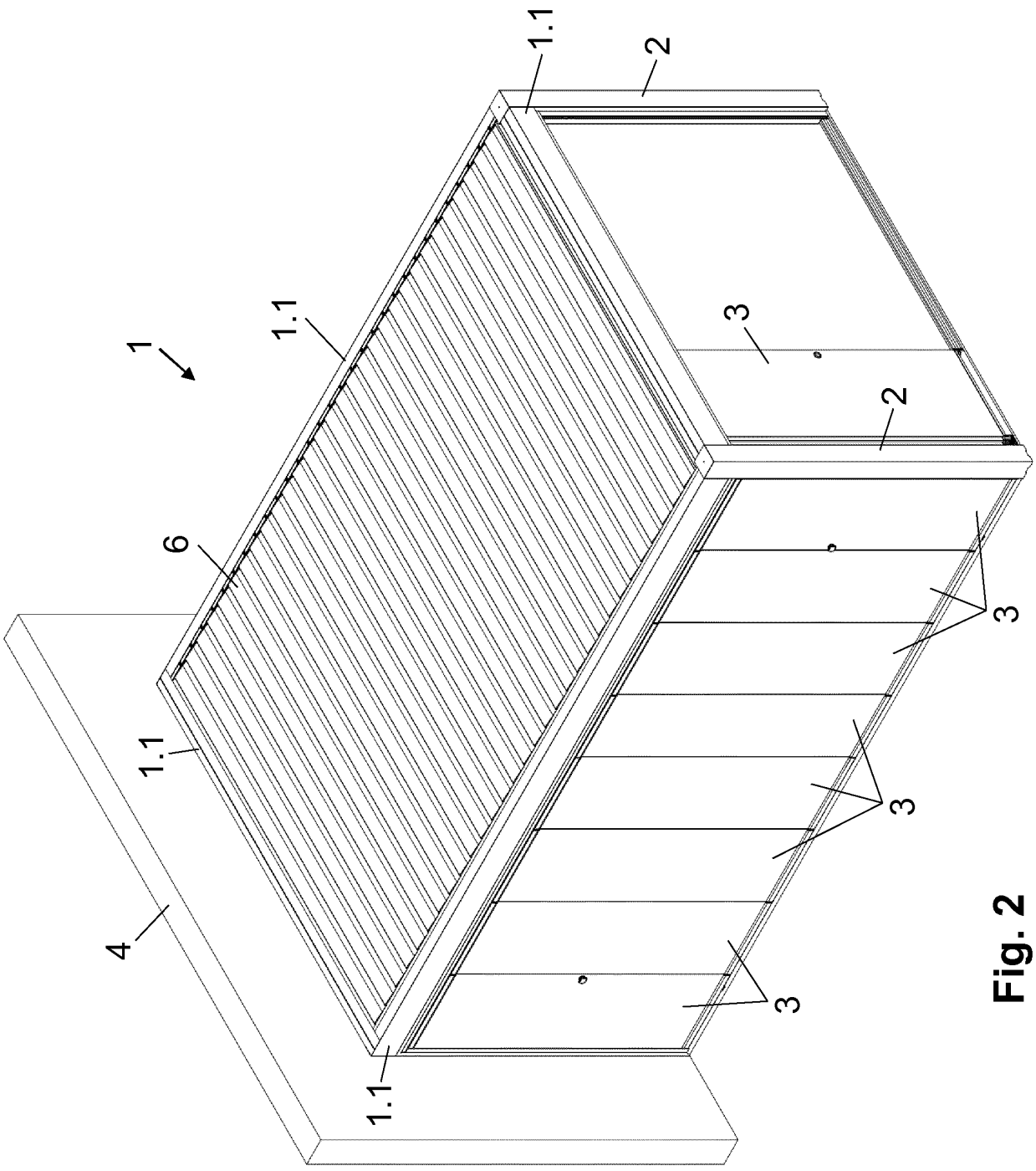

Fig. 2

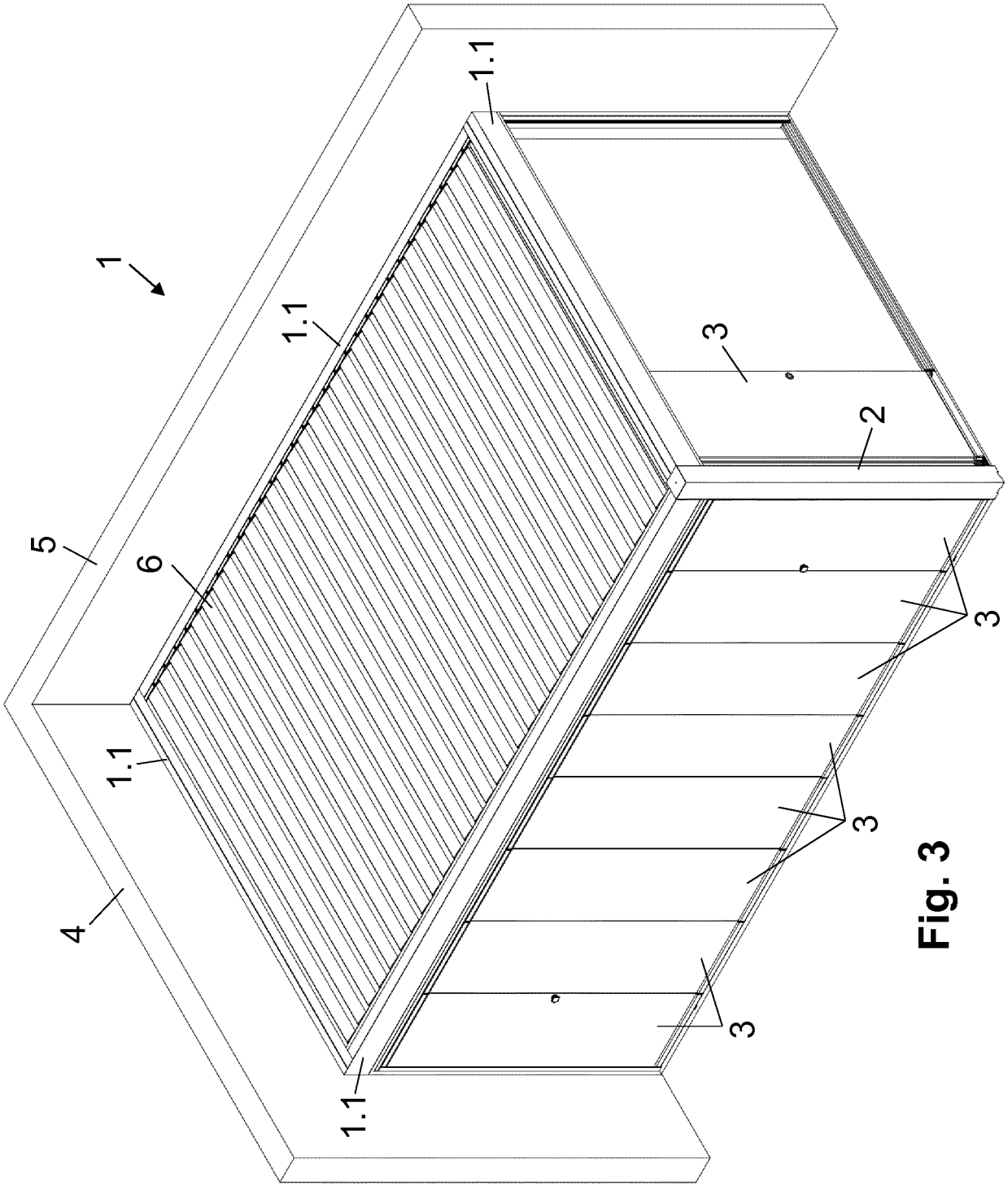

Fig. 3

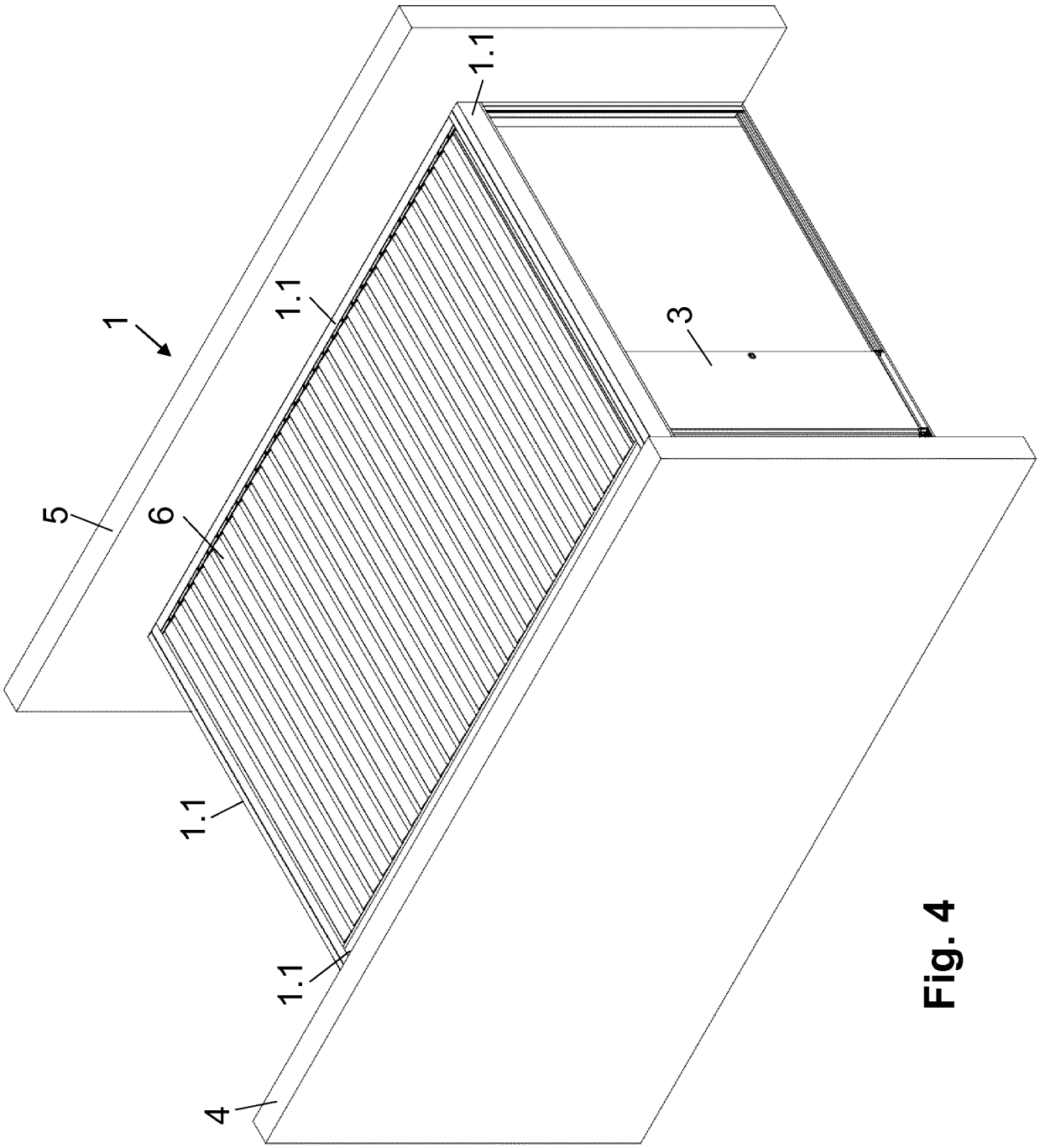

Fig. 4

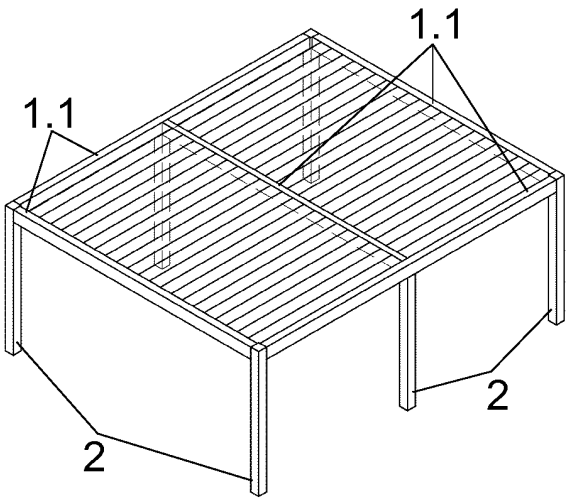

Fig. 5

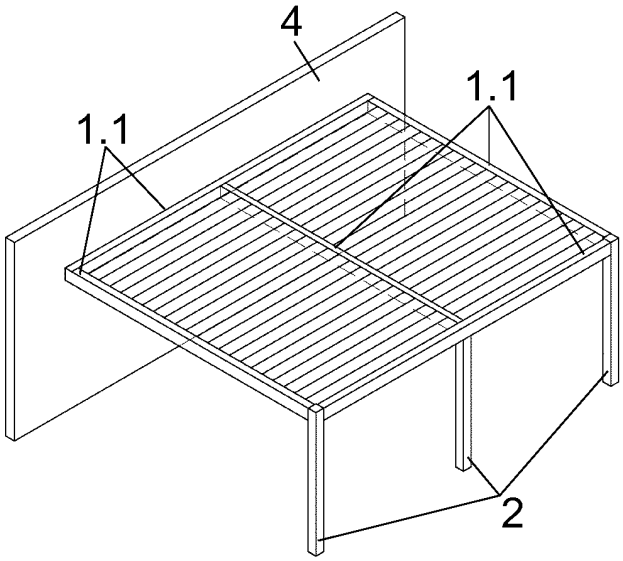

Fig. 6

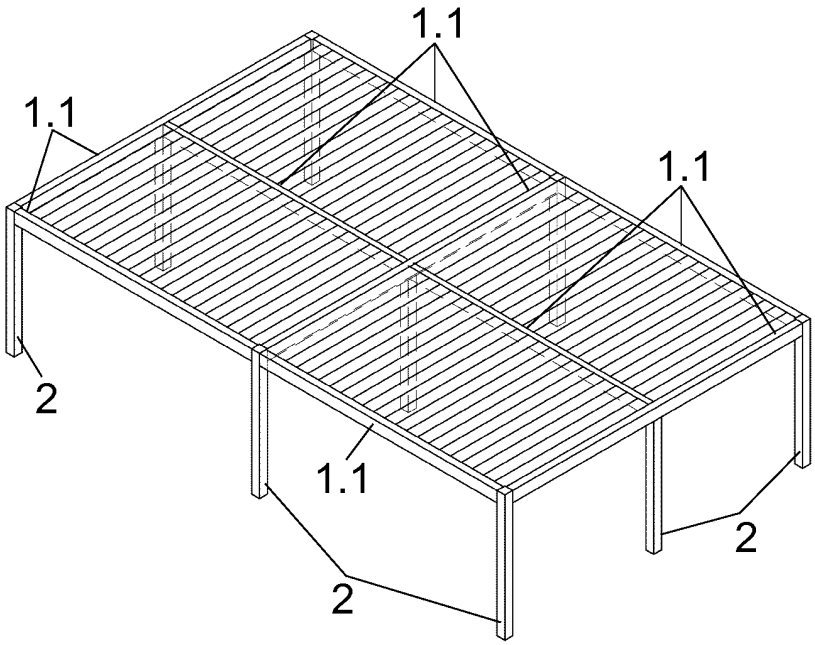

Fig. 7

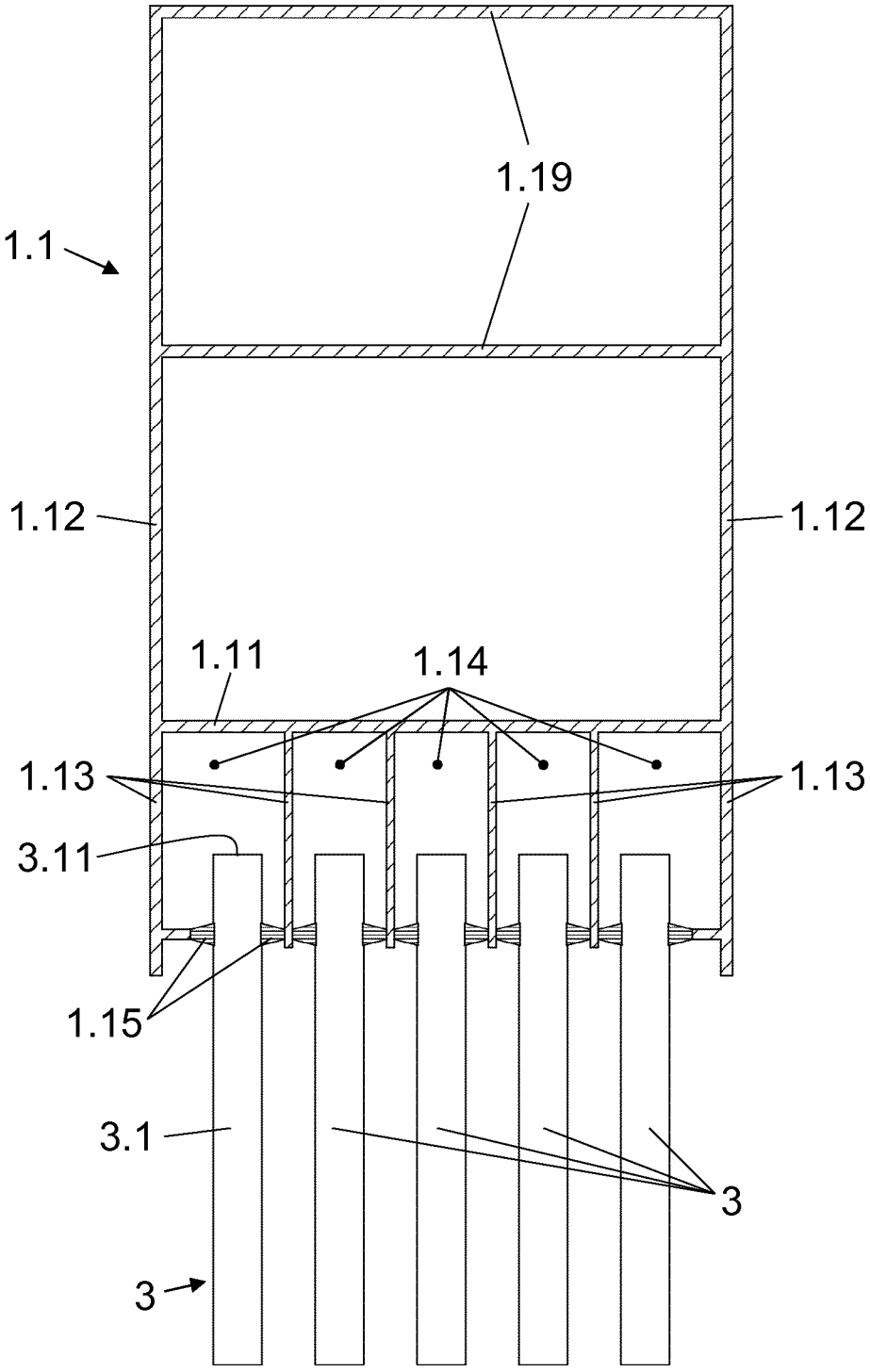

Fig. 8

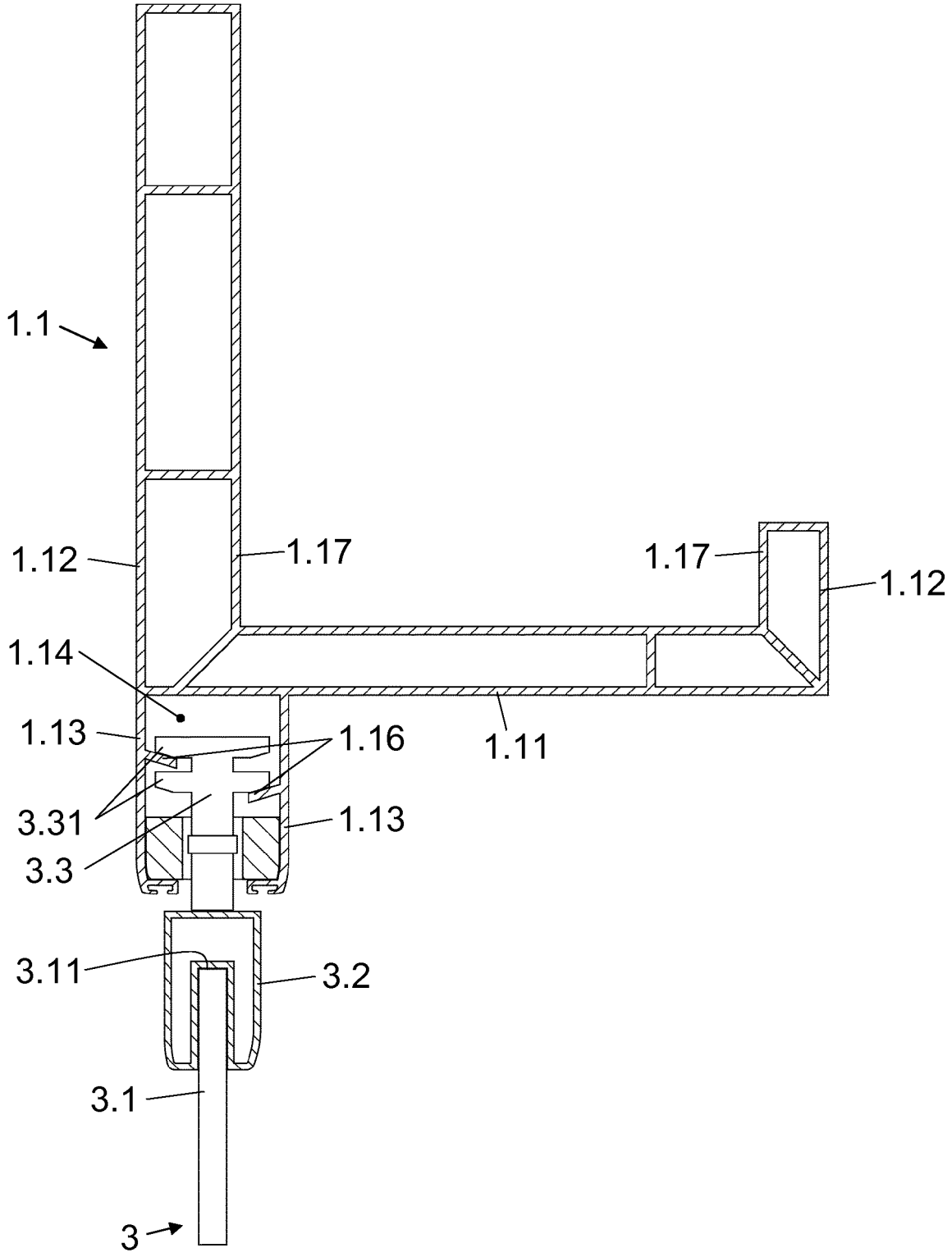

Fig. 9

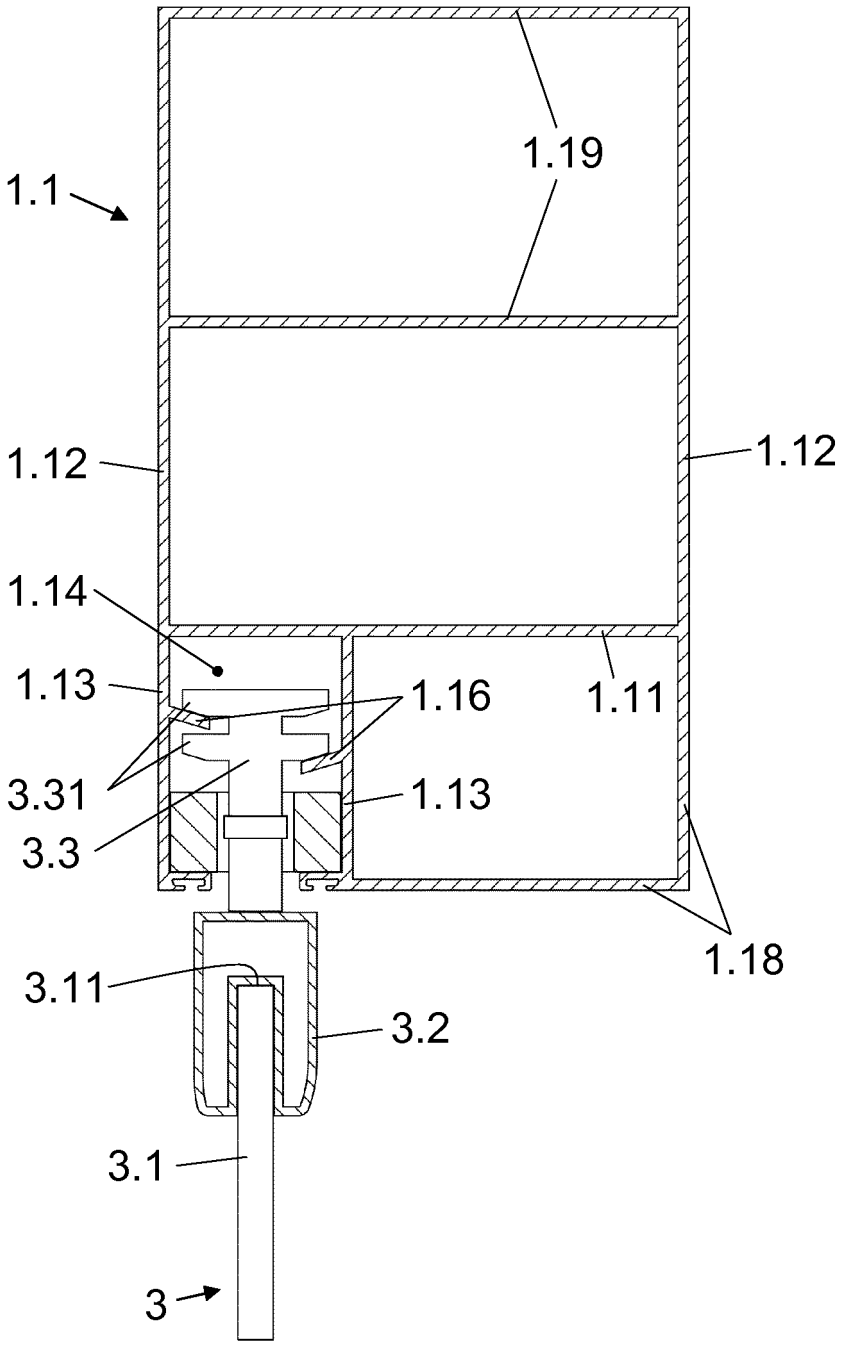

Fig. 10

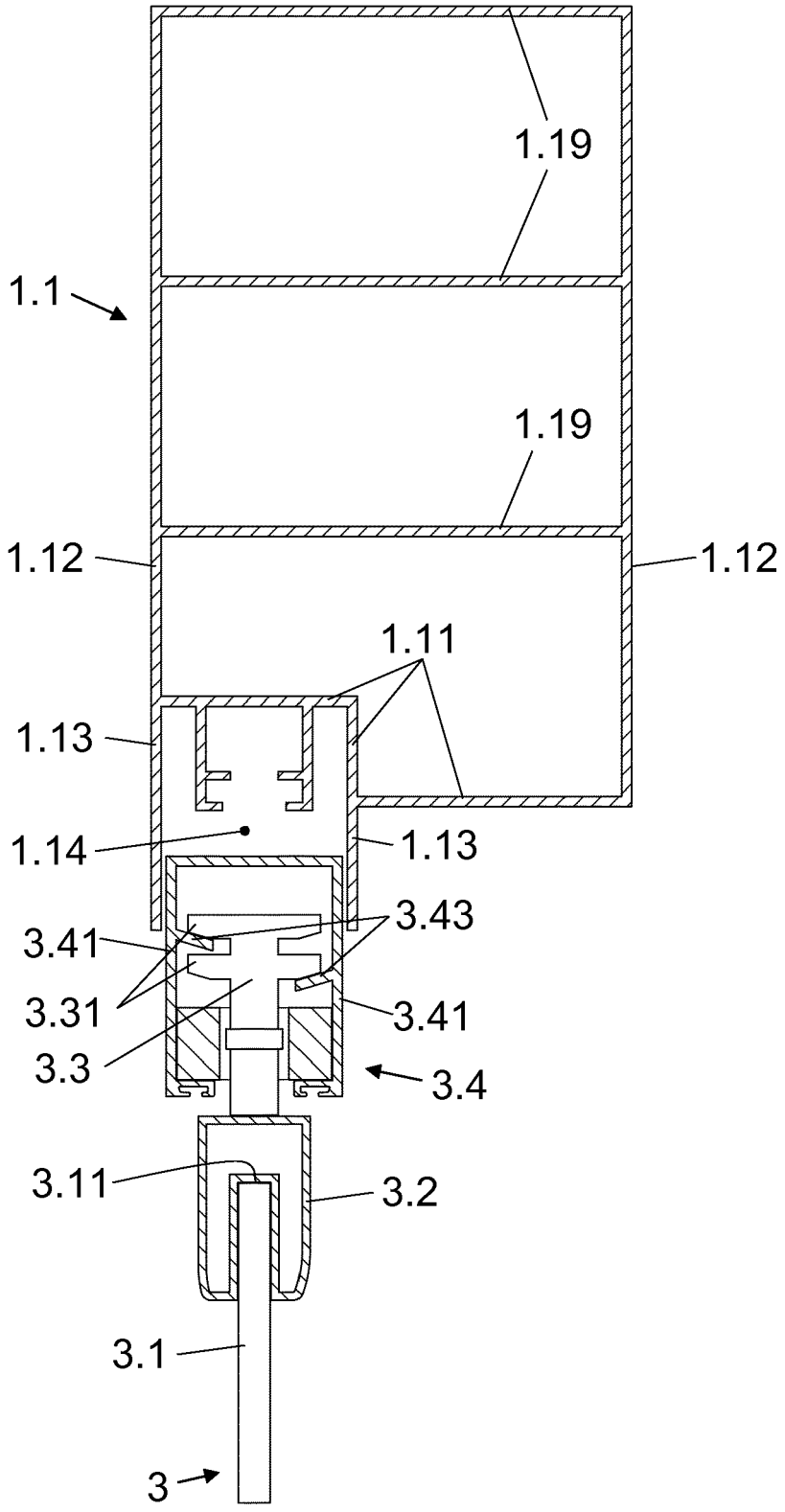
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Fig.11

INTERNATIONAL SEARCH REPORT

International application No
PCT/ES2017/070421

A. CLASSIFICATION OF SUBJECT MATTER
INV. E04F10/08 E04F10/00 E04F10/02 E06B3/44
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E04H E06B E04F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	WO 2006/088405 A1 (SVENSKA UTERUM AB [SE]; SUNDVALL BJOERN [SE]) 24 August 2006 (2006-08-24) abstract; figures 2a, 5 -----	1-12
Y	WO 99/45224 A1 (LOENNBERG BENTH [SE]) 10 September 1999 (1999-09-10) abstract; figures 1,2 -----	2-6
A	AT 11 536 U1 (MATAUSCHEK FRANZ ING [AT]) 15 December 2010 (2010-12-15) abstract; figure 3 -----	1-12

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[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 December 2017	10/01/2018

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
PCT/ES2017/070421

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	the whole document	2-6

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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Patent documents cited in the description

- FR 2970495 **[0005]**