(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 1 795 686 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.06.2007 Bulletin 2007/24

(51) Int Cl.:
E06B 1/60 *(2006.01)* ***E06B 3/46*** *(2006.01)*
E05D 15/06 *(2006.01)*

(21) Application number: **06024174.2**

(22) Date of filing: **22.11.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(30) Priority: **07.12.2005 IT TV20050190**

(71) Applicant: **ECLISSE SRL**
31053 Pieve di Soligo TV (IT)

(72) Inventor: **De Faveri, Luigi**
31020 Refrontolo (TV) (IT)

(74) Representative: **Massa, Patrizia**
D'Agostini Group S.r.l
Contrà Santa Barbara, 33
36100 Vicenza (IT)

(54) **Counterframe for a concealed sliding door with a levelling device**

(57) Counterframe for a concealed sliding door with a levelling device including at least one first support body and at least one second support body, each including an L-shaped bracket provided with horizontal openings, in the first support device this bracket being joined to an adjustable square provided with guide openings that engages a shaped support body, while the second support body is joined to an adjustable support element provided with guide openings as well as a clamping fork, wherein at least a first support device engages partially the horizontal elements of the base of the casing of the counterframe, while the lower end of the door post of the counterframe engages the second support device.

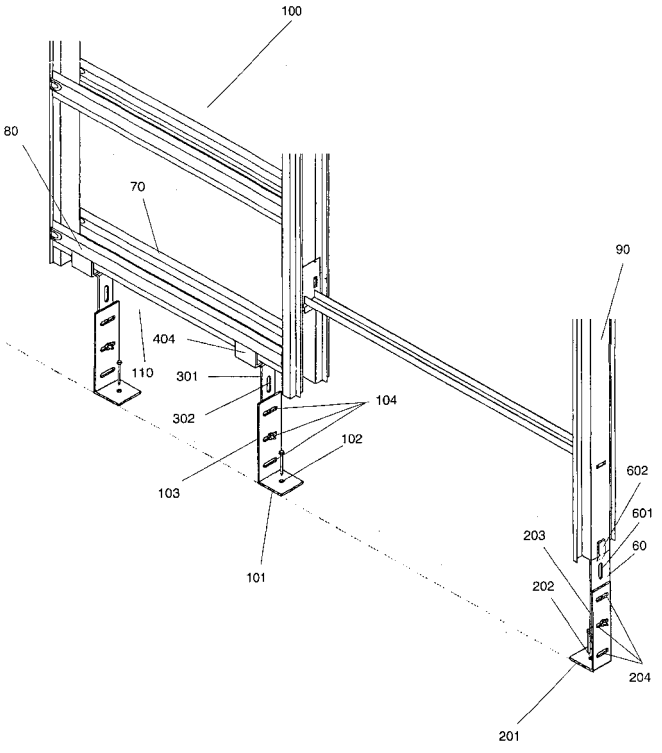

Fig. 1

EP 1 795 686 A1

Description

[0001] This invention relates to a counterframe for a concealed sliding door with a levelling device.

[0002] The proposal finds particular although not exclusive application in the sector of the industry for the manufacturing of components for closures, particularly for closures that are made up of doors of the concealed sliding type.

Field of the Invention

[0003] Many building structures, whether they are of the type used in industry, commerce or for housing, have for some time employed closures of the sliding type. Notably in recent years, the diffusion of these types of closures appears to be particularly widespread in many types of architectonic solutions, especially in those in which the containment of internal spaces is highlighted as a relevant element in the design of the building. Through the use of these types of closures, it is also possible to use those spaces that would otherwise be limited to the use of a conventional hinge door opening. With significant reference to the closures of the concealed type made up of doors, the sliding doors of the concealed type are structured in such a way as to comprise a series of fixed elements that are intended to be integrated into the wall structure and also to constitute the coating, a wall and a series of movable parts, which are intended to be used during the door installation stage in order to be removed subsequently. Fundamentally, in order to be integrated into the wall structure, for example, there is a counterframe. The fixed elements mentioned are associated with the wall structure and comprise at least one casing to constitute the structure within which the door panel will be contained once said panel is made to slide until reaching the opening position, in addition to a door post intended to be fixed to the wall in correspondence with the vertical profile of the door frame, opposite to the positioning profile of the casing mentioned, in such a way as to allow, once closed, the door itself to rest under it. Furthermore, a longitudinal guide is engaged above the casing, by being screwed to said load-bearing structure. A sliding track is conventionally provided in order to allow the effective opening and closing movement of the sliding door. The door is suspended to the mentioned sliding track by conventional means, usually of the trolley type. In order to allow the opening and closing movement of the door, the sliding track, which is placed in correspondence with the upper part of the door frame structure, is provided with sliding means.

Prior Art

[0004] The installation of the majority of counterframe structures for concealed sliding doors requires their positioning to be carried out in such a way that said structure is prearranged when the building is still in the construction or restructuring stage, so that both the wall of which the sliding door will form a part as well as, usually, the flooring or floor of the rooms are still unfinished. Therefore, for example, with reference to sliding door structures that are of the type to be placed in a plasterboard structure, or that are to be covered subsequently with plaster, provision is made for said structures to be kept separated from the unfinished floor level, at such a distance so as to allow the counterframe structure to be level with the finished floor once said floor has been finished. Until now, the methods commonly used to allow the correct positioning of the counterframe and thus to allow the correct position to be maintained until the completion of the floor were substantially of the empiric type. In the majority of the hypotheses, in order to proceed with the prescribed levelling, spacers are usually used with means not previously specifically intended for this aim. Therefore, materials are often employed for this aim that are also available during the construction of a building. The use of brick fragments was often suitably adapted to the need, likewise, it was also common to resort to the cutting of wood elements to size and shaped in such a way as to allow said wood to act as a support for the counterframe itself.

Drawbacks

[0005] The prior art known until now highlights significant limitations related to its execution. From the described solution, the practical impossibility of obtaining the levelling of the counterframe with an optimal result is evident. The fact that the levelling of the counterframe, necessary for the installation of said counterframe, is obtained by resorting to the preparation on site of means necessary for its practical execution and that the necessary spacer elements are obtained by the modification of building elements not specifically intended for this end determines the practical impossibility of obtaining an optimal levelling of said counterframe. The difficulty in proceeding with the measured cutting of brick elements is common especially if carried out, as is usually the case, during the construction of a building with instruments generally not specifically intended for this aim and therefore their use determines a substantially approximative result. The consequent non-uniformity of the height of the levelling elements produced influences the incorrect positioning of the counterframe thus leading to the need for successive adjustments. Moreover, the establishment of an inexact positioning of the counterframe is contributed to by the fact that the concrete cast, namely the footing, useful in the levelled prearranging of the floor before the laying of the coating, gives rise during the consolidation stage to the movement, even if only slight, of the counterframe with respect to the position originally established.

[0006] Another limitation, in the opinion of the applicant, that is a direct consequence of the aforementioned drawbacks is the need for a good level of craftsmanship and experience for installation, therefore producing an

increase in the time and cost in counterframe installation.

[0007] Taking into account that considered above, the need arises to find alternative solutions and at least more functional solutions in comparison with those in existence at present.

[0008] The aim of this invention is also to overcome the aforementioned limitations or drawbacks.

Summary of the Invention

[0009] This and other aims are achieved by the present invention according to the characteristics in the included claims that resolve the arising problems by means of a counterframe for concealed sliding doors with a levelling device including at least one first support device and at least one second support device, each including an L-shaped bracket provided with horizontal openings, in the first support device said bracket is joined to an adjustable square provided with guide openings that engages a shaped support body, while the second support device is joined to an adjustable support element which is provided with guide openings as well as an end provided with a clamping fork, wherein at least one first support device partially engages the horizontal elements of the base of the casing of the counterframe, while the lower end of the door post of the counterframe engages the second support device.

Advantages

[0010] In this way, through the significant creative contribution whose effect constitutes immediate technical progress, certain aims are achieved.

A first aim consists in producing a counterframe for a concealed sliding door with a levelling device, by means of which it is possible to obtain the optimal levelling of said counterframe through of the use of devices which may be quickly and easily prepared and that are of the adjustable type.

[0011] A second advantageous aim consists in producing a counterframe for a concealed sliding door with a levelling device through which it is possible to obtain greater stability and the optimal levelling of the counterframe already in the installation stage, without needing to resort to successive adjustment interventions.

[0012] A third advantageous aim consists in producing a counterframe for a concealed sliding door with a levelling device, through the use of which it is possible to obtain a considerable reduction in installation times with the consequent limiting of related costs.

[0013] These and other advantages will appear from the following detailed description of at least one preferred embodiment with the aid of the enclosed schematic drawings.

Content of the Drawings

[0014]

Figure 1 represents a view of the counterframe for a concealed sliding door with a levelling device with respect to the invention that is the object of the present invention;

Figure 2 represents a side view of the counterframe for a concealed sliding door with a levelling device as in Figure 1;

Figure 3 represents a front view of the counterframe for a concealed sliding door with a levelling device as in Figure 2;

Figure 4 represents an exploded axonometric view of the first support device with respect to the invention that is the object of the present invention;

Figure 5 represents an axonometric view of the first support device in Figure 4, assembled;

Figure 6 represents an exploded axonometric view of the second support device with respect to the invention that is the object of the present invention;

Figure 7 represents an axonometric view of the first support device as in Figure 6, assembled;

Figure 8 represents a front view of a particular characteristic of the first support device in Figure 4;

Figure 9 represents a front view of a variant of the particular characteristic in Figure 8;

Description of a Practical Embodiment

[0015] Also taking the Figures as a reference, it is observed that this invention (see Figure 1) is made up of a counterframe for a concealed sliding door with a levelling device, particularly adapted to counterframe structures for concealed sliding doors of the type to be integrated into walls, such as for example partition walls in plasterboard or in stone with plaster covering, wherein said counterframe structure is of the conventional type and includes a series of fixed elements intended to be integrated into the wall structure as well as a series of movable parts, intended to be used during the installation stage. The fixed elements mentioned provided are associated with the wall structure and include at least one casing **100** intended to constitute the structure within which the door will be contained once it has been made to slide until reaching the opening position, in addition to a door post intended to be fixed to the wall in correspondence with the vertical profile of the door frame, opposite positioning profile of the casing mentioned. The base of the casing **110,** coinciding with the lower side of the casing **100** provided, in the example, provides connecting transversal elements **70, 80.** Furthermore, the counterframe is provided to comprise at least one first support device **1** engaged to the base of the casing **110,** and in more detail, in the example, is engaged to the connecting transversal elements **70, 80** of the counterframe, and a second support device **2** engaged to the door post **90** of the counterframe, wherein both the first support device **1** as well as the second support device **2** are structured in such a way as to be adjustable. In the majority of the embodiment example described, both the first support

device **1** as well as the second support device **2** include a bracket **10, 20,** that is L-shaped and provided, in correspondence with the centre of the horizontal portion **101, 201 ,** with a through hole **1 02, 202** for the engagement of the bracket **10, 20,** usually by means of a nail or a fastening screw, to the concrete slabs of the floor. Furthermore, in correspondence with the vertical portion **103, 203,** the bracket **10, 20,** is provided with horizontal openings **104, 204,** that are equidistant and parallel to each other. In the first support device **1,** at least one horizontal opening **104** constitutes a seat for engagement, usually through the bolting of an adjustable square **30,** that is superimposed and slideable in relation to the bracket **10,20,** said adjustable square **30** consisting of a vertical wall **301** that is orthogonal to a horizontal wall **303,** wherein the adjustable square **30** in correspondence to the vertical wall **301** is provided with guide openings **302,** which are arranged vertically, as well as equidistant and parallel in relation to each other. The provision of the horizontal openings **104** of the bracket **10** and of guide openings **302** with which the adjustable square **30** is provided allows the execution of the adjustment of the adjustable square **30** in relation to the bracket **10** both in the vertical as well as horizontal direction thus allowing the adjustment and fixing in position judged to most convenient for levelling. The horizontal wall **303** of the square **30,** is provided to be hooked to a shaped support body **40,50.** In more detail, in the example, the horizontal wall **303** of the adjustable square **30** is to be held by a holding track **401, 501** that is provided on the lower part of the base wall **402, 502** of the shaped support body **40, 50.** In the embodiment example described, the holding track **401, 501** is produced by means of the suitable cutting and folding of the portion cut in such a way as to produce the holding track **401, 501** so that is made up of two guide elements **411, 412, 511, 512,** symmetric and specular to each other, which are shaped in such a way as to form two L-shaped projecting flanges. The shaped support body **40, 50** is provided with two side walls **403, 404, 503, 504,** orthogonal to the base wall **402, 502.** In a first variant, the side walls **403, 404,** of the shaped support body **40** are to be flat, each being symmetrical and parallel in relation to the other, wherein each of the two side walls **403, 404,** is further to form an angle with the base wall **402** equal to 92°. In the detail of the embodiment example described, the internal measurement of the base wall **402** is equal to 58 mm, while the measurement of each of the two side walls **403, 404** is internally equal to 43 mm and externally equal to 44.16 mm. In a second variant, provision is made for the side walls **503, 504,** of the shaped support body **50** to be shaped like a step so that in correspondence with the two opposite lateral ends of the base wall **502,** for each of the two shaped walls **503, 504** a first vertical portion **531, 541** is produced, orthogonal to the base wall **502,** and orthogonally to the first vertical portion **531, 541** is a horizontal portion **532, 542** which continues with a second vertical portion **533, 543** orthogonal in relation to the horizontal portion **532, 542.** In the description of the embodiment, provision is made for the measurement of the base wall **502** of the second type of shaped support body **50** measured between the two shaped walls **503, 504** of said body to be equal to 53 mm, while each first vertical portion **531, 541** of each of the two shaped walls **503, 504** is to have a height equal to 16.8 mm, while the measurement of the width of the horizontal portion **532, 542** is 9.8 mm, moreover, the measurement of the height of the second vertical portion **533, 543** is to be 12 mm, so that that the intervening distance between the second vertical portion **533, 543** of the two shaped walls **503, 504** is 75 mm. The second support device **2** provides, bolted to the bracket **20,** an adjustable support element **60,** that is superimposed and slideable in relation to the bracket **20,** consisting of a metallic plate, provided with guide openings **601** that are vertical, parallel and reciprocally equidistant for the height adjustment of said plate. In correspondence with the end upper, the adjustable support element **60** is further equipped with a clamping fork **602** obtained by means of the external folding of a cut portion.

In practice, once the installation of the counterframe and its correct levelling in relation to the surface floor surface is underway, with the suitable progression to the adjustment both of the first support device **1,** as well as the second support device **2 ,** said devices will remain embedded in the floor.

Claims

1. Counterframe for a concealed sliding door of the type including at least a casing and a door post, **characterised in that** the base of the casing **110** is engaged by at least one first support device **1** including a bracket **10, 20** provided with at least one horizontal opening **104** and engaged to the bracket **10, 20** an adjustable square **30** provided with at least one guide opening **302,** wherein the adjustable square **30** engages a shaped support body **40, 50,** while the lower end of the door post **90** of the counterframe is engaged by at least one second support device **2** including a bracket **10, 20** provided with at least one horizontal opening **204** relative to the which is engaged and adjustable an adjustable support element **60** provided with at least one vertical opening **601** and a clamping fork **602.**

2. Counterframe for a concealed sliding door according to claim 1 **characterised in that** the bracket **10, 20** is L-shaped and provided, in correspondence with the centre of the horizontal portion **101 , 201 ,** with a through hole **102, 202,** wherein the horizontal openings **104, 204** with which the vertical portion **103, 203** of the bracket **10, 20** is provided, are equidistant and parallel to each other.

3. Counterframe for a concealed sliding door according

to claims 1 and 2 **characterised in that** the adjustable square **30** and the adjustable support element **60** are superimposed and slideable in relation to the bracket **10, 20.**

4. Counterframe for concealed sliding door according to the previous claims **characterised in that** the guide openings **302** with which the adjustable square **30** is provided are obtained along the vertical wall **301** and are vertically arranged as well as each being equidistant and parallel in relation to the other.

5. Counterframe for concealed sliding door according to the previous claims **characterised in that** the shaped support body **40, 50,** in correspondence with the lower part of the base wall **402, 502** is provided with a holding track **401, 501,** and further is provided with two side walls **403, 404, 503, 504,** orthogonal to the base wall **402, 502.**

6. Counterframe for a concealed sliding door according to the previous claims **characterised in that** the holding track **401, 501** is made up of two guide elements **411, 412, 511, 512,** that are symmetrical and specular to each other, and are shaped in such a way as to form two L-shaped projecting flanges.

7. Counterframe for a concealed sliding door according to the previous claims **characterised in that** the vertical openings **601** of the adjustable support element **60** are equidistant and parallel to each other.

8. Counterframe for concealed sliding door according to the previous claims **characterised in that** the two side walls **403, 404** of the shaped support body **40** are flat and each is symmetrical and parallel in relation to the other.

9. Counterframe for concealed sliding door according to the previous claims **characterised in that** each of the two side walls **403, 404,** of the shaped support body **40** form an angle with the base wall **402** equal to 92°.

10. Counterframe for concealed sliding door according to claims 1 to 7 **characterised in that** the side walls **503, 504,** of the shaped support body **50** are shaped like steps so that in correspondence with the two opposite lateral ends of the base wall **502,** for each of the two shaped walls **503, 504** a first vertical portion **531, 541** is produced, orthogonal to the base wall **502,** and orthogonally to the first vertical portion **531, 541** is a horizontal portion **532, 542** which continues with a second vertical portion **533, 543** orthogonal in relation to the horizontal portion **532, 542.**

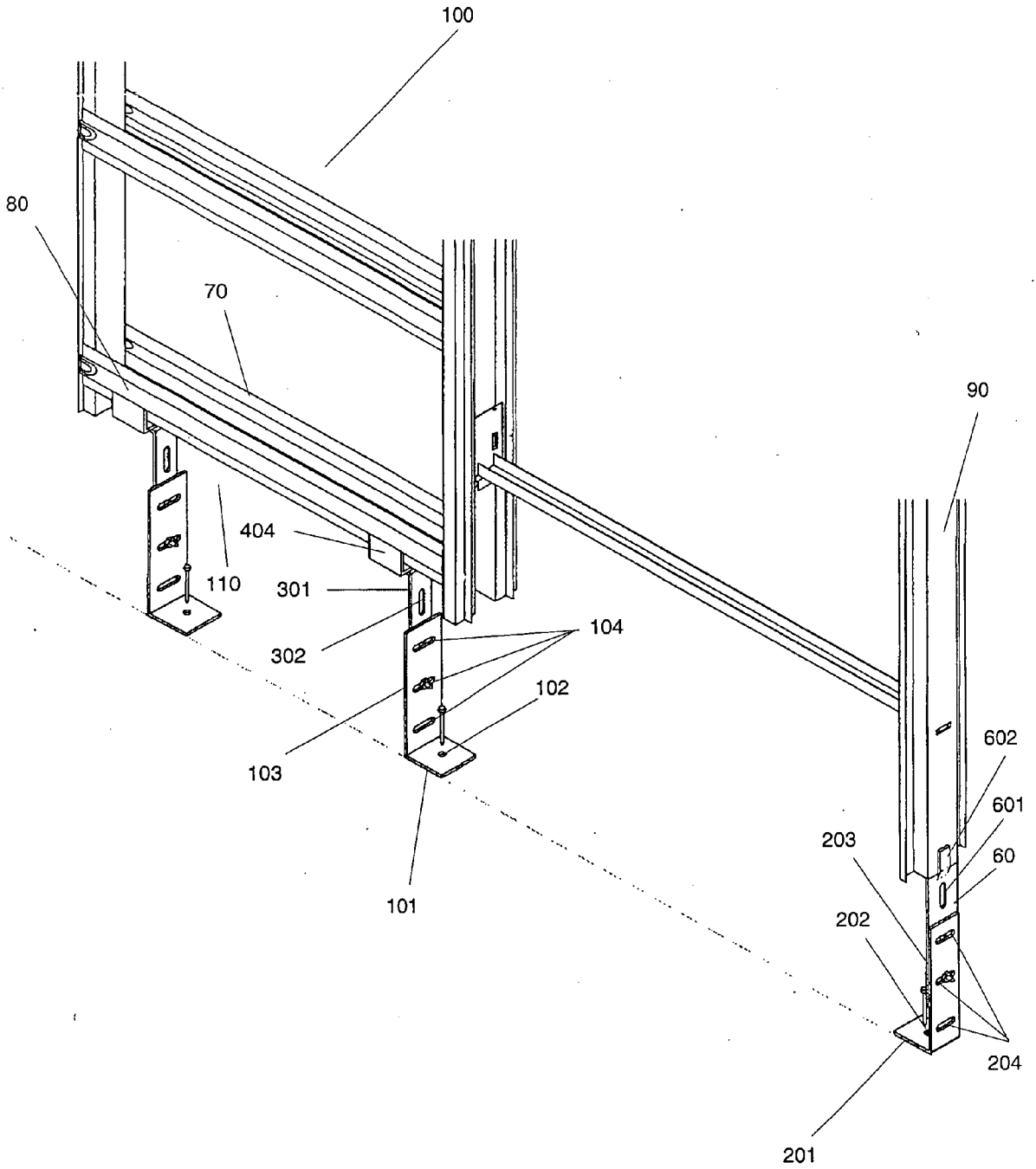
100
80
70
90
404
110
301
104
302
102
103
101
602
601
203
60
202
204
201

Fig. 1

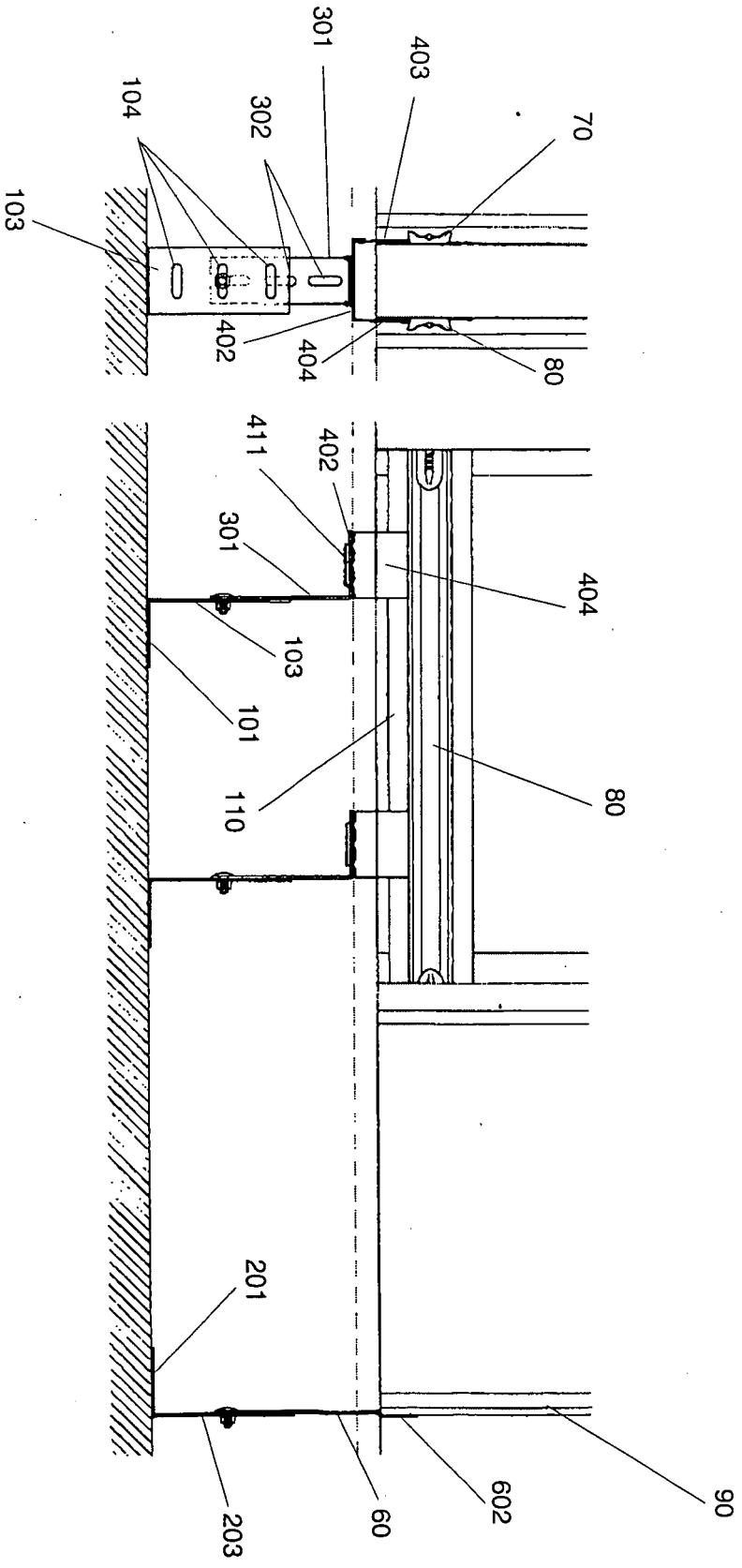
301
403
70
104
302
103
402
404
80
411
402
301
404
103
101
110
80
201
203
60
602
90

Fig. 3

Fig. 2

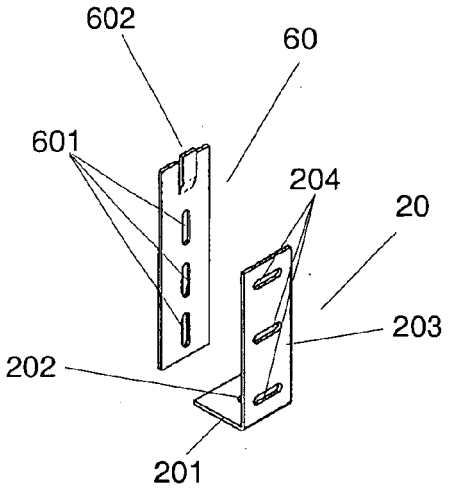

Fig. 6

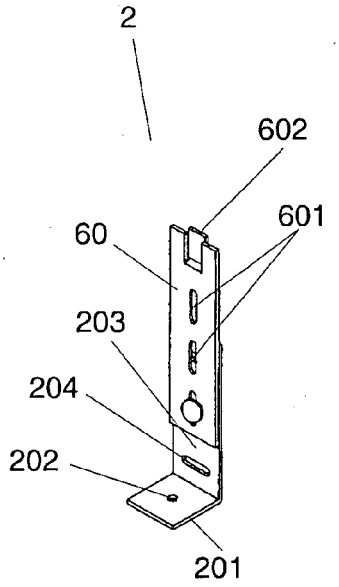

Fig. 7

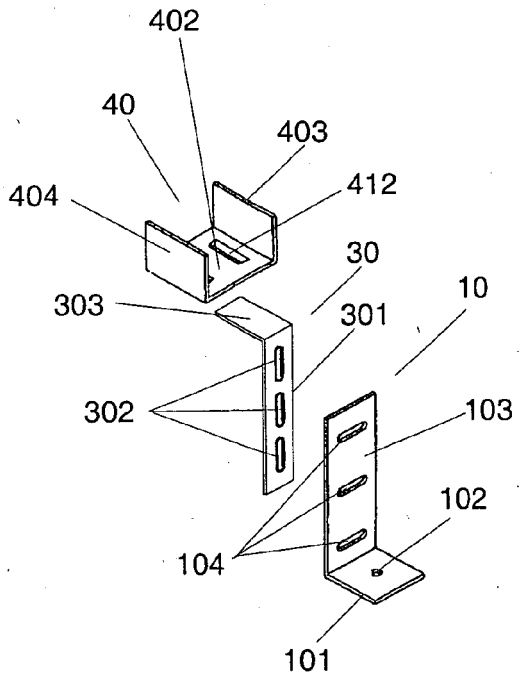

Fig. 4

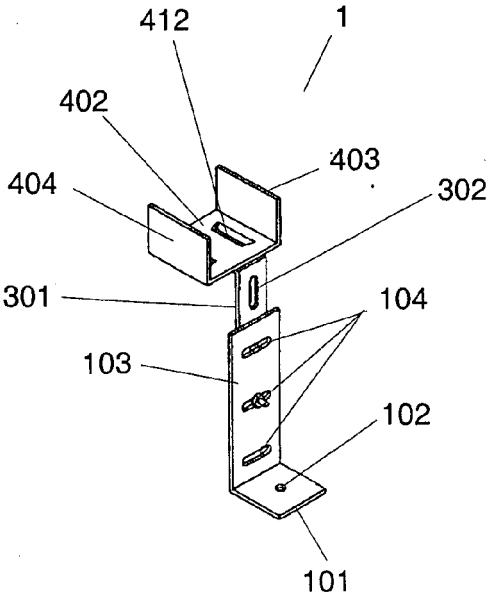

Fig. 5

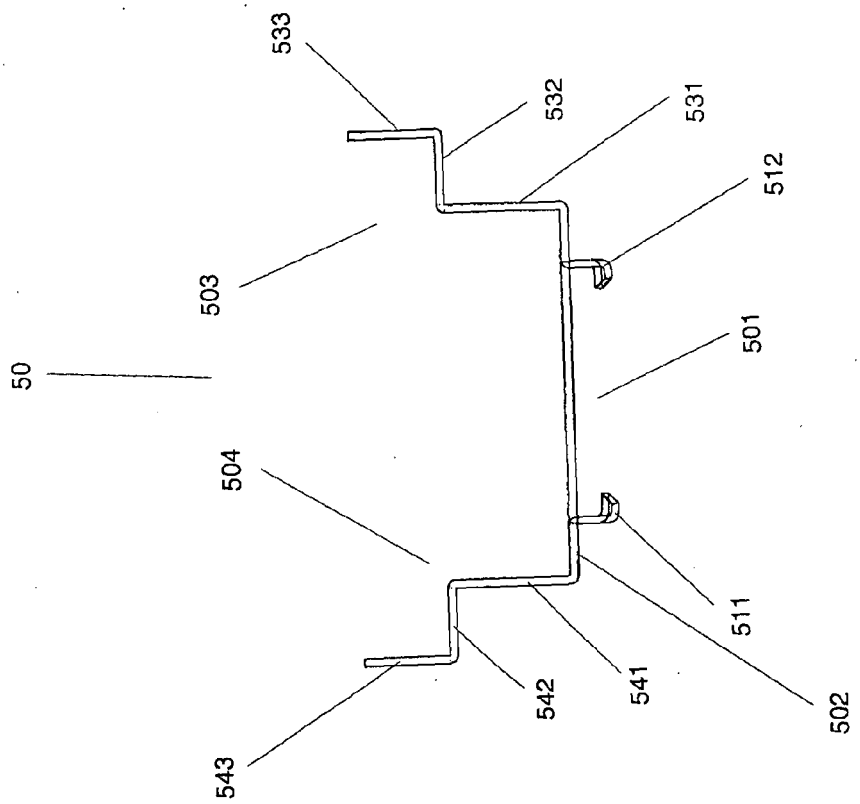
533
532
531
512
503
501
50
504
511
542
541
502
543

Fig. 9

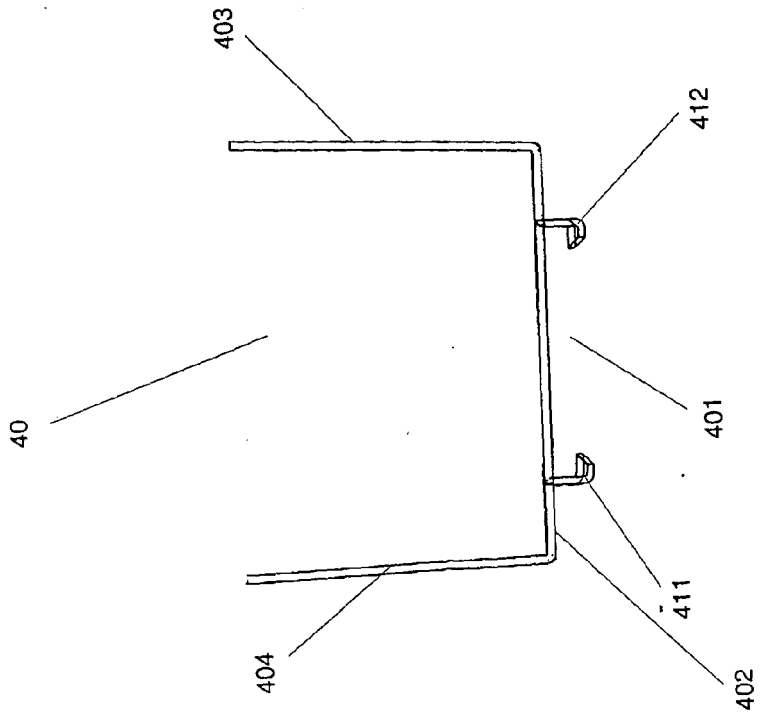
403
412
40
401
411
404
402

Fig. 8

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 02 4174

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	EP 0 505 614 A2 (FAVERI SRL [IT]) 30 September 1992 (1992-09-30) * the whole document *	1-10	INV. E06B1/60 E06B3/46
A	US 2004/003556 A1 (ZERBST NORMAN F [US]) 8 January 2004 (2004-01-08) * paragraph [0032]; figures *	1-10	ADD. E05D15/06
A	US 2002/053174 A1 (BARMAK JACK [CA]) 9 May 2002 (2002-05-09) * paragraph [0044] - paragraph [0050]; figures 16-22 *	1-10	
A	FR 1 045 962 A (PROFIL SA IND FINANC LE) 2 December 1953 (1953-12-02) * the whole document *	1-10	
			TECHNICAL FIELDS SEARCHED (IPC) E06B E05D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	16 March 2007	Di Renzo, Raffaele

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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 02 4174

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.

16-03-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0505614 A2	30-09-1992	AT 139296 T	15-06-1996
		DE 69120251 D1	18-07-1996
		DE 69120251 T2	31-10-1996
		ES 2092536 T3	01-12-1996
		IT 1247365 B	12-12-1994
US 2004003556 A1	08-01-2004	NONE	
US 2002053174 A1	09-05-2002	NONE	
FR 1045962 A	02-12-1953	NONE	

EPO FORM P0459

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