



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
21.06.2023 Bulletin 2023/25

(51) International Patent Classification (IPC):
A47G 1/16^(2006.01) A47G 1/17^(2006.01)

(21) Application number: **21214731.8**

(52) Cooperative Patent Classification (CPC):
A47G 1/1606; A47G 1/17

(22) Date of filing: **15.12.2021**

(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:
KH MA MD TN

(71) Applicant: **EBIR Iluminacion, S.L.**
46980 Paterna / Valencia (ES)

(72) Inventor: **RUEDA COLLADOS, José**
46980 Paterna / Valencia (ES)

(74) Representative: **Maldonado Jordan, Julia**
Linares, 7 - 3
46018 Valencia (ES)

(54) **FIXING SYSTEM FOR VERTICAL DECORATIVE ELEMENTS**

(57) Fixing system for decorative element comprising at least a support element (1) located in the vertical enclosure; and at least a coupling element (2) located in the decorative element, characterized in that: the support element (1) is in the shape of a vertical Z, and comprises at least: an upper vertical area (3), a lower vertical area (4), and a horizontal area (5), where:

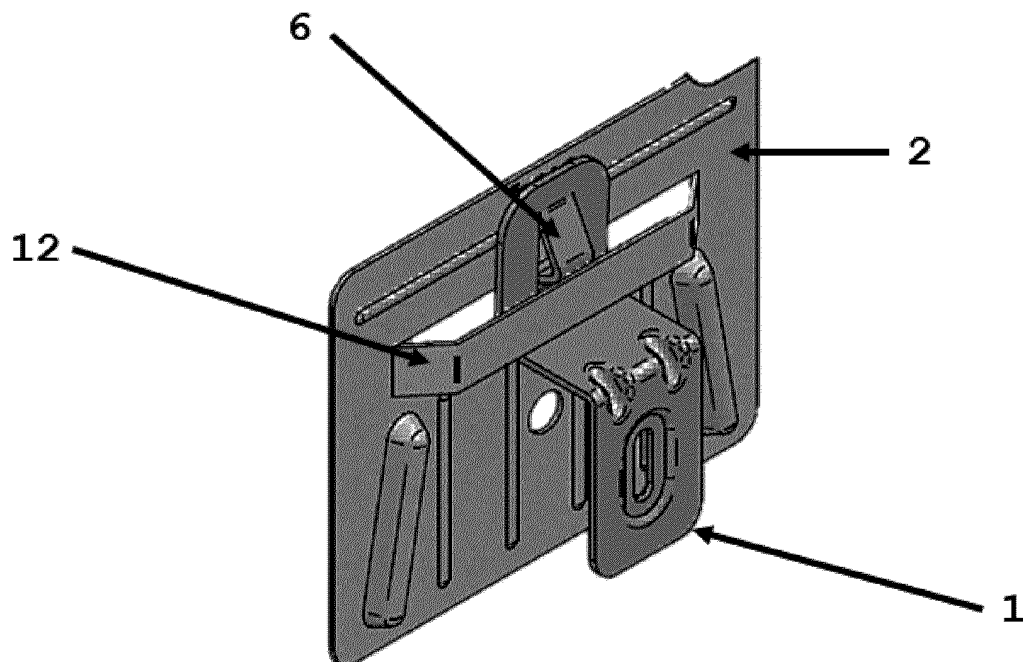
- o the upper vertical area (3) comprises a fixation element (6) to the coupling element (2);
- o the lower vertical area (4) comprises a hole (7)

configured to house a mechanical fixation element (8) to the vertical enclosure;

o and the horizontal area (5) serves as a connection between the upper vertical area (3) and the lower vertical area (4), and it is configured to serve as a support for the decorative element;

and the coupling element (2) is flat or substantially flat, and comprises at least a projecting element (9) configured to mechanically couple to the fixing element (6) of the support element (1).

Figure 4



Description

FIELD OF THE INVENTION

[0001] This invention pertains, in general, to the field of fixing systems used to hang decorative elements on vertical enclosures, such as walls. More specifically, it is a quick fixing system that allows decorative elements to be hung on vertical walls, allowing the adjustment of the mounting tolerances, on the three axes.

BACKGROUND OF THE INVENTION

[0002] At present, it is common to use mechanical elements for fixing decorative elements, such as pictures or mirrors, to the walls of the rooms, allowing their support, and being hung from them to achieve the desired decorative effect.

[0003] Commonly, a screw or a spike is used, introduced in a hole made in the wall, screwing in a plug; where the vertical part of the spike is introduced into a socket located in the decorative element, which rests on the spike itself, achieving the support of said element.

[0004] This traditional system of hanging decorative elements presents different problems, such the horizontal and/or vertical adjustment of them, as well as the difficulty in knowing if they are placed in the correct position, verifying the hanging of the cited decorative element.

[0005] On the other hand, there are in some regulations, such as the American one, certain tests that the decorative element must comply with, like the extraction test of the decorative element, by applying a predefined vertical force, while the fixing system must remain installed in its correct position. There are also other tests, like the blocking of the hinge effect, by means of which is guaranteed that the system remains in the vertical after the application of a lever force, that is, an horizontal force applied to the free end of the decorative element.

[0006] According to the previous tests, the compliance of them would not be achieved through the hanging methods of the decorative elements traditionally used, and aforementioned.

[0007] For this reason, numerous documents that refer to the fixing systems for decorative elements belong to the state of the art, which use modern fixing elements with some advantages.

[0008] The document ES2745060 could be found in the state of the art, referring to a panel fixing assembly, to fix it in a hidden way to a substrate, such a wall or a frame. Comprising two different elements, a retention member, and a receiving member. Where the retention member comprises a contact surface fixed to a surface of the substrate, and which comprises an annular shape with a central groove.

[0009] And where the receiving member comprises a contact surface fixed to the other substrate, and an opening that comprises a first part with a diameter greater than the outer diameter of the retention member; and a

second part with a diameter less than that of the outer diameter of the retention member, but greater than the diameter of the groove. Thus, by introducing the retention member in the opening of the receiving member, and a subsequent vertical sliding towards the area with a smaller diameter of the opening, the decorative element is fixed to the substrate on which it is desired to place.

[0010] Document US20110315647 also belongs to the state of the art, in which a hanging system for furniture is described, comprising a rail adapted to be assembled in a wall, and a protruding element connected to the rail, and configured to interact with a groove located in the furniture to be placed.

[0011] However, none of the systems that belong to the state of the art allows a correct positioning of the decorative element, that guarantees the final fixing position; nor do they allow the adjustment of the mounting tolerances produced during the placing operations of the decorative element, so that, in the event of a small error, for example, in the hole drilled in the wall, the adjustment possibilities without making a new hole are practically nil.

[0012] That is why the appearance of a new quick fixation system is necessary, which allows an easy fixation of the same, being able to ensure that they are in the correct final position, while allowing an adjustment of the mounting tolerances, without having to drill new holes in the wall or in the decorative element.

[0013] Also it is needed a system that complies with the aforementioned extraction and hinge effect tests, that guarantees a minimum safety criteria once the decorative element is hanging on the wall.

SUMMARY OF THE INVENTION

[0014] The fixation system for decorative elements that the invention proposes is configured as a remarkable novelty within its field of application, since, according to its implementation, the aforementioned objectives are satisfactorily achieved, being the characterizing details that make it possible and that distinguish them, conveniently collected in the final claims, which accompany the present description.

[0015] Particularly, the present invention describes a fixation system that allows to easily place any decorative element, such a painting or a mirror, in any vertical enclosure, such a wall, being able to adjust the vertical and/or horizontal mounting tolerances, ensuring a correct positioning of the same.

[0016] At the same time, the fixation systems used in the invention allow sufficient securing of the decorative element to the vertical enclosure, to satisfy the extraction and hinge effect tests previously described.

[0017] To achieve this, the present invention comprises at least two elements: a support element located in the vertical enclosure; and a coupling element located in the decorative element.

[0018] The support element will be in the shaped of a vertical Z, that is, rotated 90° with respect to its normal

position, with two vertical areas, one upper and one lower, and a horizontal area.

[0019] Where the lower vertical area will comprise a hole for the placement of a mechanical element for the fixation of the support element to the vertical enclosure, such a screw or similar. Where upper vertical area will comprise a fastening clip, which will be mechanically attached to the coupling element, ensuring the vertical fixation of the decorative element. And where the horizontal area will join the two vertical areas, and will serve as a support for the decorative element, which will rest on its upper perimetral part.

[0020] On the other hand, the coupling element, with a flat shape, will have one of its faces attached to the decorative element, preferably by means of an adhesive joint, using silicon or some other type of polymeric adhesive. While the opposite face to that attached to the decorative element, will be the one that comprises a projection configured to couple to the fastening clip of the support element, so that it will be in charge of achieving the vertical support of the decorative element.

[0021] To achieve the horizontal adjustment of the mounting tolerances, the projection of the coupling element shall be long enough to allow a horizontal displacement to absorb the accidental deviations produced during the mounting of the decorative element.

[0022] In the same way, to achieve the vertical adjustment, the hole made in the support element will be a vertical slot, so as to allow the variation of the mounting height, absorbing the deviations produced during the mounting of the decorative element.

[0023] Additionally, and to facilitate the vertical adjustment, the slot may comprise a marking in its perimeter area, as well as a groove, so that the adjustment can be controlled precisely.

[0024] Adicionalmente, y para facilitar el ajuste vertical, el coliso podra comprender un marcaje en su zona perimetral, así como un estriado, de manera que se permita controlar el ajuste de manera exacta.

[0025] The fixation system for decorative elements, and the set of elements described, represent an innovation with structural and constitutive characteristics unknown until now, reasons that, together with its practical utility, provide a sufficient basis to obtain the privilege of exclusivity that is requested.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] To complement the description that is being made, and in order to help a better understanding of the invention characteristics, a set of drawings is attached as an integral part of said description, in which, with an illustrative and non-limiting nature, the following has been represented:

Fig. 1 - Shows a view of the support element

Fig. 2 - Shows a side view of the support element

Fig. 3 - Shows a view of the coupling element

Fig. 4 - Shows a view of the coupling between both elements

Fig. 5 - Shows a section of the installed invention

5 List of references in the figures:

[0027]

1. Support element
2. Coupling element
3. Upper vertical area of the support element
4. Lower vertical area of the support element
5. Horizontal area of the support element
6. Fixing element of the support element
7. Hole of the support element
8. Mechanical element for fixing the support element
9. Projecting element of the coupling element
10. Hole as an overflow valve for the silicone or the polymeric adhesive
11. Grooves for silicone or polymeric adhesive
12. Tapered projections on the coupling element
13. Marking of support element hole
14. Perimeter grooving of the support element hole

25 DESCRIPTION OF EMBODIMENTS

[0028] In the following detailed description of the preferred embodiments, reference is made to the attached drawings which form part of this document, and in which are shown, in an illustrative way, specific preferred embodiments in which the invention may be carried out. These embodiments are described in a sufficient detail to enable those skilled in the art to carry out the invention, and it is understood that may be used another embodiments, and that structural, mechanical, electrical and/or chemical changes may be made without departing from the scope of the invention. To avoid details not necessary to enable those skilled in the art to carry out the detailed description, it should not be taken in a limiting sense.

[0029] Specifically, the present invention describes a fixation system for decorative elements, that comprise at least a first support element 1, attached to the surface or the vertical enclosure in which the decorative element is to be hung; and at least a second coupling element 2, attached to the decorative element itself.

[0030] Where the support element 1 has the shape of a vertical Z, and comprises, at least:

- an upper vertical area 3 with a fixation element 6 to the coupling element 2, that will be, preferably, a positioning clip that ensures the vertical position of the coupling element 2 and, therefore, of the decorative element;
- a lower vertical area 4 with a hole 7 configured to house a mechanical fixing element 8 to the vertical enclosure, such a screw or similar;
- and a horizontal area 5, that serves as a junction between the upper vertical area 3 and the lower ver-

tical area 4; and which is configured to serve as a support for the decorative element, so that the external perimeter of the decorative element, whether or not it comprises an external frame, rests on the horizontal zone 5.

[0031] On the other hand, the coupling element 2, with flat shape or substantially flat, comprises at least a projecting element 9, configured to be mechanically coupled to the fixation element 6 of the support element 1.

[0032] In this way, a fixation system for a decorative element is achieved, which comprises two different parts, the support element 1, and the coupling element 2, in which the support element 1 is attached in the vertical enclosure, and the coupling element is attached in the decorative element itself, where the decorative element rests on the horizontal area of the support element 1, and where the support element 1 and the coupling element 2 are mechanically coupled to ensure the vertical fixation of the decorative element.

[0033] In a preferred embodiment, the coupling element 2 will be attached to the decorative element by means of an adhesive bond, like a double-sided adhesive tape and/or by applying silicone or other similar polymeric adhesive.

[0034] Where the coupling element 2 may comprise a central hole 10 configured as an overflow valve for the silicone or the polymeric adhesive used in the adhesive bond; and at least a groove 11 in the contact surface between the coupling element 2 and the decorative element, configured to facilitate the application of the silicone or the polymeric adhesive used in the adhesive bond.

[0035] In this way, and in a preferably, the coupling element 2 will be attached to the decorative element by means of an adhesive bond, being able to use a double-sided adhesive tape to carry out an initial positioning, to proceed later with the introduction of the silicone, ensuring an optimal fixation.

[0036] To ensure that the silicone or the polymeric adhesive is correctly distributed, the central hole 10 will be used to verify the correct silicone introduction between the coupling element 2 to the decorative element; and the grooves 11 will be used to improve the circulation of the polymeric adhesive.

[0037] Preferably, the projection element 9 of the coupling element 2, which is configured to mechanically couple to the fixation element 6 of the support element 1, will have enough length to ensure that the horizontal mounting tolerances can be adjusted, absorbing the clearances that may appear in the aforementioned assembly procedure.

[0038] In a preferred embodiment, the coupling element 2 will comprise a conical-shaped guide system, comprising at least two projections 12, remaining the side of smaller dimensions in the area close to the projection element 9.

[0039] In this way, when an eventual user intends to

place the decorative element, the projections 12 will guide the vertical upper area 3 of the support element 2 towards the projection element 9, facilitating its positioning and securing to the fixing element 6.

[0040] In other hand, preferably, the hole 7 of the support element 1, through which the screw is placed, or any other mechanical fixation element to the vertical enclosure, will have slot shape, so as to allow the vertical adjustment of the mounting tolerances, being able to raise or lower the height of the support element 1, until the desired horizontality of the decorative element, that rests in the horizontal area 5 of the support element 1, is achieved.

[0041] Preferably, the hole 7 with slot shape, will comprise a marking 13 and/or a groove 14 in its outer perimeter, so as to facilitate the height regulation of the support element 1.

[0042] Having sufficiently described the nature of the present invention, as well as the way of putting it into practice, it is not considered necessary to make its explanation more extensive, so that a skilled person in the technical field understands its scope and the advantages derived from it, stating that could be carried out in other forms of implementations that differ in details from the one indicated, and to which it also achieve the protection that is provided by the present invention.

Claims

1. **Fixing system for decorative element** comprising at least a support element (1) located in the vertical enclosure; and at least a coupling element (2) located in the decorative element, **characterized in that:**

the support element (1) is in the shape of a vertical Z, and comprises at least: an upper vertical area (3), a lower vertical area (4), and a horizontal area (5), where:

- the upper vertical area (3) comprises a fixation element (6) to the coupling element (2);
- the lower vertical area (4) comprises a hole (7) configured to house a mechanical fixation element (8) to the vertical enclosure;
- and the horizontal area (5) serves as a connection between the upper vertical area (3) and the lower vertical area (4), and it is configured to serve as a support for the decorative element;

and the coupling element (2) is flat or substantially flat, and comprises at least a projecting element (9) configured to mechanically couple to the fixing element (6) of the support element (1).

2. **Fixing system for decorative element** according

to claim 1 **characterized in that** the coupling element (2) is attached to the decorative element by means of an adhesive bond.

3. **Fixing system for decorative element** according to claim 2 **characterized in that** the adhesive bond is made by means of a double-sided adhesive tape and/or silicone and/or another types of polymeric adhesive. 5
- 10
4. **Fixing system for decorative element** according to the previous claim **characterized in that** the coupling element (2) comprises at least: a central hole (10) configured as overflow valve for the silicone or the polymeric adhesive used in the adhesive bond; and at least a groove (11) in the surface in contact with the decorative element, configured to facilitate the application of the silicone or the polymeric adhesive used in the adhesive bond. 15
- 20
5. **Fixing system for decorative element** according to claim 1 **characterized in that** the projecting element (9) comprises enough length to allow the horizontal adjustment of the mounting tolerances. 25
6. **Fixing system for decorative element** according to claim 1 **characterized in that** the coupling element (2) comprises a system for guiding the support element (1), with at least two projections (12) that configure a conical shape in the direction of the projecting element (9) 30
7. **Fixing system for decorative element** according to claim 1 **characterized in that** the hole (7) of the support element (1) has the shape of a vertical slot, configured to allow the vertical adjustment of the mounting tolerances. 35
8. **Fixing system for decorative element** according to the previous claim **characterized in that** the slot comprises a marking (13) and/or a groove (14) in its perimetral area. 40
9. **Fixing system for decorative element** according to claim 1 **characterized in that** the fixation element (6) is a fastening clip. 45

50

55

Figure 1

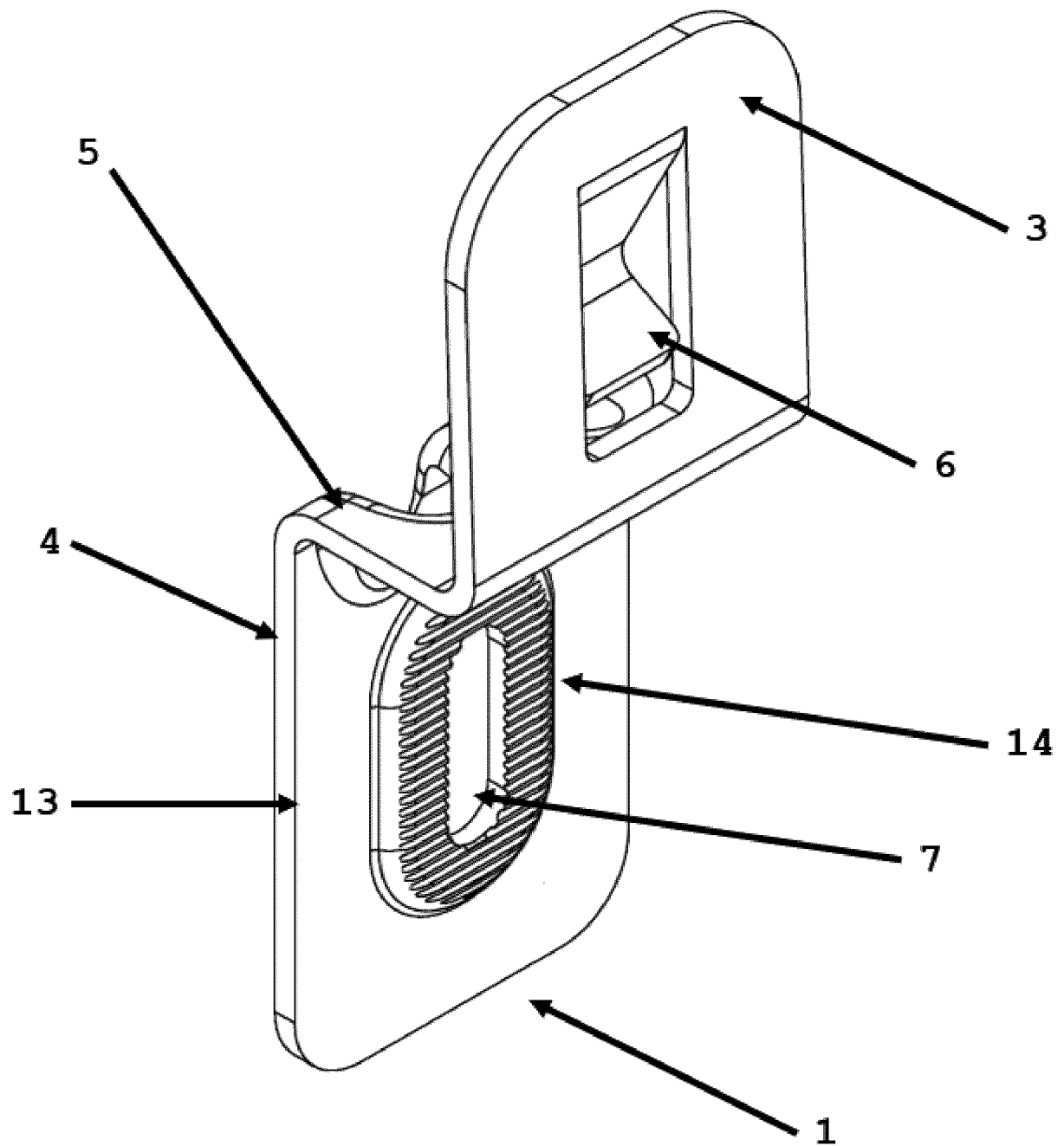


Figure 2

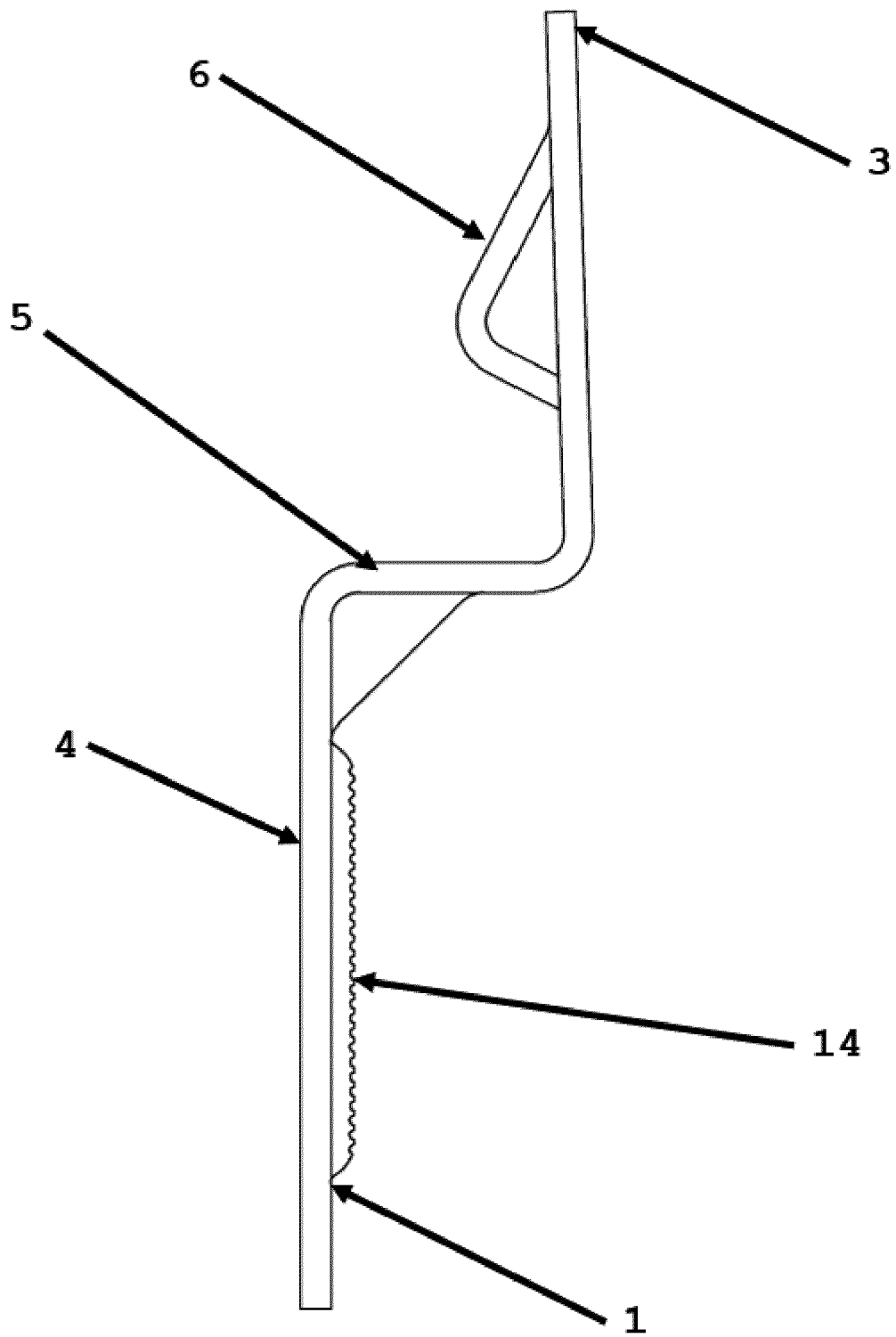


Figure 3

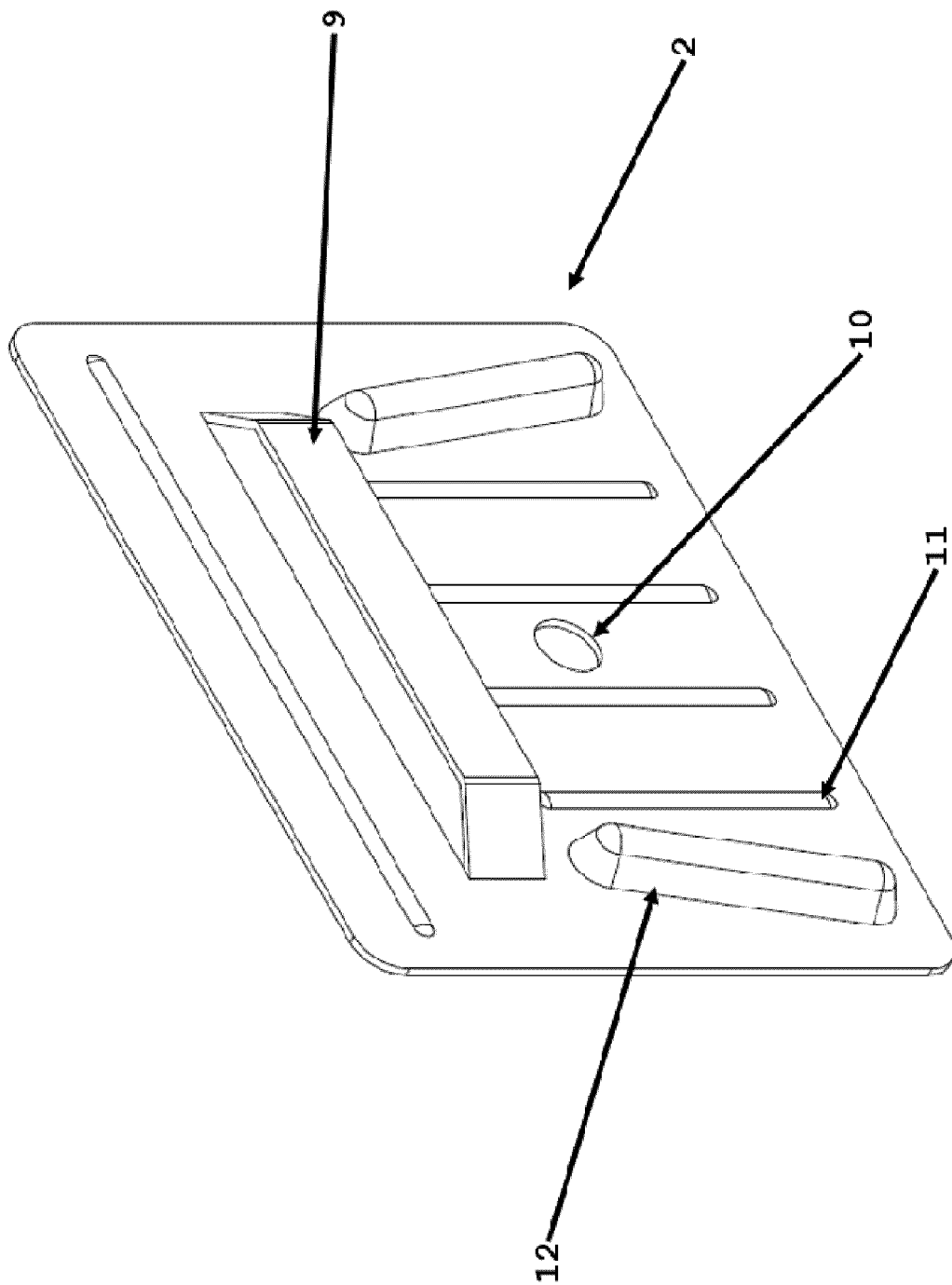


Figure 4

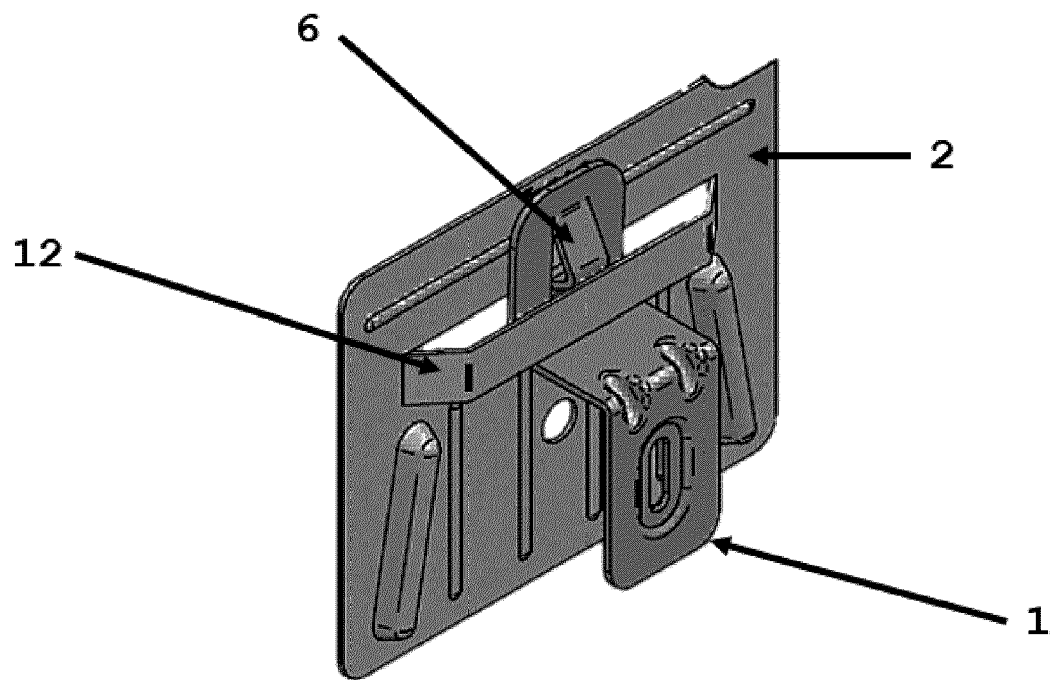
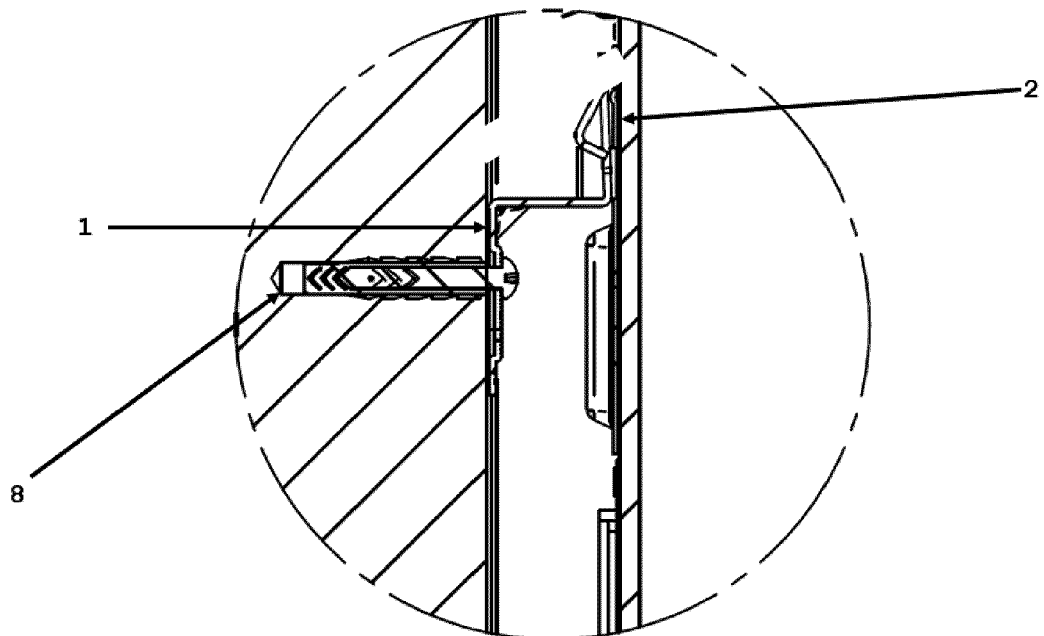


Figure 5





EUROPEAN SEARCH REPORT

Application Number

EP 21 21 4731

5

10

15

20

25

30

35

40

45

50

55

1

EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2018/197303 A1 (CLIQ SOLUTIONS AB [SE]) 1 November 2018 (2018-11-01)	1-3, 5, 7-9	INV. A47G1/16
Y	* paragraphs [0001], [0023], [0024], [0027]; figures 1a-1c *	4	A47G1/17
X	US 10 349 759 B2 (WIGGINS ROBERT E [US]; ROBERT ELLIS ART & DESIGN [US]) 16 July 2019 (2019-07-16) * column 1, lines 6, 7 - column 3, lines 10-15, 29, 50-67; figure 4 * * column 4, lines 1-5 *	1-3, 5-9	
X	US 3 955 790 A (BALLIN GENE) 11 May 1976 (1976-05-11) * figures 9-11 *	1, 5	
X	JP 4 282010 B2 (ORIGIN KOGYO KK) 17 June 2009 (2009-06-17) * figure 2 *	1, 5	
Y	CN 2 288 649 Y (HUANG JIANDA [CN]) 26 August 1998 (1998-08-26) * figure 3 *	4	TECHNICAL FIELDS SEARCHED (IPC) A47G A47B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 May 2022	Examiner Longo dit Operti, T
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 21 21 4731

5

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-05-2022

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2018197303 A1	01-11-2018	SE 1730115 A1	26-10-2018
		WO 2018197303 A1	01-11-2018
US 10349759 B2	16-07-2019	US 2019024370 A1	24-01-2019
		US 2019284801 A1	19-09-2019
US 3955790 A	11-05-1976	NONE	
JP 4282010 B2	17-06-2009	JP 4282010 B2	17-06-2009
		JP 2005323790 A	24-11-2005
CN 2288649 Y	26-08-1998	NONE	

15

20

25

30

35

40

45

50

55

EPO FORM P0459

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

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- ES 2745060 [0008]
- US 20110315647 A [0010]