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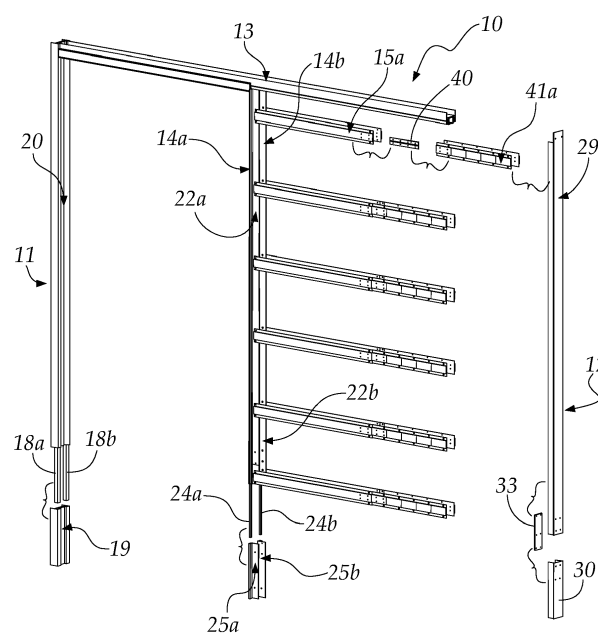
(54) IN-WALL FRAME FOR SLIDING DOORS

(57) An in-wall frame (10) for sliding doors, of the type comprising a framework enclosed in a casing (50), said in-wall frame (10) comprising:

- two opposite end elements (11, 12), which are vertical in the configuration for use, respectively a first one (11) and a second one (12),
- a crossmember (13), which is horizontal in the configuration for use and is extended between the upper ends of the two end elements (11, 12),
- two mutually opposite intermediate elements (14a,

14b), in a substantially median position between the two elements (11, 12), which are vertical in the configuration for use,

- one or more pairs of transverse elements (15a, 15b) which are horizontal in the configuration for use, each comprised between one of the end elements (11, 12) and one of the intermediate elements (14a, 14b), the in-wall frame (10) being adjustable in height and/or width.

*Fig.2*

Description

[0001] The present invention relates to an in-wall frame for sliding doors.

[0002] The use of sliding doors is currently widespread in buildings in which it is more advantageous to resort to this solution due to aesthetic reasons or for lack of space.

[0003] Sliding doors generally have one or two leaves.

[0004] The leaves can be made of a plurality of materials, such as for example metallic material, wooden material, plastic material, glass or a combination thereof.

[0005] Sliding doors can be of the external or retractable type.

[0006] External sliding doors have leaves which are constrained so as to slide along a visible guide that is fixed at least partly above the passage opening and are arranged so as to slide between the passage opening and a wall that is contiguous to said opening, however always remaining visible.

[0007] Retractable doors instead have leaves which are constrained so as to slide along a guide that is hidden from view and is fixed at least partially above the passage opening, and are arranged so to slide between the passage opening and an accommodation casing which is contiguous to said opening. This casing is adapted to conceal the presence of the leaves when they are in the open configuration.

[0008] In both cases, each leaf is fixed to at least two carriages which slide within the guide.

[0009] Retractable sliding doors require, as mentioned, a casing for accommodating the leaves in the open configuration.

[0010] The casing comprises surfaces constituted by panels, usually made of plasterboard.

[0011] In order to provide it, an in-wall frame is installed which is fixed to the original opening, reducing its size.

[0012] Such an in-wall frame is made of metallic material.

[0013] Considering for example a single-leaf sliding door, normally this in-wall frame is provided with two end posts constituted by adapted profiles arranged vertically, which support an upper profiled element which contains the sliding guide.

[0014] Two facing vertical profiles for supporting said upper profiled element are arranged in a substantially median position and are adapted to define the limit of the passage opening and the inlet of the leaf retraction casing.

[0015] In particular, these median profiles are arranged at such a distance as to allow the passage of the sliding leaf.

[0016] Substantially horizontal crossmembers are furthermore fixed between one of the two end posts and each one of the two opposite median profiles in order to give greater rigidity to the in-wall frame and to form the structure of the retraction casing.

[0017] In addition or as an alternative to the crossmembers it is possible to use adapted metal plates between

the end post and the two opposite median profiles.

[0018] Finally, the structure is externally covered by the plasterboard panels of the casing, providing surfaces which are substantially flush with the surfaces of the wall.

[0019] These known methods have some drawbacks.

[0020] The uprights and crossmembers usually have standard sizes and for applications with smaller sizes it is necessary to provide specifically elements having the appropriate sizes.

[0021] This entails considerable costs and long production times, with the consequent delay in the installation of the in-wall frame.

[0022] As an alternative it is possible to perform at the building site operations for measuring the appropriate length of the individual elements and for custom cutting.

[0023] This entails longer installation times of the in-wall frame and a series of inconvenient operations.

[0024] Furthermore, the cutting of the structural elements of the in-wall frame at the building site, if not performed well, risks compromising the rigidity and strength of the individual element and consequently compromising also the strength and rigidity of the structure as a whole. Significant torque or flexural moments can in fact be generated.

[0025] For applications with larger sizes, it is instead still possible to resort to the provision of custom elements, with considerable costs and long installation times.

[0026] As an alternative, it is possible to add auxiliary elements by fixing them to the base ones in order to bring them to size.

[0027] This entails the need for a considerable number of additional operations such as: measurement of the necessary length, obtainment of the most appropriate auxiliary element, and connection of the latter to the base element.

[0028] Moreover, even this background art entails additional costs with respect to those of standard elements for the in-wall frame.

[0029] The aim of the present invention is to provide an in-wall frame that is capable of improving the background art in one or more of the aspects indicated above.

[0030] Within this aim, an object of the invention is to provide an in-wall frame for sliding doors that allows great versatility in application.

[0031] Another object of the invention is to provide an in-wall frame for sliding doors that allows to extend or shorten its elements easily for applications respectively with larger or smaller sizes and does not require the use of auxiliary elements.

[0032] A further object of the invention is to provide an in-wall frame for sliding doors that allows a quick variation of the length of its elements in case of applications with smaller or larger sizes.

[0033] A still further object of the present invention is to overcome the drawbacks of the background art in a manner that is alternative to any existing solutions.

[0034] Another object of the invention is to provide an in-wall frame that is highly reliable, relatively easy to pro-

vide and at competitive costs.

[0035] This aim, as well as these and other objects which will become better apparent hereinafter, are achieved by an in-wall frame for sliding doors, of the type comprising a framework enclosed in a casing, said in-wall frame comprising:

- two opposite end elements, which are vertical in the configuration for use, respectively a first one and a second one,
- a crossmember, which is horizontal in the configuration for use and extends between the upper ends of said two end elements,
- two mutually opposite intermediate elements, in a substantially median position between said two end elements, which are vertical in the configuration for use,
- one or more pairs of transverse elements which are horizontal in the configuration for use, each comprised between one of said end elements and one of said intermediate elements,

said in-wall frame being characterized in that it is adjustable in height and/or width.

[0036] Further characteristics and advantages of the invention will become better apparent from the description of a preferred but not exclusive embodiment of the in-wall frame for sliding doors according to the invention, illustrated by way of nonlimiting example in the accompanying drawings, wherein:

Figure 1 is a general perspective view of an in-wall frame for sliding doors according to the invention;
 Figure 2 is an exploded view of the in-wall frame of Figure 1;
 Figure 3 is an enlarged-scale view of a first detail of Figure 2;
 Figure 4 is an enlarged-scale view of a second detail of Figure 2;
 Figure 5 is an enlarged-scale view of a third detail of Figure 2;
 Figure 6 is an enlarged-scale view of a fourth detail of Figure 2.

[0037] With reference to the cited figures, an in-wall frame for sliding doors according to the invention is designated generally by the reference numeral 10.

[0038] The in-wall frame 10 is made of metallic material, preferably aluminum.

[0039] This in-wall frame 10 for sliding doors comprises two opposite end elements 11 and 12, which are vertical in the configuration for use.

[0040] In particular, the two elements 11 and 12, in addition to forming the ends of the in-wall frame 10, define: the first end element 11, an end of the passage opening, which faces the edge of a leaf, not shown in the figures, in the closed configuration; the second end element 12, instead, an end of a leaf accommodation casing

50, shown in dashes in the figures, which is faced by the edge of the leaf that is opposite the one described above when said leaf is in the open configuration.

[0041] The in-wall frame 10 comprises a crossmember 13, which is horizontal in the configuration for use. The crossmember 13 extends between the upper ends of the end elements 11 and 12.

[0042] The crossmember 13 contains a guide, not shown in the figures, for the sliding of at least two carriages which are fixed to the above cited leaf.

[0043] This in-wall frame comprises a framework which, enclosed by panels, forms said casing for the accommodation of the leaf in the open configuration.

[0044] The casing 50, which is not part of the in-wall frame 10, extends from one of the two end elements towards the passage opening; in the example shown in the figures, it extends from the second element 12.

[0045] The in-wall frame 10 comprises two mutually opposite intermediate elements 14a and 14b, which are arranged in a substantially central position between the two end elements 11 and 12, which are vertical in the configuration for use and form the inlet of the casing.

[0046] The intermediate elements 14a and 14b are fixed in an upward region to the crossmember 13.

[0047] The in-wall frame 10 also comprises a plurality of pairs of transverse elements 15a and 15b, which are horizontal in the configuration for use and are comprised between one of the end elements, the second element 12 in the example shown in Figure 1, and one of the intermediate elements 14a and 14b and are fixed thereto, for example by means of screws, not shown in the figures.

[0048] The transverse elements 15a, 15b are arranged in pairs and are mutually opposite; in this manner a first transverse element 15a is fixed to the first intermediate element 14a and the opposite second element 15b is fixed to the second intermediate element 14b.

[0049] In particular, the two intermediate elements 14a and 14b and the two transverse elements 15a and 15b of each pair are identical and arranged symmetrically with respect to the sliding direction of the leaf.

[0050] The second end element 12, the two intermediate elements 14a, 14b, the pairs of transverse elements 15a, 15b, and the corresponding crossmember portion 13 constitute the framework of the casing 50, which is finished with the fixing, to the components mentioned above, of a plurality of panels, not shown in the figures, for example made of plasterboard, wood or the like.

[0051] One of the particularities of the invention resides in that said in-wall frame 10 is adjustable in height and width in order to allow application to any type of environment.

[0052] The term "height" references the vertical length of the in-wall frame 10 parallel to the direction of extension of the end elements 11, 12 in the configuration for use.

[0053] The term "width" is understood to refer to the horizontal length of the in-wall frame 10 that is parallel to the direction of extension of the crossmember 13 in

the configuration for use.

[0054] In particular, the crossmember 13, the end elements 11 and 12, the intermediate elements 14a, 14b and the transverse elements 15a, 15b are adjustable in length.

[0055] Considering Figure 3, the crossmember 13 comprises a composite profiled element 44, which is provided with a plurality of notches and/or markings 16 which indicate predefined lengths, adapted to help the installation technician in the operation for cutting the crossmember to size during the installation in applications with a width above or below size.

[0056] The profiled element 44 can be provided, for example, in two sizes, one for standard openings, with notches 16 for applications with a width of smaller size, and the other one, which is longer, with notches 16 for openings with a width of larger size.

[0057] The expression "standard sizes" is understood to refer to the sizes for an in-wall frame related to a standard opening. These sizes vary from country to country and therefore the sizes of the country in which the in-wall frame 10 is to be applied must be considered.

[0058] By way of nonlimiting example, the standard sizes for a door in Italy are provided: width 815-835 mm, height 2010-2100 mm.

[0059] The profiled element 44 can also be provided in a single size with markings and/or notches 16 that define various lengths, both for openings of standard width and for openings with a width of smaller or larger size.

[0060] Considering Figure 4, the first end element 11 can be extended in order to allow the application of the in-wall frame 10 in openings with a height of larger size.

[0061] The first end element 11 has a longitudinal extension and is provided with a main body 20, of standard length, which comprises two opposite tubular profiles 17a and 17b, which are parallel to each other and are parallel to the direction of extension of the element 11.

[0062] The expression "standard length", referred to the main body 20 of the first end element 11, is understood to refer to a length of the body that substantially follows the standard height of the door of the country in which the in-wall frame 10 is applied.

[0063] The main body 20 has a cross-section with a substantially C-shaped contour and comprises two tubular profiles 17a, 17b, respectively a first one 17a and a second one 17b, substantially at the two corners of the cross-section.

[0064] The term "cross-section", in the present description, is understood to refer to the cross-section defined by a plane that is perpendicular to the direction of extension of the component being considered.

[0065] A third tubular profile 46 is present between the two tubular profiles 17a and 17b, has a quadrangular and preferably rectangular cross-section, and is monolithic with the other two.

[0066] Such tubular profiles 17a and 17b have a quadrangular, preferably square, cross-section.

[0067] Such tubular profiles 17a, 17b are both directed

toward the passage opening, one toward a first environment and the other one toward a second environment, these two environments being separated by the sliding door being considered.

[0068] Each tubular profile 17a, 17b is adapted for the partial insertion of a corresponding pin having a quadrangular cross-section, respectively 18a and 18b.

[0069] The pins 18a and 18b are fixed to the respective tubular profiles 17a and 17b by means of a plurality of screws, not shown in the figures, each of which passes through two corresponding through holes, also not shown in the figures, one of the tubular profile 17a, 17b and the other of the corresponding pin 18a, 18b.

[0070] The elongation of the first end element 11 is ensured by the presence of an extension 19, which has the same contour as the main body 20 and comprises two similar tubular profiles 21a and 21b having a quadrangular cross-section.

[0071] The extension 19 can be produced in different sizes or in a single size. In the second case, the extension 19 has a plurality of markings, which define different sizes, in order to facilitate the necessary operation for cutting to size.

[0072] The tubular profiles 21a, 21b are adapted for the insertion of the remaining portions of the pins 18a and 18b after their fixing to the main body 20.

[0073] The pins 18a and 18b are fixed to the respective tubular profiles 21a and 21b by means of screws, not shown in the figures, each of which crosses two corresponding through holes, partly shown in the figures, one in the tubular profile 21a, 21b and the other in the corresponding pin 18a, 18b.

[0074] The main body 20 of the first end element 11 and the extension 19 are superimposed so that the projections of the respective cross-sections substantially coincide.

[0075] Considering Figure 5, each of the intermediate elements 14a and 14b has a main body, respectively 22a and 22b, of standard length and having a substantially L-shaped cross-section, which has a tubular profile, designated by the reference numeral 23a for the body 22a and not shown for the body 22b.

[0076] These tubular profiles have a quadrangular, preferably square, cross-section.

[0077] Each of said tubular profiles has a cross-section that corresponds substantially to the shorter part of the L-shaped contour that forms the cross-section.

[0078] Each of the main bodies 22a and 22b has a laminated portion, respectively 43a and 43b.

[0079] The laminated portions 43a and 43b have a cross-section that corresponds to the longest part of the L-shaped contour that forms the cross-section of the bodies 22a and 22b.

[0080] The two elements 14a and 14b are mirror-symmetrical with respect to the plane that passes through the leaf sliding direction.

[0081] In particular, the tubular profile 23a of the body 22a and its corresponding tubular profile of the body 22b

are parallel, extend in the same direction of extension as the intermediate elements 14a, 14b, and have a quadrangular cross-section.

[0082] The tubular profiles of the bodies 22a and 22b of the intermediate elements are arranged in an end position of the casing 50, both directed toward the passage opening, one toward a first environment and/or a first wall and the other one toward a second environment and/or a second wall, these two environments being separated by the sliding door being considered.

[0083] These tubular profiles are adapted for the insertion of a pin, respectively 24a and 24b, which has a quadrangular, preferably square, cross-section, for connection to a corresponding extension, respectively 25a and 25b.

[0084] The extensions 25a, 25b have the same contour as the corresponding main body 22a, 22b and comprise a similar tubular profile 26a and 26b having a quadrangular cross-section, for the insertion of the remaining pin portion 24a, 24b after the insertion of the latter in the corresponding tubular profile of the main body 22a, 22b.

[0085] The extensions 25a, 25b can be produced in different sizes or in a single size. In the second case, the extensions 25a, 25b have a plurality of notches and/or markings, not shown in the figures, which define different sizes, in order to facilitate the necessary operation for cutting to size.

[0086] Each of the extensions 25a and 25b has a laminated portion, respectively 27a and 27b.

[0087] The laminated portions 27a and 27b have a cross-section that corresponds to the longest part of the L-shaped contour that forms the cross-section of the extensions 25a and 25b.

[0088] The laminated portions 27a and 27b have a plurality of through holes 28, in a manner similar to the corresponding laminated portions 43a, 43b of the bodies 22a, 22b of the intermediate elements 14a, 14b, for the fixing of one or more pairs of transverse elements 15a, 15b.

[0089] The main bodies 22a, 22b of the intermediate elements 14a, 14b are superimposed on the respective extensions 25a, 25b so that the projections of the respective cross-sections substantially coincide.

[0090] Considering Figure 6, the second end element 12 comprises a main body 29 of standard length having a substantially C-shaped cross-section and constituted by three laminated portions.

[0091] In particular, the external surface of the central laminated portion 31 is in contact with the end of the opening in which the sliding door is installed and/or an external wall and the two opposite laminated portions 32 are directed: one toward a first environment and/or a first wall and the other toward a second environment and/or a second wall, these two environments being separated by the sliding door being considered.

[0092] The second end element 12 can be extended, for heights of larger size, by using an extension 30 which has the same cross-section as the main body 29.

[0093] A portion of a plate 33 is fixed to the central portion 31 of the main body 29 of the second end element 12 by means of the use of a plurality of screws, not shown in figures, each of which crosses a pair of corresponding through holes, one 34 on the plate 33 and the other 35 on the portion 29.

[0094] The plate 33 is fixed, in the remaining portion, to the central portion of the extension 30, by means of the use of a plurality of screws, not shown in the figures, each of which crosses a pair of corresponding through holes, one 34 on the plate 33 and the other 36 on the extension 30.

[0095] The main body 29 and the extension 30 are superimposed so that the projections of the respective cross-sections substantially coincide.

[0096] The extension 30 can be produced in different sizes or in a single size. In the second case, the extension 30 has a plurality of markings and/or notches, which define different sizes, to facilitate the necessary operation for cutting to size.

[0097] With reference to Figure 3, each transverse element 15a, 15b has a main body, respectively 37a and 37b, of standard length.

[0098] The expression "standard length", referred to the main bodies 37a, 37b of the transverse elements 15a, 15b, is understood to refer to a length of the bodies that substantially follows the standard width of the door of the country in which the in-wall frame 10 is applied.

[0099] Each main body 37a, 37b is provided with a laminated portion 38a, 38b, from which a tubular profile, respectively 39a, 39b, extends monolithically, has a substantially figure-of-eight cross-section and comprises therefore two ducts having a quadrangular, preferably rectangular, cross-section.

[0100] In particular, the laminated portion 38a, 38b is directed toward the inside of the casing in the configuration for use while the tubular profile 39a, 39b is directed toward the outside of the casing.

[0101] Each main body 37a, 37b is fixed to the corresponding intermediate element 14a, 14b, with an extension that is perpendicular to the extension of the intermediate element.

[0102] Each main body 37a, 37b is fixed to the corresponding element 14a, 14b for example by means of screws.

[0103] Each duct of each tubular profile 39a, 39b is adapted for the insertion of a pin 40, having a quadrangular, preferably rectangular, cross-section, for connection to a corresponding extension 41a, 41b.

[0104] Each extension 41a, 41b has the same cross-section as the corresponding main body 37a, 37b.

[0105] Each pin 40 is inserted partially in a duct of one of the main bodies 37a, 37b and partially in the corresponding duct of the corresponding extension 41a, 41b.

[0106] The pins 40 are fixed both to the main body 37a, 37b and to the extension 41a, 41b by using a plurality of screws, not shown in the figures, each of which are inserted in a pair of corresponding through holes, one on

the main body 37a, 37b or extension 41a, 41b and the other on the pin 40.

[0107] The end of each extension 41a, 41b that is opposite the one fixed to the main body 37a, 37b is fixed to the corresponding portion 32 of the second end element 12.

[0108] The main bodies 37a, 37b of the transverse elements 15a, 15b are arranged with the respective extensions 41a, 41b so that the projections of the respective cross-sections substantially coincide.

[0109] Each extension 41a, 41b can be produced in different sizes or in a single size. In the second case, the extension 41a, 41b is provided with a plurality of notches and/or markings 42, which define different sizes, in order to facilitate the necessary operation for cutting to size.

[0110] All the components of the in-wall frame 10, according to the invention, are self-supporting.

[0111] In a constructive variation, not shown in the figures, the sliding door is provided with two leaves which move in opposite directions and the in-wall frame is provided with two casings at the ends and with a central passage opening, or with a single central casing and two passage openings at the ends.

[0112] In practice it has been found that the invention achieves the intended aim and objects, providing an in-wall frame that can be adapted to openings of larger or smaller size.

[0113] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims; all the details may furthermore be replaced with other technically equivalent elements.

[0114] In practice, the materials used, so long as they are compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to the requirements and the state of the art.

[0115] The disclosures in Italian Patent Application No. 102018000006480 from which this application claims priority are incorporated herein by reference.

[0116] 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. An in-wall frame (10) for sliding doors, of the type comprising a framework enclosed in a casing (50), said in-wall frame (10) comprising:

- two opposite end elements (11, 12), which are vertical in the configuration for use, respectively a first one (11) and a second one (12),
- a crossmember (13), which is horizontal in the

configuration for use and extends between the upper ends of said two end elements (11, 12),

- two mutually opposite intermediate elements (14a, 14b), in a substantially median position between said two end elements (11, 12), which are vertical in the configuration for use,
- one or more pairs of transverse elements (15a, 15b) which are horizontal in the configuration for use, each comprised between one of said end elements (11, 12) and one of said intermediate elements (14a, 14b),

said in-wall frame (10) being **characterized in that** it is adjustable in height and/or width.

2. The in-wall frame (10) according to claim 1, **characterized in that** said first end element (11) comprises a main body (20) and an extension (19).
3. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said main body (20) and said extension (19) of said first end element (11) are superimposed so that the projections of the respective cross-sections substantially coincide.
4. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said main body (20) has a substantially C-shaped cross-section and comprises two tubular profiles (17a, 17b), respectively a first one (17a) and a second one (17b), substantially at the two corners of the cross-section, and a third tubular profile (46) between said two tubular profiles (17a, 17b), monolithically with the other two.
5. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said first tubular profile (17a) and said second tubular profile (17b) have a quadrangular cross-section and are adapted for partial insertion of a corresponding pin (18a, 18b).
6. The in-wall frame (10) according to one or more the preceding claims, **characterized in that** said extension (19) has the same shape as said main body (20) and comprises two similar tubular profiles (21a, 21b), which are adapted for the partial insertion of a portion of said pins (18a, 18b).
7. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** each of said intermediate elements (14a, 14b) has a main body (22a, 22b) and an extension (25a, 25b).
8. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said main bodies (22a, 22b) of said intermediate ele-

ments (14a, 14b) are superimposed on said respective extensions (25a, 25b) so that the projections of the respective cross-sections substantially coincide.

9. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said main bodies (22a, 22b) of said intermediate elements (14a, 14b) have a substantially L-shaped cross-section and comprise a tubular profile (23a) and a laminated portion (43a, 43b).
10. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said extensions (25a, 25b) have the same shape as said corresponding main body (22a, 22b) and comprise a similar tubular profile (26a, 26b).
11. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** each of said intermediate elements (14a, 14b) comprises a pin (24a, 24b) which is partially inserted in said tubular profile (23a) of said main body (22a, 22b) and is partially inserted in said tubular profile (26a, 26b) of said extension (25a, 25b).
12. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said second end element (12) comprises a main body (29) and an extension (30).
13. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said main body (29) and said extension (30) of said second end element (12) are superimposed so that the projections of the respective cross-sections substantially coincide.
14. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said main body (29) of said second end element (12) has a substantially C-shaped cross-section constituted by three laminated portions (31, 32).
15. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said second end element (12) comprises a plate (33), which is fixed partly on said main body (29) and partly on said extension (30).
16. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** each of said transverse elements (15a, 15b) has a main body (37a, 37b) and a corresponding extension (41a, 41b).
17. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said main bodies (37a, 37b) of said transverse elements

(15a, 15b) are arranged with said respective extensions (41a, 41b) so that the projections of the respective cross-sections substantially coincide.

18. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** each one of said main bodies (37a, 37b) of said transverse elements (15a, 15b) has a laminated portion (38a, 38b) and a tubular profile (39a, 39b), which extends from said laminated portion (38a, 38b) monolithically, said tubular profile (39a, 39b) having a substantially figure-of-eight cross-section which comprises two ducts.
19. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** each one of said extensions (41a, 41b) of said transverse elements (15a, 15b) has the same cross-section as said corresponding main body (37a, 37b).
20. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** each one of said transverse elements (15a, 15b) comprises two pins (40), which are inserted partially in ducts of said main bodies (37a, 37b) and partially in said extensions (41a, 41b).
21. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said extensions (41a, 41b) of said transverse elements (15a, 15b) have a plurality of notches and/or markings (42), which define different measurements.
22. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said crossmember (13) comprises a composite profiled element (44) which has a plurality of notches and/or markings (16) which indicate different lengths.
23. The in-wall frame (10) according to one or more of the preceding claims, **characterized in that** said crossmember (13), said end elements (11, 12), said intermediate elements (14a, 14b) and said transverse elements (15a, 15b) are made of metallic material, preferably aluminum.

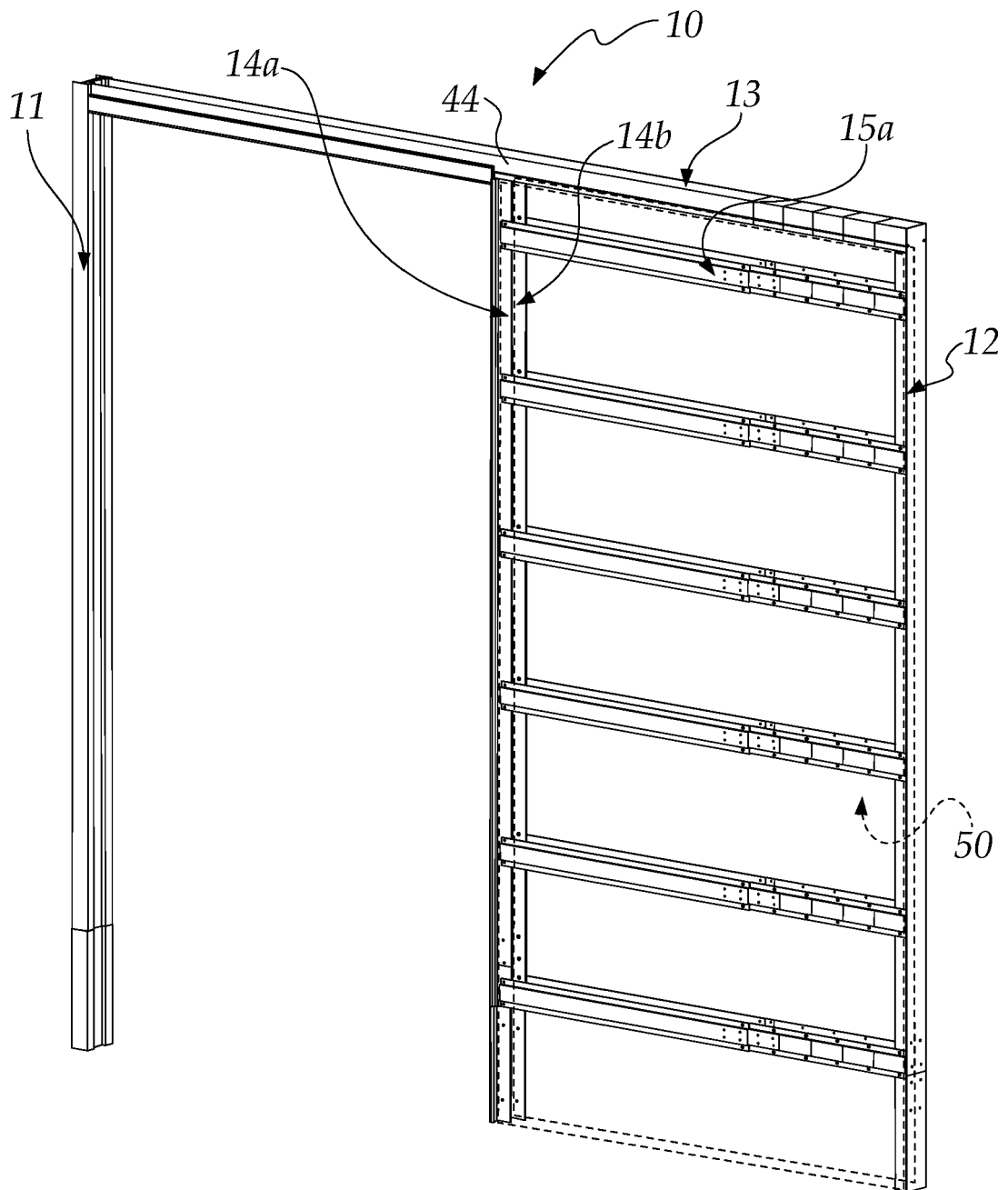


Fig.1

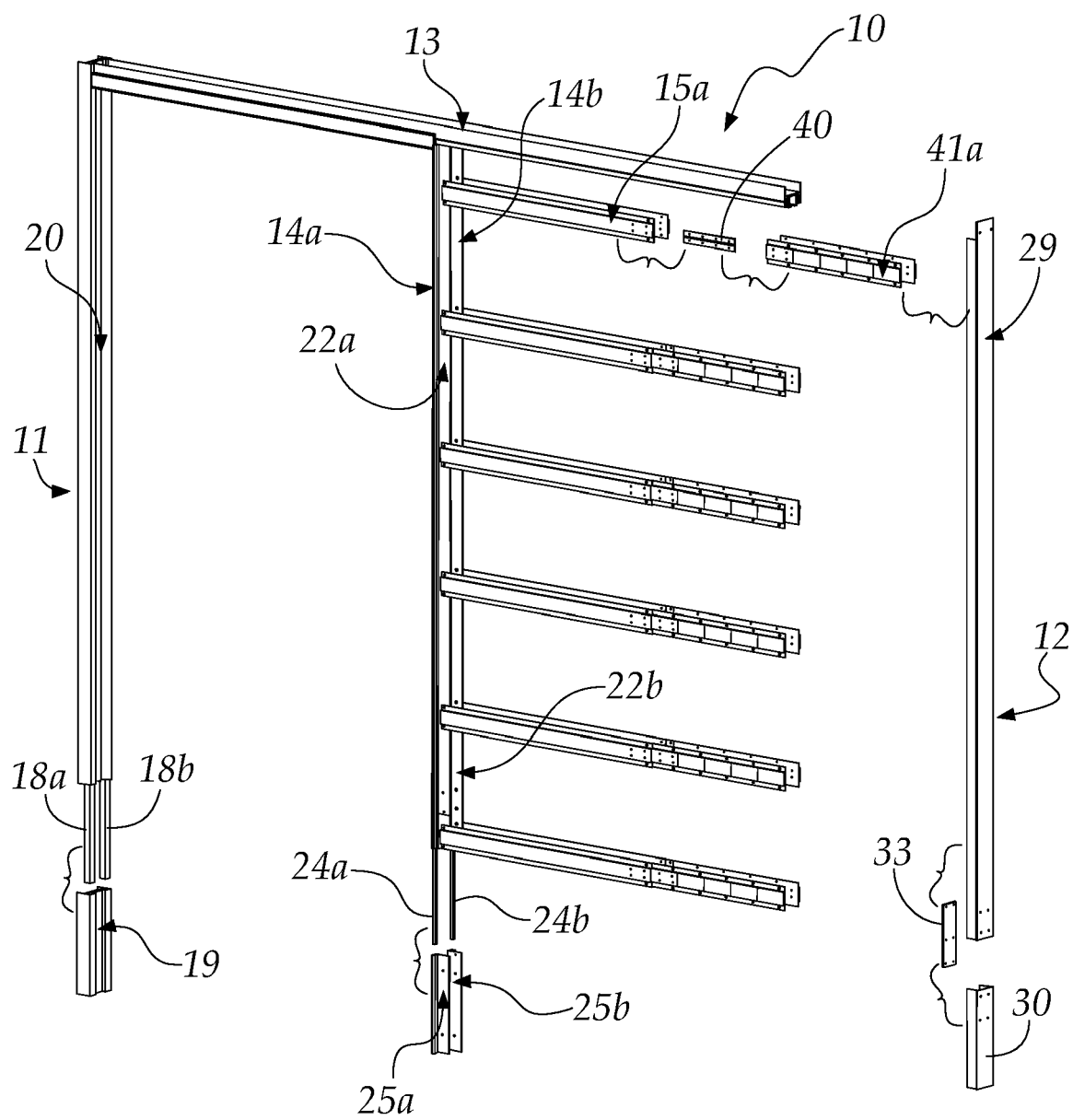
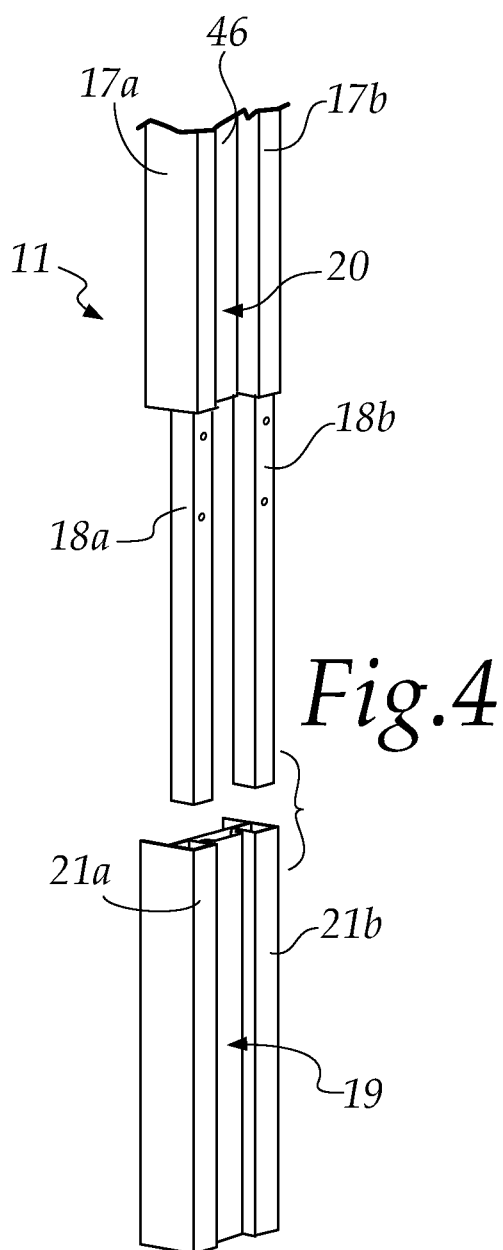
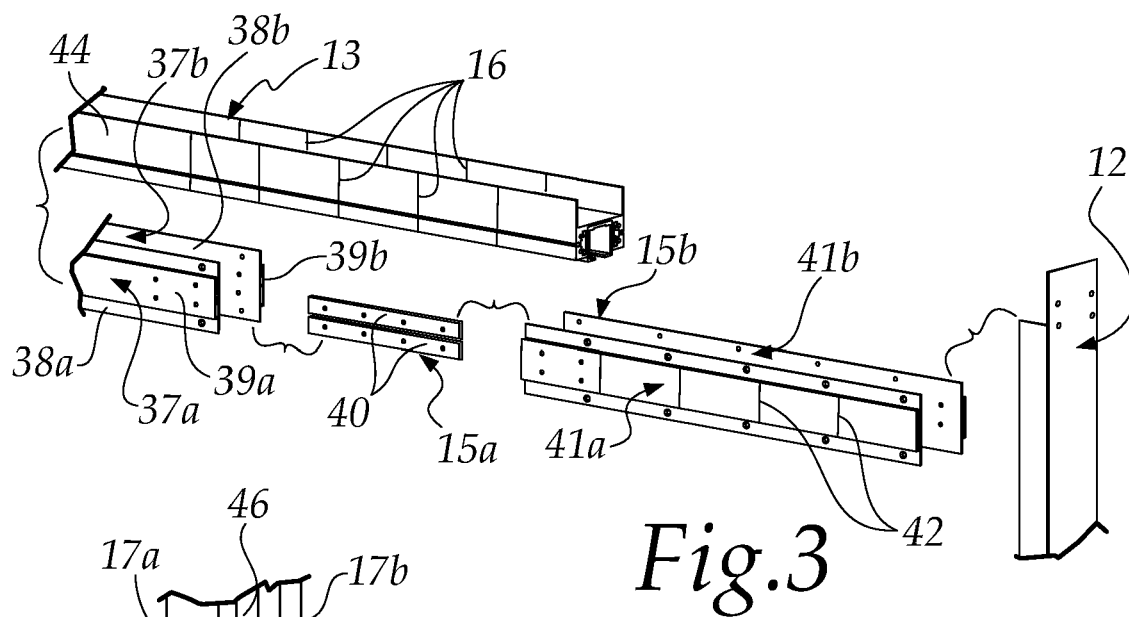
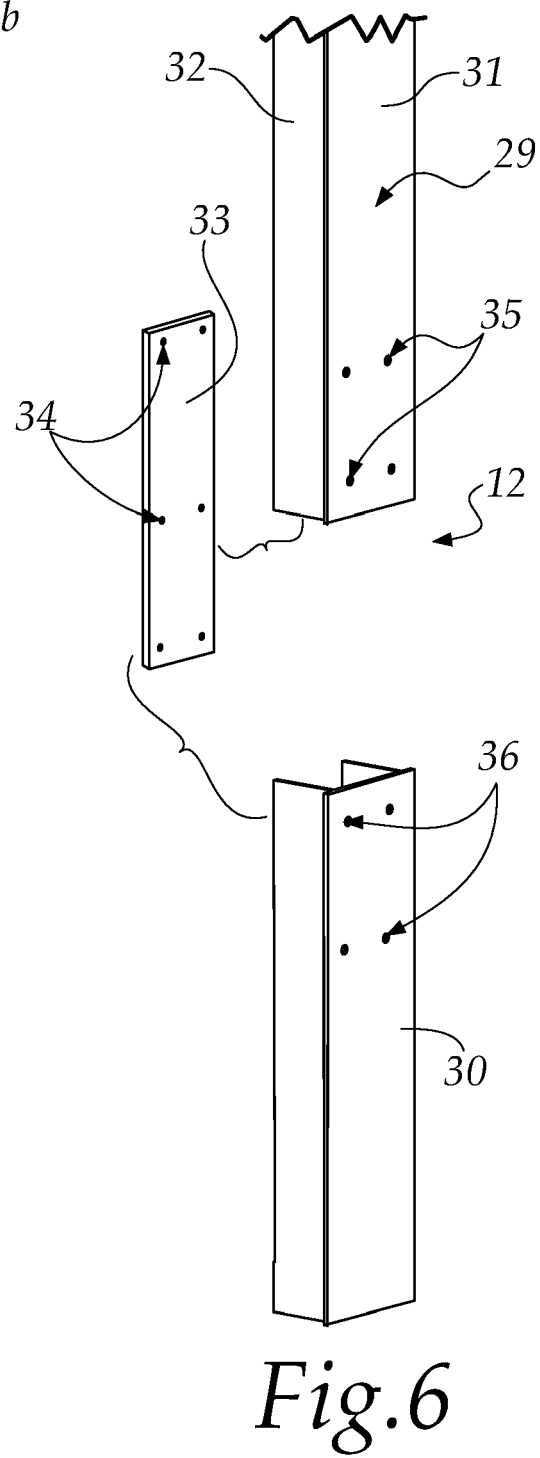
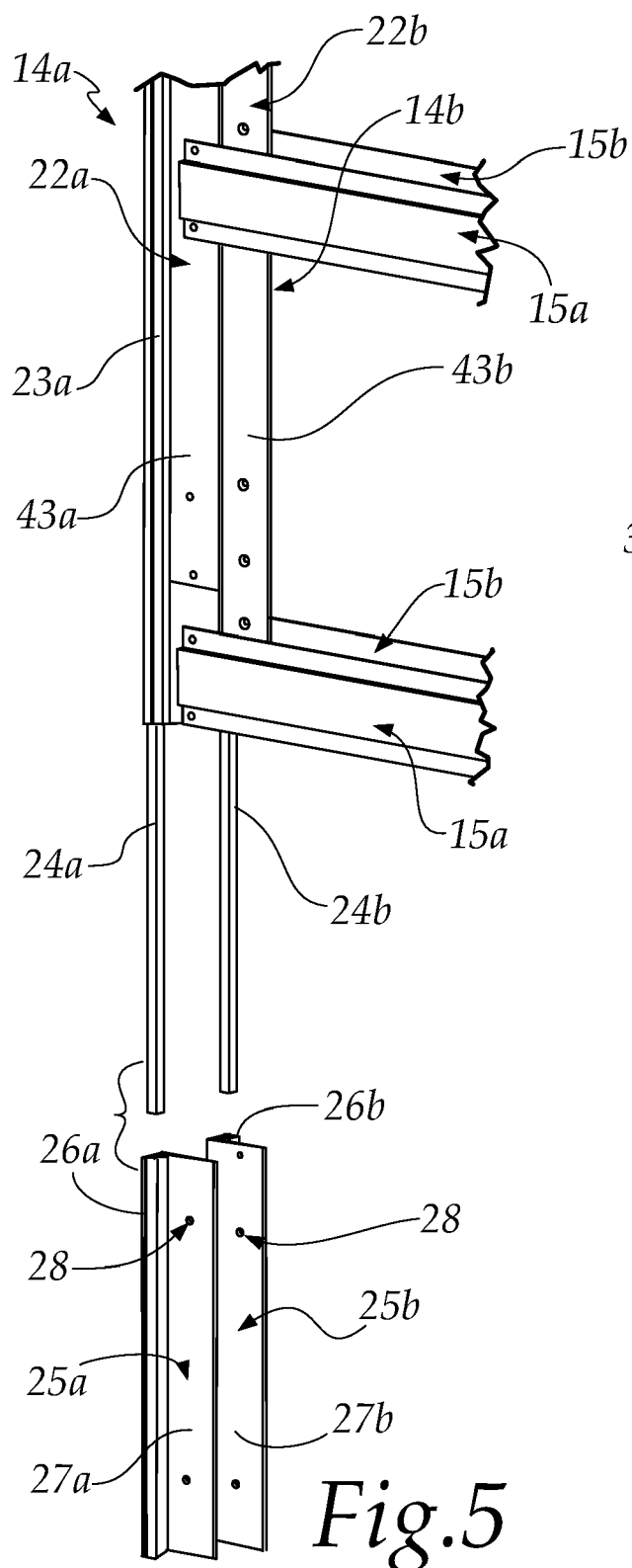


Fig.2







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Application Number
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Place of search The Hague		Date of completion of the search 15 October 2019	Examiner Jülich, Saskia
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