



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**13.03.2013 Bulletin 2013/11**

(51) Int Cl.:  
**E04F 13/08 (2006.01) A47B 95/00 (2006.01)**

(21) Application number: **12181826.4**

(22) Date of filing: **27.08.2012**

(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**

(71) Applicant: **LEONARDO S.r.l.**  
**22060 Figino Serenza, CO (IT)**

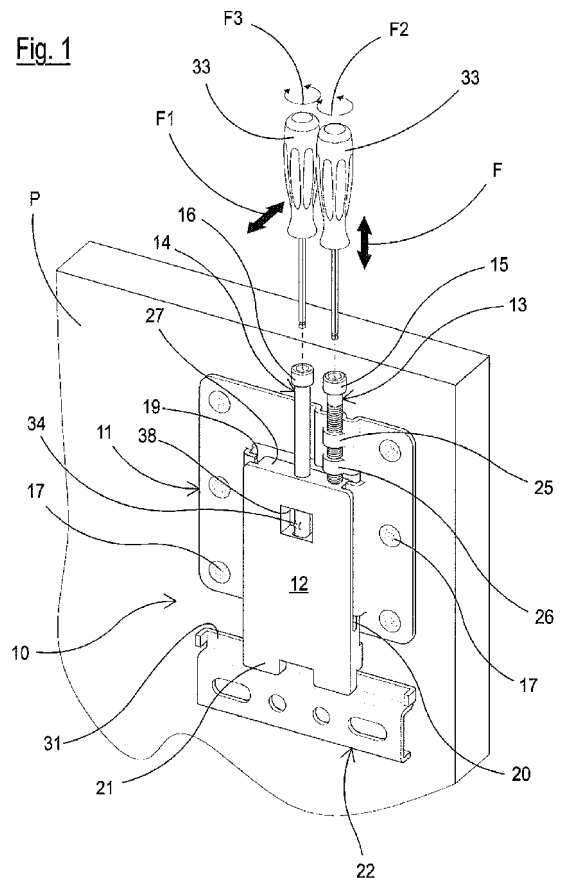
(72) Inventor: **Cattaneo, Carlo**  
**22060 Figino Serenza (IT)**

(74) Representative: **Martegani, Franco et al**  
**via Carlo Alberto, 41**  
**20900 Monza (IT)**

(30) Priority: **07.09.2011 IT MI20111604**

(54) **Perfected device for the wall assembly of coating panels and method for the production thereof**

(57) A device (10) for the wall assembly (23) of a coating panel (P), which forms, with said wall (23), an interspace (32), comprises a mechanism for regulating the height (vertical) of the panel (P) supported by a base (11) fixed on the surface of the panel (P), said mechanism consisting of a slide (12) and a command screw (13) of the translation of said slide (12) which also has a section (21) for hooking the device (10) to a plate (22) fixed to said wall (23). Said base (11) and said mechanism for regulating the height are entirely contained in said interspace (32). Characteristically, a second screw (14) for the horizontal regulation (depth) of the panel (P), which is also entirely contained in said interspace (32), cooperates with said slide (12), the free end of said second screw (14) having a cam profile (29) acting on an edge (31) of said plate (22), so as to vary the thickness of said interspace (32).



## Description

**[0001]** The present invention relates to a perfected device for the wall assembly of coating panels.

**[0002]** The invention also relates to a method for the production of said device.

**[0003]** Said devices are commonly called "panel brackets" in the field.

**[0004]** The invention also relates to a coating panel equipped with a plurality of devices according to the invention.

**[0005]** As is known to experts in the field, for the wall assembly of coating panels, for example for the production of "boiseries" or other types of coatings, for various types of environments and/or walls, devices are preferably used which allow not only the fixing of each panel to the wall, but also its vertical regulation.

**[0006]** The fixing of coating panels, of the above-mentioned type, to the wall, requires the creation of an interspace, as narrow as possible, in which the panel brackets are housed. In this respect, the devices of the known type, which are relatively cumbersome (in depth), require appropriate seats in the panel, and consequently costly additional processing operations.

**[0007]** In order to overcome this drawback, the device object of European patent application EP2199488 has already been proposed, to which reference should be made.

**[0008]** Even if the device, object of EP2199488, satisfactorily solves the above problems of encumbrance and costly additional processing operations to be effected on the panel, it only allows its vertical regulation (in height).

**[0009]** At present, on the contrary, it is highly desirable to also avail of a device whereby it is possible to effect regulations of the panel, both in height (vertical) and also in depth (horizontal), in addition to its firm assembly to the wall.

**[0010]** The general objective of the present invention is to provide a regulation device structured so as to be able to be fixed directly to the surface of the coating panel, without requiring additional processing operations of the same, but at the same time creating a narrow interspace between panel and wall, and which is also capable of allowing both of the above regulations in vertical and horizontal, in an extremely simple manner.

**[0011]** The above objective is achieved by a regulation device having the characteristics specified in the enclosed main claim and subclaims.

**[0012]** The structural and functional characteristics of the present invention and its advantages with respect to the known art will appear more evident from the following description, referring to the enclosed drawings, which show an assembly device produced according to the innovative principles of the invention itself.

**[0013]** In the drawings:

- figure 1 is a perspective view illustrating the device of the invention fixed to a panel, and hooked to a

supporting plate on the wall;

- figure 2 is a raised front view of the device of figure 1;
- figure 3 is a sectional view of a panel assembled to the wall by means of the device of the invention;
- figure 4 is an exploded perspective view of the device of the invention; and
- figures 5 and 6 are two sections illustrating, in two different operative positions, the regulation screw in horizontal (depth) of the device illustrated in the previous figures.

**[0014]** With reference first of all to figures 1, 2 and 4 of the drawings, the device according to the invention - in one of its illustrative and non-limiting embodiments - is indicated as a whole with 10, and is destined for being contained inside an interspace 32.

**[0015]** Said device 10 characteristically comprises a regulation mechanism of the position of the panel in vertical and in horizontal, said mechanism being structurally composed of the combination of four components: a base 11, a slide 12, and two screws 13, 14, for the regulation in vertical and in horizontal respectively, of a panel P on which the device 10 is fixed.

**[0016]** The base 11, made of metal for example, can have a rectangular form, and has side holes for the passage of fixing screws 17 of the device 10 to the panel P.

**[0017]** More specifically, the base 11 has a central sliding seat 18 (figure 4) of the slide 12.

**[0018]** Said seat 18 is equipped with side shaping guides 19 on which the slide 12 translates (in the directions of the arrow F) by means of longitudinal apertures 20 which are slidingly coupled with the guides 19 (figures 1 and 4). As can be clearly seen in the drawings, the slide 12, extends, below, beyond the base 11 with a freely removable coplanar coupling section 21 (hook) to a shaped plate 22 (or section), which is fixed to a wall 23 by means of pegs 24 (figure 3).

**[0019]** The coupling system between the hooking section 21 and plate 22 will be explained in greater detail hereunder.

**[0020]** The above regulation screws 13, 14, which are equipped with respective manoeuvring heads 15, 16 by means of tools 33 (figure 4), cooperate with the slide 12.

**[0021]** The screw 13 serves for regulating the height (vertical) of the panel P, according to the directions of the arrow F. For this purpose, the screw 13 is screwed into corresponding threaded seats 25, 26 of the base 11, buffered with its free end against the upper wall 27 of the slide 12 (figures 1 and 2). The weight of the panel P hooked to the plate 22 always keeps the free end of the screw 13 in contact with the wall 27 of the slide 12.

**[0022]** The screw 14 serves for the horizontal regulation (depth) of the panel P, according to the directions of the arrow F1. For this purpose, the screw 14 is screwed into a corresponding partially threaded seat 28 of the slide 12 (figures 1, 5 and 6).

**[0023]** As can be clearly seen in figures 5 and 6, the free end of the screw 14 opposite the head 16, is conical,

as in 29, and extends outside (beyond) the slide 12, in correspondence with a central window 30 of the hooking section 21.

**[0024]** The conical end 29 of the screw 14 cooperates (as a cam) with an upper edge 31 of the plate 22 on which the section 21 of the slide 12 is hooked.

**[0025]** The functioning of the assembly device according to the invention is evident from the above description with reference to the figures and is briefly as follows.

**[0026]** The vertical regulation of the panel P is obtained by rotating the screw 13 in the directions of the arrow F2, causing the translation of the slide 12 on the guides 19, and consequently a relative movement between the base 11 (fixed to the panel P) and the plate 22 (fixed to the wall).

**[0027]** The horizontal regulation of the panel P is obtained by rotating the screw 14 in the directions of the arrow F3, thus causing the conical end 29 of the same screw 14 to move like a cam against the edge 31 of the plate 22. This consequently causes a relative horizontal movement (in the directions of the arrow F1) between the panel P, to which the device 10 is fixed, and the plate 22 fixed to the wall. The thickness of the interspace 32 is thus varied.

**[0028]** Figures 1, 2, 5 and 6 of the drawings, with 34 and 35, indicate the ridges radially situated on the leg of the screw 14.

**[0029]** As can be clearly seen in figures 5 and 6 of the drawings, these ridges 34, 35 create run-ends in both directions for the screw 14, which can neither be unscrewed from above nor excessively screwed downwards, which would cause the detachment of the section 21 from the plate 22.

**[0030]** For this purpose, the ridges 34, 35 are buffered against edges 36, 37 of windows 38, 39 situated at the front and rear in the slide 12.

**[0031]** The ridges 34, 35 are characteristically produced by means of a so-called flattening operation of the screw 14 through said windows 38, 39, after the screwing of the screw 14 itself into its seat 28.

**[0032]** It should be noted that, according to the invention, the presence of both regulation screws 13, 14 is contained in the same limited thickness of the slide 12.

**[0033]** The objective of the invention of providing a device for regulating both the height and depth that can be fixed to the rear surface of the panel without there being any particular seats on the latter, but at the same time creating an extremely narrow interspace 32, has therefore been achieved.

**[0034]** The protection scope of the invention is defined by the enclosed claims.

## Claims

1. A device (10) for the wall assembly (23) of a coating panel (P), which forms, with said wall (23), an interspace (32), said device (10) comprising a mechanism for regulating the height (vertical) of the panel

(P) held by a base (11) fixed on the surface of the panel (P), said mechanism consisting of a slide (12) and a command screw (13) of the translation of said slide (12) which also has a section (21) for hooking the device (10) to a plate (22) fixed to said wall (23), wherein said base (11) and said mechanism for regulating the height are entirely contained in said interspace (32), **characterized in that** a second screw (14) for the regulation of the horizontal (depth) of the panel (P), which is entirely contained in said interspace (32), cooperates with said slide (12), the free end of said second screw (14) having a cam profile (29) acting on an edge (31) of said plate (22), so as to vary the thickness of said interspace (32).

2. The device (10) according to claim 1, **characterized in that** said free end of the screw (14) is conical.

3. The device (10) according to claim 1, **characterized in that** said section (21) is coplanar with the slide (12).

4. The device (10) according to claim 1, **characterized in that** said screw (13) is buffered, with one of its free ends, against an upper wall (27) of the slide (12).

5. The device (10) according to claim 1, **characterized in that** said second screw (14) has run ends (34, 35) which cooperate with said slide (12) to limit the run of the same screw (14) in both directions.

6. The device (10) according to claim 5, **characterized in that** said run ends consist of ridges (34, 35) radially situated on the stem of the screw (14), said ridges (34, 35) cooperate with edges (36, 37) of openings (38, 39) situated on the slide (12).

7. A method for the production of a device (10) according to claims 5 or 6, **characterized in that** said ridges (34, 35) are produced through said openings (38, 39) after the screw (14) has been screwed into the seat (28) of the slide (12).

Fig. 1

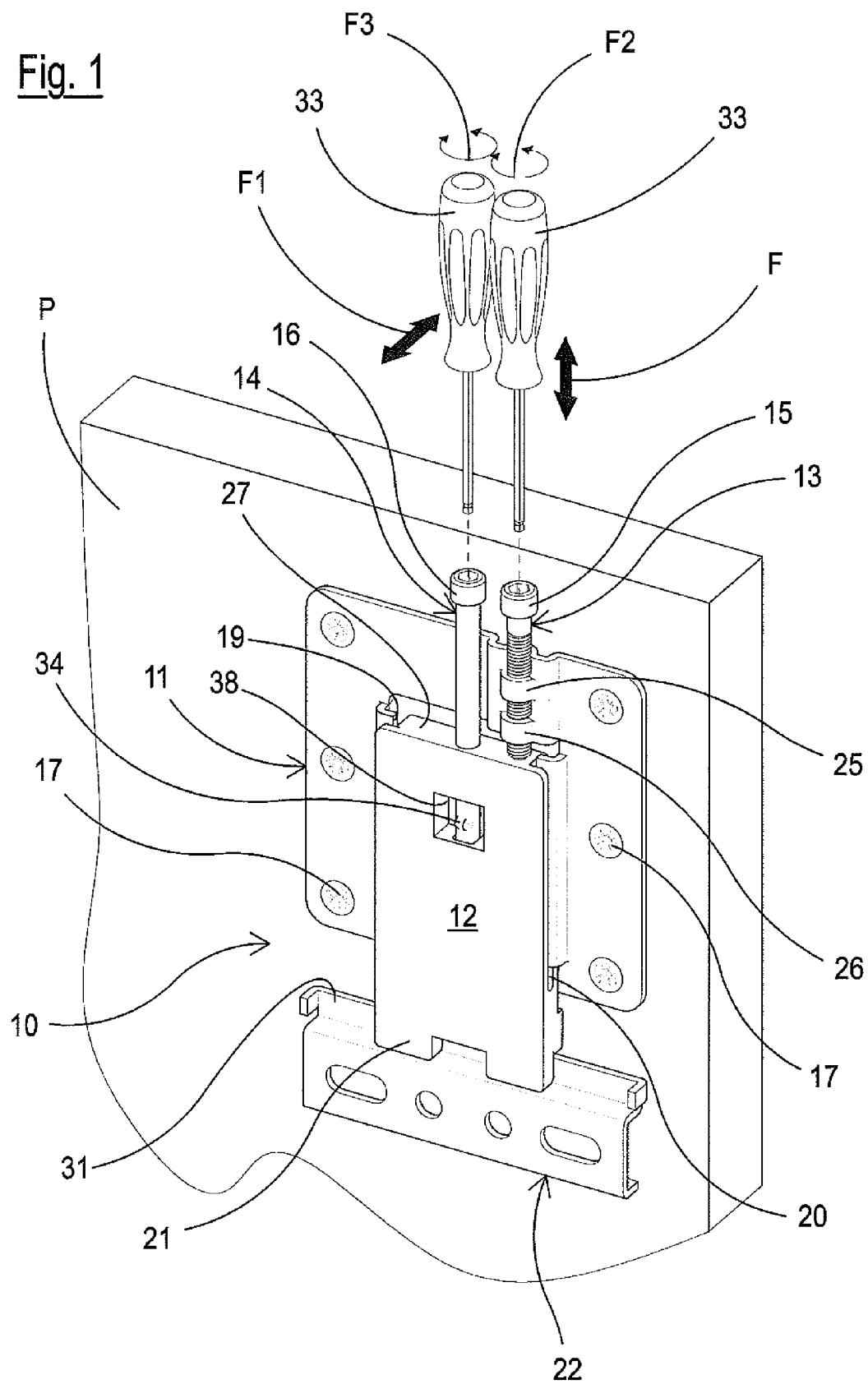


Fig. 3

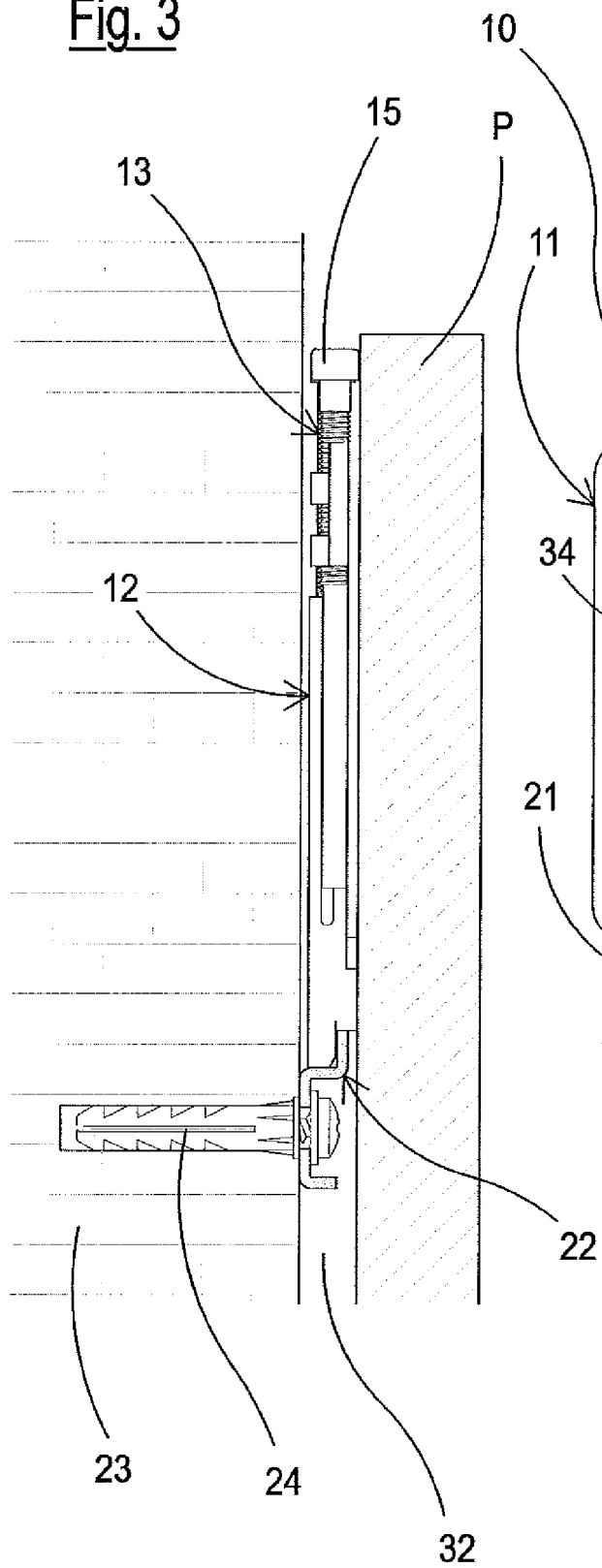
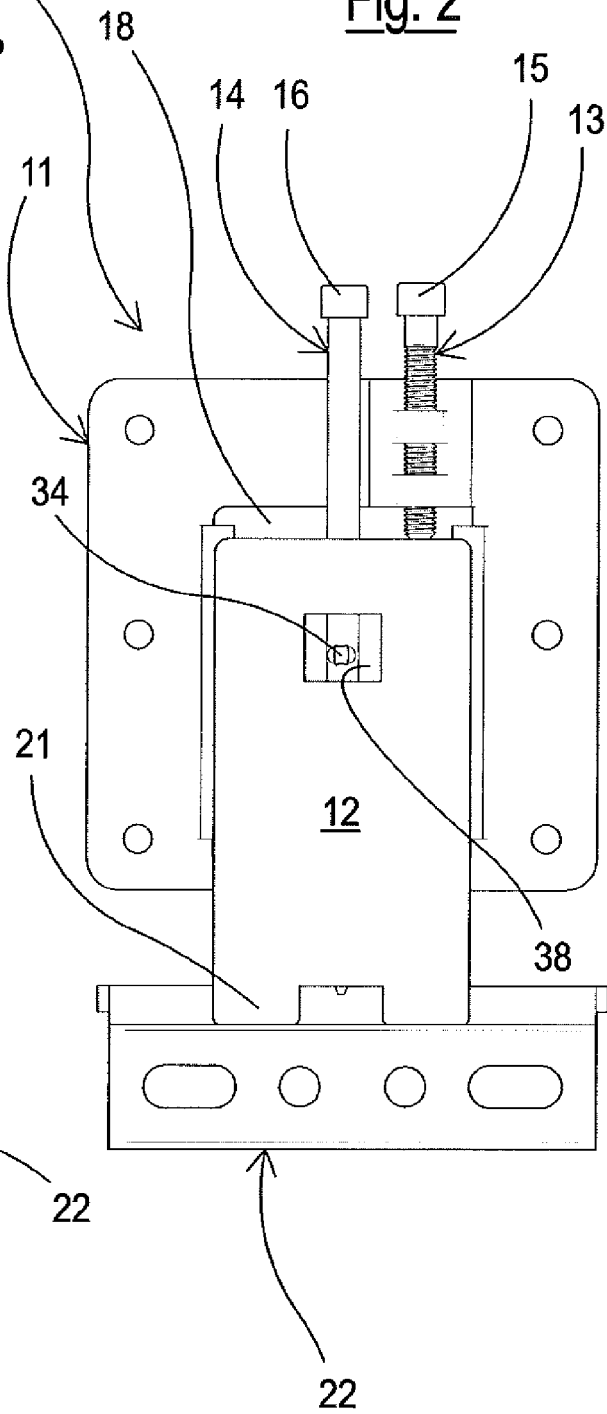
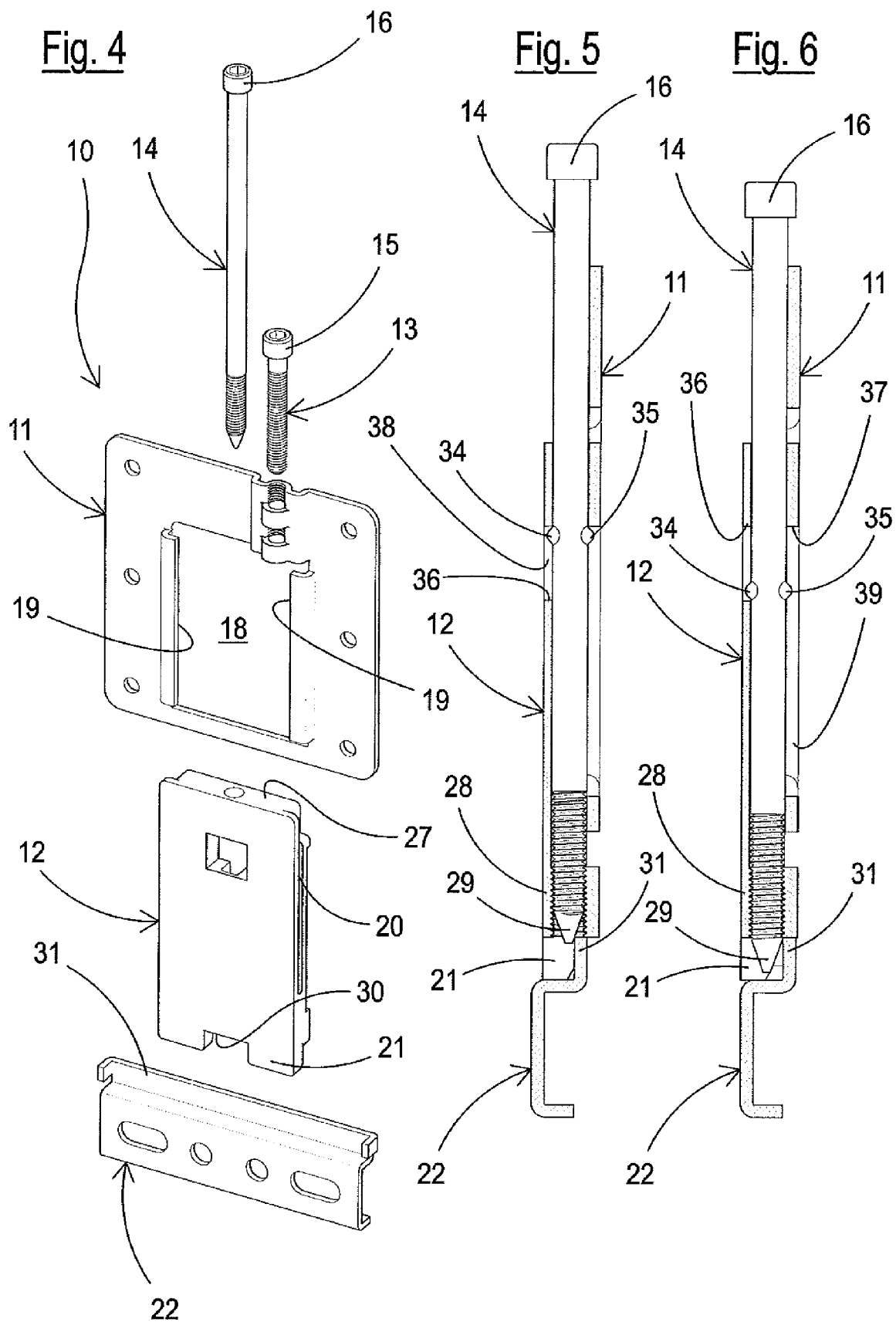


Fig. 2







## EUROPEAN SEARCH REPORT

Application Number  
EP 12 18 1826

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                      |                                  |                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Citation of document with indication, where appropriate, of relevant passages                                        | Relevant to claim                | CLASSIFICATION OF THE APPLICATION (IPC) |
| A,D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | EP 2 199 488 A1 (LEONARDO SRL [IT])<br>23 June 2010 (2010-06-23)<br>* paragraph [0022]; figures 1-5 *<br>-----       | 1                                | INV.<br>E04F13/08<br>A47B95/00          |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EP 0 707 815 A2 (CAMAR SPA [IT])<br>24 April 1996 (1996-04-24)<br>* column 3, line 28 - line 35; figure 1 *<br>----- | 1                                |                                         |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EP 1 228 720 A1 (RIOJA CALVO MIGUEL ANGEL D [ES]) 7 August 2002 (2002-08-07)<br>* figure 1 *<br>-----                | 1                                |                                         |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                      |                                  | TECHNICAL FIELDS SEARCHED (IPC)         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                      |                                  | E04F<br>A47B                            |
| Place of search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                      | Date of completion of the search | Examiner                                |
| The Hague                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                      | 25 September 2012                | Severens, Gert                          |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>.....<br/>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                      |                                  |                                         |

1

EPO FORM 1503 03.82 (P04C01)

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

EP 12 18 1826

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.

25-09-2012

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|----|---------------------|----------------------------|---------------------|
| EP 2199488                                | A1 | 23-06-2010          | NONE                       |                     |
| -----                                     |    |                     |                            |                     |
| EP 0707815                                | A2 | 24-04-1996          | AT 139422 T                | 15-07-1996          |
|                                           |    |                     | DE 69303186 D1             | 25-07-1996          |
|                                           |    |                     | DE 69303186 T2             | 21-11-1996          |
|                                           |    |                     | EP 0555924 A1              | 18-08-1993          |
|                                           |    |                     | EP 0707815 A2              | 24-04-1996          |
|                                           |    |                     | ES 2088628 T3              | 16-08-1996          |
| -----                                     |    |                     |                            |                     |
| EP 1228720                                | A1 | 07-08-2002          | DE 50203043 D1             | 16-06-2005          |
|                                           |    |                     | EP 1228720 A1              | 07-08-2002          |
|                                           |    |                     | ES 2190720 A1              | 01-08-2003          |
| -----                                     |    |                     |                            |                     |

**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**

- EP 2199488 A [0007] [0008]