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(71) Applicant: **Industrias Peygran, S.L.**
03440 Ibi Alicante (ES)

(72) Inventors:
- **PERALES SERRANO, Emilio**
  03440 Ibi (Alicante) (ES)
- **CALDERÓN TARÍ, Jacinto**
  03400 Ibi (Alicante) (ES)

(74) Representative: **Ibarra Garcia, Isabel**
PADIMA
Explanada de España 11,1°
03002 Alicante (ES)

(54) LEVELLING PIECE

(57) The present invention relates to a levelling piece for cladding panels that has an inverted T-shaped profile, provided with a flat base from which an inverted U-shaped element emerges perpendicularly, joined by respective arms defining an opening, the upper middle region of the inverted U-shaped element having a thickening of variable thickness that decreases gradually defining a pointed termination. The configuration of the levelling piece allows up to four preferred embodiments of the invention to be implemented, with the advantage that they all include variable-thickness thickening in the upper middle region of the inverted U-shaped element in order to serve as a spacing wedge for use once it has been separated from the base after the levelling of the cladding panels and the drying of the bonding material.

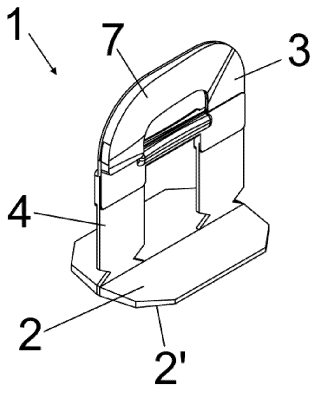

FIG.1

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a levelling piece for cladding panels, such as wall tiles, floor tiles, or paving tiles, intended for facilitating the installation of constructive elements of this type. The levelling piece has an inverted T-shaped profile configuration with a flat base from which an inverted U-shaped element which has a thickening of variable thickness emerges perpendicularly.

[0002] The object of the invention is to provide use in addition to that commonly envisaged for the levelling piece. In this sense, instead of being disposed of after levelling the panels, the inverted U-shaped element, which is part of the levelling piece, is used for a second use as a result of its novel configuration.

BACKGROUND OF THE INVENTION

[0003] Levelling pieces which, when used in combination with a wedge, facilitate the placement of cladding panels and their uniform arrangement on floors, walls, or other surfaces, are known in the state of the art. To that end, there is provided a bonding material, such as mortar or an adhesive, on which the panels which will clad the surface are placed. Said operation involves as many levelling pieces as necessary for the perfect separation and levelling of the cladding panels.

[0004] As shown in patent document number ES2598702T3, known levelling pieces have an inverted T-shaped configuration with a flat base from which an inverted U-shaped element, commonly known as a horseshoe spacer, emerges perpendicularly, and wherein the inverted U-shaped element is provided with an opening. These levelling pieces are supported at their base on the bonding material.

[0005] Cladding panels are then arranged such that there are at least two levelling pieces on each side.

[0006] The wedge is introduced through the opening of each levelling piece which separates two cladding panels. Upon hitting the wedge, a force is generated on the inverted U-shaped element tending to separate the levelling piece and the surface to be clad, which will also cause the separation of the cladding panels, with the panels being levelled out.

[0007] When the bonding material is dry, an impact is applied on the inverted U-shaped element which causes the breakage and separation thereof with respect to the base, with said inverted U-shaped element being disposable and the base being buried under the cladding panels and concealed when grout is applied to seal the joints.

[0008] The described operation requires the use and breakage of a large number of levelling pieces which causes the removal of a large amount of polymer material to be disposed of without any additional application envisaged for same. Therefore, the applicant of the present utility model detects the need to provide an invention which offers an environmentally friendly solution which involves reusing the inverted U-shaped element after its separation from the levelling piece.

DESCRIPTION OF THE INVENTION

[0009] The configuration of the proposed levelling piece enables a second function of that part which is unusable once the levelling of cladding panels has been performed and the bonding material is dry, specifically a wedge-like separating function.

[0010] In this sense, the levelling piece for cladding panels has an inverted T-shaped profile with a flat base from which an inverted U-shaped element of the known types emerges perpendicularly. The inverted U-shaped element is joined to the base by respective arms defining an opening.

[0011] The arms optionally have notches at the ends which are joined to the base. These notches are what allow the arms of the inverted U-shaped element to break once the cladding panels have been properly installed and levelled as a result of the levelling piece.

[0012] The levelling piece has in the upper middle region of the inverted U-shaped element a thickening of variable thickness. It is precisely said thickening of variable thickness that generates a separating or spacing function in any of the preferred embodiments of the invention that are described in detail below.

[0013] In this sense, said thickening of variable thickness is defined by a perimeter of variable thickness in the upper middle region of the inverted U-shaped element or by a projection extending from one side to the opposite side of the inverted U-shaped element, generating a thickening in a plane parallel to the base the thickness of which decreases gradually as it approaches the end opposite the base, defining a pointed termination.

[0014] In any case, the thickening in a perimeter of variable thickness or at a pointed termination defines a spacing wedge shape which allows the introduction thereof between the cladding panels to keep them separated during installation.

[0015] In this sense, once the inverted U-shaped element is separated from of the rest of the levelling piece, it can be used as a spacing wedge for other elements for cladding installation. In other words, part of the levelling piece is utilized for another function, in contrast to the known levelling pieces in which the inverted U-shaped element is disposed of once separated from the rest of the levelling piece, with the subsequent material wastage and environmental impact.

[0016] Based on the foregoing, the use of the inverted U-shaped element, which includes the mentioned thickening of variable thickness, offers a versatile and environmentally friendly levelling piece.

DESCRIPTION OF THE DRAWINGS

[0017] To complete the description that will be made

below and in order to help to better understand the features of the invention according to a preferred practical embodiment thereof, a set of drawings is attached as an integral part of said description in which the following is depicted in an illustrative and non-limiting manner:

Figure 1 shows a perspective view of the levelling piece for cladding panels according to a first preferred embodiment object of the invention.

Figure 2 shows a front view of the levelling piece according to the first preferred embodiment of the invention depicted in the preceding figure.

Figure 3 shows a top view of the levelling piece according to the first preferred embodiment depicted in the preceding figures.

Figure 4 shows a perspective view of the levelling piece for cladding panels according to a second preferred embodiment object of the invention.

Figure 5 shows a sectional view of the levelling piece according to the second preferred embodiment depicted in Figure 4.

Figure 6 shows a perspective view of the levelling piece for cladding panels according to a third preferred embodiment object of the invention.

Figure 7 shows a sectional view of the levelling piece according to the third preferred embodiment depicted in Figure 6.

Figure 8 shows a perspective view of the levelling piece for cladding panels according to a fourth preferred embodiment object of the invention.

Figure 9 shows a sectional view of the levelling piece according to the fourth preferred embodiment depicted in Figure 8.

Figure 10 shows a perspective view of the preferred embodiments of the levelling piece used according to the second use as a spacing wedge proposed in the present invention.

Figure 11 shows a sectional view of the preferred embodiments of the levelling piece depicted between cladding panels according to the second use as a spacing wedge depicted in Figure 10.

PREFERRED EMBODIMENT OF THE INVENTION

[0018] In any of the preferred embodiments of the invention, the levelling piece has an inverted T-shaped profile with a flat base (2) from which an inverted U-shaped element (3) emerges perpendicularly, and wherein the inverted U-shaped element (3) is joined to the base (2) by respective arms (4) defining an opening (5). Likewise, the levelling pieces of the present invention have in the preferred embodiment thereof notches (6) arranged at the ends of the arms (4) which are joined to the base (2), in order to facilitate the weakening and breakage of the inverted U-shaped element with respect to the base (2).

[0019] As can be seen in the figures of any preferred embodiment of the levelling piece of the invention, the ends of the base (2) farthest away from the inverted U-shaped element (3) preferably have a reduction in thickness and/or bevelled corners (2') in the base (2), included for the purpose of minimising the amount of material used per levelling piece manufactured, always maintaining the mechanical strength necessary for performing its function.

[0020] Notwithstanding the foregoing, this section illustrates up to four preferred embodiments of the invention having in the upper middle region of the inverted U-shaped element (3) a thickening of variable thickness in order to serve as a spacing wedge for use once it has been separated from the base (2) after the levelling of the cladding panels and the drying of the bonding material.

[0021] In this sense, a first preferred embodiment of the invention can be seen in the indicated Figures 1 to 3, wherein the thickening of the levelling piece (1) has a gradual increase in thickness extending in the radial direction (7) in the upper middle region of the inverted U-shaped element (3). In this way, the thickening in this first preferred embodiment of the invention is defined by a perimeter of variable thickness in the upper middle region of the inverted U-shaped element (3).

[0022] Moreover, Figures 4 and 5 depict the second preferred embodiment of the invention, wherein the thickening of the levelling piece (10) is defined by a projection (11) extending from one side to the opposite side of the inverted U-shaped element (3), generating a thickening in a plane parallel to the base (2).

[0023] To generate the spacing wedge in the second preferred embodiment of the invention, the thickness of the inverted U-shaped element decreases gradually as it approaches the end opposite the base (2), in this sense Figure 5 shows the thickness (e11) of the projection (11) which decreases until defining a pointed termination (12) having a smaller thickness (e12) than the thickness (e11) of the projection (11).

[0024] In a third preferred embodiment of the levelling piece (20), the thickening is defined by a projection (21) as can be seen in Figures 6 and 7. Said projection (21) extends from one side to the opposite side of the inverted U-shaped element (3) and generates a thickening in a plane parallel to the base (2).

[0025] Unlike what has been described in detail for the second preferred embodiment, the thickness of the thickening in the third preferred embodiment decreases by way of steps (23) as it approaches the end opposite the base (2), defining a pointed termination (22). As can be

seen in Figure 7, the thickness (e21) of the projection (21) is greater than the thickness (e23) of the step (23), whereas the thickness (e23) of the step (23) is greater than the thickness (e22) of the pointed termination (22).

[0026] Figure 6 depicts a step (23) located between the projection (21) and the pointed termination (22), however, said embodiment is not limiting of the present protection.

[0027] In this sense, the levelling piece can have more than one step (23) in order to decrease the thickness of the thickening.

[0028] Moreover, the fourth preferred embodiment of the invention depicted in Figures 8 and 9 allows observing that the levelling piece (30) has a thickening defined by a projection (31) arranged centred in the upper middle region of the inverted U-shaped element (3). The thickness of the projection (31) decreases gradually as it approaches the end opposite the base (2), defining a pointed termination (32) of thickness (e32), as depicted in Figure 9.

[0029] As can be seen in Figures 10 and 11, any of the proposed levelling pieces (1), (10), (20), (30) has a configuration such that they enable subsequent use for placement between the cladding panels (40), performing a spacing or separating function. Advantageously, it is a significant use which involves reusing that portion of the levelling piece which, up until now, was unusable once levelling between the cladding panels (40) had been performed.

Claims

1. A levelling piece for cladding panels that has an inverted T-shaped profile with a flat base (2) from which an inverted U-shaped element (3) emerges perpendicularly, **characterized in that** the inverted U-shaped element (3) is joined to the base (2) by respective arms (4) defining an opening (5), the upper middle region of the inverted U-shaped element having a thickening of variable thickness that decreases gradually defining a pointed termination.

2. The levelling piece (1) according to claim 1, **characterized in that** the thickening has a gradual increase in thickness extending in the radial direction (7) in the upper middle region of the inverted U-shaped element (3), defining a perimeter of variable thickness in the upper middle region of the inverted U-shaped element (3).

3. The levelling piece (10) according to claim 1, **characterized in that** the thickening is defined by a projection (11) extending from one side to the opposite side of the inverted U-shaped element (3), generating a thickening in a plane parallel to the base (2) the thickness of which decreases gradually as it approaches the end opposite the base (2), defining a pointed termination (12).

4. The levelling piece (20) according to claim 1, **characterized in that** the thickening is defined by a projection (21) extending from one side to the opposite side of the inverted U-shaped element (3), generating a thickening in a plane parallel to the base (2) the thickness of which decreases by way of steps (23) as it approaches the end opposite the base (2), defining a pointed termination (22).

5. The levelling piece (30) according to claim 1, **characterized in that** the thickening is defined by a projection (31) arranged centred in the upper middle region of the inverted U-shaped element (3), wherein the thickness of the projection (31) decreases gradually as it approaches the end opposite the base (2), defining a pointed termination (32).

6. The levelling piece according to any of the preceding claims, **characterized in that** the arms (4) have notches (6) at the ends which are joined to the base (2).

7. The levelling piece according to any of the preceding claims, **characterized in that** the ends of the base (2) farthest away from the inverted U-shaped element (3) have a reduction in thickness.

8. The levelling piece according to any of the preceding claims, **characterized in that** the base (2) has bevelled corners (2').

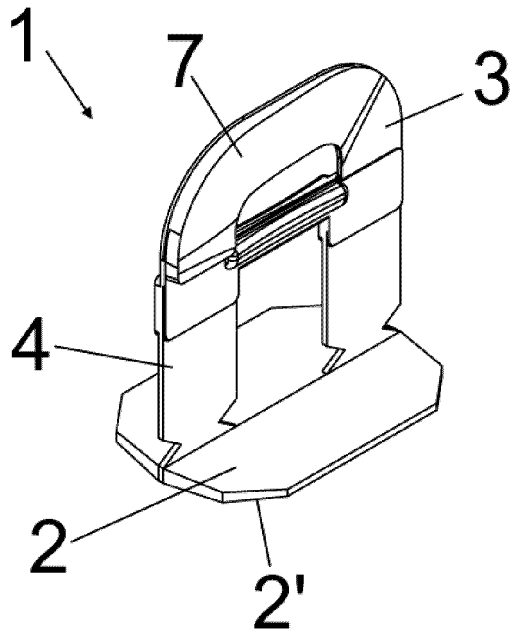

FIG.1

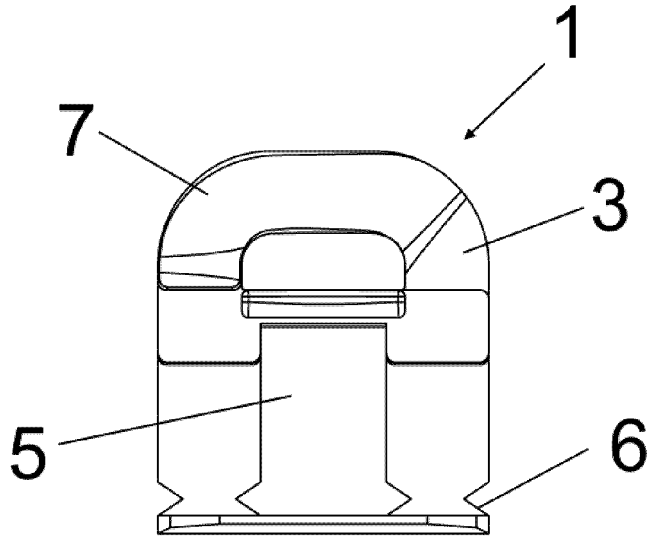

FIG.2

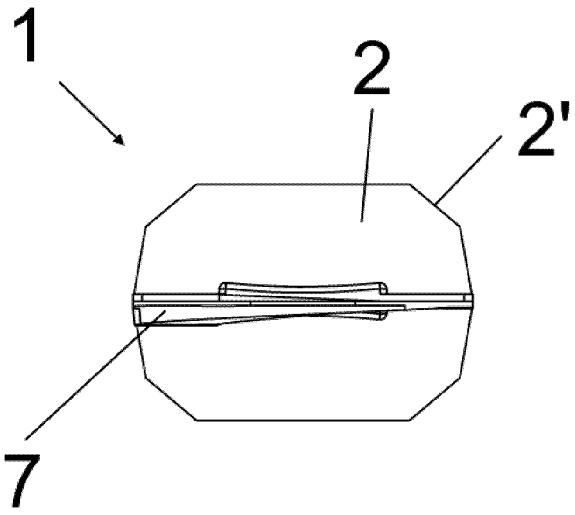

FIG.3

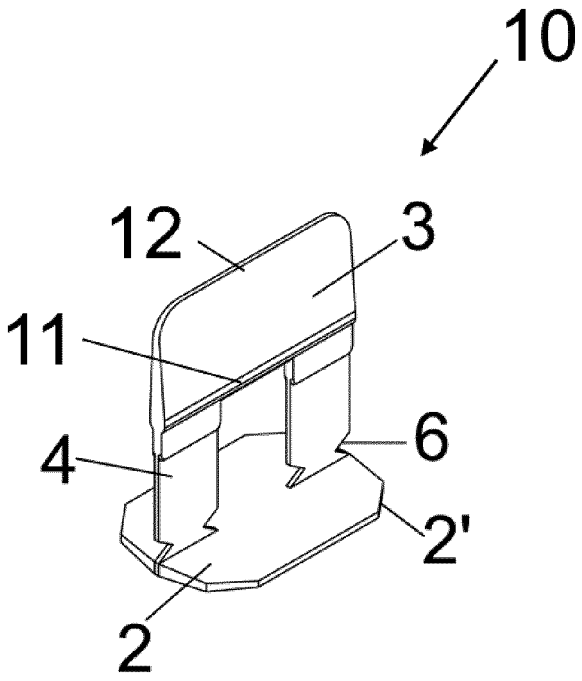

FIG.4

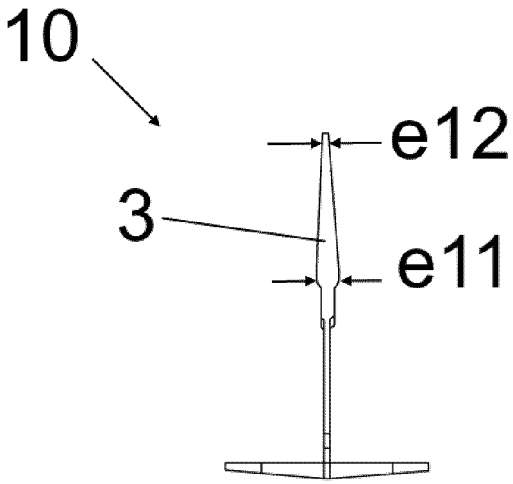

FIG.5

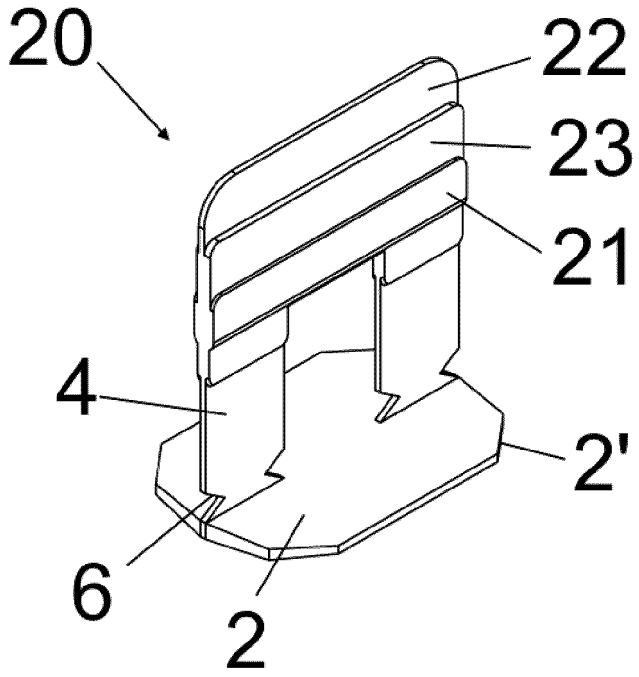

FIG.6

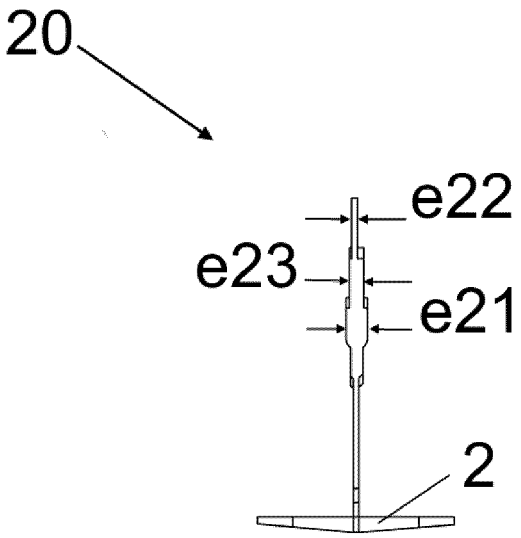

FIG.7

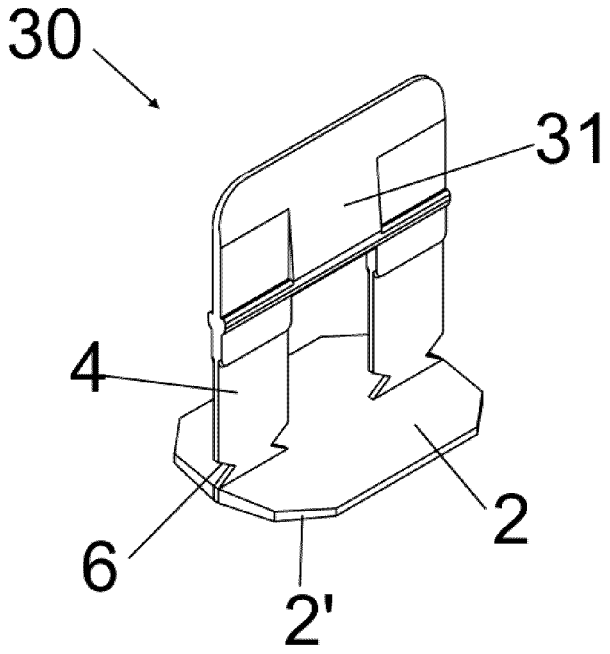

FIG.8

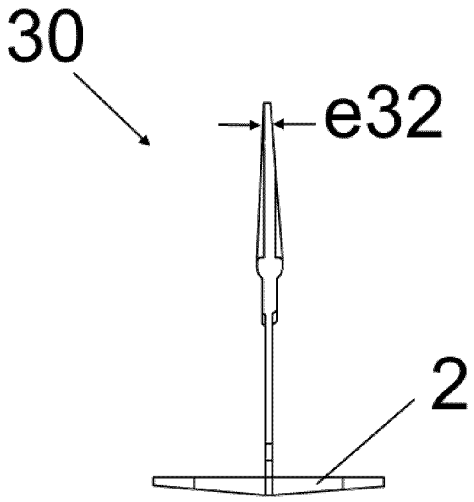

FIG.9

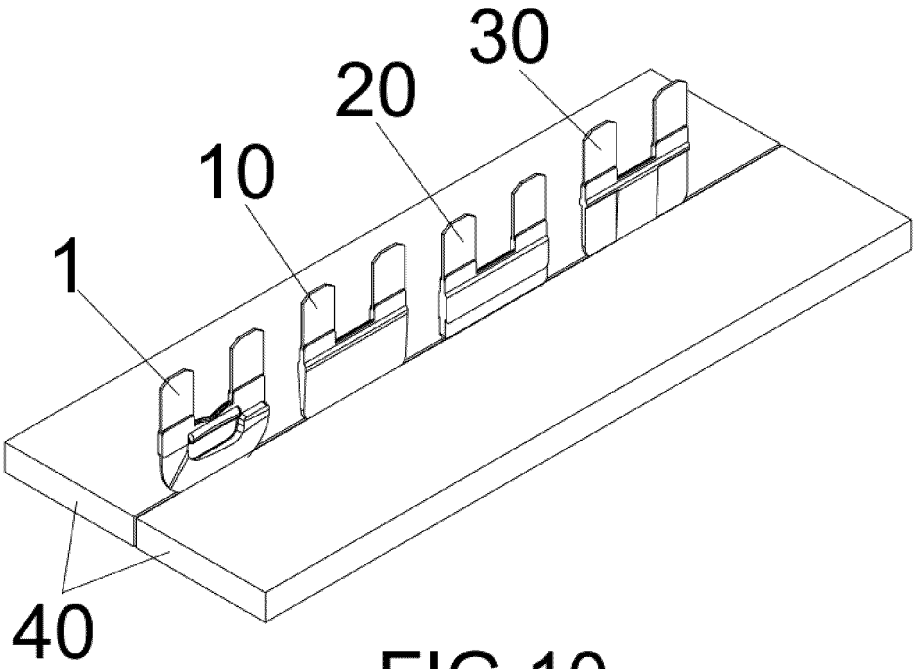

FIG.10

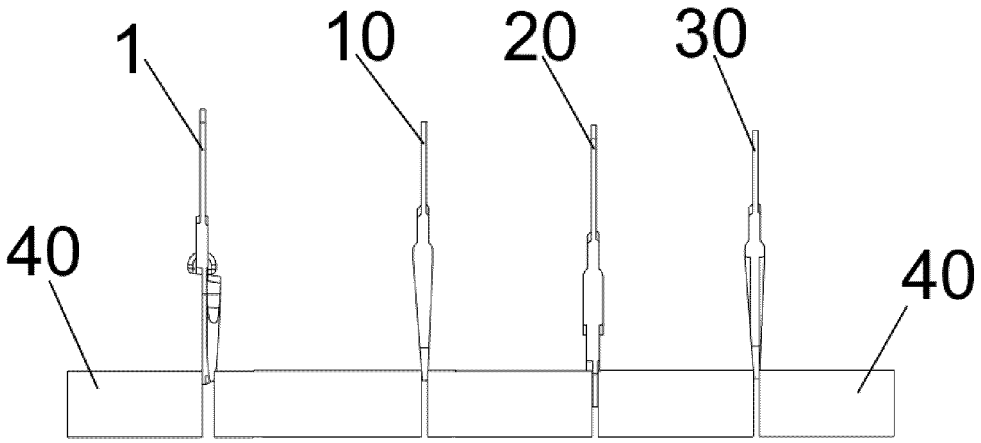

FIG.11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2022/070343

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

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)
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)

EPODOC, INVENES

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2020191470 A1 (ANDRADE JEFFERSON PRESTES DE) 01/10/2020, the whole document.	1-8
A	US 2012297714 A1 (TAVY ARMEN ET AL.) 29/11/2012, the whole document.	1
A	ES 2598702T T3 (PERALES SERRANO LUIS MIGUEL) 30/01/2017, the whole document.	6,8
A	EP 3569793 A1 (HARO GARCIA ANTONIO LUIS ET AL.) 20/11/2019, the whole document.	7

☐ Further documents are listed in the continuation of Box C. ☒ 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
29/08/2022	**(30/08/2022)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer M. Castañón Chicharro Telephone No. 91 3493261

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ES2022/070343

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2022/070343

CLASSIFICATION OF SUBJECT MATTER

E04F21/00 (2006.01)
E04F21/20 (2006.01)
E04F13/08 (2006.01)
E04F15/02 (2006.01)
E04F21/18 (2006.01)

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REFERENCES CITED IN THE DESCRIPTION

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