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(54)

Doorset installation comprising an opening frame, and method for assembling the doorset installation in a bay of a wall

(57)

The doorset installation comprises an opening frame (14) intended to be fixed in a bay of a wall and an opening panel (16) mounted on the opening frame (14).

The opening frame (14) comprises two vertical struts (18), an upper beam (20) connecting the two vertical struts (18), the upper beam (20) being adapted to be applied on each vertical strut (18), and an assembling mechanism (22) for assembling each vertical strut (18)

with the upper beam (20). The vertical struts (18) are able to pass from a disassembled configuration to an assembled configuration, the assembling mechanism (22) comprising, for each vertical strut (18), at least one guiding member (36) and at least one receiving member (38) able to receive the guiding member (36) in the assembled configuration, to define a predetermined position of each vertical strut (18) with regard to the upper beam (20).

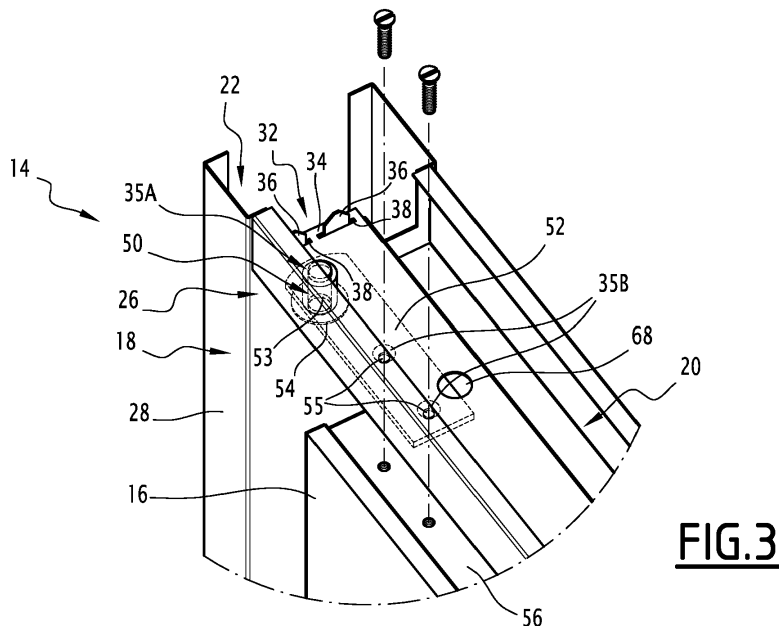


FIG.3

Description

[0001] The present invention relates to an opening frame intended to be fixed in a bay of a wall, the opening frame comprising :

- two vertical struts,
- an upper beam connecting the two vertical struts, the upper beam being adapted to be applied on each vertical strut,
- an assembling mechanism for assembling each vertical strut with the upper beam.

[0002] The present invention is in the field of construction and relates more particularly to frames for opening panels such as doors, facade claddings or trapdoors. Such opening frames provide a support structure for mounting an opening panel within a wall.

[0003] An opening frame of the aforementioned type is known. Such an opening frame is generally factory assembled, the upper beam being welded to the two vertical struts.

[0004] However, in a construction site, such opening frames are installed prior to the walls, or simultaneously with the construction of the walls. Thus, due to construction hazards, such opening frames regularly undergo damage such as moisture absorption, impacts, installation with plumb defaults and others, which generates additional costs.

[0005] Since the opening frame is subjected to damage, it has to be decorated at the end of the construction, which increases the construction costs.

[0006] Moreover, such an opening frame is bulky, which induces significant storage costs. Besides, such an opening frame is relatively complicated to install due to its weight and to the low adjustment latitude which is available for an operator.

[0007] One object of the invention is thus to provide an opening frame intended to be fixed in a bay of a wall, which allows reducing the costs related to its assembly within the wall, whilst facilitating said assembly.

[0008] The invention therefore relates to an opening frame of the aforementioned type, wherein the vertical struts are able to pass from a disassembled configuration to an assembled configuration, the assembling mechanism comprising, for each vertical strut, at least one guiding member and at least one receiving member able to receive the guiding member in the assembled configuration, to define a predetermined position of each vertical strut with regard to the upper beam.

[0009] According to other advantageous aspects of the invention, the opening frame includes one or more of the following features, considered individually or according to any technically possible combination :

- the assembling mechanism comprises, for each vertical strut, at least one guiding tab, said guiding tab extending from the surface of the strut facing the

upper beam, and at least one receiving slot on the upper beam, said slot being adapted to receive the guiding tab,

- the assembling mechanism comprises, for each vertical strut , at least one guiding tab, said guiding tab extending from the surface of the upper beam facing the strut, and at least one receiving notch, said receiving notch extending from the surface of the strut facing the upper beam, said notch being adapted to receive the guiding tab,
- at least one of the two vertical struts and the upper beam is formed of a prefabricated steel profile,
- the opening frame comprises an adjustable fixing mechanism for adjustably fixing the vertical struts and/or the upper beam with respect to the wall,
- the adjustable fixing mechanism comprises at least one level adjusting hollow member, said level adjusting hollow member extending through one of the vertical struts or through the upper beam,
- the opening frame comprises an upper pivot hinge and a lower pivot hinge, said upper and lower pivot hinges each having an articulating member and a plate, the plate being fixed to the articulating member, said upper and lower pivot hinges being intended to allow the articulation of an opening panel on the opening frame, the articulating member of the upper pivot hinge being inserted in a recess of the upper beam, the plate of the lower pivot hinge being fixed to a lower end of one of the struts.

[0010] The invention also relates to a doorset installation comprising an opening frame and an opening panel mounted on the opening frame, wherein the opening frame is as described above.

[0011] According to other advantageous aspects of the invention, the doorset installation includes one or more of the following features, considered individually or according to any technically possible combination :

- the opening panel includes a vertical profile having a radiused shape,
- the adjustable fixing mechanism comprises at least one member for fixing the opening frame onto the wall.

[0012] The invention also relates to a method for assembling a doorset installation in a bay of a wall, the method comprising the following steps :

- providing a doorset installation as described above, the vertical struts and the upper beam being in the disassembled configuration,
- inserting each guiding member into a corresponding receiving member to pass the vertical struts and the upper beam in the assembled configuration,
- fixing the opening frame to the wall.

[0013] According to other advantageous aspects of the

invention, the method includes one or more of the following features, considered individually or according to any technically possible combination :

- the adjustable fixing mechanism comprises at least one level adjusting hollow member and at least one screw, said level adjusting hollow member extending through one of the vertical struts or through the upper beam, said screw being inserted inside the level adjusting hollow member, said screw extending through one of the vertical struts or through the upper beam, and the step of fixing the opening frame comprises the following steps :
 - screwing the or each level adjusting hollow member so as to adjustably fix the vertical struts and/or the upper beam with respect to the wall,
 - screwing the or each screw inside the or one of the level adjusting hollow member(s), so as to fix the opening frame onto the wall.
- the assembling mechanism comprises at least two guiding tabs, each guiding tab extending from the surface of one strut facing the upper beam, and at least two receiving slots on the upper beam, each slot being adapted to receive one of said tabs, and the method further comprises the following steps :
 - inserting the upper beam into the bay,
 - inserting the or each tab of each strut in one of the slots of the upper beam, while maintaining in place the upper beam.
- the opening frame comprises an upper pivot hinge and a lower pivot hinge, said upper and lower pivot hinges having an articulating member and a plate, the plate being fixed to the articulating member, the articulating member of the upper pivot hinge being inserted in a recess of the upper beam, the plate of the lower pivot hinge being fixed to a lower end of one of the struts, the opening panel has at least one lower recess and the method further comprises the following steps :
 - inserting the articulating member of the lower pivot hinge in the or one of the lower recess(es) of the opening panel,
 - fixing the plate of the upper pivot hinge to an upper surface of the opening panel.

[0014] Other features and advantages of the invention will appear upon reading the following description, given by way of example and with reference to the accompanying drawings, in which :

- Fig. 1 is a front view of a first doorset installation according to the invention, comprising an opening frame and an opening panel mounted on the opening

frame ;

- Fig. 2 is a schematic, perspective view of the opening frame of Fig. 1, the opening frame comprising eight level adjusting hollow members ;
- Fig. 3 is a close-up perspective view of a first part of the opening frame of Fig. 1 ;
- Fig. 4 is a close-up perspective view of a second part of the opening frame of Fig. 1 ;
- Fig. 5 is a schematic, perspective view of one of the level adjusting hollow members of Fig. 2 ;
- Fig. 6 is a view from below of the doorset installation of Fig. 1 ; and
- Fig. 7 is a view similar to that of Fig. 6 of a second doorset installation according to the invention.

[0015] Within this description, the terms "longitudinal", "transverse", "horizontal" and "vertical" are defined in accordance with the conventional directions of an opening frame, i.e. the longitudinal direction corresponds to the height of the opening frame and the transverse direction corresponds to the width of the opening frame.

[0016] A first doorset installation 10 is shown in Fig. 1. The doorset installation 10 is installed within a bay 11 of a wall 12 and comprises an opening frame 14 according to the invention, and an opening panel 16 mounted on the opening frame 14.

[0017] The opening frame 14 comprises two vertical struts 18 separated from one another in the transverse direction. The opening frame 14 further comprises an upper beam 20 connecting the two vertical struts 18 and an assembling mechanism 22 for assembling each vertical strut 18 with the upper beam 20, as shown in Figs. 2 and 3. The opening frame 14 further advantageously comprises an adjustable fixing mechanism 24 for adjustably fixing the vertical struts 18 and/or the upper beam 20 with respect to the wall 12, an upper pivot hinge 26 and a lower pivot hinge 27. The upper and lower pivot hinges 26, 27 are intended to allow the articulation of the opening panel 16 on the opening frame 14.

[0018] At least one of the vertical struts 18 is advantageously formed of a prefinished steel profile 28. In the exemplary embodiment of Figs. 2 to 4, each vertical strut 18 is formed of a prefinished steel profile 28, each profile 28 being substantially "U-shaped". The two vertical struts 18 are able to pass from a disassembled configuration, not shown in the figures, to an assembled configuration, illustrated in Figs. 1 to 3, as will be described in further detail below.

[0019] The upper beam 20 is advantageously formed of a prefinished steel profile 30. In the exemplary embodiment of Fig. 2, the prefinished steel profile 30 is substantially "U-shaped". As shown in Fig. 3, the upper beam 20 is adapted to be applied on each vertical strut 18. More precisely, the upper beam 20 includes, at each of its ends 32, a flange 34 extending in the transverse direction. Each flange 34 is intended to bear against one of the vertical struts 18, in the assembled configuration of the struts 18. As illustrated in Fig. 3, the upper beam 20 fur-

ther includes, near one of its ends 32, a recess 35A and two holes 35B.

[0020] The assembling mechanism 22 comprises, for each vertical strut 18, at least one guiding member 36 and at least one receiving member 38 able to receive the guiding member 36 in the assembled configuration of the struts 18, to define a predetermined position of each vertical strut 18 with regard to the upper beam 20. For example, the assembling mechanism 22 advantageously comprises, for each vertical strut 18, at least one guiding tab 36 and at least one receiving slot 38. In the exemplary embodiment of Fig. 3, the assembling mechanism 22 comprises four guiding tabs 36 and four receiving slots 38. More precisely, the assembling mechanism 22 comprises, for each vertical strut 18, two guiding tabs 36 and two receiving slots 38. Each guiding tab 36 extends from the surface of one of the struts 18 facing the upper beam 20. Each receiving slot 38 is provided on the upper beam 20 and is adapted to receive one of the guiding tabs 36, thereby allowing the passage of the vertical struts 18 from their disassembled configuration to their assembled configuration, as illustrated in Fig. 3.

[0021] According to an alternative embodiment, not shown in the figures, the assembling mechanism 22 comprises, for each vertical strut 18, at least one guiding tab and at least one receiving notch. Each guiding tab extends from the surface of the upper beam facing the struts. Each receiving notch extends from the surface of one of the struts facing the upper beam and is adapted to receive one of the guiding tabs.

[0022] The adjustable fixing mechanism 24 preferably comprises at least one level adjusting hollow member 40A, 40B, 40C extending through one of the vertical struts 18 or through the upper beam 20. In the exemplary embodiment of Fig. 2, the adjustable fixing mechanism 24 comprises eight level adjusting hollow members 40A, 40B, 40C. Three first level adjusting hollow members 40A extend through one of the vertical struts 18, three second level adjusting hollow members 40B extend through the other vertical strut 18 and two third level adjusting hollow members 40C extend through the upper beam 20. The adjustable fixing mechanism 24 allows adjusting the opening frame 14 with regard to the wall 12. As an illustration, the adjustable fixing mechanism 24 allows compensating a plumb default of the order of 15 mm, for a bay having a height between 2063 mm and 2073 mm, and a width between 963 mm and 973 mm.

[0023] As shown in Fig. 5, each hollow member 40A, 40B, 40C includes for example a hollow slotted screw 42 and a sleeve 44 for receiving the hollow screw 42. Each sleeve 44 comprises a support flange 46 intended to bear against a surface of one of the vertical struts 18 or of the upper beam 20. Each sleeve 44 is threaded to enable screwing of a hollow screw 42 inside the sleeve 44.

[0024] The adjustable fixing mechanism 24 further advantageously comprises at least one member 48 for fixing the opening frame 14 onto the wall 12. In the exemplary embodiment of Fig. 2, the adjustable fixing mechanism

24 comprises eight fixing members 48. Each fixing member 48 is formed of a screw. Each screw 48 is intended to be inserted inside one of the level adjusting hollow members 40A, 40B, 40C. More precisely, as shown in Fig. 5, each screw 48 is intended to be inserted inside one of the hollow screws 42, and inside the associated sleeve 44, so as to fix the opening frame 14 onto the wall 12.

[0025] As shown in Figs. 3 and 4, each of the upper pivot hinge 26 and the lower pivot hinge 27 has an articulating member 50 and a plate 52 fixed to the articulating member 50.

[0026] In the exemplary embodiment of Fig. 3, the articulating member 50 of the upper pivot hinge 26 is formed of a sleeve 53. The sleeve 53 extends through an opening 54 of the plate 52 and is forcibly inserted in the recess 35A of the upper beam 20. In this embodiment, the plate 52 of the upper pivot hinge 26 has two apertures 55. Each aperture 55 extends opposite one of the holes 35B of the upper beam 20 and is intended to receive one screw. The plate 52 of the upper pivot hinge 26 is intended to be fixed to an upper surface 56 of the opening panel 16, as will be described in further detail below.

[0027] In the exemplary embodiment of Fig. 4, the articulating member 50 of the lower pivot hinge 27 is formed of a threaded rod 57 on the top of which is mounted a patella 58. In this embodiment, the plate 52 of the lower pivot hinge 27 has two perpendicular arms 59, the plate 52 being substantially "L-shaped". The threaded rod 57 extends through the lower arm of the plate 52. The upper arm of the plate 52 is screwed at a lower end of one of the vertical struts 18 and is fixed to the threaded rod 57 of the articulating member 50 via a nut 60.

[0028] The opening panel 16 has two vertical edges 62, two horizontal edges 63 and at least one lower recess 64 defined perpendicularly to one of the two horizontal edges 63. The opening panel 16 preferably includes a vertical profile 66. The vertical profile 66 is applied along one of the two vertical edges 62 and advantageously has a radiused shape, as shown in Fig. 6. The radiused shape of the vertical profile 66 eases the insertion of additional elements in the opening panel 16, such as for example home automation elements or seals for air, water and/or fire.

[0029] In the exemplary embodiment of Fig. 6, the opening panel 16 has two lower recesses 64. This allows an operator to selectively choose between two possible positions of the opening panel 16 with regard to the opening frame 14. Each lower recess 64 is aimed at receiving the articulating member 50 of the lower pivot hinge 27. More particularly, the patella 58 of the lower pivot hinge 27 is inserted into one of the two lower recesses 64.

[0030] A method for assembling the doorset installation 10 according to the invention in the bay 11 of the wall 12 will now be described.

[0031] Initially, the vertical struts 18 and the upper beam 20 are in the disassembled configuration. They can thus be stored and transported apart from each other,

which simplifies the logistics of the operation. The wall 12 is constructed with a predetermined bay 11.

[0032] An operator inserts the upper beam 20 into the bay 11, and maintains the upper beam 20 against the wall 12.

[0033] The operator then inserts each guiding member 36 into a corresponding receiving member 38, thus passing the vertical struts 18 and the upper beam 20 in the assembled configuration. In the exemplary embodiment of Fig. 3, the operator inserts each guiding tab 36 of each vertical strut 18 into a corresponding receiving slot 38 of the upper beam 20, while maintaining in place the upper beam 20.

[0034] Optionally, the operator then adjusts the opening frame 14 with regard to the wall 12, by means of a suitable tool such as for example a plumb, a spirit level or a meter.

[0035] The method for assembling the doorset installation 10 further comprises a step of fixing the opening frame 14 to the wall 12. More precisely, this fixing step includes a first phase wherein the operator screws each third level adjusting hollow member 40C so as to adjustably fix the upper beam 20 with respect to the wall 12. In the exemplary embodiment of Fig. 2, the operator inserts each sleeve 44 in an opening 68 of the upper beam 20, until the support flange 46 abuts a surface of the upper beam 20. The operator then screws each hollow screw 42 in a corresponding sleeve 44, until the hollow screw 42 abuts the wall 12. The screwing of each third level adjusting hollow member 40C is performed without forcing the opening frame 14.

[0036] The opening frame 14 thus adapts to the actual dimensions of the bay 11, even if the dimensions of the bay 11 do not precisely fit the dimensions of the frame 14.

[0037] The fixing step further comprises a second phase wherein the operator screws one of the fixing members 48 inside each third level adjusting hollow member 40C, so as to fix the opening frame 14 onto the wall 12. In the exemplary embodiment of Fig. 2, the operator screws one of the screws 48 inside each hollow screw 42, and inside the associated sleeve 44, so as to fix the upper beam 20 onto the wall 12.

[0038] The fixing step further comprises a third phase wherein the operator screws each first and second level adjusting hollow members 40A, 40B so as to adjustably fix the vertical struts 18 with respect to the wall 12. In the exemplary embodiment of Fig. 2, the operator inserts each sleeve 44 of each first hollow member 40A in an opening 70A of one of the vertical struts 18, and each sleeve 44 of each second hollow member 40B in an opening 70B of the other vertical strut 18. The operator then screws each hollow screw 42 in a corresponding sleeve 44, until the hollow screw 42 abuts the wall 12. The screwing of each first and second level adjusting hollow member 40A, 40B is performed without forcing the opening frame 14.

[0039] The fixing step further comprises a fourth phase wherein the operator screws one of the fixing members

48 inside each first and second level adjusting hollow member 40A, 40B so as to fix the opening frame 14 onto the wall 12. In the exemplary embodiment of Fig. 2, the operator screws one of the screws 48 inside each hollow screw 42, and inside the associated sleeve 44, so as to fix the vertical struts 18 onto the wall 12.

[0040] The operator then screws the upper arm of the plate 52 of the lower pivot hinge 27 to a lower end of one of the vertical struts 18. The operator inserts the threaded rod 57 of the lower pivot hinge 27 in the lower arm of the plate 52 and then fixes the upper arm of the plate 52 to the threaded rod 57 via the nut 60. The operator then mounts the patella 58 at the top of the threaded rod 57 and inserts the articulating member 50 of the lower pivot hinge 27 into one of the two lower recesses 64 of the opening panel 16, as shown in Fig. 6. More particularly, the patella 58 of the lower pivot hinge 27 is inserted into one of the two lower recesses 64.

[0041] The articulating member 50 of the upper pivot hinge 26 is then inserted by the operator in the recess 35A of the upper beam 20. More precisely, the sleeve 53, which extends through the opening 54 of the plate 52, is forcibly inserted in the recess 35A of the upper beam 20. The operator then applies the plate 52 of the upper pivot hinge 26 against the upper surface 56 of the opening panel 16, while maintaining the articulating member 50 inserted in the recess 35A.

[0042] The operator finally inserts one screw into each hole 35B of the upper beam 20 and in the corresponding aperture 55 of the plate 52 of the upper pivot hinge 26. Each screw is then screwed in the upper surface 56 of the opening panel, thereby fixing the upper pivot hinge 26 to the opening panel 16.

[0043] A second doorset installation 80 according to the invention is shown in Fig. 7. Elements similar to the first embodiment described above, are identified by the same reference, and are therefore not described again.

[0044] The doorset installation 80 comprises the opening frame 14 according to the invention, and an opening panel 82 mounted on the opening frame 14.

[0045] Unlike the opening panel 16 of the first doorset installation 10, the opening panel 82 includes a vertical profile 84 having a rectangular shape. The vertical profile 84 is applied along one of the two vertical edges 62 of the opening panel 82. The rectangular shape of the vertical profile 84 advantageously allows moving the pivot point of the opening panel 82 closer to the edge of the opening frame 14 so that it has adequate clearance when opening.

[0046] The opening frame 14 thus allows reducing the costs related to its assembly within the wall 12, whilst facilitating said assembly. Indeed, the opening frame 14 is reversible and compact, especially in the disassembled configuration, which allows a significant reduction in the storage costs. "Reversible" means that the opening frame 14 according to the invention can be used in both directions of possible openings, i.e. for a left pushing opening panel or for a right pushing opening panel.

[0047] Besides, the opening frame 14 according to the invention is removable and can be refilled with a low volume per square meter of surface to be reused on site or at another site. This also helps to reduce costs.

[0048] In addition, the mounting of the upper and lower pivot hinges 26, 27 at the top and bottom edge of the opening panel allows eliminating side loads on the opening frame 14. This mounting further advantageously eliminates welding of the plates of the hinges on the opening frame. Moreover, such a mounting allows aesthetic personalization of the vertical profile of the opening panel, particularly its shape and / or color.

[0049] Besides, the upper and lower pivot hinges 26, 27 are invisible once the opening panel mounted on the opening frame, which gives the doorset installation a perfect appearance as well as durability of the operation of opening / closing.

[0050] The use of the guiding and receiving members in the assembly mechanism, together with the use of the adjustable fixing mechanism provides a fit and quick installation of the opening frame within the wall.

[0051] Furthermore, thanks to the invention which has been described, no welding is required in the opening frame 14. In particular, no welding is required to fix the upper beam to the two vertical struts. This leads to a particular simple assembly of the opening frame within the wall.

[0052] Besides, the assembly method according to the invention provides a particularly short duration of assembly, and allows a standardization of this duration. As an illustration, the duration of assembly is for example between 5 and 10 minutes for a single operator.

[0053] The assembly method according to the invention also allows the installation of the opening frame within the wall at the end of construction, i.e. after the construction of the wall. This advantageously reduces the risk of damage such as moisture absorption, impacts, installation with plumb defaults and others.

[0054] Moreover, a decor can be applied to the vertical struts 18 and upper beam 20 when manufacturing these elements, and protected by a releasable film during the assembly of the opening frame 14. Then, the releasable film can be discarded at the end of the assembly. The opening frame is therefore easy and cheap to decorate.

Claims

1. Opening frame (14) intended to be fixed in a bay (11) of a wall (12), the opening frame (14) comprising:
 - two vertical struts (18),
 - an upper beam (20) connecting the two vertical struts (18), the upper beam (20) being adapted to be applied on each vertical strut (18),
 - an assembling mechanism (22) for assembling each vertical strut (18) with the upper beam (20), **characterized in that** the vertical struts (18) are

able to pass from a disassembled configuration to an assembled configuration, the assembling mechanism (22) comprising, for each vertical strut (18), at least one guiding member (36) and at least one receiving member (38) able to receive the guiding member (36) in the assembled configuration, to define a predetermined position of each vertical strut (18) with regard to the upper beam (20).

2. Opening frame (14) according to claim 1, **characterized in that** the assembling mechanism (22) comprises, for each vertical strut (18), at least one guiding tab (36), said guiding tab (36) extending from the surface of the strut (18) facing the upper beam (20), and at least one receiving slot (38) on the upper beam (20), said slot (38) being adapted to receive the guiding tab (36).
3. Opening frame (14) according to claim 1, **characterized in that** the assembling mechanism (22) comprises, for each vertical strut (18), at least one guiding tab, said guiding tab extending from the surface of the upper beam (20) facing the strut (18), and at least one receiving notch, said receiving notch extending from the surface of the strut (18) facing the upper beam, said notch being adapted to receive the guiding tab.
4. Opening frame (14) according to any one of the previous claims, **characterized in that** at least one of the two vertical struts (18) and the upper beam (20) is formed of a prefabricated steel profile (28, 30).
5. Opening frame (14) according to any one of the previous claims, **characterized in that** it further comprises an adjustable fixing mechanism (24) for adjustably fixing the vertical struts (18) and/or the upper beam (20) with respect to the wall (12).
6. Opening frame (14) according to claim 5, **characterized in that** the adjustable fixing mechanism (24) comprises at least one level adjusting hollow member (40A, 40B, 40C), said level adjusting hollow member (40A, 40B, 40C) extending through one of the vertical struts (18) or through the upper beam (20).
7. Opening frame (14) according to any one of the previous claims, **characterized in that** it further comprises an upper pivot hinge (26) and a lower pivot hinge (27), said upper and lower pivot hinges (26, 27) each having an articulating member (50) and a plate (52), the plate (52) being fixed to the articulating member (50), said upper and lower pivot hinges (26, 27) being intended to allow the articulation of an opening panel (16) on the opening frame (14), the articulating member (50) of the upper pivot hinge (26)

being inserted in a recess (35A) of the upper beam (20), the plate (52) of the lower pivot hinge (27) being fixed to a lower end of one of the struts (18).

8. Doorset installation (10 ; 80) **characterized in that** it comprises :
- an opening frame (14) according to any one of the previous claims ;
 - an opening panel (16 ; 82) mounted on the opening frame (14).
9. Doorset installation (10) according to claim 8, **characterized in that** the opening panel (16) includes a vertical profile (66) having a radiused shape.
10. Doorset installation (10 ; 80) according to claim 8 or 9 when the opening frame (14) is according to claim 5 or 6, **characterized in that** the adjustable fixing mechanism (24) comprises at least one member (48) for fixing the opening frame (14) onto the wall (12).
11. Method for assembling a doorset installation (10 ; 80) in a bay (11) of a wall (12), **characterized in that** the method comprises the following steps:
- providing a doorset installation (10 ; 80) according to claim 10, the vertical struts (18) and the upper beam (20) being in the disassembled configuration,
 - inserting each guiding member (36) into a corresponding receiving member (38) to pass the vertical struts (18) and the upper beam (20) in the assembled configuration,
 - fixing the opening frame (14) to the wall (12).
12. Method according to claim 11, **characterized in that** the adjustable fixing mechanism (24) comprises at least one level adjusting hollow member (40A, 40B, 40C) and at least one screw (48), said level adjusting hollow member (40A, 40B, 40C) extending through one of the vertical struts (18) or through the upper beam (20), said screw (48) being inserted inside the level adjusting hollow member (40A, 40B, 40C), said screw (48) extending through one of the vertical struts (18) or through the upper beam (20), and **in that** the step of fixing the opening frame (14) comprises the following steps:
- screwing the or each level adjusting hollow member (40A, 40B, 40C) so as to adjustably fix the vertical struts (18) and/or the upper beam (20) with respect to the wall (12),
 - screwing the or each screw (48) inside the or one of the level adjusting hollow member(s) (40A, 40B, 40C), so as to fix the opening frame (14) onto the wall (12).

13. Method according to claim 11 or 12, **characterized in that** the assembling mechanism (22) comprises at least two guiding tabs (36), each guiding tab (36) extending from the surface of one strut (18) facing the upper beam (20), and at least two receiving slots (38) on the upper beam (20), each slot (38) being adapted to receive one of said tabs (36), and **in that** the method further comprises the following steps:

- inserting the upper beam (20) into the bay (11),
- inserting the or each tab (36) of each strut (18) in one of the slots (38) of the upper beam (20), while maintaining in place the upper beam (20).

14. Method according to any of claims 11 to 13, **characterized in that** the opening frame (14) comprises an upper pivot hinge (26) and a lower pivot hinge (27), said upper and lower pivot hinges (26, 27) having an articulating member (50) and a plate (52), the plate (52) being fixed to the articulating member (50), the articulating member (50) of the upper pivot hinge (26) being inserted in a recess (35A) of the upper beam (20), the plate (52) of the lower pivot hinge (27) being fixed to a lower end of one of the struts (18), **in that** the opening panel (16 ; 82) has at least one lower recess (64) and **in that** the method further comprises the following steps:

- inserting the articulating member (50) of the lower pivot hinge (27) in the or one of the lower recess(es) (64) of the opening panel (16 ; 82),
- fixing the plate (52) of the upper pivot hinge (26) to an upper surface (56) of the opening panel (16 ; 82).

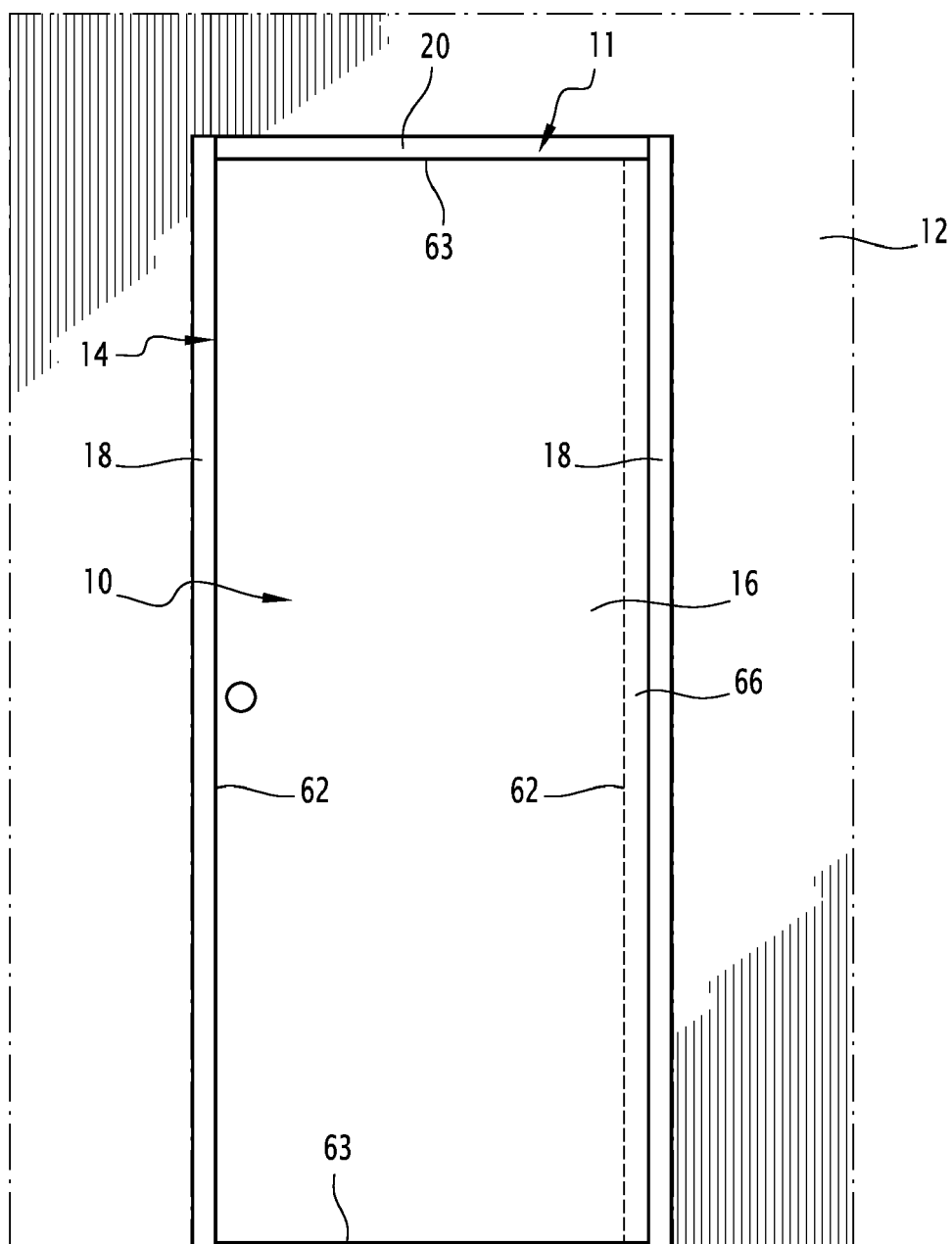


FIG.1

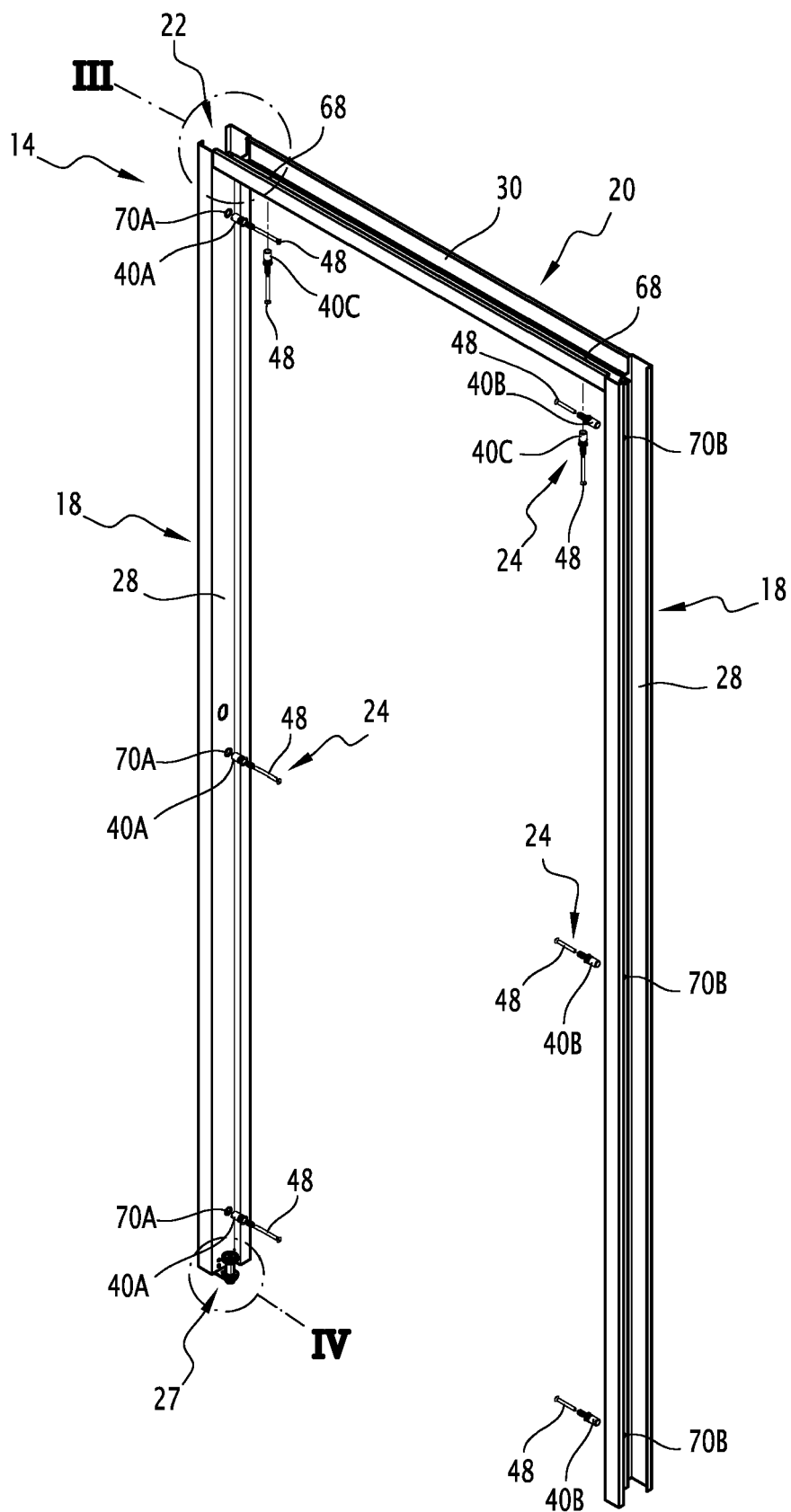
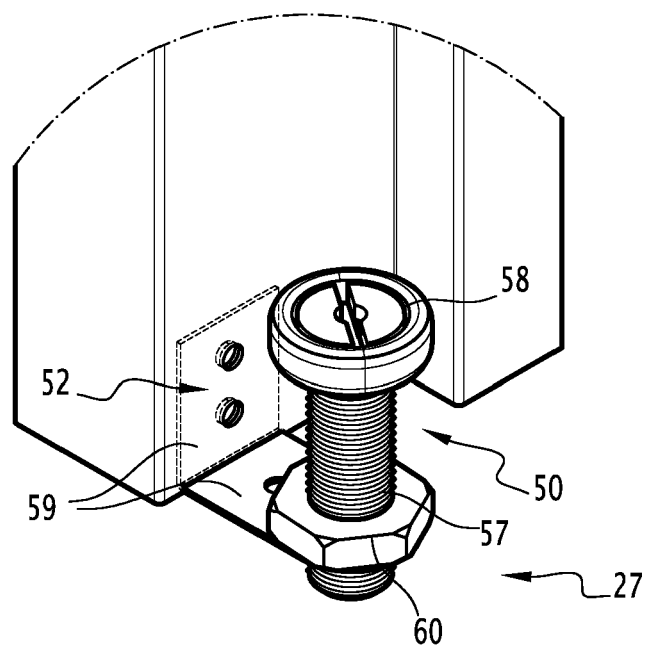
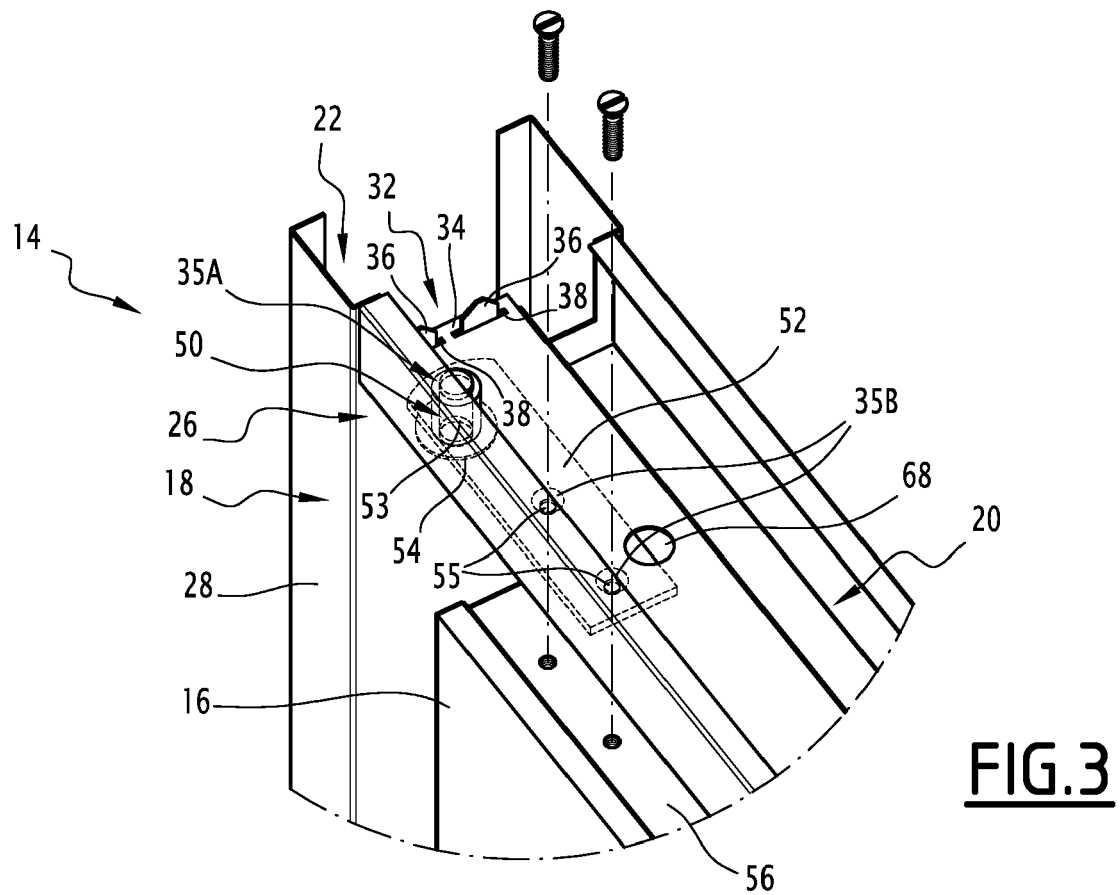


FIG.2



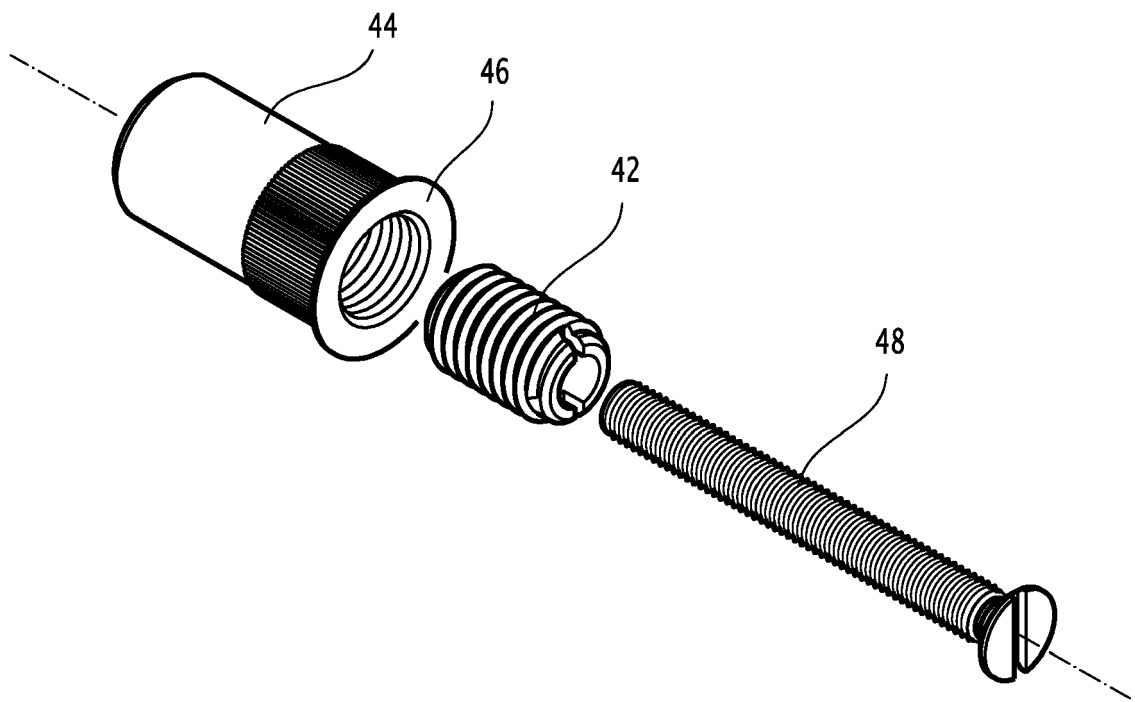


FIG.5

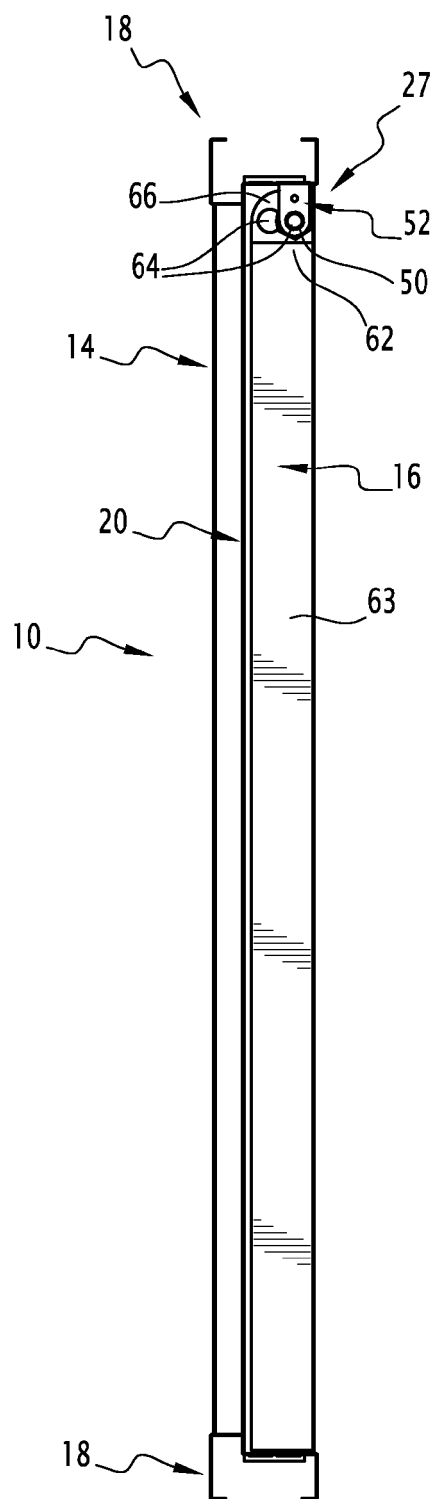


FIG. 6

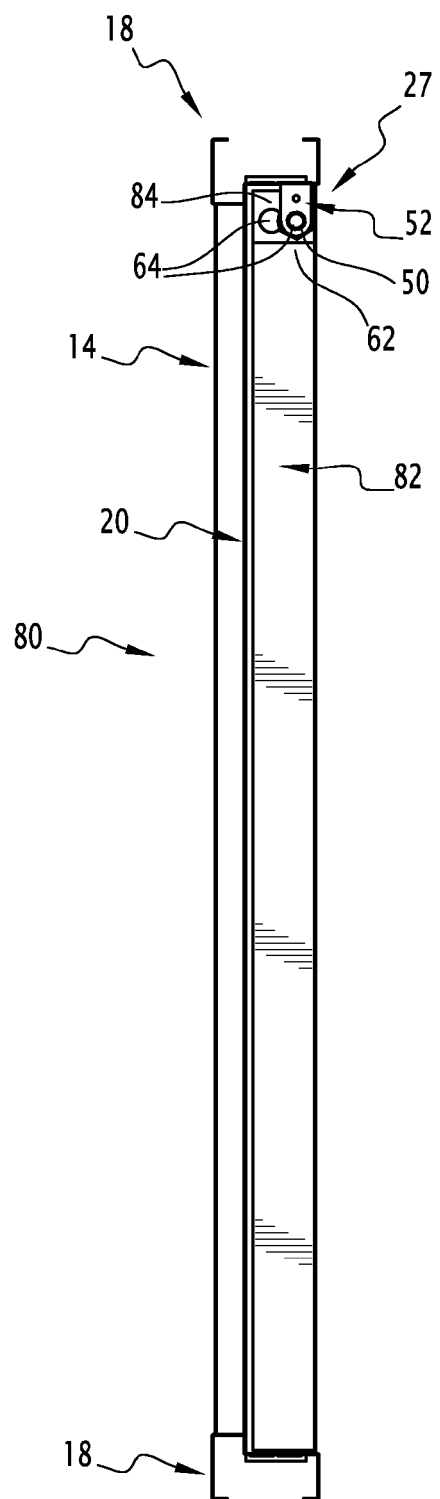


FIG. 7



EUROPEAN SEARCH REPORT

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A	* column 3, line 73 - column 4, line 22 *	10,11	
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A	* page 3, lines 11-17, 35-40 *	2,3	
X	US 2011/179730 A1 (KOLOVICH MICHAEL A [US] ET AL) 28 July 2011 (2011-07-28) * the whole document *	1-6,8, 11,13 12	TECHNICAL FIELDS SEARCHED (IPC) E06B
<p>3 The present search report has been drawn up for all claims</p>			
Place of search The Hague		Date of completion of the search 22 May 2014	Examiner Blancquaert, Katleen
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

1-6, 8, 10-14

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4, 8

corner connection for a door frame

2. claims: 5, 6, 10-14

adjustable fixing of a door frame

3. claims: 7, 9

hinge

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

EP 13 30 6362

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.

22-05-2014

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