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(54) Title: CLIMBING WALL ASSEMBLY

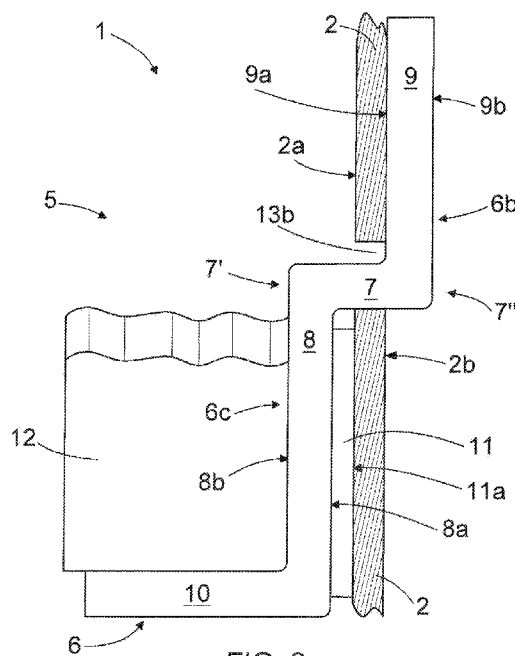


FIG. 2

(57) Abstract: A climbing wall assembly comprising at least one wall panel (2) arranged to provide at least a portion of a climbing wall (1), a number of hand hold structures (5) to be placed to the at least one wall panel (2) and a number of integrated fastening elements (3) arranged in the at least one wall panel (2) for receiving the hand hold structures (5) to be placed to the at least one wall panel (2).

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CLIMBING WALL ASSEMBLY

FIELD OF THE INVENTION

The present invention relates to a climbing wall.

BACKGROUND OF THE INVENTION

5 FR-publication 2592588 A1 discloses a climbing wall of a prior art. The climbing wall of the FR-publication 2592588 A1 comprises hand holds that are fastened with bolts to wall panels in the climbing wall.

BRIEF DESCRIPTION OF THE INVENTION

10 An object of the present invention is to provide a novel climbing wall assembly.

The invention is characterized by the features of the independent claim.

15 The invention is based on the idea of having a number of integrated fastening elements arranged in the climbing wall, wherein the fastening elements are arranged to receive hand hold structures used for supporting hands and feet during climbing so as to arrange the hand hold structures in connection with the climbing wall in quick clamping manner.

20 When the climbing wall comprises a number of integrated fastening elements, i.e. fastening elements formed of or defined by the at least one wall panel of the climbing wall, no fastening elements that are separately attachable to the climbing wall are needed. This simplifies a manufacturing and an introduction of the climbing wall. Furthermore, the fastening elements in the climbing wall are implemented in such a way that they are able to receive and support the hand hold structures to be placed to the fastening elements in quick clamping manner
25 without any need for separately attachable fasteners.

Some embodiments of the invention are disclosed in the dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

30 In the following the invention will be described in greater detail by means of preferred embodiments with reference to the accompanying drawings, in which

Figure 1 shows schematically a front view of a climbing wall; and

Figure 2 shows schematically a side view of the climbing wall and a

hand hold structure placed to the climbing wall;

Figure 3 shows a schematic front view of an embodiment of a fastening structure and a body of a hand hold structure; and

Figure 4 shows schematically a side view of another hand hold structure.

For the sake of clarity, the figures show some embodiments of the invention in a simplified manner. Like reference numerals identify like elements in the figures.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 shows schematically a front view of a climbing wall 1. Figure 2 shows schematically a side view of the climbing wall 1 and a hand hold structure 5 arranged to the climbing wall 1, wherein the wall panel 2 of the climbing wall 1 is shown in cross section. The hand hold structures 5 are intended to provide supports for hands and feet during climbing. For the sake of clarity, only few hand hold structures 5 are shown in Figure 1.

The climbing wall 1 of Figure 1 comprises a single wall panel 2. The climbing wall 1 may, however, comprise two or more wall panels 2 which are laid adjacent to each other and/or on top of each other for forming a single uniform climbing wall 1. When the climbing wall 1 comprises a plurality of wall panels 2, the wall panels 2 may be attached to each other and/or to a support construction, which may be a supporting frame or a wall of a building, for example, so as to provide the substantially uniform climbing wall 1.

The wall panel 2 comprises a front surface 2a which provides a side of a use of the wall panel 2, i.e. that side of the wall panel 2, where a route for climbing is provided. The wall panel 2 further comprises a back surface 2b which provides a side of the wall panel 2 to be directed towards the support construction where the wall panel 2 is supported to.

The wall panel 2 may be made of many different materials. According to an embodiment the wall panel 2 may be made of a sheet of metal, such as steel or aluminium, for example. According to a second embodiment the wall panel 2 may be made of plywood. According to a third embodiment the wall panel 2 may be for example a two-layer structure having a first layer on the front surface 2a side and a second layer on the back surface 2b side, whereby the first layer may be made of a metal sheet and the second layer may be made of a plywood sheet attached to the metal sheet, for example.

The wall panel 2 comprises a number of integrated fastening elements 3 arranged in the wall panel 2 for receiving the hand hold structures 5 to be placed to the wall panel 2. With the integrated fastening elements it is meant fastening elements that are formed of or defined by the wall panel 2.

5 In the embodiment of Figures 1 and 2 the fastening element 3 comprises two closely spaced adjacent apertures 13a, 13b, i.e. a first aperture 13a and a second aperture 13b, arranged through the wall panel 2. The apertures 13a, 13b thus extend from the front surface 2a of the wall panel 2 up to the back surface 2b of the wall panel 2.

10 The fastening element 3 in Figures 1 and 2 thus comprises an aperture pattern formed of two closely spaced adjacent apertures 13a, 13b, i.e. the first aperture 13a and the second aperture 13b, wherein a width of the left hand side first aperture 13a is dimensioned to be smaller than a width of the right hand side second aperture 13b. A height of the apertures 13a, 13b is preferably 5mm or less
15 so that fingers or toes of even small children will not stick in the apertures 13a, 13b. Generally the aperture pattern may comprise two or more substantially closely spaced apertures. An aperture pattern formed of for example two closely spaced adjacent but substantially narrow apertures provides a more stable locking of the hand hold structure 5 to the wall panel 2 than a single but
20 substantially wide aperture. Generally the manufacturing of the fastening elements as apertures is simple and cost-effective.

The aperture pattern of the apertures 13a, 13b provide one type of non-protruding fastening element 3 on the side of the front surface 2a of the wall panel 2 for receiving at least part of the body element 6 of the hand hold structure
25 5 for arranging the hand hold structure 5 in connection with the wall panel 2, i.e. for bringing the hand hold structure 5 to be suspended by the wall panel 2. With the term non-protruding it is meant that the fastening element for receiving the hand hold structure 5 in connection with the wall panel 2 does not extend above a plane of the front surface 2a of the wall panel 2. The advantage of non-protruding
30 fastening elements on the side of the front surface 2a of the wall panel 2 is that fastening elements 3 not being provided with the hand hold structures 5 do not cause any risk of injury. The aperture patterns of apertures 13a, 13b are arranged in various positions in the plane of the front surface 2a of the wall panel 2, i.e. at various heights in a height direction of the wall panel 2 and at various positions in
35 a width direction of the wall panel 2.

In an alternative embodiment the fastening element may comprise at

least one recess arranged in the wall panel, whereby at least part of the body element of the hand hold structure will be inserted into the at least one recess. The recess may for example have a varying cross sectional shape which may enable a form locking to take place between the fastening element comprising at least one recess and the body element of the hand hold structure to be inserted into the at least one recess. The at least one recess thus provides another type of non-protruding fastening element in the wall panel for receiving a body element of the hand hold structure for arranging the hand hold structure in connection with the wall panel, i.e. to be suspended by the wall panel.

In the embodiment of Figure 1 the front surface 2a of the wall panel 2 comprises also grooves 4 engraved into the front surface 2a of the wall panel 2. A width of the groove 4 may vary in its direction of extension, as shown in Figure 1. The grooves 4 provide one type of stiffener elements arranged to the wall panel 2 in order to increase a torsional effect against torsional forces appearing in the wall panel 2 during a climbing of a person. The stiffener elements may be arranged to the front surface 2a of the wall panel 2 and/or to the back surface 2b of the wall panel 2. The stiffener elements may also reduce the sound inducing tendency of the vibrating wall panel 2 made of thin planar metal sheet. Instead of grooves for example rigid strips or ribbons attached to at least one of the surface 2a, 2b of the wall panel 2 may be used as stiffener elements applied to the wall panel 2.

Further referring to Figures 1 and 2, the hand hold structure 5 comprises a body element 6 for placing the hand hold structure 5 to the wall panel 2, or in other words, for arranging the hand hold structure 5 in connection with the fastening element 3 in the wall panel 2. The body element 6 carries a weight of a climbing person and forwards it to the climbing wall 1. The hand hold structure 5 further comprises a holder element 11 arranged to the body element 6 for supporting the hand hold structure 5 firmly against the front surface 2a of the wall panel 2. The holder element 11 thus keeps or holds or bonds the hand hold structure 5 firmly against the front surface 2a of the wall panel 2. Furthermore the hand hold structure 5 comprises a hand hold element 12 arranged to the body element 6 for providing a support for a hand or a foot during climbing. The hand hold element 12 may for example be an arbitrary shaped piece made of plastic.

The body element 6 shown in Figures 1 and 2 comprises a hooked-like construction and has a first upwards extending hooked-like branch 6a to be

inserted into the first aperture 13a of the fastening element 3, a second upwards extending hooked-like branch 6b to be inserted into the second aperture 13b of the fastening element 3 and a basic body 6c of the carrier element 6, i.e. the body element 6, therebetween, as shown in Figure 1. Preferably the width of the second
5 branch 6b of the body element 6 is dimensioned to be greater than the width of the first aperture 13a, whereby the hand hold structure 5 may be placed to the fastening element 3 in only one intended position, i.e. it is not possible to place the hand hold structure 5 to the wall panel 2 in an incorrect position.

The second branch 6b of the body element 6 comprises a horizontal
10 part 7 to be positioned substantially horizontally through the aperture 13b in the wall panel 2 when the hand hold structure 5 is to be placed to the wall panel 2 or is to be arranged in connection with the wall panel 2. The first branch 6a of the body element 6 comprises a corresponding horizontal part too. The horizontal part 7 transfers the substantially vertical force generated by a weight of a person
15 performing the climbing to the wall panel 2. The horizontal part 7 comprises a first end 7' which is arranged to remain on the side of the front surface 2a of the wall panel 2 when the hand hold structure 5 is arranged to the wall panel 2. Furthermore the first horizontal part 7 comprises a second end 7'' which is arranged to remain on the side of the back surface 2b of the wall panel 2 when the
20 hand hold structure 5 is arranged to the wall panel 2.

At the first end 7' of the first horizontal part 7 there is connected a substantially vertically downwards extending vertical part 8 that forms a part of the basic body 6c of the body element 6. The vertical part 8 has a first surface 8a to be laid towards the front surface 2a of the wall panel 2 below the aperture 13a,
25 13b, when the hand hold structure 5 is placed to the wall panel 2, and a second surface 8b against which the hand hold element 12 may be supported to. At the second end 7'' of the horizontal part 7 there is connected a substantially vertically upwards extending vertical part 9 that forms a part of the second branch 6b of the body element 6. The first branch 6a of the body element 6 comprises a
30 corresponding vertical part too. The vertical part 9 has a first surface 9a to be laid against the back surface 2b of the wall panel 2 above the aperture 3 and a second surface 9b facing away from the wall panel 2, when the hand hold structure 5 is placed to the fastening element 3. The first surface 9a of the vertical part 9 provides a support surface through which the body element 6 is supported to the
35 back surface 2b of the wall panel 2.

At the opposite end of the first vertical part 8 relative to the end

connected to the horizontal part 7 there is connected a horizontal part 10 that forms a part of the basic body 6c of the body element 6 and is arranged to extend away from the first surface 2a of the wall panel 2. The horizontal part 10 provides, together with the second surface 8b of the vertical part 8 a support for the hand hold element 12.

The horizontal part 7, the vertical part 8 and the vertical part 9 together form a hooked construction providing a quick clamping for the hand hold structure 5 so that the hand hold structure 5 can be placed or installed to the fastening element 3 in the wall panel 2 and detached from the fastening element 3 in the wall panel 2 just by hands without using any tools. This means, that there are no separate fasteners, such as screws or bolts, or any internal locking lever. When the hand hold structure 5 is placed to the fastening element 3 in the wall panel 2, the hand hold structure 5 is turned about 90 degrees to the right relative to the position shown in Figure 2, whereby the vertical part 9 in the first 6a and second 6b branches of the body element 6 will be in a substantially horizontal position, whereby they can be pushed through the apertures 13a, 13b. After the vertical parts 9 have been pushed through the aperture 13a, 13b from the side of the front surface 2a of the wall panel 2 towards the back side of the back surface 2b of the wall panel 2 so that they at least partly extend outside the apertures 13a, 13b at the back surface 2b side of the wall panel 2, the hand hold structure 5 is turned about 90 degrees back to the position shown in Figure 2. The placing of the hand hold structure 5 to the wall panel 2 and detaching from the wall panel 2 can thus be done just by hands with a quick clamping manner when the placement of the hand hold structures 5 are varied in the climbing wall 1. The dimensions of the horizontal parts 7, the vertical parts 9 and the apertures 13a, 13b are arranged relative to each other in such a way that the turning of the hand hold structure 5 as disclosed above is possible.

In the position of the hand hold structure 5 as disclosed in Figure 2 and explained above the vertical part 9 prevents the hand hold structure 5 to become unintentionally loosen from the wall panel 2. The horizontal part 7 transfers the substantially vertical force generated by the weight of the climbing person to the structure of the wall panel 2, whereby the load due to the climbing person is directed to be parallel to the direction wherein the hand hold structure 5 is supported to the wall panel 2, which prevents an unintentional opening of the placing of the hand hold structure 5 during climbing.

As already shortly disclosed above, the hand hold structure 5

comprises the holder element 11, which is intended to fasten or support the hand hold structure 5 to the front surface 2a of the wall panel 2 substantially absence of any play or clearance so that the hand hold structure 5 is supported firmly against to the front surface 2a of the wall panel 2. This means that during climbing a hand or a foot may be supported to the hand hold element 12 of the hand hold structure 5 so that the hand hold structure 5 does not move or vibrate.

In the embodiment of Figure 2 the holder element 11 is arranged at to the first surface 8a of the vertical part 8 of the body element 6, whereby the holder element 11 is placed between the vertical part 8 of the body element 6 and the front surface 2a of the wall panel 2. In an alternative embodiment the holder element 11 may be at least partly embedded into the first surface 8a of the vertical part 8 of the body element 6. The surface 11a of the holder element 11 facing towards the front surface 2a of the wall panel 2 provides a support surface through which the hand hold structure 5 is supported to the front surface 2a of the panel wall 2 at the vertical part 8 of the body element 6.

If the wall panel 2 or the front surface 2a thereof is of metal, the holder element 11 may be a magnetic or a group of magnets, whereby a magnetic force is generated between the hand hold structure 5 and the wall panel 2. At an outer surface of the magnet there may also be a piece of rubber to prevent two metallic surfaces to contact straight to each other. Alternatively the holder element 11 may be a suction pad, whereby a force provided by underpressure prevailing in the suction pad maintains the hand hold structure 5 against the front surface 2a of the wall panel 2. As the holder element 11 it may also be used sticker tape material comprising hooks and loops for creating a mechanical bond between the hand hold structure 5 and the front surface 2a of the wall panel 2. According to a further alternative embodiment the holder element 11 may be an element made of soft adhesive material whereby the holder element 11 and the hand hold structure 5 together it become adhered to the front surface 2a of the wall panel 2. In this embodiment the supporting effect is based on an increase of friction between the hand hold structure and the wall panel 2.

The climbing wall assembly as disclosed provides a climbing wall wherein a placing of the hand hold structures 5 may be easily varied for providing various routes for climbing. The placing of the hand hold structures 5 may be easily varied because of the quick clamping of the hand hold structures 5 to the wall panel 2, whereby no tools are needed to fasten the hand hold structures 5 to the wall panel 2 or the detach the hand hold structures 5 from the wall panel 2.

Yet the support of the hand hold structures to the wall panel 2 is firm.

In the description and Figures above the fastening elements 3 were formed especially of aperture patterns of at least two substantially closely spaced apertures. Alternatively the fastening element in the wall panel may also be a single aperture configured to receive at least part of the body element of the hand hold structure. With a suitable shape of the single aperture and a corresponding shape of the body element of the hand hold structure it may be ensured that the hand hold structure may be placed to the fastening element only in one intended position.

Figure 3 shows a schematic front view of an alternative embodiment of a fastening structure 3 and a body 6 of a hand hold structure 5. The wall panel 2 comprises an integrated fastening element 3 arranged in the wall panel 2 for receiving the hand hold structure 5 to be placed to the wall panel 2. The fastening element 3 of Figure 3 is an aperture pattern comprising three closely spaced adjacent apertures 13a, 13b, 13c, i.e. a first aperture 13a, a second aperture 13b and a third aperture 13c, arranged through the wall panel 2. The apertures 13a, 13b, 13c are of the same width but the distance between the first aperture 13a and the second aperture 13b is only about half of the distance between the second aperture 13b and the third aperture 13c. In other words, the placement of the apertures 13a, 13b, 13c is asymmetrical relative to a middle point of the aperture pattern of Figure 3.

Figure 3 further shows a schematic front view of a structure of a body element 6 of a hand hold structure 5 suitable to be used with the fastening element 3 of Figure 3. The body element 6 comprises a basic body 6c and a first 6a, a second 6b and a third 6d upwards extending hooked-like branches to be inserted into the first aperture 3a, the second aperture 3b and the third aperture 3c. The general construction of the hooked-like branches 6a, 6b, 6d may be substantially similar to that disclosed in Figure 2, for example. With the asymmetrical placement of the apertures 13a, 13b, 13c in the wall panel 2 and the correspondingly asymmetrical placement of the hooked-like branches 6a, 6b, 6d in the basic body 6c of the body element 6 of the hand hold structure 5 it may be ensured that the hand hold structure 5 is to be placed to the wall panel 2 only in one intended position.

The body element 6 of the hand hold structure 5 does not comprise any horizontal part 10 but it comprises an opening 14 arranged through the basic body 6c of the body element 6, whereby the hand hold element 12 may be

fastened to the body element 6 for example with a screw or a bolt extending through the opening 14.

According to an embodiment the hand hold element 12 may be a uniform part with the body element 6 of the hand hold structure 5, whereby the
5 hand hold element 12 and the body element 6 of the hand hold structure 5 may be manufactured as a single uniform part.

In the embodiment of Figures 1 and 2 the aperture pattern has two horizontally adjacent apertures 13a, 13b, and in the embodiment of Figure 3 the aperture pattern has three horizontally adjacent apertures 13a, 13b, 13c.
10 Alternatively, apertures in an aperture pattern may be arranged to be adjacent relative to each other in a vertical direction, or the apertures may be arranged to be adjacent relative to each other along a line extending between horizontal and vertical directions. Generally, the apertures in the aperture pattern may be arranged to be horizontally and/or vertically different positions relative to each
15 other, whereby the hooked-like branches 6a, 6b, 6d in the body element 6 of the hand hold structure 5 are arranged or placed correspondingly.

According to an embodiment a lower edge of the climbing wall 1 may rest on a floor and an upper part of the climbing wall 1 may be supported to a fixed wall with support means which enable an angle of inclination of the
20 climbing wall to be varied. According to another embodiment the climbing wall 1 is supported to a fixed wall with a support frame fixedly fastened to the wall or with fasteners that allow a gap to be left between a background of the climbing wall 1 and the wall of the building. According to a further embodiment a freestanding support frame may be used to support the climbing wall to a desired
25 position of use. According to an embodiment the climbing wall may be attached to the wall of the building, or to some other suitable supporting structure, with a hinge that allows the angle of the inclination of the climbing wall to be varied by moving a bottom part of the climbing wall towards the wall of the building or away from it.

Figure 4 shows schematically a view of another hand hold structure 5
30 in cross section. For the sake of clarity, no cross sectional lineation is disclosed in Figure 4. The hand hold structure 5 of Figure 4 comprises the same parts as the hand hold structure 5 of Figure 2, but in the embodiment of Figure 4 the holder element 11 is composed of at least one magnet that is/are embedded into the
35 hand hold element 12. The hand hold element 12 may for example be made of plastic. The holder element 11 is placed in the hand hold element 12 substantially

close to the basic body 6c of the body element 6 so that the magnetic force generating between the holder element 11 and the front surface 2a of the wall panel 2 through the basic body 6c of the body element 6 is strong enough to support the hand hold structure 5 firmly against to the front surface 2a of the wall panel 2. According to an embodiment of the hand hold structure 5 the holder element 11 composed of at least one magnet may also be arranged to partly surround the basic body 6c of the body element 6 at side edges of the basic body 6c of the body element 6.

It will be obvious to a person skilled in the art that, as the technology advances, the inventive concept can be implemented in various ways. The invention and its embodiments are not limited to the examples described above but may vary within the scope of the claims.

Claims

1. A climbing wall assembly comprising
at least one wall panel (2) arranged to provide at least a portion of a
climbing wall (1),
5 a number of hand hold structures (5) to be placed to the at least one
wall panel (2),
characterized in that the climbing wall assembly comprises
a number of integrated fastening elements (3) arranged in the at least
one wall panel (2) for receiving the hand hold structures (5) to be placed to the at
10 least one wall panel (2),
wherein the hand hold structure (5) comprises
a body element (6) for arranging the hand hold structure (5) in
connection to the at least one fastening element in the wall panel (2) with quick
clamping for arranging the hand hold structure (5) to be suspended by the at least
15 one wall panel (2) without separately attachable fasteners,
a holder element (11) for supporting the hand hold structure (5) with
substantially absence of play against a front surface (2a) of the at least one wall
panel (2), and
a hand hold element (12) arranged in connection with the body
20 element (6).
2. A climbing wall assembly as claimed in claim 1,
characterized in that the fastening element (3) arranged in the at least
one wall panel (2) comprises at least one aperture (13a, 13b, 13c) arranged
25 through the at least one wall panel (2).
3. A climbing wall assembly as claimed in claim 1 or 2,
characterized in that the fastening element (3) arranged in the at least
one wall panel (2) comprises an aperture pattern of at least two apertures (13a,
30 13b, 13c) arranged through the at least one wall panel (2).
4. A climbing wall assembly as claimed in any one of the preceding
claims, **characterized** in that the body element (6) of the hand hold
structure (5) comprises a hooked construction at least part of which is to be
35 arranged in connection with the at least one fastening element (3) in the at least
one wall panel (2).

5. A climbing wall assembly as claimed in claim 4, **characterized** in that at least part of the hooked construction of the body element (6) of the hand hold structure (5) is to be arranged through the at least one aperture (13a, 13b, 13c) in the at least one wall panel (2) from the side of the front surface (2a) of the wall panel (2) up to the opposite side of the wall panel (2).

6. A climbing wall assembly as claimed in claim 4 or 5, **characterized** in that the hooked construction of the body element (6) comprises a vertical part (8) having a surface (8a) to be laid towards the front surface (2a) of the wall panel (2) next to the at least one aperture (13a, 13b, 13c) in the wall panel (2) and a vertical part (9) having a surface (9a) to be laid towards the back surface (2b) of the wall panel (2) on the other side of the same at least one aperture (13a, 13b, 13c) in the wall panel (2) relative to the vertical part (8) of the body element (6) to be laid towards the front surface (2a) of the wall panel (2) when the hand hold structure (5) is placed to the at least one wall panel (2) in the climbing wall (1).

7. A climbing wall assembly as claimed in claim 6, **characterized** in that the holder element (11) is arranged at the surface (8a) of the vertical part (8) of the hooked construction of the body element (6) facing towards the front surface (2a) of the wall panel (2) next to the at least one aperture (13a, 13b, 13c).

8. A climbing wall assembly as claimed in any one of the preceding claims, **characterized** in that the holder element (11) is at least one of a magnet, a suction pad, a sticker tape material comprising hooks and loops for creating a mechanical bond and an element made of soft adhesive material.

9. A climbing wall assembly as claimed in any one of the preceding claims, **characterized** in that the at least one wall panel (2) comprises at least one stiffener element arranged to the at least one surface of the wall panel (2) in order to increase a torsional strength of the wall panel (2).

10. A climbing wall assembly as claimed in claim 9, **characterized** in that the at least one stiffener element comprises at least one groove (4) engraved in the front surface (2a) of the wall panel (2).

5

11. A climbing wall assembly as claimed in any one of the preceding claims, **characterized** in that a holder element (11) is arranged in the body element (6).

10

12. A climbing wall assembly as claimed in any one of claims 1 to 10, **characterized** in that the holder element (11) is composed of at least one magnet which is embedded into the hand hold element (12).

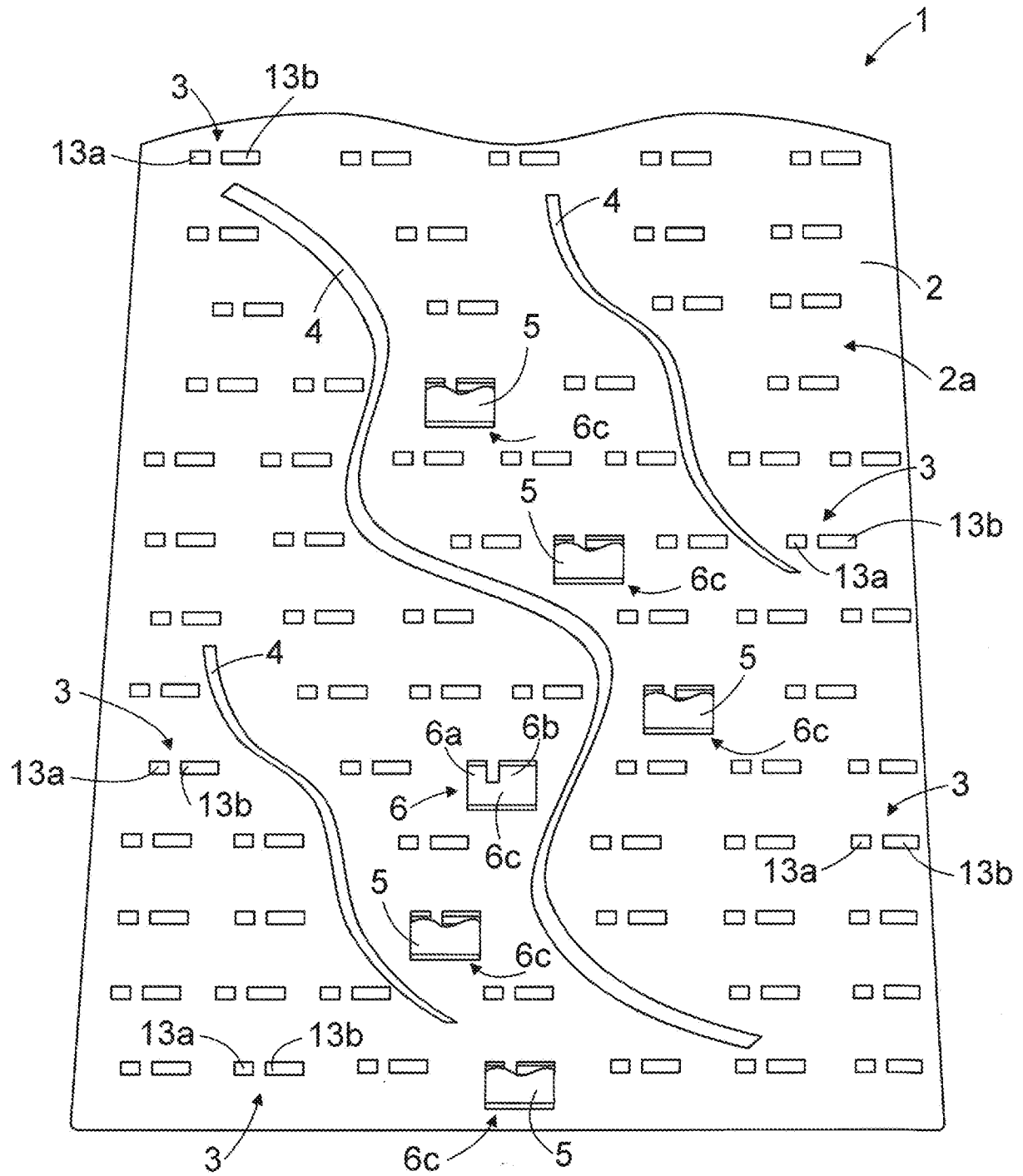


FIG. 1

2/3

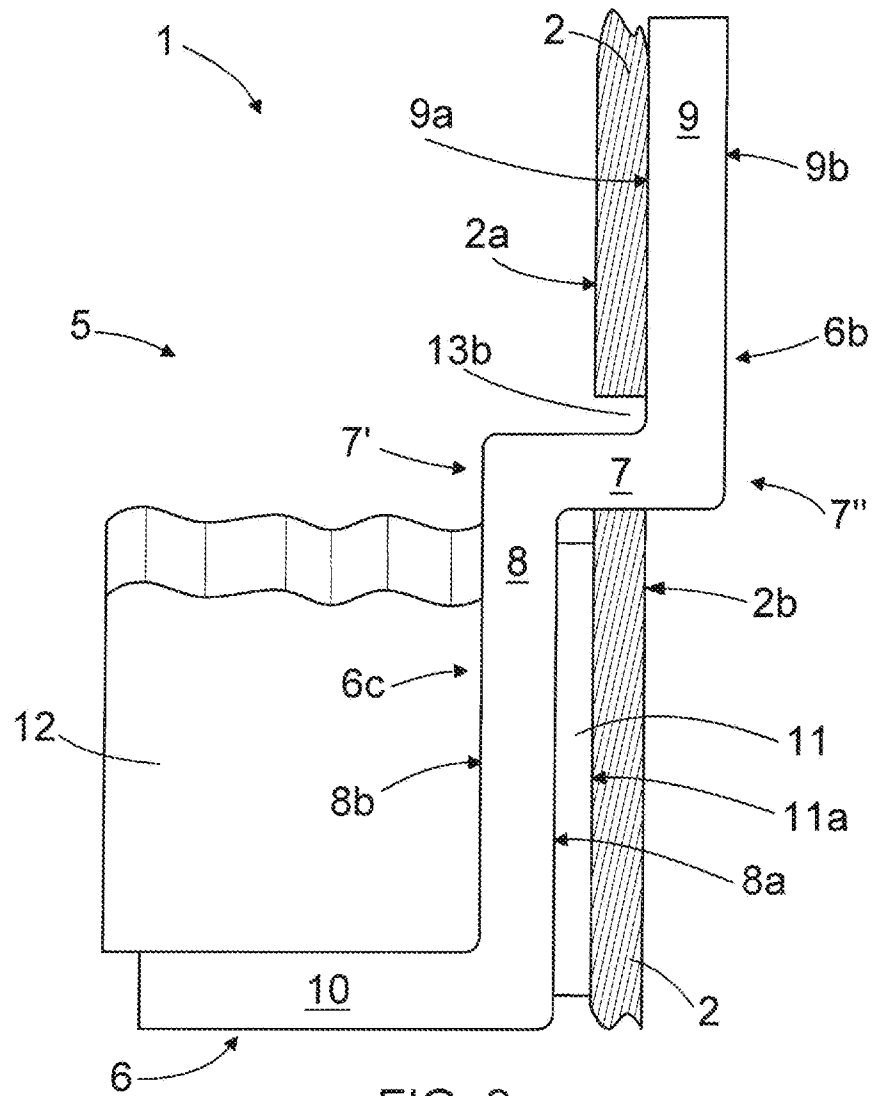


FIG. 2

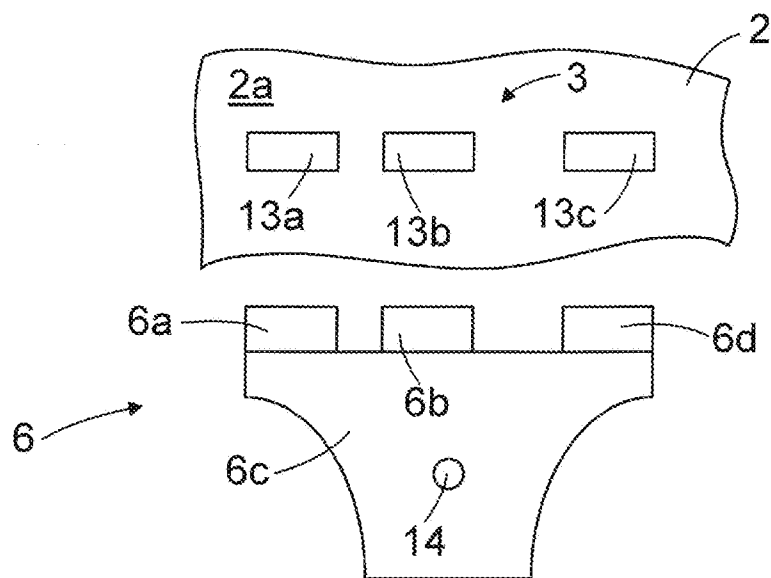


FIG. 3

3/3

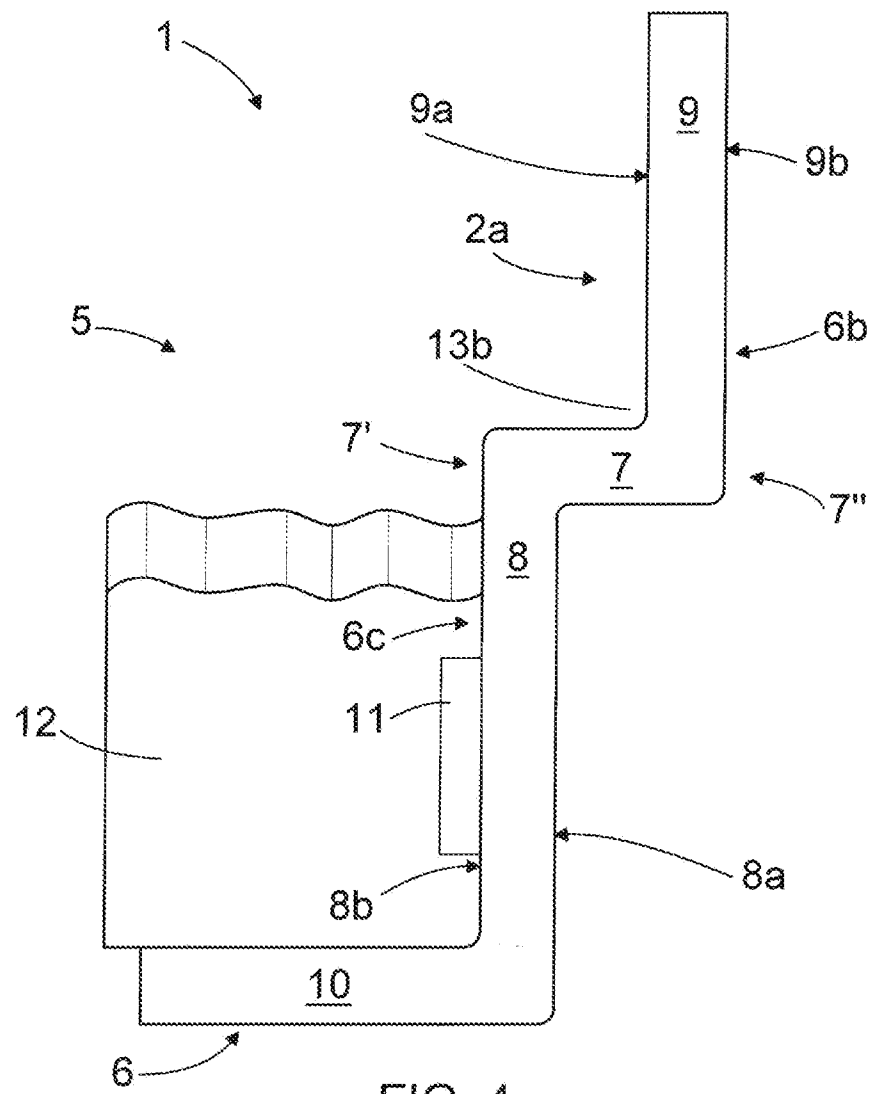


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI2018/050118

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)

IPC: A63B, A63G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
FI, SE, NO, DK

Electronic data base consulted during the international search (name of data base, and, where practicable, search terms used)

EPODOC, EPO-Internal full-text databases, Full-text translation databases from Asian languages, WPIAP, PRH-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2010105113 A2 (BRENDLE DOUGLAS [US]) 16 September 2010 (16.09.2010) abstract; page 13, line 21-page 15, line 22; figures 1, 5, 28A-B, 29, 30A-E	1-12
Y	WO 0068541 A1 (MACKINNON BRUCE RAYMOND [NZ]) 16 November 2000 (16.11.2000) whole document: especially abstract; page 1, lines 3-6; page 2, lines 10-16, 26-29; page 4, lines 2-3; page 5, line 21- page 6, line 4; page 7, lines 21-23; figures 3, 7, 8	1-12
A	US 3833090 A (GEORGIANNA R) 03 September 1974 (03.09.1974) whole document	1-12
A	US 3399746 A (LEE WOOD DAVID) 03 September 1968 (03.09.1968) whole document	1-12

☒ Further documents are listed in the continuation of Box C.
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI2018/050118

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2517106 A1 (MARCANT CHRISTOPHE [FR]) 27 May 1983 (27.05.1983) figure 1 & abstract [online] EPOQUENET EPODOC & WPI	1-12
A	CN 1068404 A (FENG JIANGUANG [CN]) 27 January 1993 (27.01.1993) figures 1-3 & abstract [online] EPOQUENET EPODOC & WPI	1-12

INTERNATIONAL SEARCH REPORT
Information on Patent Family Members

International application No.
PCT/FI2018/050118

Patent document cited in search report	Publication date	Patent family members(s)	Publication date
WO 2010105113 A2	16/09/2010	CA 2754596 A1 CN 102387841 A CN 102387841 B US 2011319230 A1 US 9132330 B2	16/09/2010 21/03/2012 22/10/2014 29/12/2011 15/09/2015
WO 0068541 A1	16/11/2000	AU 4440300 A BR 0010236 A CA 2372789 A1 CN 1349583 A CN 1123673 C EP 1175545 A1 US 7066298 B1	21/11/2000 29/04/2003 16/11/2000 15/05/2002 08/10/2003 30/01/2002 27/06/2006
US 3833090 A	03/09/1974	None	
US 3399746 A	03/09/1968	None	
FR 2517106 A1	27/05/1983	FR 2517106 B1	17/02/1984
CN 1068404 A	27/01/1993	CN 1032080 C	19/06/1996

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI2018/050118

CLASSIFICATION OF SUBJECT MATTER

IPC

A63B 69/00 (2006.01)