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Remarks:
Amended claims in accordance with Rule 86 (2) EPC.

(54) Door and window counter-frame easy and fast to assemble at building yard

(57) The door and window counter-frame comprises metal draw pieces designed to constitute two side-posts, a central post, an upper crosspiece fastened to the upper end of the above-mentioned posts, at least one lower crosspiece connecting the central post at the bottom and one of the above-mentioned side posts and is characterized in that the above-mentioned draw pieces have coupling projections and/or openings designed to couple the above-mentioned draw pieces together in a jointed manner.

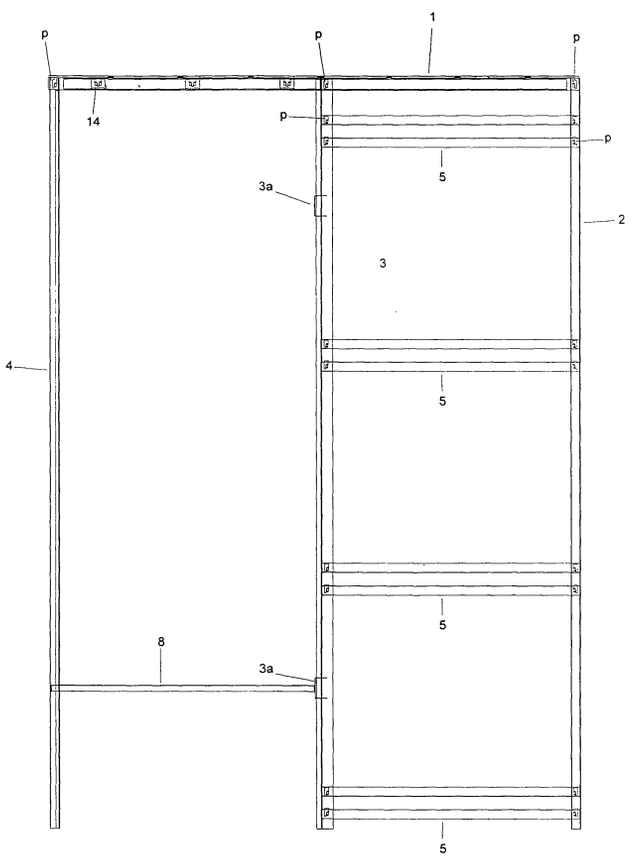


Fig.2

EP 1 559 862 A1

Description

[0001] The present invention relates to a door and window counter-frame easy and fast to assemble at the building yard and especially applicable in the realization of slideaway doors or windows for plasterboard walls.

BACKGROUND

[0002] Counter-frames for doors and windows and in particular for slideaway doors and windows are frequently marketed in assembly boxes whose components can be assembled directly at the building yard with considerable simplification of transportation and storage problems. Assembly of these components however requires the use of small connection and fastening parts (particularly screws) and the use of associated tools such as electric screwers or screwdrivers and this involves a certain time consumption which contributes considerably to the formation of the cost of the installed product.

OBJECTS

[0003] The general purpose of the present invention is the realization of a counter-frame for doors and windows to be marketed in assembly boxes whose assembly at the building yard is very fast and easy compared with known counter-frames as it does not require the use of small parts or fastening tools.

SUMMARY OF THE INVENTION

[0004] The door and window counter-frame in accordance with the present invention comprises metal draw pieces designed to constitute two side-posts, a central post, an upper crosspiece fastened to the upper end of the above-mentioned posts, at least one lower crosspiece connecting the central post at the bottom and one of the above-mentioned side posts and is characterized in that the above-mentioned draw pieces have coupling projections and/or openings designed to couple the above-mentioned draw pieces together in a jointed manner. Preferred embodiments are given in the claims below.

DRAWINGS

[0005] Characteristics and advantages of the present invention will be more apparent from the following description of a preferred embodiment, illustrated by way of a non-limiting example with the aid of the annexed drawings, in which:

FIG.1: shows a diagrammatic view of the typical structure of a slideaway door installed in a plasterboard wall,
FIG.2: shows a whole front elevation view of a preferred embodiment of a counter-frame for a slideaway door in accordance with the present invention,
FIG.3: shows side, front and top views of the post 4 of FIG 1,
FIG.3A: shows an enlarged view of the details 4 and 4b of FIG 3,
FIG.4: shows side, front and top views of the post 3 of FIG 1,
FIG.4A: shows an enlarged reproduction of the top view 3a' of FIG 4 and the top view of the only spacing clip 3a,
FIG.5: shows side, front and top views of the post 2 of FIG 1,
FIG.6: shows front, top and side views of the crosspiece 1 of FIG 1,
FIG.7: shows front, top and side views of the slide track fastened to the crosspiece 1,
FIG.8: shows front and side views of a crosspiece 5 of FIG 1,
FIG.9: shows top and side views of the spacer crosspiece 8 of FIG 1,
FIG 9A shows an enlarged view of the details 8a and 8b of FIG 9,
FIG.10: shows enlarged views of the coupling projections and openings of FIG.1, of the right angle clamps 14 of the same figure, of the projections 16 and the section 1.1 a of FIG.7, as well as a cross section view of the assembled crosspiece 1 and the track 1.1.

PREFERRED EMBODIMENTS

[0006] In FIG 1, representing a typical slideaway door structure installed in a plasterboard wall, the various parts designated by reference numbers have the following meanings:

1. upper crosspiece delimiting at the top the door opening and the slideaway opening and housing the wing running track,
2. internal ledge post of wing, slideaway side,
3. double central post delimiting the door opening, slideaway side,
4. external ledge post delimiting door opening on side opposite slideaway side,
5. lower sleepers in the slideaway space fastened laterally to posts 2 and 3 to give the counter-frame the necessary stiffness,
6. sliding wing, and
7. section plane of plasterboard wall.

[0007] In the above described frame the various crosspieces and posts are usually fastened together by screws.

[0008] FIG.2 shows the whole front view of a preferred embodiment of a counter-frame for a slideaway door in accordance with the present invention. Therein some parts bear the same reference number as in FIG 1 and

have the same meaning. The remaining parts show:

3a: clamps for jointing the double post 3 and removable after installation is completed,
8: spacing sleeper coupled on one side to the post 4 and on the other to a spacing clamp 3a of the post 3 bent to ensure correct arrangement of the post 4 in the installation step and removable by simple traction after installation is completed,
14: right angle clamp supporting door finish structures,
p: jointed coupling points for posts and crosspieces between them.

[0009] As shown in the figure, each lower crosspiece 5 is fastened to the side posts by four coupling points, two per side, to ensure the necessary stiffness of the frame. Indeed, if there were only one side coupling point it could act as a hinge and this would compromise the stiffness of the resulting structure.

[0010] The remaining figures illustrate the various components in detail.

[0011] In particular, FIGS 3 and 3A show the following items in the post 4:

- an opening 18 (of which an enlarged reproduction appears in FIG 10) for coupling to the left end of the upper crosspiece, and
- a slotted rustication 21 for coupling to the left end of the sleeper 8.

[0012] FIGS 4 and 4A show in the post 3:

- an opening 18 for coupling to the center line of the upper crosspiece,
- a slotted rustication 22 in the spacing clips 3a for coupling to the right end of the sleeper 8,
- openings 20 (of which an enlarged reproduction is given in FIG 10) for coupling to the left side of each lower crosspiece.

[0013] The same figures also show the cross section of the two draw pieces constituting the central post. The upper part of FIG 4A shows an enlarged top view of a spacing clip while the lower part shows the same clip with said draw pieces inserted.

[0014] FIG 5 shows in the post 2:

- an opening 17 (of which an enlarged reproduction is given in FIG 10) for coupling to the right end of the upper crosspiece,
- openings 19 (of which an enlarged reproduction is given in FIG 10) for coupling to the right side of each lower crosspiece.

[0015] FIG 6 shows in the upper crosspiece 1:

- hooks 9 and 10 projecting inwardly for coupling in the openings 18 and 17 of the posts 4, 3 and 2 (in FIG 10 an enlarged reproduction of said hooks and their positioning in said openings is given),
- openings 13 (of which an enlarged reproduction is given in FIG 10) for coupling the supporting right-angle clamps 14,
- notches 11 and 12 on the sides of the crosspiece for fixed-joint entry in the upper end of the posts 4 and 3 (the arrows of FIGS 3A and 4A indicate the entry points of said notches into the draw pieces of the posts), and
- openings 15 for coupling of the track 1.1 housed in the crosspiece.

[0016] FIG 7 shows in the sliding track 1.1 hooks 16 (of which an enlarged reproduction is given in FIG 10) for jointed coupling in the opening 15 of the upper crosspiece.

[0017] FIG 8 shows in each of the lower sleepers 5 hooks 9 and 10 for coupling in the openings 20 and 19 respectively of the posts 3 and 2 (FIG 10 shows the positioning of said hooks in said openings).

[0018] Figures 9 and 9A show at the ends of the spacing sleeper 8 a tab 23 to be bent manually to 90 degrees when inserting it in the slotted rustications 21 and 22 respectively.

[0019] The various coupling openings and projections are obtainable in the above-described components by simple punching.

[0020] Assembly at the building yard starting from an assembly box of the above described components can take place effortlessly as follows.

[0021] From the assembly box the internal ledge post 2 and the double post 3 are taken and laid on the ground or on a stand.

[0022] Then four lower sleepers 5 are taken and, by simple pressure of the hands or a hammer, the associated hooks are inserted in the purposeful seats of the posts on the side in view. Then the frame is turned over and the other four lower sleepers are inserted on the other side of the frame.

[0023] Now the upper crosspiece 1 is taken with the sliding track coupled in it and, after setting the frame vertically, it is inserted in the purposeful seats of the posts 2 and 3 with the simple pressure of the hands or a hammer.

[0024] Next the post 4 is taken and inserted in the same manner in the purposeful seats of the still free end of the upper crosspiece, after which the spacing sleeper 8 is inserted in the purposeful seats of the posts 3 and 4.

[0025] Lastly, the supporting right-angle clamps 14 are snapped into the openings 16 on both sides of the upper crosspiece with the simple pressure of the hands.

[0026] Naturally numerous modifications, adaptations, variants, omissions and replacements of members by others functionally equivalent can be made to the above-mentioned embodiments without departing from the scope of the following claims.

[0027] In particular, it is clear that the form adopted for the cross section of the post and crosspiece draw pieces just as that adopted for the coupling openings and projections is not binding just as the chosen number of crosspieces, spacing clips and supporting right angle spacing clamps is not binding.

Claims

1. Counter-frame for doors and windows particularly for application in the realization of slideaway doors or windows and comprising metal draw pieces designed to constitute two side posts (2,4), a central post (3), an upper crosspiece (1) fastened to the upper end of the said posts and at least one lower crosspiece (5) connecting at the bottom the central post and one of said side posts and **characterized in that** said draw pieces have coupling projections and/or openings (p) designed to couple said draw pieces together in fixed joints.

2. Counter-frame for doors and windows in accordance with claim 1 **characterized in that** said lower crosspiece (5) connecting at the bottom the central post and one of said side posts is fixed at the sides to the posts through at least four coupling points (p) i.e. two on each side.

3. Counter-frame for doors and windows in accordance with claim 1 **characterized in that** said central post (3) consists of two draw pieces which are joined together during installation and spaced from each other by at least one spacing clip (3a) removable by simple traction after installation.

4. Counter-frame for doors and windows in accordance with claim 1 **characterized in that** in said upper crosspiece (1) is housed a sliding wing slide track (1.1) consisting of a metal angle with C cross section and fixed to the crosspiece by fixed-joint coupling projections and openings (16,15) on the upper wall of the track and the crosspiece.

5. Counter-frame for doors and windows in accordance with claim 4 **characterized by** right-angle clamps (14) supporting the door or window finish structures and fastened by fixed-joint coupling projections and openings on the side of the upper crosspiece in the part delimiting the door or window opening at the top.

6. Counter-frame for doors and windows in accordance with claim 4 **characterized** during installation by a spacing sleeper (8) coupled with one end to the post delimiting the door or window opening on the side opposite that delimited by the central post and coupled with the other end to a spacing clip (3a) of said central post.

Amended claims in accordance with Rule 86(2) EPC.

1. Counter-frame for doors and windows particularly for application in the realization of slideaway doors or windows and comprising metal draw pieces designed to constitute two side posts (2,4), a central post (3), an upper crosspiece (1) fastened to the upper end of the said posts and at least one lower crosspiece (5) connecting at the bottom the central post and one of said side posts, said draw pieces having coupling projections and/or openings (p) designed to couple said draw pieces together in fixed joints, **characterized in that** said lower crosspiece (5) is fixed at the sides to the posts through at least four coupling points (p) i.e. two on each side.

2. Counter-frame for doors and windows in accordance with claim 1 **characterized in that** said central post (3) consists of two draw pieces which are joined together during installation and spaced from each other by at least one spacing clip (3a) removable by simple traction after installation.

3. Counter-frame for doors and windows in accordance with claim 1 **characterized in that** in said upper crosspiece (1) is housed a sliding wing slide track (1.1) consisting of a metal angle with C cross section and fixed to the crosspiece by fixed-joint coupling projections and openings (16,15) on the upper wall of the track and the crosspiece.

4. Counter-frame for doors and windows in accordance with claim 3 **characterized by** right-angle clamps (14) supporting the door or window finish structures and fastened by fixed-joint coupling projections and openings on the side of the upper crosspiece in the part delimiting the door or window opening at the top.

5. Counter-frame for doors and windows in accordance with claim 3 **characterized** during installation by a spacing sleeper (8) coupled with one end to the post delimiting the door or window opening on the side opposite that delimited by the central post and coupled with the other end to a spacing clip (3a) of said central post.

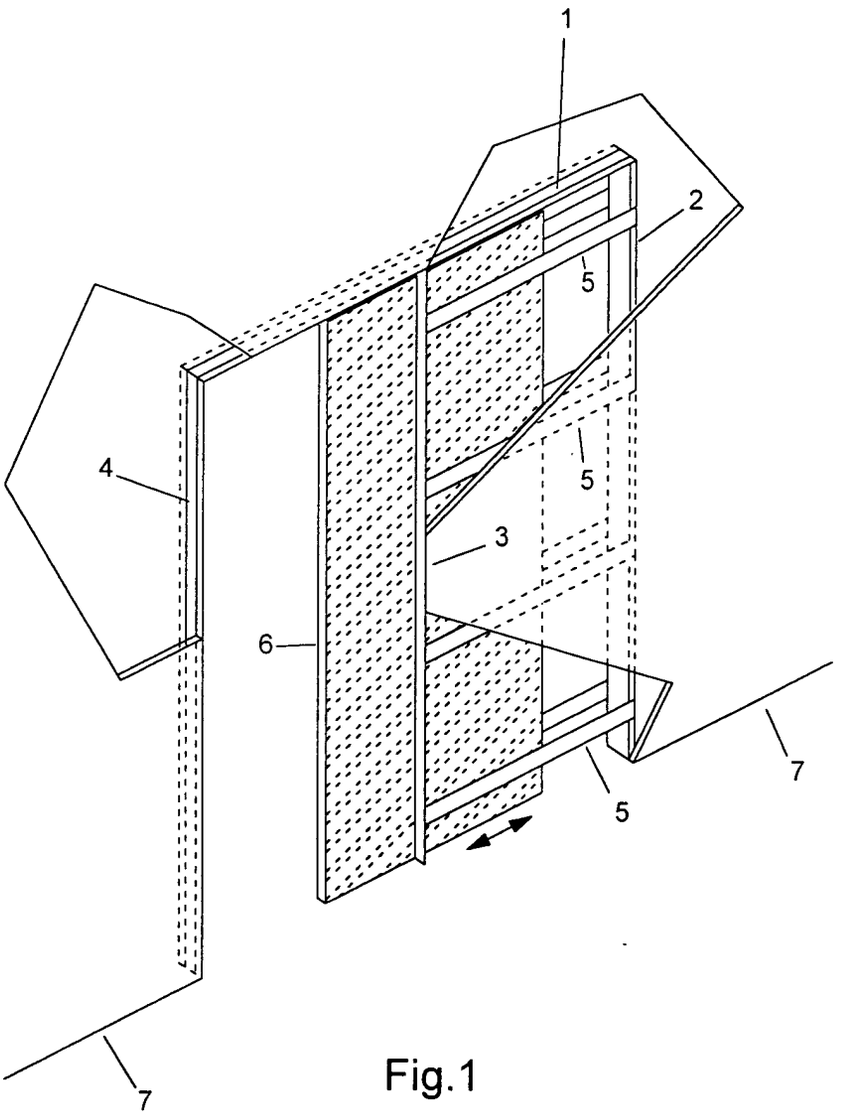


Fig.1

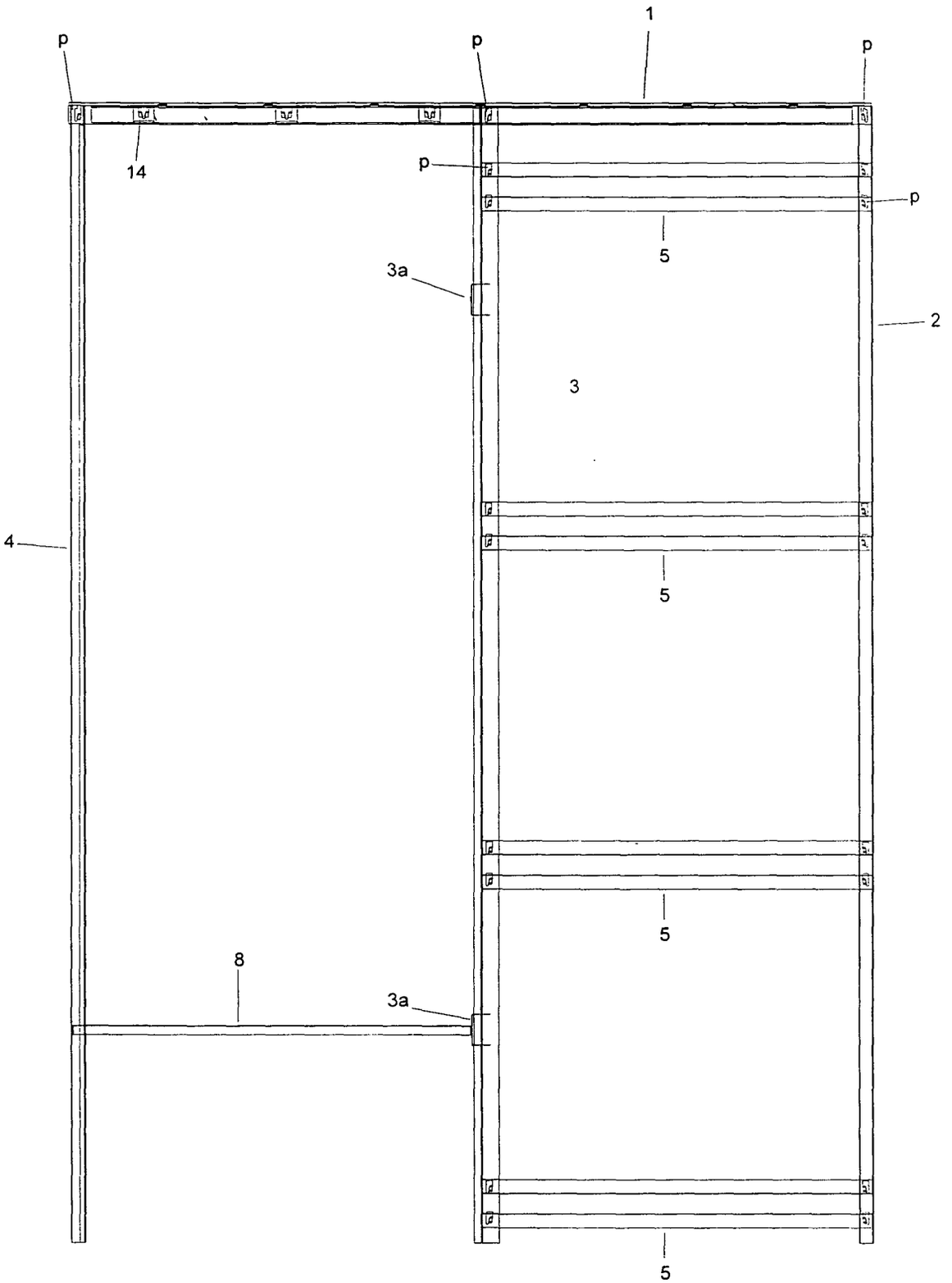


Fig.2

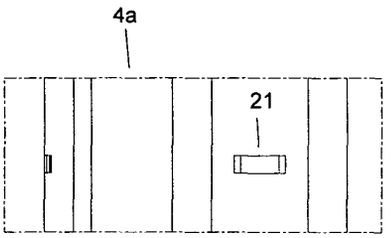
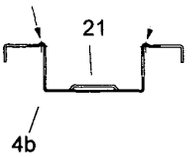


Fig.3A



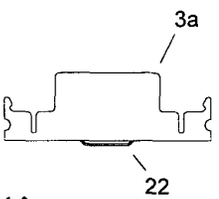
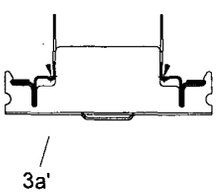


Fig.4A



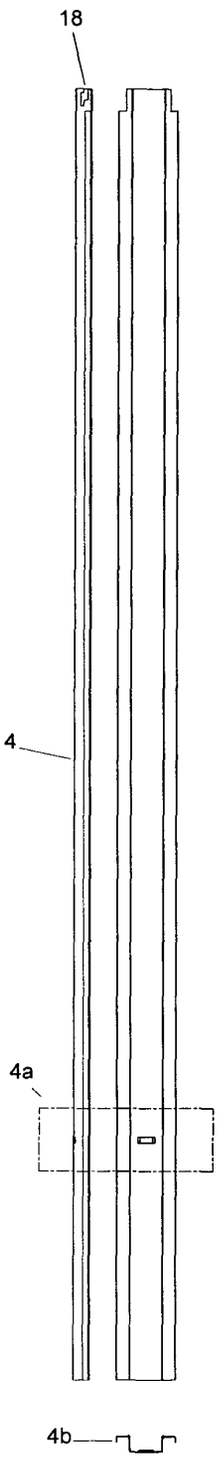


Fig.3

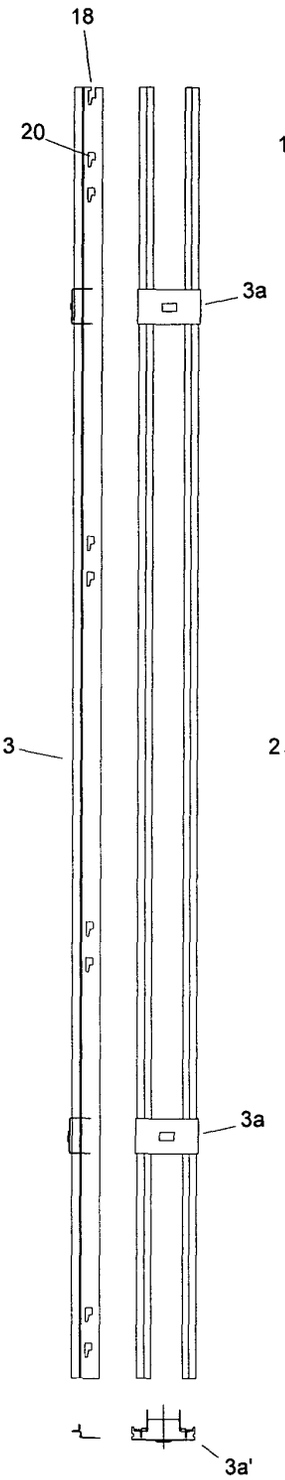


Fig.4

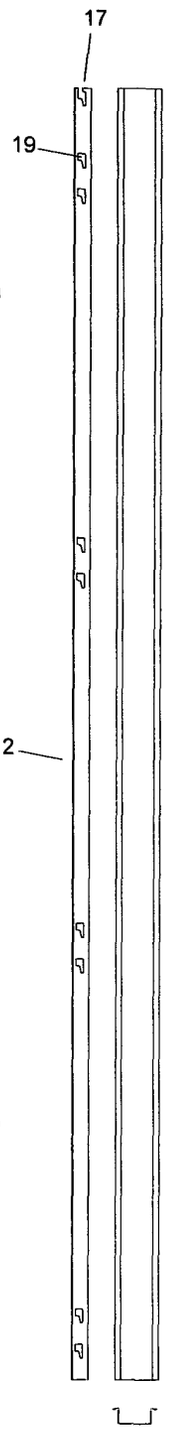


Fig.5

Fig.6

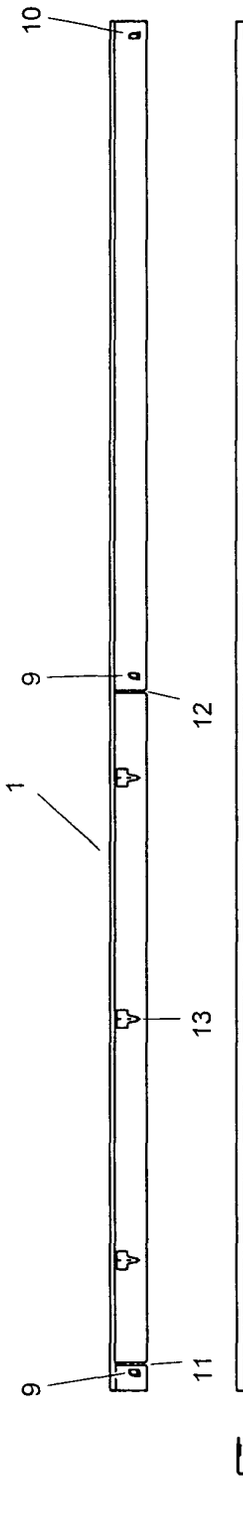


Fig.7

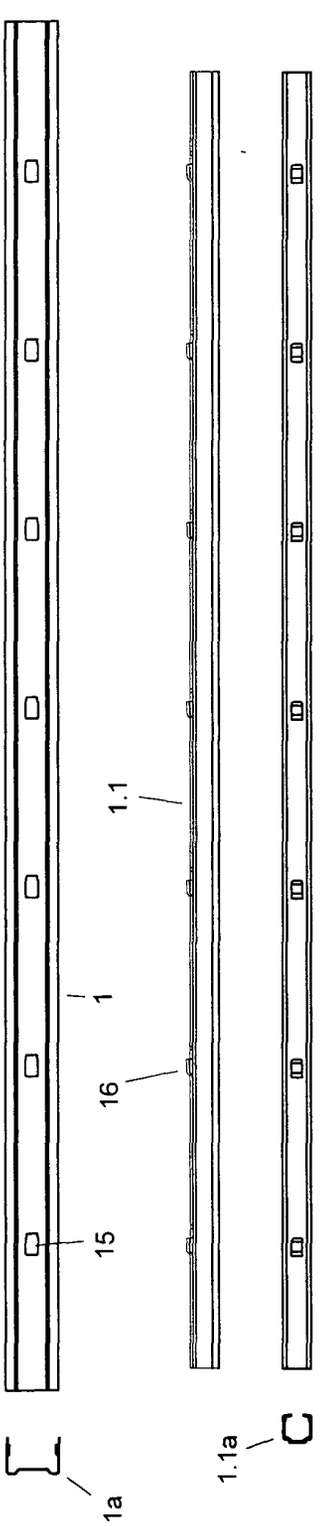


Fig.8

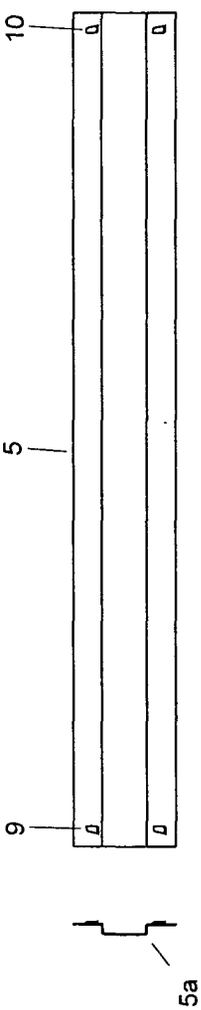


Fig.9

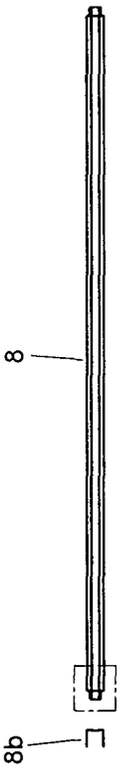
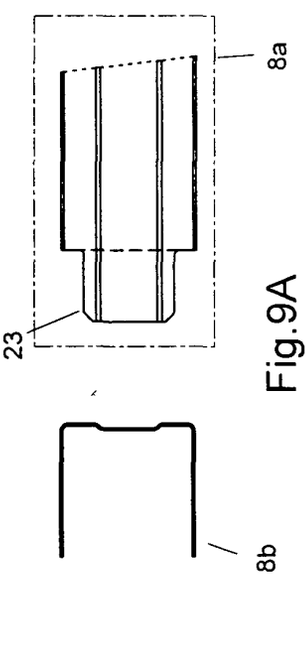


Fig.9A



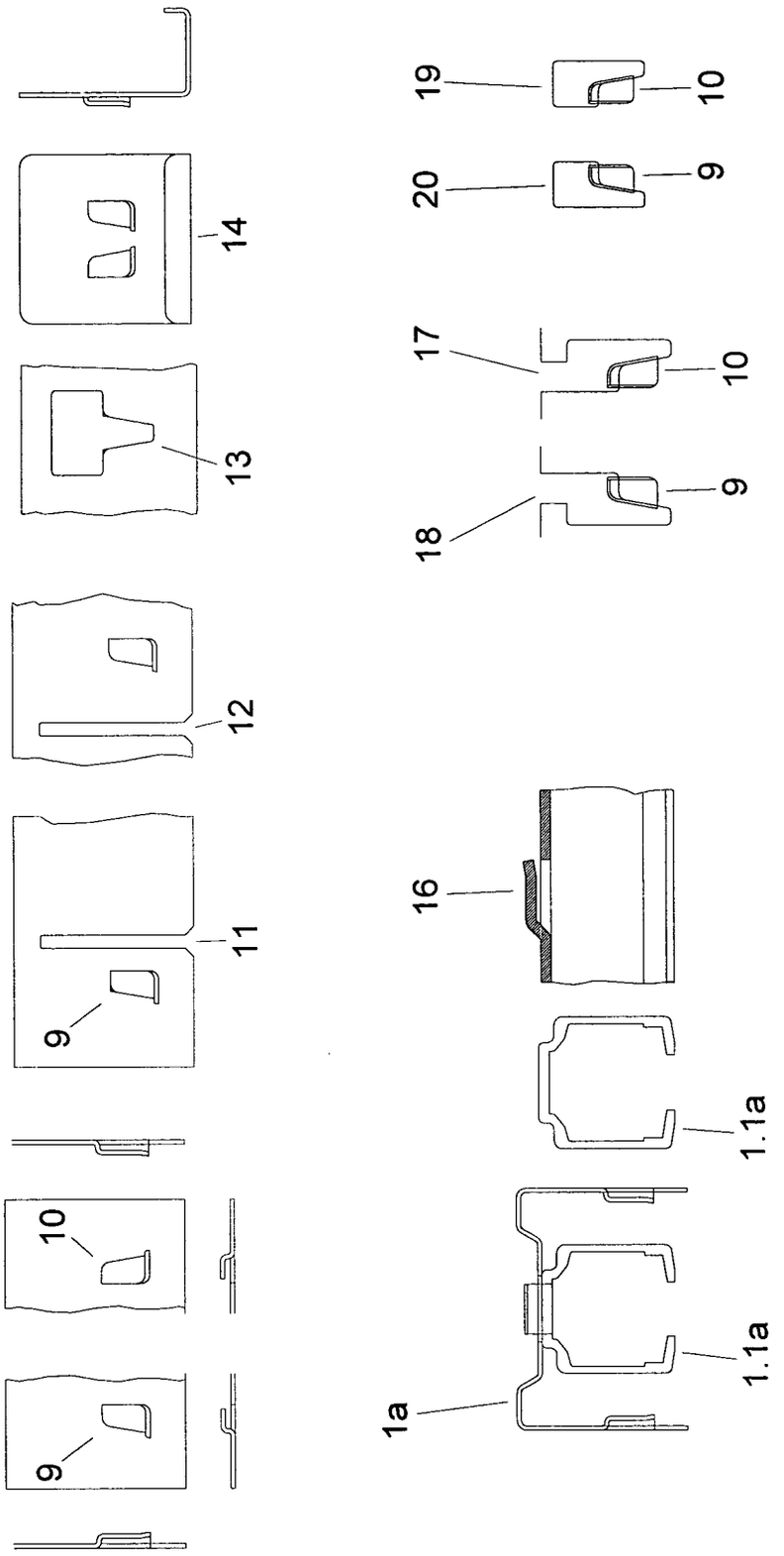


Fig.10

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 42 5052

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 97/22778 A (BHP STEEL JLA PTY LTD ;MATTHEWS DOUGLAS EVAN (AU); TACKO IVAN (AU)) 26 June 1997 (1997-06-26) * page 1, line 9 - line 32 * * page 5, line 19 - page 6, line 33 * * figures 2--16 *	1	E06B3/46
A	US 4 561 210 A (FERA CLAUDIO ET AL) 31 December 1985 (1985-12-31) * column 2, line 10 - column 3, line 32; figures 6,8 *	1	
A	EP 0 505 614 A (FAVERI SRL) 30 September 1992 (1992-09-30) * claim 13 * * figures 1,2 *	3,6	
A	DE 100 12 511 A (DANA TUERENINDUSTRIE) 19 October 2000 (2000-10-19) * column 7, line 17 - column 9, line 59; figures 7,8 *	4	
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			E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	1 June 2004	Verdonck, B

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 04 42 5052

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
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