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(54) **Centering element, particularly for front posts for in-wall frames of retractable sliding doors**

(57) A front post (1) for in-wall frames of retractable sliding doors, which has a substantially C-shaped shape structure so as to define a base (2) and a first pair of lateral wings (3a, 3b), at least one hole (5) being defined, proximate to a lower end (4) of the base (2), for coupling,

by temporary locking means (6), with the end of a cross-member (8), the base (2) having an inclined surface (12) that is adapted to force, upon tightening the locking means (6), the cross-member (8) against one of the first pair of lateral wings (3a, 3b) of the front post (1).

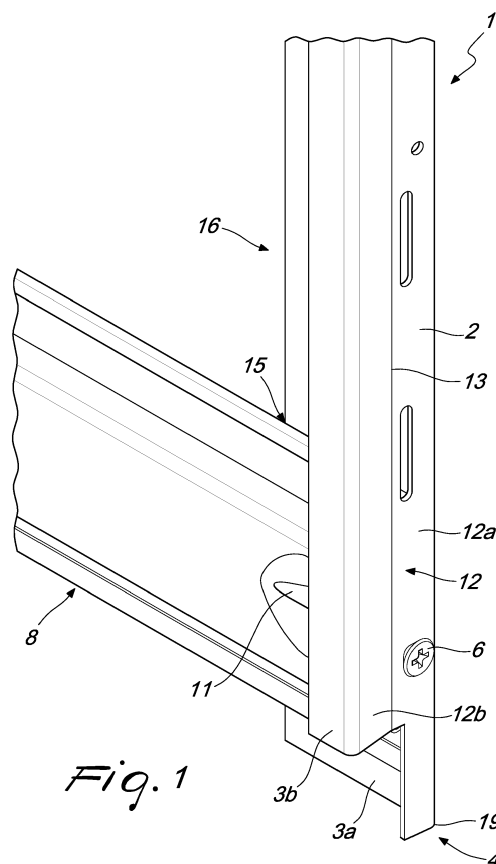


Fig. 1

Description

[0001] The present invention relates to a centering element, particularly for front posts for in-wall frames of retractable sliding doors.

[0002] Nowadays it is known to provide door frames which involve the use of a casing, positioned inside a wall, in which a door or a panel is slideably associated and which is also known as a "retractable door".

[0003] Such solution makes it possible to reduce the encumbrances of the door in a room thanks to the possibility of sliding it into the casing: thus one can use the space adjacent to the door, which would otherwise be occupied by doors of the type that are hinged laterally to a casement.

[0004] In the known art, the frame embedded in the wall is usually constituted by a framework which comprises a plurality of vertical profiled elements, a front post and a rear post, which are connected by horizontal cross-members which define a containment casing of the panel or of the door.

[0005] Protruding above the case, along an axis that is longitudinal with respect to the case proper and that extends from the side opposite to that of the containment case, is a rail which is hidden by a jamb.

[0006] Trolleys coupled to the upper edge of the door are slideably integrated in the rail in order to enable the sliding of the door into and out of the in-wall casing.

[0007] Usually associated with the end of the rail which is not associated with the vertical post locators is an additional post that acts as a terminal for the abutment of the front edge of the door.

[0008] Such conventional door frames thus use metallic profiles that can be mounted together and are sold for example in kit form for assembly.

[0009] To this end, this applicant is holder of Italian application no. TV2010A000011 in which an in-wall casing is disclosed for retractable sliding doors, which is characterized in that at least the crossbeam, the rail, the cross-members, and the spacer can be cut to measure because reference pre-cuts are provided, and also in which the jambs comprise at least the crossbeam jamb which can be cut to measure so that the in-wall casing can be modified at installation time, in order to obtain various different possibilities for the passage opening, further provided with an adjustable infill jamb with integrated architraves and a door track that can be adjusted for multiple door panel thicknesses.

[0010] Although such solution is valid, it suffers a drawback in that the user has to carry out the centering and verify the correct placement of the various different components, without which malfunctions may arise in the sliding of the sliding door.

[0011] This requires time and the use of tools that require, furthermore, a certain level of skill in the use thereof.

[0012] The aim of the present invention is therefore to resolve the above mentioned technical problems, by

eliminating the drawbacks in the cited known art and hence providing an invention that enables the user to mount components of an in-wall casing of retractable sliding doors so that they are centered and correctly positioned relative to each other, with ease and without using special tools.

[0013] Within this aim, an object of the invention is to provide a component of an in-wall casing of retractable sliding doors in which the centering and the correct placement of the various components can be achieved rapidly.

[0014] Another object is to obtain a solution for centering the elements of an in-wall casing which can be stable over time, thus keeping the sliding of the door always optimal.

[0015] Another object is to provide an invention that is structurally simple, can be provided with conventional systems and machines, and is low cost.

[0016] This aim and these and other objects which will become better apparent hereinafter are achieved by a front post for in-wall frames of retractable sliding doors, which has a substantially C-shaped shape structure so as to define a base and a first pair of lateral wings at least one hole being defined, proximate to a lower end of said base, for coupling, by temporary locking means, with the end of a cross-member, characterized in that said base has an inclined surface that is adapted to force, upon tightening said locking means, said cross-member against one of said first pair of lateral wings of said front post.

[0017] Further characteristics and advantages of the invention will become better apparent from the detailed description of a particular, but not exclusive, embodiment, illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a perspective view of the front post coupled to the cross-member;

Figure 2 shows the front post coupled to the cross-member;

Figure 3 shows the front post and the cross-member before its coupling;

Figure 4 shows the front post coupled to the cross-member;

Figure 5 shows a detail of Figure 4;

Figure 6 is a view similar to that in Figure 4 of a conventional solution.

[0018] In the embodiments illustrated, individual characteristics shown in relation to specific examples may in reality be interchanged with other, different characteristics, existing in other embodiments.

[0019] Moreover, it should be noted that anything found to be already known during the patenting process is understood not to be claimed and to be the subject of a disclaimer.

[0020] With reference to the figures, the reference numeral 1 generally designates a front post for in-wall frames of retractable sliding doors, which is substantially

C-shaped so as to define a base 2, which is preferably but not exclusively flat, and a first pair of lateral wings 3a, 3b.

[0021] Each front post 1 has, proximate to a lower end 4 of the respective base 2 and preferably adjacent to the lateral wing 3a, at least one hole 5 for coupling, by way of temporary locking means constituted by a screw 6, to the end 7 of a linear cross-member 8.

[0022] The end 7 that arranges itself against the base 2 is, at least for part of its length, W-shaped, a seat 10 for the threaded shank of the screw 6 being provided at its vertex 9.

[0023] The seat 10 is obtained preferably by deforming multiple portions 11, which are defined so as to be adjacent to each other but not contiguous along the same axis, of the material that constitutes the cross-member 8, the portions 11 being V-shaped and being directed in the opposite direction from the direction of the vertex 9.

[0024] The seat 10 is arranged at a height that corresponds to the placement of the axis of the hole 5 once the edge 12 of the cross-member 8 has been rested against the base 2.

[0025] The coupling of the front post 1 with the cross-member 8 occurs by way of the screw 6.

[0026] The base 2 has an inclined surface 12 that is adapted to force, upon tightening the locking means 6, the cross-member 8 against one of the first pair of lateral wings 3a, 3b of the front post 1.

[0027] In the particular embodiment illustrated, the surface 12 is V-shaped so as to define a first inclined portion 12a, which is adjacent to the lateral wing 3a, and a second inclined portion 12b, which is adjacent to the lateral wing 3b, the vertex 13 being directed toward the front post 1.

[0028] In this way, by screwing in the screw 6, the cross-member 8 moves closer to the first inclined portion 12a of the front post 1; the cross-member 8 thus rests on the first inclined portion 12a at the point 14 that acts as a pivot and causes the rotation of the cross-member 8 toward the point 15 that corresponds to the inner lateral edge of the end 16 of the front post 1.

[0029] In fact the outer perimetric edge 19 of the end of the cross-member 8 that is adjacent to the first inclined portion 12a can slide downwardly in the direction of the curved surface 20 that connects the lateral wing 3a to the first inclined portion 12a of the front post 1.

[0030] In this manner the cross-member 8 is correctly and stably placed adjacent to the lateral wing 3a of the front post 1, the space occupation of such components thus being well-defined and stable over time.

[0031] Instead, in the known art, shown in Figure 6, the surface 112 of the base 102 is flat: this meant that, by tightening the screw 106, the outer perimetric edge 119 of the end of the cross-member 108 adjacent to the surface 112, and hence facing toward the lateral wing 103a, interacted with the curved surface 120 that connects the lateral wing 103a to the base 102 of the front post 101.

[0032] In this way the point of contact between the out-

er perimetric edge 119 and the curved surface 120 was placed at a higher height than the plane of arrangement of the flat surface 112: this meant, upon tightening the screw 106, an anticlockwise rotation of the cross-member 108 and a consequent distancing thereof from the point 115, thus increasing the encumbrances.

[0033] Thus it has been found that the invention fully achieves the intended aim and objects, a front post being devised for in-wall frames of retractable sliding doors which can be correctly mounted and positioned in a stable condition by the user, all with ease and without using special tools.

[0034] The invention is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0035] The materials used as well as the dimensions of the individual components of the invention may be more pertinent according to specific requirements.

[0036] The various means for achieving certain different functions certainly need not coexist only in the embodiment shown, but may be present in many embodiments, even if they are not shown. The characteristics indicated above as advantageous, convenient or the like, may also be missing or be substituted by equivalent characteristics.

[0037] The disclosures in Italian Patent Application No. TV2013A000213 from which this application claims priority are incorporated herein by reference.

[0038] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A front post (1) for in-wall frames of retractable sliding doors, which has a substantially C-shaped shape structure so as to define a base (2) and a first pair of lateral wings (3a, 3b), at least one hole (5) being defined, proximate to a lower end (4) of said base (2), for coupling, by temporary locking means (6), with the end of a cross-member (8), **characterized in that** said base (2) has an inclined surface (12) that is adapted to force, upon tightening said locking means (6), said cross-member (8) against one of said first pair of lateral wings (3a, 3b) of said front post (1).
2. The front post according to claim 1, **characterized in that** said base (2) is V-shaped so as to define a first inclined portion (12a), which is adjacent to said lateral wing (3a), and a second inclined portion (12b), which is adjacent to said lateral wing (3b), the vertex (13) being directed toward said front post (1).

3. The front post according to claim 2, **characterized in that** by screwing in said screw (6), said cross-member (8) moves closer to said first inclined portion (12a) of said front post (1), said cross-member (8) consequently resting against said first inclined portion (12a) in a point (14) that acts as a pivot and causes the rotation of said cross-member (8) toward a point (15) that corresponds to the inner lateral edge of the end (16) of said front post (1).

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4. The front post according to one or more of the preceding claims, **characterized in that** the outer perimetric edge (19) of the end of said cross-member (8) that is adjacent to said first inclined portion (12a) can slide downwardly in the direction of the curved surface (20) that connects said lateral wing (3a) to said first inclined portion (12a) of said front post (1).

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5. The front post according to claims 1 and 4, **characterized in that** said cross-member (8) is forced against said lateral wing (3a) of said front post (1).

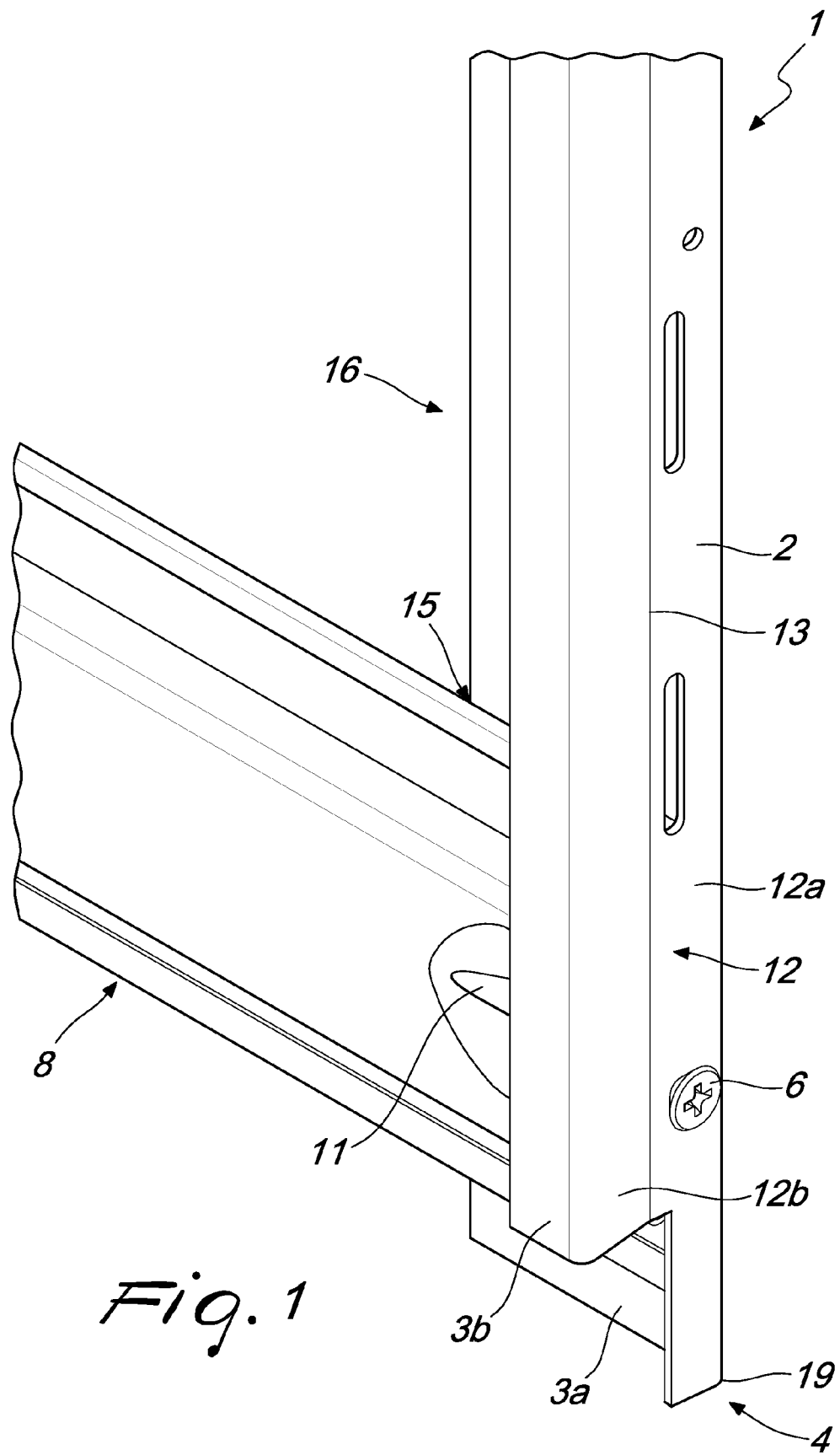
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6. The front post according to one or more of the preceding claims, **characterized in that** it has, proximate to the lower end (4) of said base (2) and adjacent to said lateral wing (3a), at least one hole (5) for coupling, by temporary locking means constituted by a screw (6), to the end (7) of a linear cross-member (8).

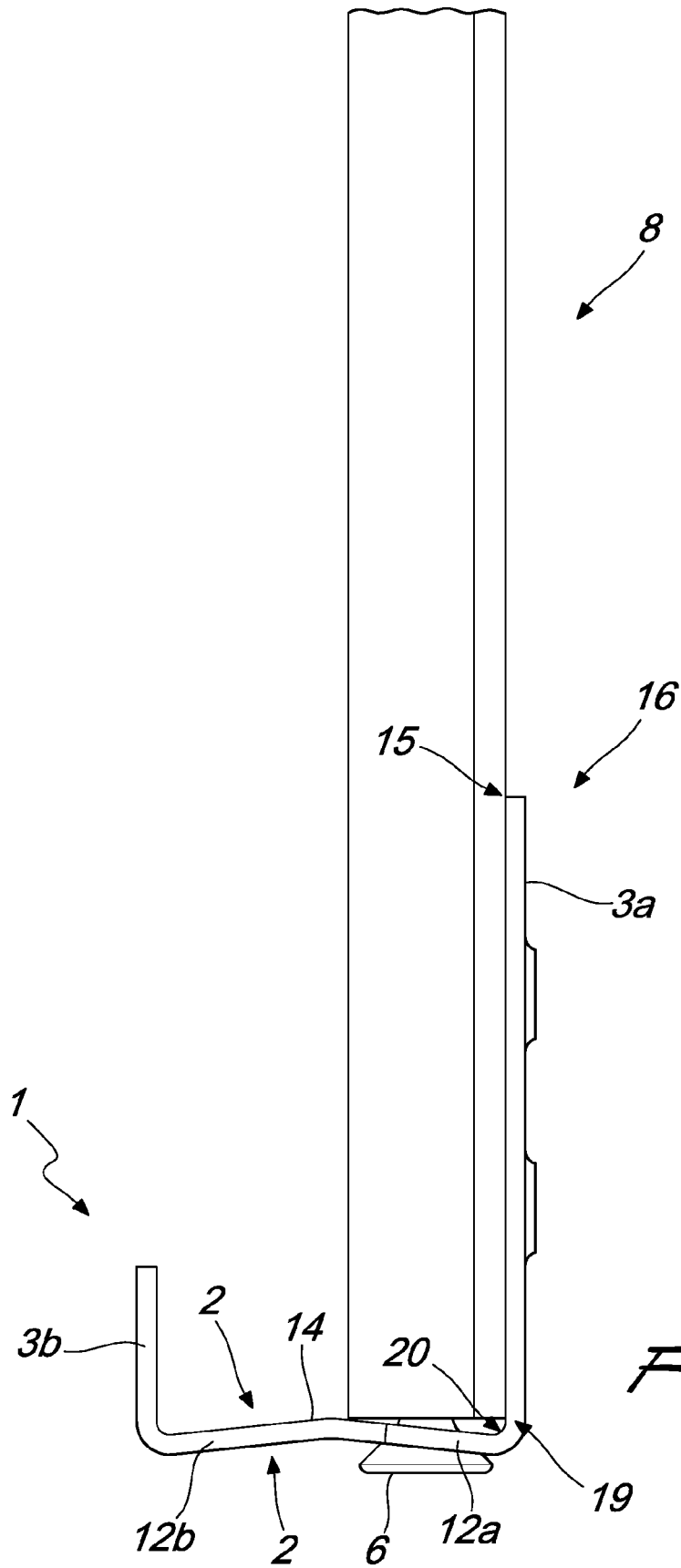
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7. The front post according to one or more of the preceding claims, **characterized in that** said end (7) that arranges itself against said base (2) is, at least for part of its length, W-shaped, a seat (10) for the threaded shank of said screw (6) being provided at its vertex (9).

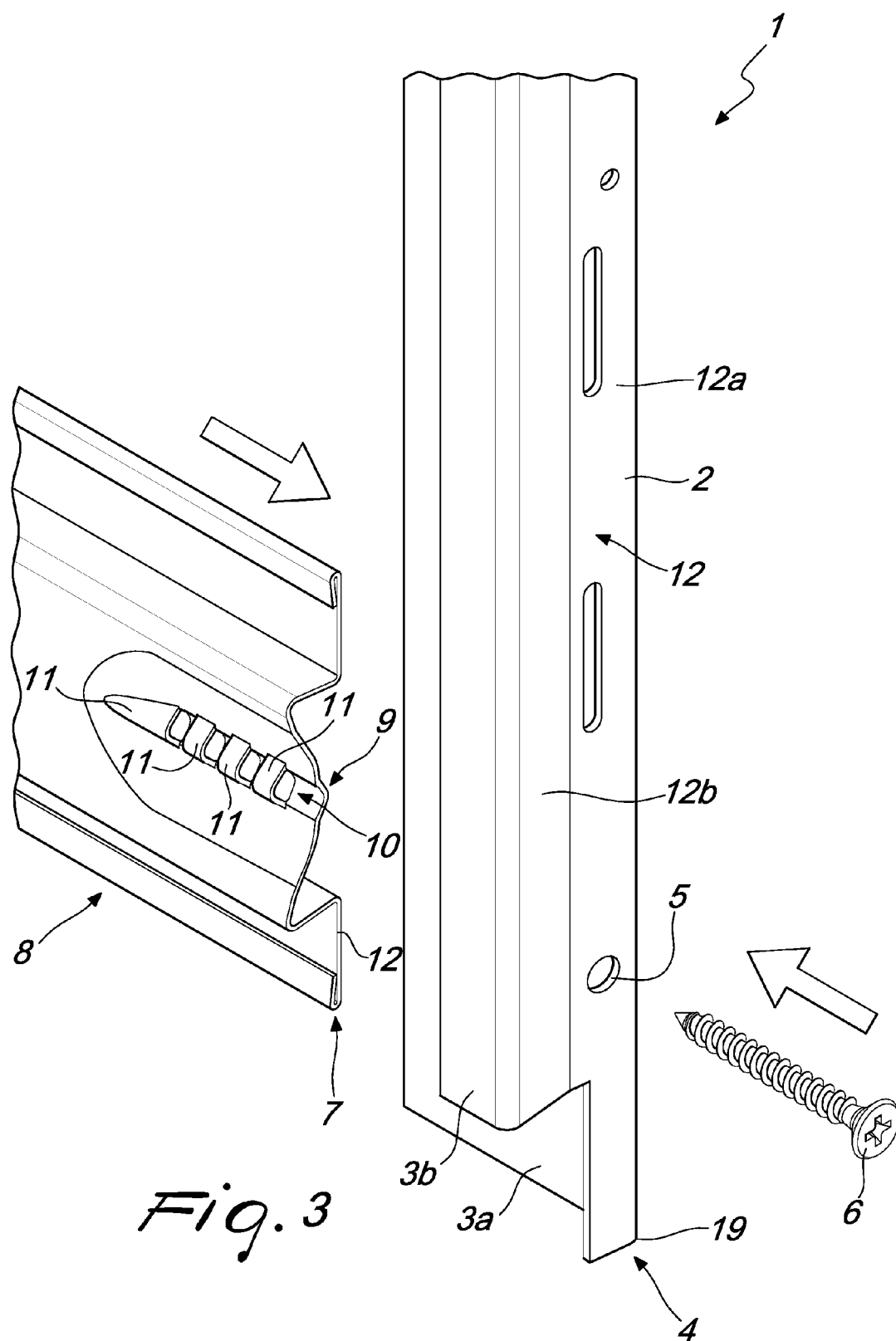
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8. The front post according to one or more of the preceding claims, **characterized in that** said seat (10) is obtained by deforming multiple portions (11), which are defined so as to be adjacent to each other but not contiguous along the same axis, of the material that constitutes said cross-member (8), said portions (11) being V-shaped and being directed in the opposite direction from the direction of said vertex (9).

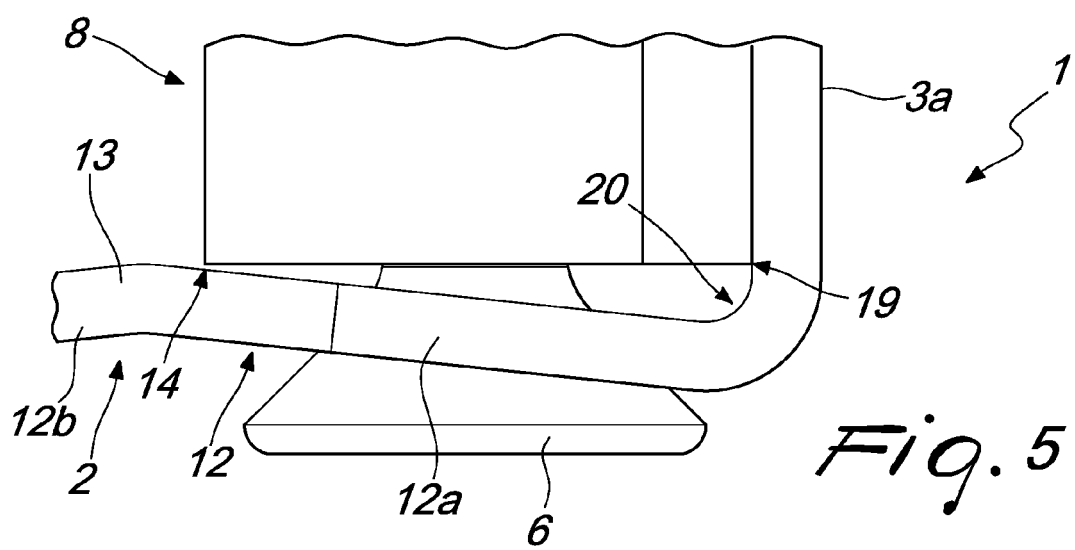
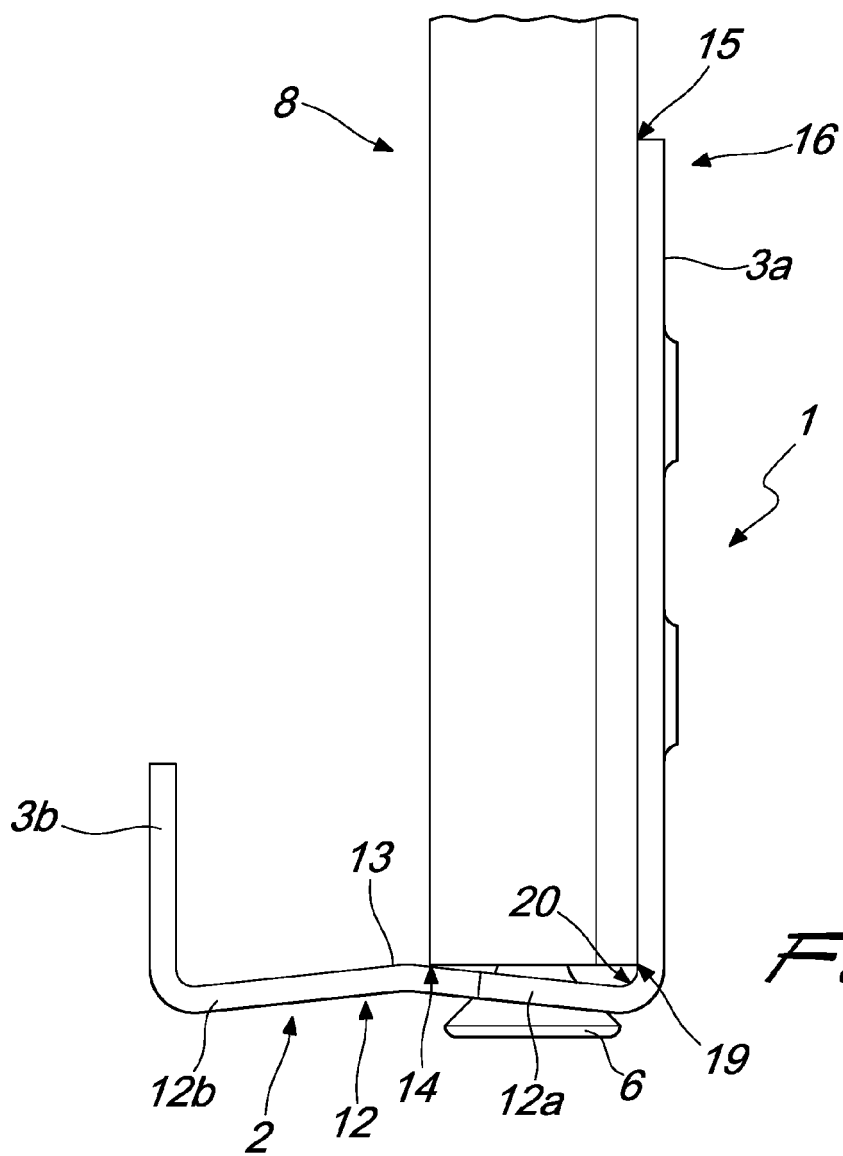
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9. The front post according to one or more of the preceding claims, **characterized in that** said seat (10) is arranged at a height that corresponds to the placement of the axis of said hole (5) once the edge (12) of said cross-member (8) has been rested against said base (2).

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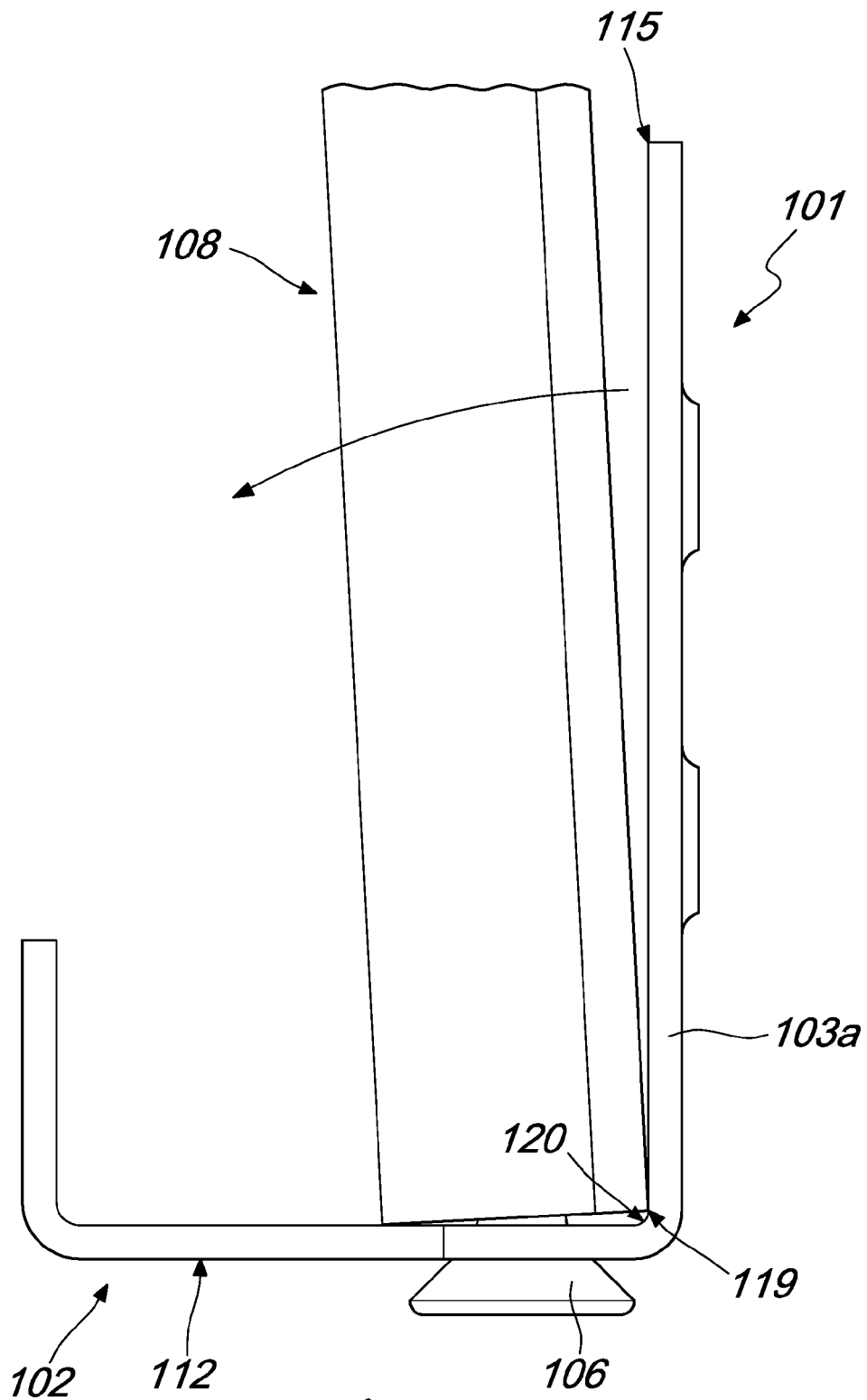


Fig. 6

PRIOR ART



EUROPEAN SEARCH REPORT

Application Number
EP 14 19 5785

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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 3 083 794 A (STOVALL JR WILBUR C) 2 April 1963 (1963-04-02) * figures 1, 10 *	1-9	INV. E04C3/07 E04C3/09 E06B3/46
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			TECHNICAL FIELDS SEARCHED (IPC)
			E04C E06B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		23 April 2015	Cobusneanu, D
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			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 14 19 5785

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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