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(54) **DEVICE FOR THE PROTECTION OF OPENINGS IN BUILDINGS AND CONSTRUCTIONS**

(57) Device for the protection of openings in buildings and constructions, comprising a first support and a second support, a first housing of the first support houses a first end of a bar, and the second support houses a second end of said bar in a second housing comprising a first section arranged in a plane transverse to a second section following the first, both sections according to a direction of insertion of the second end of the bar in the

second housing, the second section is followed by a third section in a vertical direction and below the second one; a sliding plate is arranged parallel and inside said second support that can move by sliding between a first position in which the insertion of the bar in the second housing is possible and a second position in which the exit of the bar is prevented.

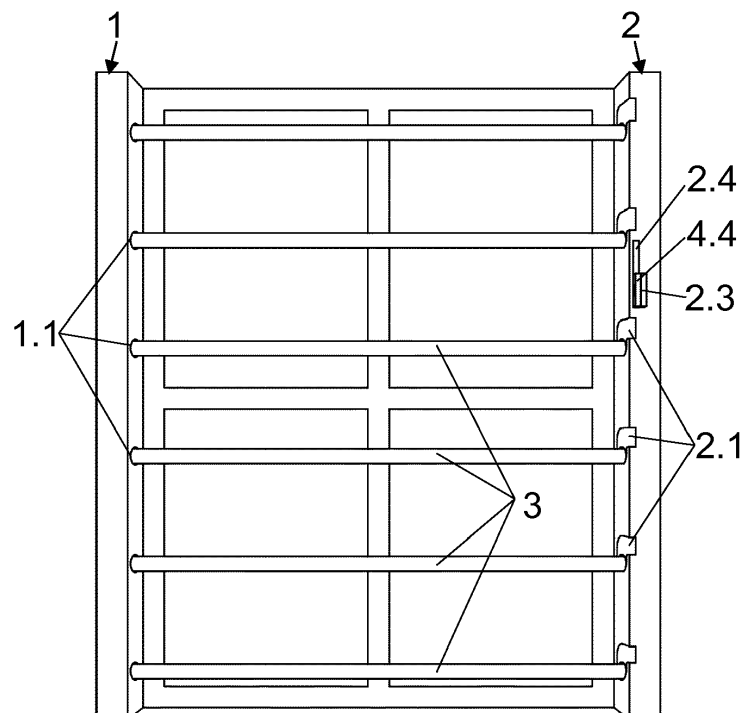


Fig.3

Description

FIELD OF THE INVENTION

[0001] The present invention belongs to the field of anti-theft protection devices for openings in buildings and constructions, such as doors or windows, in particular those composed of bars in a lattice-like arrangement.

BACKGROUND OF THE INVENTION

[0002] Devices are known for protecting openings, such as windows, composed of bars arranged in parallel that are inserted at one end on one side of the opening until they slide so that the other end can be inserted on the other side of the opening, in a hole housed in said end, such as the bar device of Viometaloumin (<http://viometaloumin.com/es/productos-de-viometaloumin/barras-de-seguridad/>).

[0003] These known devices have the disadvantage that the assembly of the bars is relatively complex, since it involves movements of insertion, sliding and another insertion requiring a certain skill of the user.

DESCRIPTION OF THE INVENTION

[0004] The present invention is established and characterised in the independent claims, while the dependent claims describe other characteristics thereof.

[0005] The object of the invention is a device for the protection of openings in buildings and constructions with a simpler configuration than known devices, so that it likewise implies a simpler and safer use. The technical problem addressed is designing the device so that the aforementioned object is achieved.

[0006] In view of the foregoing, the present invention relates to a device for the protection of openings in buildings and constructions, comprising a first support, a second support and at least one bar, which has a first end and a second end; in the first support, the first end of the bar is housed in a first housing; in the second support, the second end of the bar is housed in a second housing; the first housing has a closed circular or polygonal cross-section, as is known in the state of the art. The supports and the bar can be of any material and shape, normally metal, the supports having a square or rectangular cross-section and the bar a circular cross-section, although this is not limiting and the supports, for example, can have tubular profiles with a circular cross-section and the bar have a polygonal cross-section, for example square; the bar can also be straight or adapted to the curvature of the opening. With one bar the invention is described and is functional, suitable for example to prevent the opening of a door when placed mid-height thereof, although it is usual to provide more than one bar and it is normal for the bars to cover the entire surface of the opening. The circular or a closed polygon cross-section of the first housing means that it is a closed line, not an open one,

as is known in the state of the art, unlike the housing described hereinafter and characterising the invention.

[0007] The device is characterised in that the second housing comprises a first section arranged in a plane transverse to a second section following the first section, both sections, first and second according to a direction of insertion of the second end of the bar in the second housing, normally in an approximately horizontal direction starting from the user and approaching the device, the second section being followed by a third section in a vertical direction and below the second section, such that an L-shaped configuration is achieved between the second and third section; the device further comprises a sliding plate arranged parallel and inside the second support that can be moved by sliding between a first position in which the insertion of the bar into the second housing of the second support is possible and a second position in which the exit of the bar is blocked, the sliding plate comprising a third housing that comprises a fourth section equal to or greater than the first section and in correspondence therewith in the first position, a fifth section equal to or greater than the second section and in correspondence therewith in the first position, a sixth section equal to or greater than the third section and in correspondence therewith in the first position, and a seventh section in the same vertical direction as the sixth section and on the other side with respect to the fourth section, so that when the sliding plate passes to the second position the first and second sections are covered by the sliding plate preventing the exit of the bar.

[0008] In short, what is achieved with the sliding plate is the closing of the second housing to prevent the exit of the bar, the sliding plate acting as a bolt. The bar, when placed in the third section of the second housing that is under the first section where the bar can enter and exit the second support, is locked in its position by the sliding plate when it reaches its second position. In other words, the sliding plate acts as a bolt and, when there are many bars, it is like a "continuous" bolt in the sense that it acts on all the second housings and, therefore, on all the bars. Thus, with the characterised configuration, an anti-theft type protection device is obtained, which is simpler than known devices since the placement of the bars is performed from the user following a movement approaching the opening, preventing the sliding of each bar towards each side of the device, which is more complicated and can force to find a specific blocking position of each bar, which is avoided with the invention described herein as it is sufficient to place the bar in its housing, regardless of its lateral position.

BRIEF DESCRIPTION OF THE FIGURES

[0009] This specification is supplemented with a set of drawings illustrating the preferred embodiment, which are never intended to limit the invention.

Figure 1 represents a front view of the device ar-

ranged in a window, in its first position and without bars.

Figure 2 represents the device of Figure 1 in which a bar is beginning to be placed at the bottom part.

Figure 3 represents the device of Figures 1 and 2 with all the bars in place and locked, corresponding to a second position of a sliding plate of the device.

Figure 4 represents a perspective view of a portion of a second support of the device with the sliding plate in a first position that allows the placement of the bars.

Figure 5 represents a rear perspective view of a portion of the sliding plate.

Figure 6 represents a rear perspective view of a portion of the second support.

Figure 7 shows the sliding plate of Figure 5 and the second support of Figure 6 arranged in their final position, for use thereof, and in the first position of the sliding plate.

Figure 8 represents the configuration of Figure 7 in which the sliding plate has moved to its second position.

Figures 9 to 12 are views of central portions of the same elements shown in Figures 5, 6, 8 and 4, respectively, in which the option is added whereby each bar has access to the second support on both sides thereof.

DETAILED DESCRIPTION OF THE INVENTION

[0010] The invention is a device for the protection of openings in buildings and constructions, comprising a first support (1), a second support (2), as shown in Figures 1 to 3, with a quadrangular cross-section in the embodiment shown, and at least one bar (3), being straight and having a circular cross-section in the embodiment shown in Figures 2 and 3, with a first end (3.1) and a second end (3.2); housed in the first support (1) is the first end (3.1) of the bar (3), normally inserted by sliding, in a first housing (1.1), as shown in Figures 2 and 3; housed in the second support (2) is the second end (3.2) of the bar (3) in a second housing (2.1), as shown in Figure 3, the first housing (1.1) has a circular cross-section, as shown in the embodiment of Figures 1 to 3, or a closed polygonal cross-section, not shown in the figures.

[0011] The second housing (2.1) comprises a first section (2.11), in the embodiment shown in Figures 1 to 3 and in detail in Figure 4 on an anterior face thereof as the second support (2) with a polygonal cross-section - a quadrangular profile - and faces the user, arranged in

a plane transverse to a second section (2.12) following the first section (2.11), which in the embodiment shown would be perpendicular as the second support (2) has a quadrangular profile, both sections, first (2.11) and second (2.12) according to a direction of insertion of the second end (3.2) of the bar (3) in the second housing (2.1), approximately horizontal in the embodiment shown as represented in Figures 1 to 3, the second section (2.12) is followed by a third section (2.13) in the vertical direction and below the second section (2.12).

[0012] The device further comprises a sliding plate (4) arranged parallel and inside the second support (2) that can move by sliding between a first position, Figure 7, in which the insertion of the bar (3) into the second housing (2.1) of the second support (2) is possible, and a second position, Figures 3 and 8, in which the exit of the bar (3) is blocked.

[0013] The sliding plate (4) comprises a third housing (4.1) comprising a fourth section (4.11) being equal to or greater than the first section (2.11) and in correspondence therewith in the first position, a fifth section (4.12) being equal or greater than the second section (2.12) and in correspondence therewith in the first position, a sixth section (4.13) being equal to or greater than the third section (2.13) and in correspondence therewith in the first position, and a seventh section (4.14) in the same vertical direction as the sixth section (4.13) and on the other side with respect to the fourth section (4.11), as seen in Figures 5 to 8, so that when the sliding plate (4) passes to the second position the first (2.11) and second (2.12) sections are covered by the sliding plate (4) preventing the exit of the bar.

[0014] A detail of the invention is that the sliding plate (4) comprises at least one pin (4.2), which creates a slotted hole (4.3), Figures 5 and 8, the second support (2) comprises a rod (2.2), so that said rod (2.2) can run in said slotted hole (4.3) when the sliding plate (4) moves between the first and second position. In this way a good guidance of the sliding plate (4) is achieved, and it can also serve as a stop of at least one position.

[0015] Another detail of the invention is that the second support (2) also comprises a first flange (2.3) in the form of a projection of its outer surface and a slot (2.4), the sliding plate (4) comprises a second flange (4.4) in the form of a projection such that when the sliding plate (4) is arranged parallel and inside the second support (2) the second flange (4.4) passes through the slot (2.4), Figures 1 to 4, the first flange (2.3) has a first hole (2.31), the second flange (4.4) has a second hole (4.41), Figure 4, so that in the first position of the sliding plate (4) the two holes (2.31,4.41) are not aligned, Figures 1, 2 and 4, and in the second position the two holes (2.31,4.41) are aligned, Figure 3. In this way, a locking element can be passed through both holes (2.31,4.41) and thus lock the second position, which can be done for example with a padlock.

[0016] An advantageous option represented in Figures 9 to 12, which are analogous to Figures 5, 6, 8 and 4,

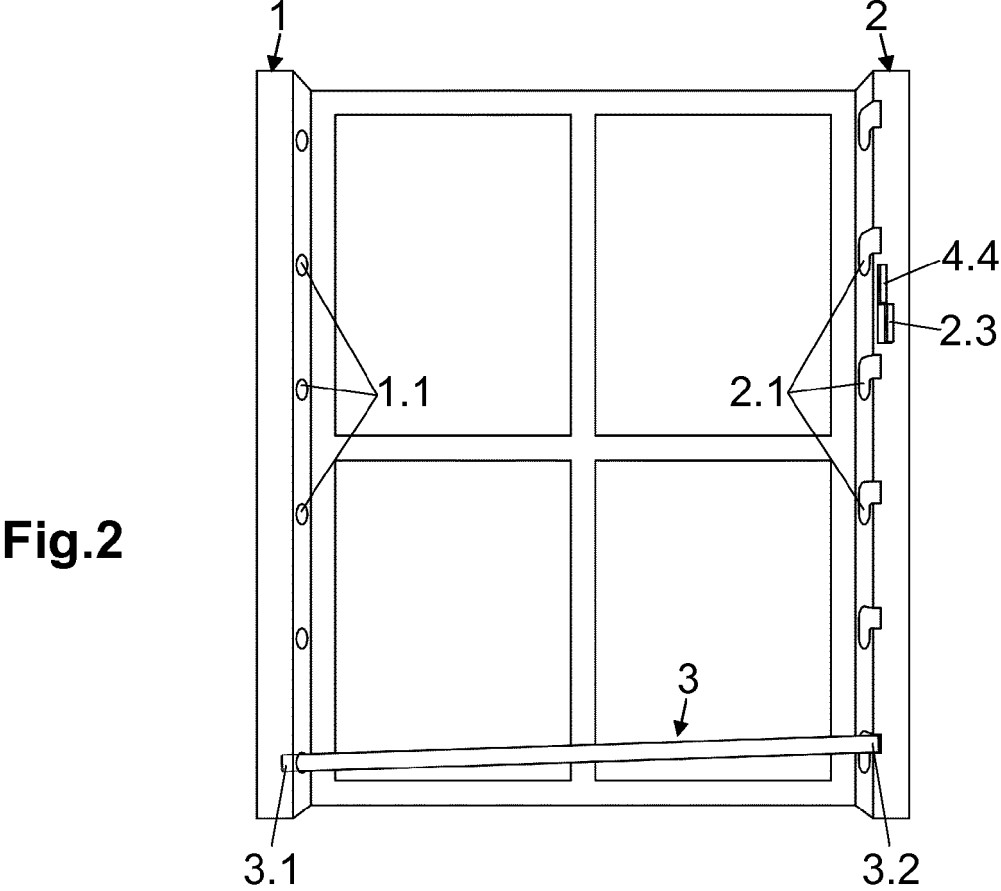
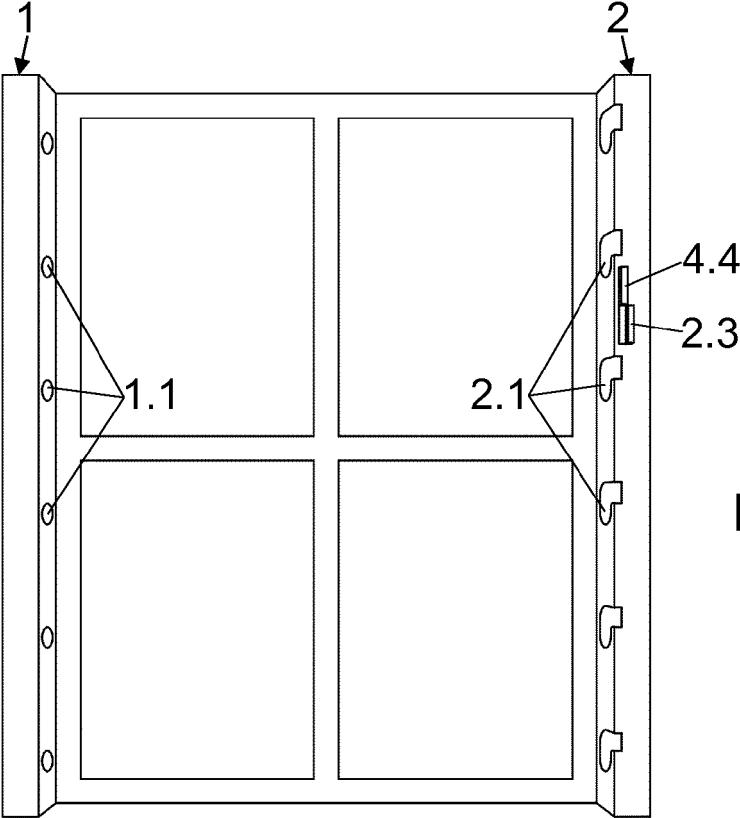
respectively, is that the first section (2.11), the fourth section (4.11), the first flange (2.3) with its first hole (2.31), the slot (2.4), and the second flange (4.4) with its second hole (4.41) are duplicated symmetrically with respect to the longitudinal axis of the second support (2), such that the locking and opening of the device by the sliding plate (4) can be performed from both sides of said second support (2), or what is the same, from both sides of the opening, with the advantage that this represents in being able to act on the device both from the inside and from the outside of the building or construction in which the device is arranged.

Claims

1. Device for the protection of openings in buildings and constructions, comprising a first support (1), a second support (2) and at least one bar (3) with a first end (3.1) and a second end (3.2), wherein the first support (1) houses the first end (3.1) of the bar (3) in a first housing (1.1), the second support (2) houses the second end (3.2) of the bar (3) in a second housing (2.1), the first housing (1.1) having a closed circular or polygonal cross-section, **characterised in that** the second housing (2.1) comprises a first section (2.11) arranged in a plane transverse to a second section (2.12) placed following the first section (2.11), both sections, first (2.11) and second (2.12) according to a direction of insertion of the second end (3.2) of the bar (3) in the second housing (2.1), the second section (2.12) is followed by a third section (2.13) in a vertical direction and below the second section (2.12), the device further comprising a sliding plate (4) arranged parallel and inside the second support (2) that can be moved by sliding between a first position which allows the insertion of the bar (3) into the second housing (2.1) of the second support (2) and a second position in which the exit of the bar (3) is blocked, the sliding plate (4) comprises a third housing (4.1) comprising a fourth section (4.11) being equal to or greater than the first section (2.11) and in correspondence therewith in the first position, a fifth section (4.12) being equal to or greater than the second section (2.12) and in correspondence therewith in the first position, a sixth section (4.13) being equal to or greater than the third section (2.13) and in correspondence therewith in the first position, and a seventh section (4.14) in the same vertical direction as the sixth section (4.13) and on the other side with respect to the fourth section (4.11), so that when the sliding plate (4) moves to the second position the first (2.11) and second (2.12) sections are covered by the sliding plate (4) preventing the exit of the bar.
2. Device according to claim 1 wherein the sliding plate (4) comprises at least one pin (4.2) that creates a

slotted hole (4.3), the second support (2) comprises a rod (2.2), so that said rod (2.2) can run in said slotted hole (4.3) when the sliding plate (4) moves between the first and second position.

3. Device according to claim 1 wherein the second support (2) further comprises a first flange (2.3) in the form of a projection of the outer surface thereof and a slot (2.4), the sliding plate (4) comprises a second flange (4.4) in the form of a projection such that when the sliding plate (4) is arranged parallel and inside the second support (2) the second flange (4.4) passes through the slot (2.4), the first flange (2.3) has a first hole (2.31), the second flange (4.4) has a second hole (4.41), so that in the first position of the sliding plate (4) the two holes (2.31, 4.41) are not aligned and in the second position the two holes (2.31, 4.41) are aligned.
4. Device according to claim 3, wherein the first section (2.11), the fourth section (4.11), the first flange (2.3) with its first hole (2.31), the slot (2.4), and the second flange (4.4) with its second hole (4.41) are duplicated symmetrically with respect to the longitudinal axis of the second support (2).



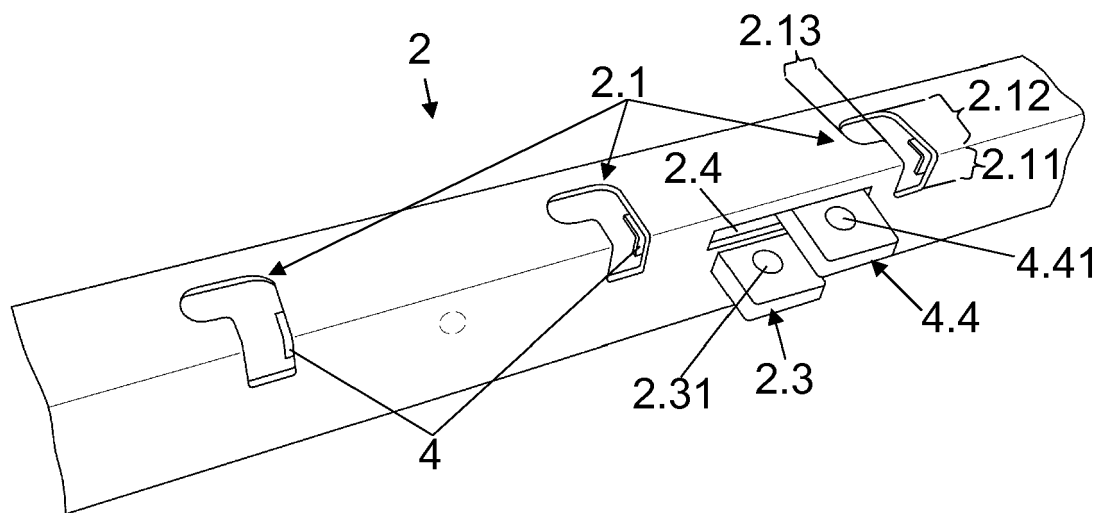
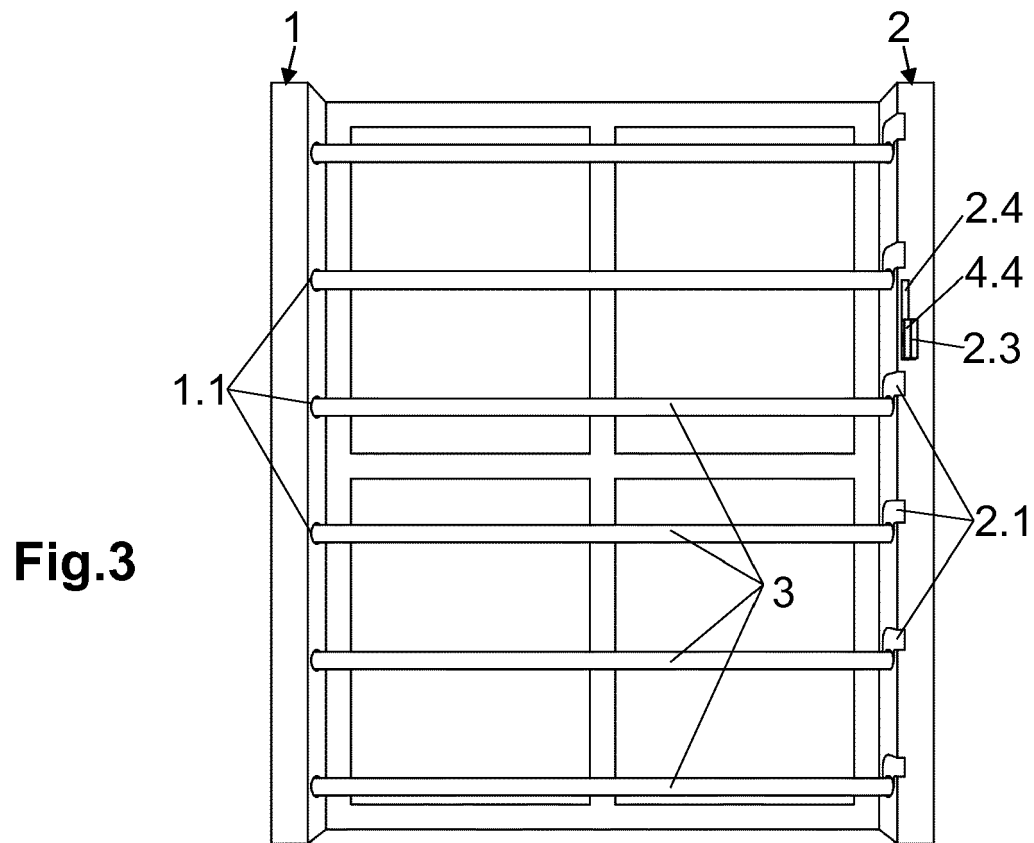


Fig.5

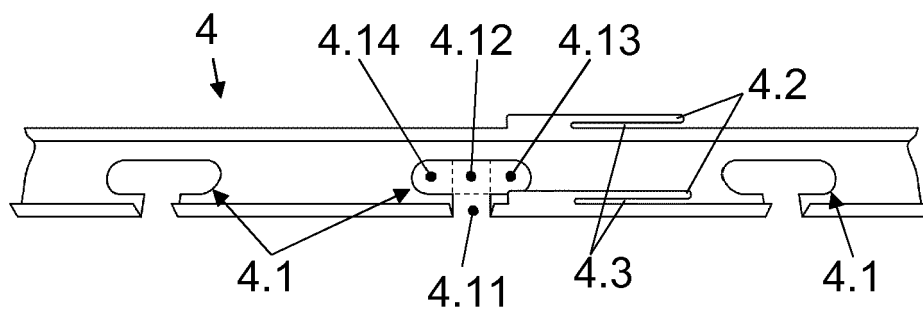


Fig.6

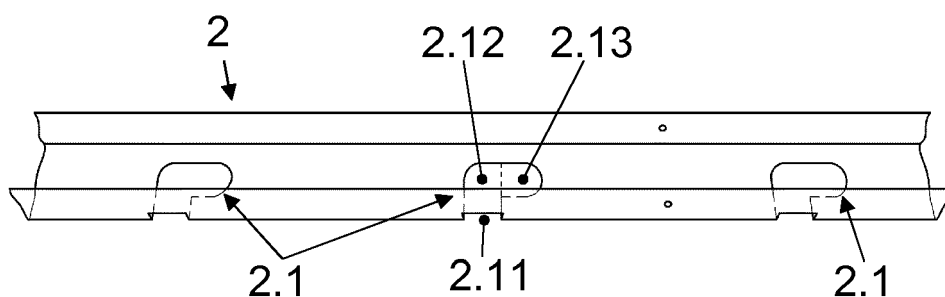


Fig.7

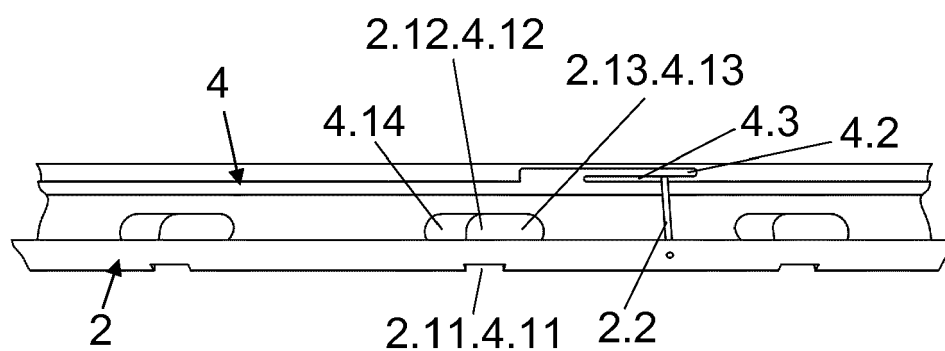
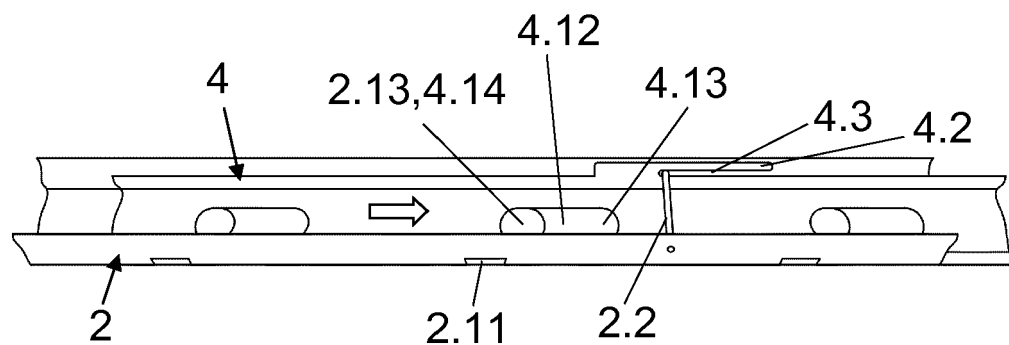


Fig.8



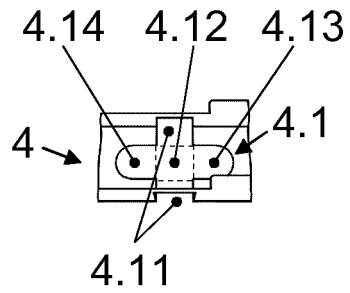


Fig.9

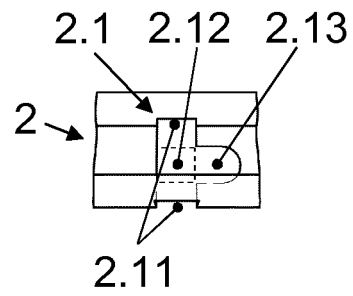


Fig.10

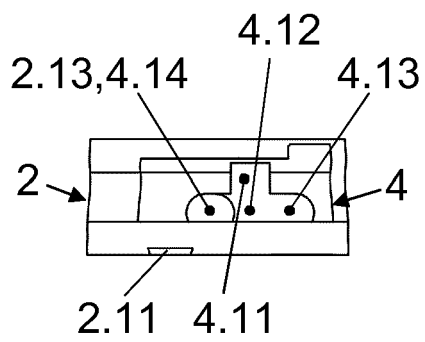


Fig.11

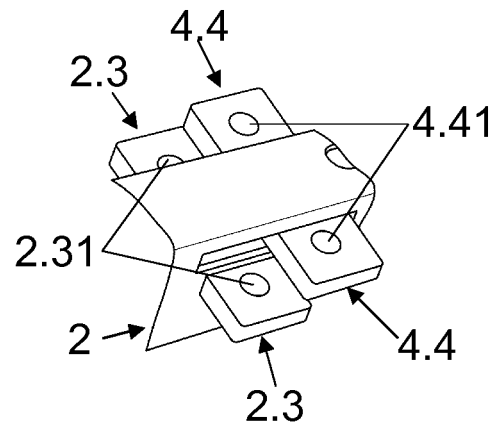


Fig.12



EUROPEAN SEARCH REPORT

 Application Number
 EP 19 38 2014

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	GB 2 274 479 A (MORRELL JAMES [GB]) 27 July 1994 (1994-07-27) * figures 1,2,3,5,10,13 * -----	1-4	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) E06B E05C
Place of search		Date of completion of the search	Examiner
Munich		13 August 2019	Tänzler, Ansgar
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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.
The members are as contained in the European Patent Office EDP file on
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13-08-2019

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82