



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
14.04.2010 Bulletin 2010/15

(51) Int Cl.:
A47B 57/40 (2006.01) **A47B 96/14** (2006.01)
A47F 5/08 (2006.01)

(21) Application number: **09172316.3**

(22) Date of filing: **06.10.2009**

(84) Designated Contracting States:
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 SE SI SK SM TR
Designated Extension States:
AL BA RS

(71) Applicant: **PROAL S.R.L.**
61032 Fano (PU) (IT)

(72) Inventor: **Bianchini, Luca**
61032, FANO (PU) (IT)

(74) Representative: **Baldi, Claudio**
Ing. Claudio Baldi S.r.l.
Viale Cavallotti, 13
60035 Jesi (Ancona) (IT)

(30) Priority: **10.10.2008 IT MC20080180**

(54) **Modular system for equipped walls**

(57) The present invention relates to a modular system that uses a boxed bar (1) to support panels (P) and shelves, of the type provided with at least one C-shaped longitudinal groove (15) on the back of front spaces, which is provided on the bottom wall (15a) with a regularly

spaced vertical row of holes (16); it being provided, in particular, that the boxed bar is provided with said least one groove (15) with inclination angle " α " with respect to the front wall (11), on which the space for the groove is obtained.

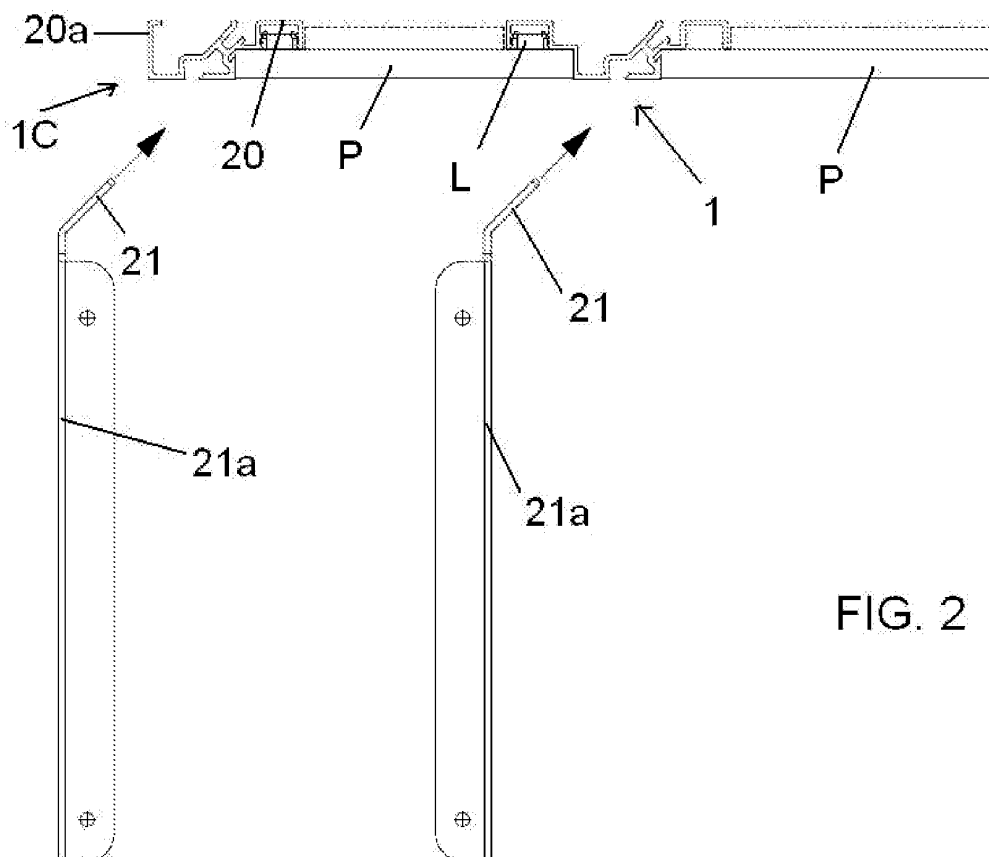


FIG. 2

Description

[0001] The present patent application for industrial invention relates to a modular system for equipped walls.

[0002] As it is known, "equipped walls" are walls designed to support shelves, which can be covered with wooden or similar panels.

[0003] Metal boxed bars are traditionally used to obtain similar equipped walls, being mounted in vertical position to support both the horizontal shelves and the vertical panels that are used to cover the masonry wall.

[0004] Said boxed bars are provided along the entire height of the lateral sides with grooves designed to exactly receive the vertical border of an adjacent panel or, vice versa, ribs designed to be exactly received inside corresponding grooves obtained on the vertical border of the adjacent panel.

[0005] In order to support said horizontal shelves, each boxed bar is frontally provided for the entire height with a rectilinear groove that can be accessed from the front opening, which can be defined as "space".

[0006] In particular, the groove has a basically C-shaped cross-section, being bordered by a pair of edges on the two sides and by an intermediate bottom wall on the back.

[0007] The bottom wall is provided, approximately for the entire height, with a regularly spaced series of holes with horizontal axis that are designed to act as selective fixing points for the horizontal shelf-holding arm.

[0008] Obviously, the presence of a plurality of fixing holes allows the final user of a similar pair of boxed bars to fix the shelves at the desired height.

[0009] In spite of its large diffusion, such a technology is evidently impaired by some significant drawbacks. The first drawback is of technical-functional type and consists in the fact that dust and fine impurities of various type accumulate in the groove used to fix the shelf-holding arms of each traditional boxed bar, and are very difficult to remove in view of the small width of the "access" space.

[0010] Moreover, said traditional boxed bars are aesthetically impaired by the presence of the aforesaid series of holes that act as selective fixing points for the horizontal shelf-holding arms on the bottom of the vertical grooves.

[0011] So far, these two disadvantages have been remedied with rather complicated and expensive solutions.

[0012] According to the first solution, said vertical spaces of traditional boxed bars are provided with suitable rubber seals that are cut to size according to the position selected by the user for the horizontal shelves fixed to the boxed bars.

[0013] This long delicate operation must be repeated every time the user of a similar series of boxed bars wants to change the fixing height of the horizontal shelves that are mounted in projecting position on the front of said bars.

[0014] Alternatively, another solution consists in "seal-

ing" the vertical spaces of traditional boxed bars with suitable brush seals that are commonly found on the market.

[0015] Such a solution is even longer and must be carried out by specialised workers, without considering the cost for purchasing said brush seals.

[0016] The specific purpose of the present invention is to devise a modular system for equipped walls that is able to solve all the aforementioned problems of the prior art technique.

[0017] Such a result has been achieved by giving a special innovative configuration to the boxed bars used in said modular system.

[0018] In addition to reducing the penetration of fine dirt and covering the unaesthetic series of fixing holes, the new configuration allows each bar to support a shelf regardless of the fact that the bar is positioned in vertical or horizontal position.

[0019] More precisely, the peculiarity of the boxed bar of the invention consists in the fact that, unlike traditional boxed bars, the front rectilinear space does not provide direct access to the C-shaped grooves used to fix the horizontal shelf-holding arms.

[0020] According to the new configuration of boxed bar, the front rectilinear space gives access to a C-shaped groove that is faced sideward with inclination angle of approximately 45°.

[0021] In view of the aforesaid inclination, the bottom of said groove (and the traditional series of fixing holes) is no longer visible through the front space.

[0022] As mentioned above, the inclination of said groove also reduces the penetration of dust and fine dirt. In any case, being impossible to prevent accumulation of dirt on the bottom of the groove, it is practically impossible to see it from the front of the bar of the invention.

[0023] Moreover, the new front configuration of the new boxed bar of the invention has required a new innovative configuration also for the arms and brackets that are used to support the shelves. Thereby, also these arms and brackets must be considered as integral parts (or modules) of the system according to the present invention.

[0024] For purposes of clarity, the description of the invention continues with reference to the enclosed drawings, which are intended for purposes of illustration only and not in a limiting sense, wherein:

- Figure 1 is a top view of two pieces of a first embodiment of the boxed bar from the system of the invention, with a panel mounted between them;
- Figure 2 is the same as Fig. 1, except in that it illustrates the coupling of said boxed bars with corresponding shelf-holding arms;
- Figure 3 is the same as Figure 1, except in that it refers to a second embodiment of the aforesaid boxed bar;
- Figure 4 illustrates a different mounting mode of the same boxed bar of Figure 3;

Figure 5 illustrates a third embodiment of the afore-said boxed bar;

Figure 6 illustrates a fourth embodiment of the afore-said boxed bar;

Figure 7 illustrates a fifth embodiment of the afore-said boxed bar;

- Figure 8 is an axonometric view of Fig. 2, wherein the two shelf-holding arms are illustrated during insertion for fixing purposes.

[0025] Referring to Figs. 1, 2 and 8, the first module of the system according to the present invention consists in a metal boxed bar (1) that is open on the back and comprises a front wall (11) and two lateral walls (12).

[0026] In particular, said figure illustrates two pieces of the aforesaid bar (1) with a panel (P) mounted between them to close the masonry wall vertically.

[0027] To that end, each bar (1) is provided on the lateral walls (12) with suitable means of known type to guarantee exact support and firm coupling of the panel (P), possibly with the use of suitable fixing screws.

[0028] According to the bar illustrated in fig. 1, the means provided on each bar (1) to favour the support and coupling of the panel (P) consist in a pair of back boxed sections (20) integrated on the lateral walls (12) and provided with a basically C-shaped cross-section with concavity facing the front of the bar (1).

[0029] Once the panels (P) provided on the right and left side of the bar (1) are arranged against the lateral walls (12) of the bar (1), the back surfaces of the panels (P) are engaged with the boxed sections (20) in such a position that allows for stable fixing with suitable connection strips (L).

[0030] It must be noted that said connection strips (L) could be applied on the back of the corresponding panel (P), or obtained "in one piece" in the structure of the panel by milling.

[0031] A notch (13) or "space" is traditionally obtained on the front wall (11) of such a bar (1).

[0032] The space (13) gives access to a niche (14) joined with a basically C-shaped groove provided with a regularly spaced series of holes (16) on the bottom wall (15a).

[0033] The peculiarity of the groove (15) consists in the inclination of about 45° with respect to the front space (13) that gives access to said groove (15) (or, more precisely, with respect to the front wall (11) on which the space is obtained).

[0034] Referring to fig. 1, it must be noted that, because of such a solution, an observer positioned in front of the bar (1) is only able to see a section of the continuous wall that borders the longitudinal niche (14) through the space (13).

[0035] From the same visual perspective, the observer is not able to see the groove (15) and, most of all, the unaesthetic regularly spaced series of holes (16) obtained on the bottom wall (15a) of the groove (15).

[0036] Moreover, this solution gives an aesthetically uniform aspect to the front wall (11) of the bar (1), in case the user wants to give it a special surface finish (such as concave or raised).

5 **[0037]** In fact, in case of a traditional bar, the surface finish of the front wall, on the right and left side of the space, would lack visual continuity due to the visible presence of the series of holes obtained on the bottom of the groove.

10 **[0038]** In the bar of the invention (1), the surface finish of the front wall (11), on the right and left side of the space (13), can be given perfect continuity, being it possible to obtain said finish also in the internal wall of the niche (14), in the area that is directly seen through the space (13).

15 **[0039]** Referring to fig. 1, it must be noted that the "inclined" groove (15), together with the corresponding series of holes (16), is commonly the means for engaging and selectively fixing the back end (21) of a horizontal shelf-holding arm (21 a).

20 **[0040]** Evidently, the need to obtain perfect coupling between the back end (21) of the arm (21 a) and the housing and fixing groove (15) requires the back end (21) to be given approximately 45° inclination with respect to the arm (21 a), which is perfectly compatible with the inclination given to the groove (15) with respect to the front space (13).

25 **[0041]** Attention is drawn on the fact that, referring to fig. 1, the two pieces of bar (1) are given a symmetrical direction, meaning that the first piece is provided with a rightward groove (15) and the second piece is provided with a leftward groove (15), being two pieces of the same bar (1) mounted in opposite mode.

30 **[0042]** In view of the above, the grooves (15) of the two adjacent bars (1) are faced one against the other, according to a configuration that requires using shelf-holding arms (21 a) provided with symmetrically opposite inclined ends (21).

35 **[0043]** Nothing prevents using two pieces of the same bar (1) with grooves (15) in the same direction to support a panel (P). Obviously, in such a case, the same lateral inclination must be given to the ends of the corresponding shelf-holding arms (21 a) (as illustrated in fig. 2).

40 **[0044]** Referring to fig. 3, the same bar can be obtained according to a first alternative embodiment (10) that differs from the one illustrated in fig. 2 in that it is provided with different lateral means to support and fix the afore-said panels (P).

45 **[0045]** In such a case, longitudinal ribs (22) protrude centrally from the lateral walls (12) of the bar (1), which are adapted to be exactly engaged inside corresponding grooves (S) obtained on the border of the panel (P), when the panel (P) is arranged against the corresponding lateral wall (12) of the bar (10).

50 **[0046]** Fig. 4 illustrates the mounting modes of the bar (10) in horizontal position (that is to say in intermediate position between two panels (P) overlapped in "edge-ways"), while maintaining the capability to support a shelf

(R).

[0047] Such a result can be obtained by using another component of the modular system of the present invention, which consists in a special bracket (30) adapted to be mounted on the internal longitudinal border of a shelf (R).

[0048] According to a cross-sectional view, the bracket (30) comprises a first vertical section (30a) with basically identical height as the thickness of the shelf (R), against which the longitudinal border of the shelf (R) must be exactly engaged and fixed.

[0049] The first vertical section (30a) of the bracket (30) is connected with a second shorter vertical section (30c) by means of a backwards facing short horizontal section (30b).

[0050] Fig. 4 illustrates the mounting of the bracket (30) with respect to the bar (10) in horizontal position.

[0051] In particular, the upper section (30c) of the bracket (30) is inserted and engaged inside the space (13) of the bar (10) from down upwards.

[0052] In view of the above, the horizontal intermediate section (30b) of the bracket (30) rests on a horizontal stop (13a) in lower position with respect to the space (13), whereas the upper vertical section (30c) is fitted on the back of the section (13b) of the front wall (11) that is situated above the space (13).

[0053] Fig. 5 illustrates an alternative embodiment (1A) of the bar (1) of fig. 1.

[0054] The bar (1A) is **characterised in that** it is not provided with the niche (14) on the back of the space (13).

[0055] In such a case, the space (13) is the opening of the inclined groove (15).

[0056] Likewise, fig. 6 illustrates an alternative embodiment (10A) of the bar (10) of fig. 3.

[0057] Also in this case, while maintaining all the other structural features, the bar (10A) is **characterised in that** the space (13) is the opening of the inclined groove (15).

[0058] Fig. 7 illustrates an additional embodiment (1 B) of the bar (1) of fig. 1, whose peculiarity consists of the fact that it is provided with a side-by-side parallel pair of inclined grooves (15).

[0059] Obviously, the embodiment (1 B) of the bar of the invention must be considered compatible with a shelf-holding arm (21 a) provided with a side-by-side parallel pair of inclined ends (21), in such a way that they can be exactly inserted in the two aforesaid grooves (15) and fitted to the corresponding holes (16).

[0060] Attention is drawn on Fig. 8 to point out that the boxed bar can also be obtained in a version adapted to act as "end module" for the equipped wall.

[0061] To that end, the bar (1 C) illustrated on the left side of said Fig. 8 differs from the bar shown on the right side in that, starting from the external lateral wall (12), it is provided with a boxed section (20a) with basically L-shaped cross-section with backwards concavity.

[0062] Obviously, in such a case, the wing of the section (20a) with higher width is adapted to act as end module of the entire equipped wall.

[0063] It is understood that the L-shaped ending section (20a) can also be provided in embodiments of the bar of the invention other than the one that is expressly illustrated in Fig. 8.

[0064] Likewise, nothing prevents making the bars according to the different embodiments, without the lateral means (20, 22) used to fix and support adjacent panels.

[0065] In such a case, bars of this type would only be adapted to support protruding shelves frontally, without giving continuity to a series of panels.

Claims

1. Modular system for equipped walls, of the type comprising a first module that consists in a boxed bar provided on the back of front spaces (13) with at least one C-shaped longitudinal groove (15), which is provided on the bottom wall (15a) with a regularly spaced vertical row of holes (16) designed to act as selective fixing points for the back end (21) of a shelves-holding arm (21 a), **characterised in that** the boxed bar (1, 1A, 10, 10A, 1B, 1C) is provided with at least one groove (15) with inclination angle " α " with respect to the front wall (11) on which the space (13) for the groove (15) is obtained.
2. System as claimed in claim 1, **characterised in that** the inclination angle " α " of the groove (15) is 45° .
3. System as claimed in claim 1, **characterised in that** the two sides are provided with means (20, 22) designed to support panels (P).
4. System as claimed in claim 3, **characterised in that** the means used to support panels (P) consist in a pair of back boxed sections (20) that protrude from the lateral walls (12) of the bar (1, 1A, 10, 10A, 1B) and are provided with a basically C-shaped section with frontward concavity.
5. System as claimed in claim 3, **characterised in that** the means used to support panels (P) consist in a symmetrically opposite pair of longitudinal ribs (22) facing outwards that protrude from the lateral walls (12) of the boxed bar (1, 1A, 10, 10A, 1B).
6. System as claimed in claim 1, **characterised in that** the boxed bar (1, 1A, 10, 10A, 1B, 1C) is provided on the first lateral wall (12) with a back boxed section with basically C-shaped section, with concavity towards the front of the bar (1, 1A, 10, 10A, 1B, 1C) and on the second lateral wall (12) with a boxed section (20a) with basically L-shaped section with backward concavity.
7. System as claimed in one or more of the above claims, **characterised in that** the boxed bar (1, 10)

is provided immediately behind the front longitudinal space (13) with a niche (14) that is connected to the inclined groove (15).

8. System as claimed in one or more of claims 1 to 6, **characterised in that** the boxed bar (1 A, 10A) is provided with the inclined groove (15) immediately behind the space (13). 5

9. System as claimed in one or more of claims 1 to 6, **characterised in that** the boxed bar (1 B) is provided with a parallel pair of inclined grooves (15) immediately behind the spaces (13). 10

10. Modular system as claimed in claim 1, of the type comprising a second module that consists in a shelves-holding arm (21 a) with at least one back end (21) designed to penetrate inside the groove (15) of the boxed bar (1) and be selectively fixed into one of the holes (16) of the bar (1), **characterised in that** the back end (21) of the shelves-holding arm (21) is inclined with respect to the longitudinal axis of the arm (21) by an angle " α " equal to the inclination angle of the corresponding groove (15). 15
20
25

11. Modular system as claimed in claims 1 to 7, **characterised in that** it comprises a third module that consists in a bracket (30) with a basically S-shaped section designed to be inserted and fitted into the space (13) of the bar (1) when the bar (1) is in horizontal position; it being provided, in particular, that the bracket (30) is composed of a lower section (30a) and an upper section (30c), which are basically parallel, connected by a short orthogonal intermediate section (30b) that is designed to rest above a horizontal stop (13a) in lower position with respect to the space (13), while the upper section (30c) is designed to be fitted on the back of the section (13b) of the front wall (11) that is situated above the space (13). 30
35
40

45

50

55

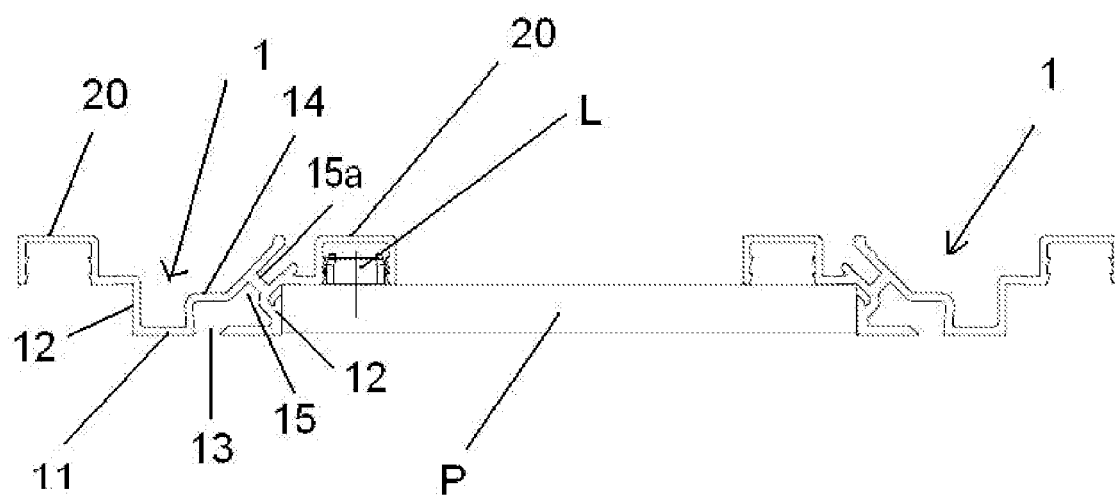


FIG. 1

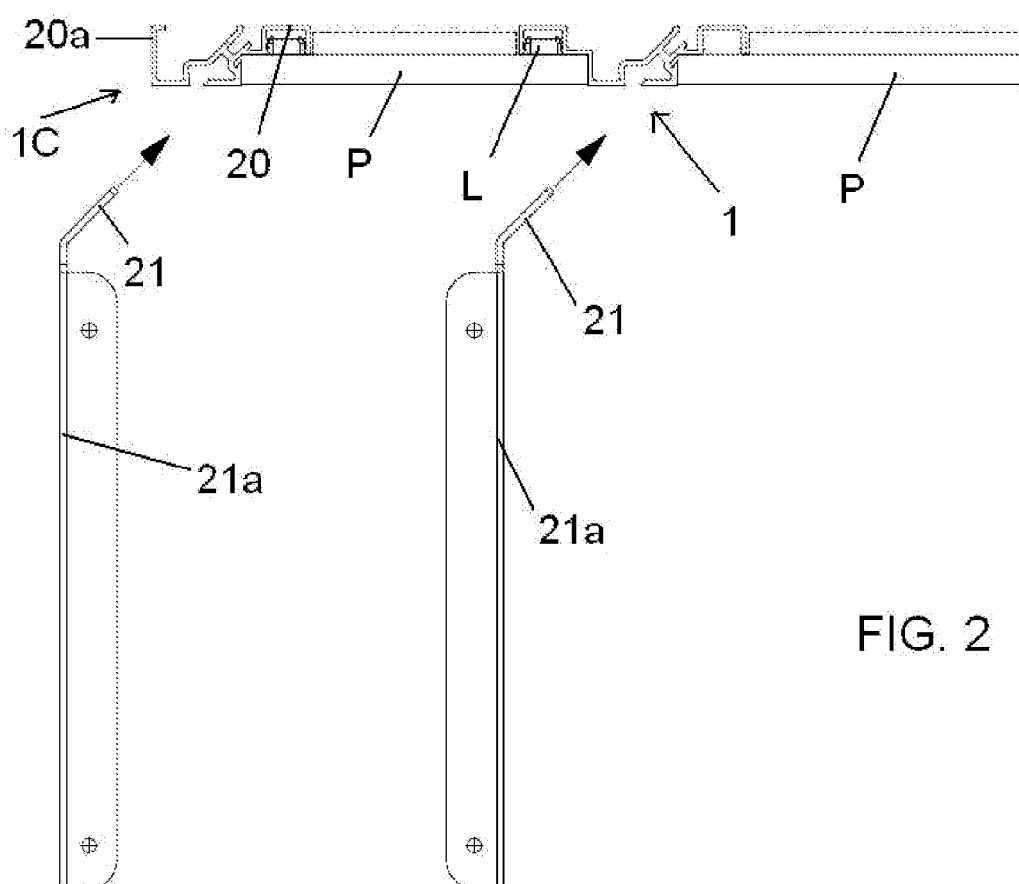


FIG. 2

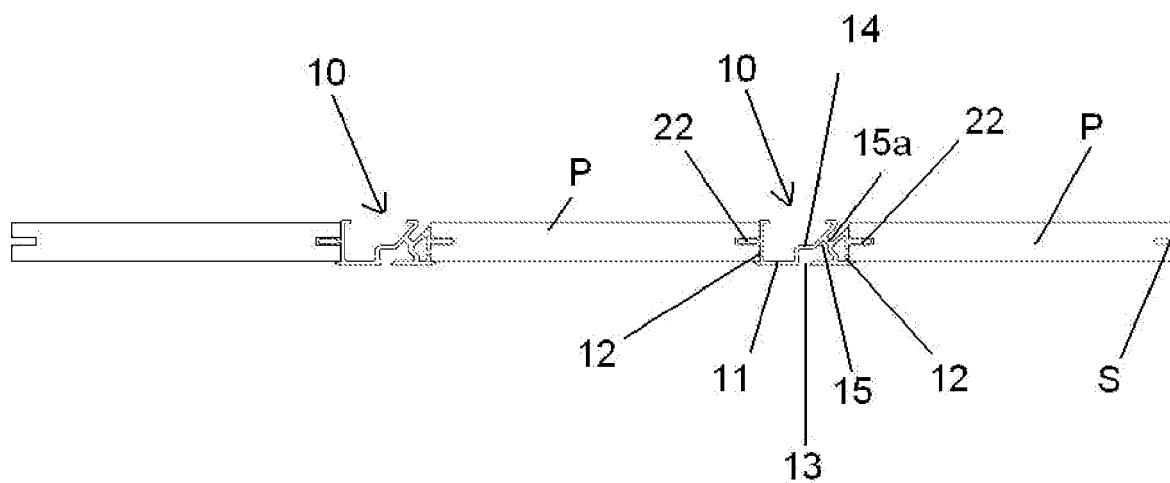


FIG. 3

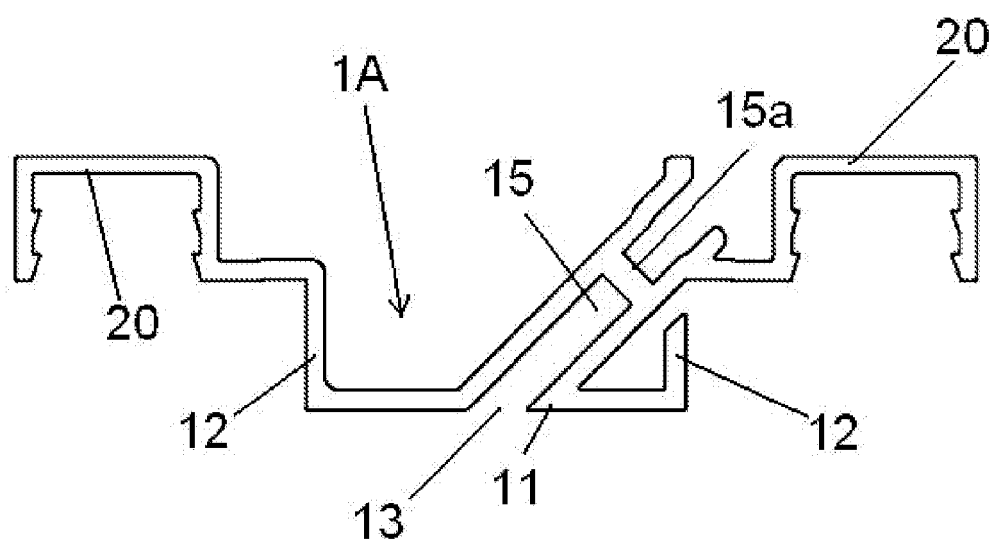
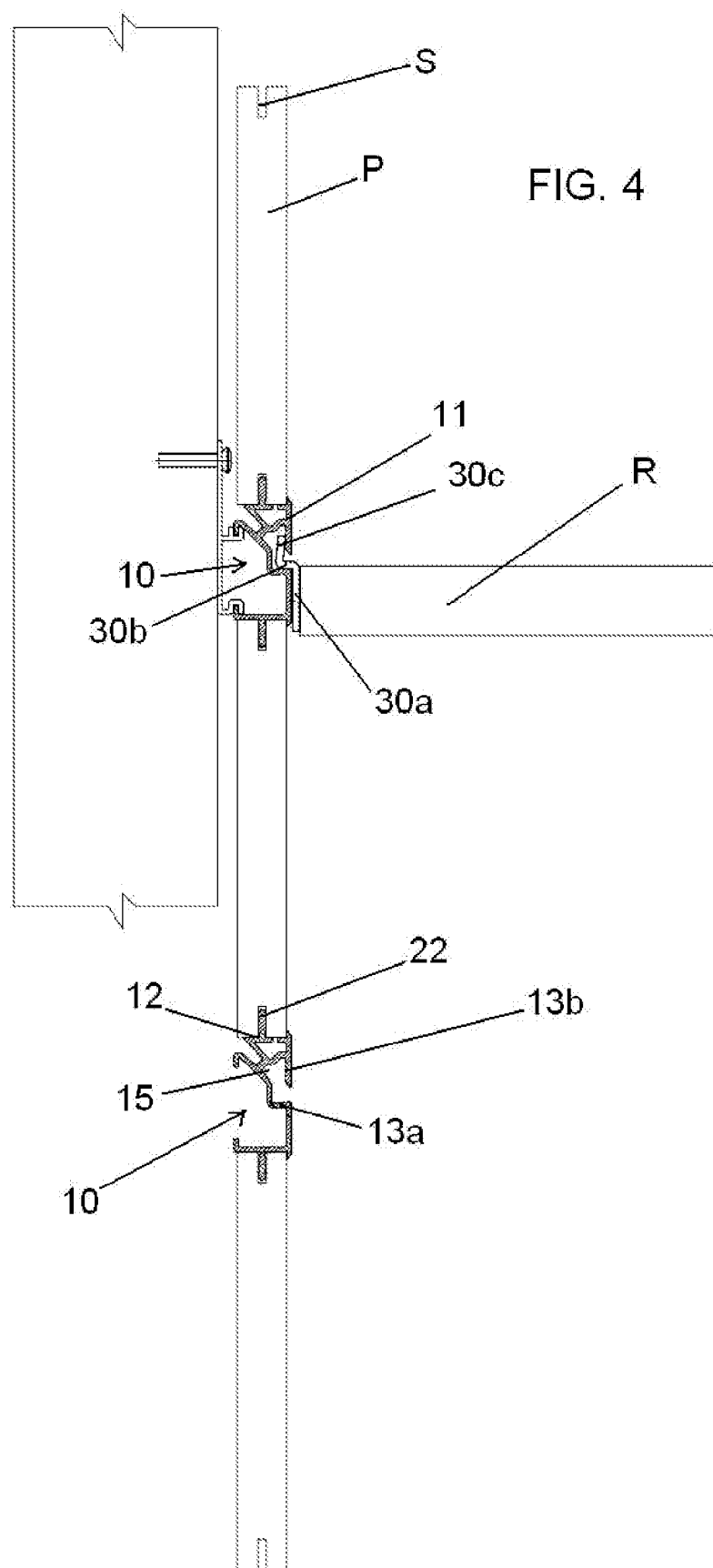


FIG. 5



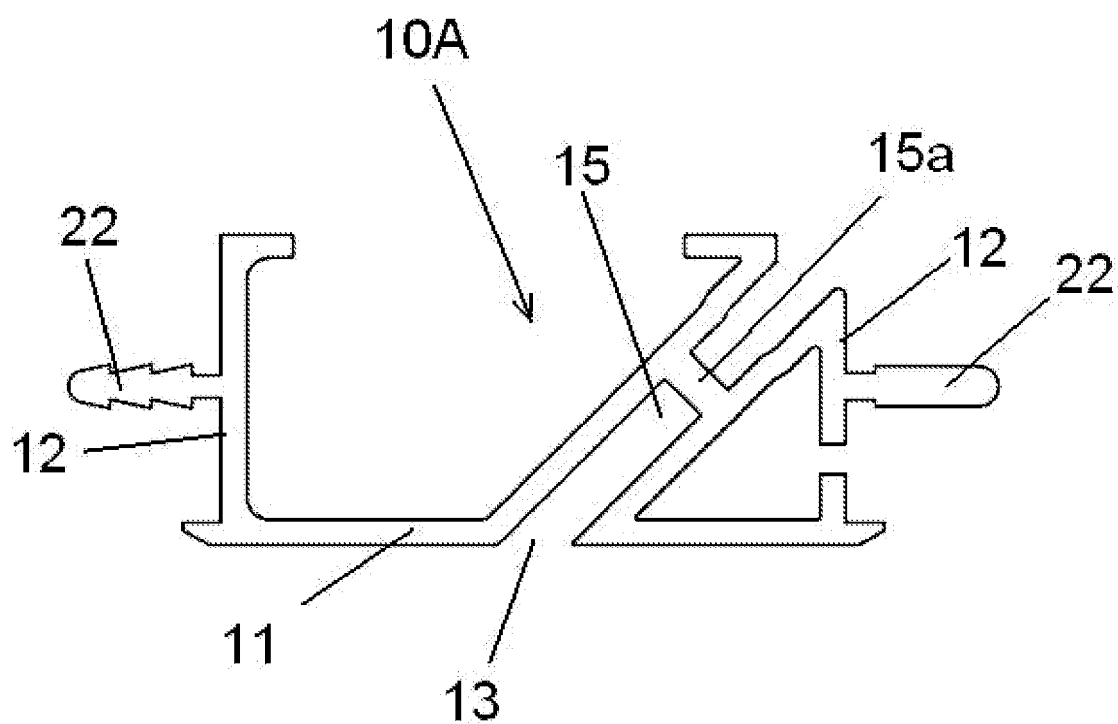


FIG. 6

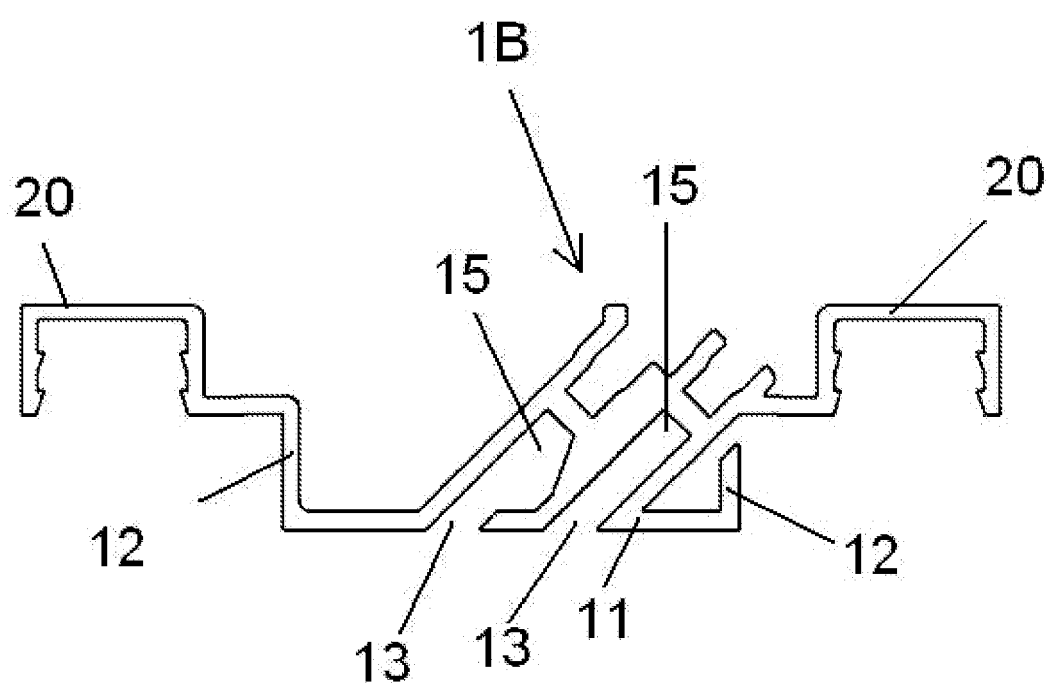
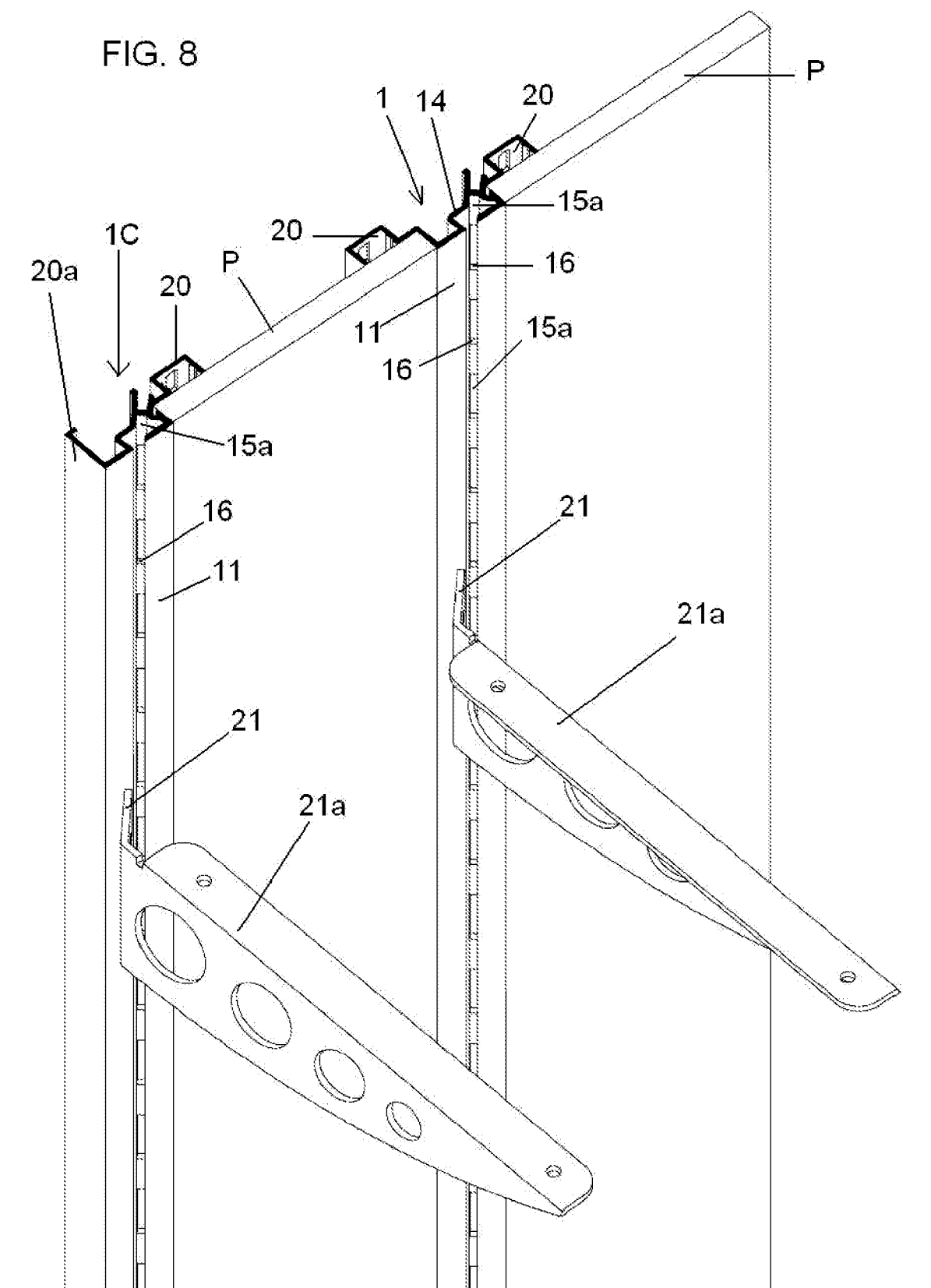


FIG. 7

FIG. 8





EUROPEAN SEARCH REPORT

Application Number
EP 09 17 2316

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	GB 2 235 621 A (DIAZ) 13 March 1991 (1991-03-13)	1,3,7-10	INV. A47B57/40
Y	* page 3, paragraph 4 * * page 6, paragraph 1 - page 8, paragraph 3 * * page 9, paragraphs 1,3 * * page 11, paragraph 2 * * page 12, paragraph 1 * * page 13, paragraph 1; figures 1-6,10,11-16,18,19,25,26,31 *	2	A47B96/14 A47F5/08
X	US 4 570 390 A (WENDT) 18 February 1986 (1986-02-18) * column 2, line 34 - column 3, line 13; figures 1-5 *	1,3-5, 7-8	
X	DE 44 15 037 A1 (ZUERN KG) 2 November 1995 (1995-11-02)	1,3,6-9	
Y	* paragraph [0004] *	11	
A	* paragraph [0028] * * paragraph [0029] - paragraph [0032] * * paragraph [0033]; figures 3-5,10 *	4-5	TECHNICAL FIELDS SEARCHED (IPC)
Y	US 5 230 492 A (ZWART ET AL) 27 July 1993 (1993-07-27)	2,11	A47B A47F
A	* column 1, line 24 - line 51 * * column 3, line 25 - column 4, line 16; figures 1,2,7 *	1,3,10	
X	GB 2 169 791 A (INTERIOR SYSTEMS) 23 July 1986 (1986-07-23) * page 1, line 59 - page 2, line 24; figures 1-3 *	1,3-5, 7-8	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 January 2010	Examiner Jacquemin, Martin
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	

 1
EPO FORM 1503 03.82 (P04C01)



EUROPEAN SEARCH REPORT

Application Number
EP 09 17 2316

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	US 5 690 239 A (BALLARD) 25 November 1997 (1997-11-25) * column 3, line 46 - column 5, line 25 * * column 5, line 51 - line 67 * * column 7, line 26 - line 61; figures 4,5,6,8,11,13 *	1,3-4, 8-9	
X	GB 2 064 305 A (INTERIOR SYSTEMS UK LTD) 17 June 1981 (1981-06-17) * page 1, line 6 - page 3, line 33 * * page 3, line 56 - line 62 * * page 3, line 71 - line 83 * * page 3, line 101 - line 128; figures 3-5 *	1,3,7-8	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 January 2010	Examiner Jacquemin, Martin
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	

1
EPO FORM 1503 03.82 (PD4C01)

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

EP 09 17 2316

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.

19-01-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2235621 A	13-03-1991	DE 4016380 A1 FR 2647180 A1 IT 1239930 B	17-01-1991 23-11-1990 23-11-1993
US 4570390 A	18-02-1986	CA 1219841 A1	31-03-1987
DE 4415037 A1	02-11-1995	NONE	
US 5230492 A	27-07-1993	NONE	
GB 2169791 A	23-07-1986	NONE	
US 5690239 A	25-11-1997	NONE	
GB 2064305 A	17-06-1981	NONE	