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(54) COMPOSITE PROFILED ELEMENT OF AN IN-WALL FRAME FOR SLIDING DOORS

(57) A composite profiled element (10) of an in-wall frame (11) for sliding doors (12), comprising a first supporting profile (13) and a second guiding profile (16); the profiled element (10) is provided with means (17, 18) for detachable association between the first profile (13) and the second profile (16).

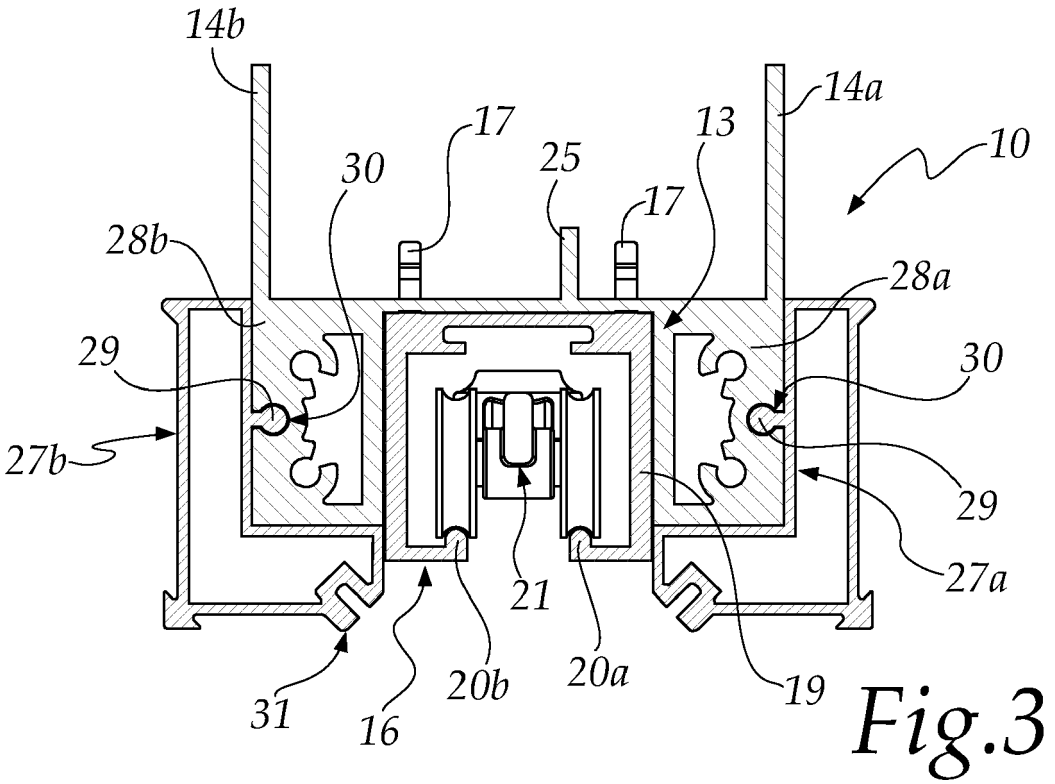

Fig.3

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Description

[0001] The present invention relates to a composite profiled element of an in-wall frame for sliding door.

[0002] The invention is applicable in the building sector in the field of parts for the production of in-wall frames for sliding doors.

[0003] Currently, in environments in which there is not enough space to install a swing-door, or when a different solution is preferred for aesthetic reasons, it is possible to resort to the use of sliding doors.

[0004] This type of door provides for two alternatives.

[0005] The first type is constituted by an external door system, in which one or more leaves slide and cover an adjacent wall portion in the open configuration.

[0006] In order to be able to slide, the doors are fixed into two or more carriages which are constrained so as to move within a guide associated with a horizontal profile arranged above the opening that one wishes to close with the doors.

[0007] In this type of system it is possible for example to adopt a sliding door made of glass and an adjacent wall also made of glass in order to allow the passage of light both in the closed configuration and in the open configuration.

[0008] The second type of sliding door provides for an in-wall system, in which one or more plasterboard compartments are provided in which one or more leaves are to be concealed when they are in the open configuration.

[0009] For the installation of this second type of sliding door, inside a building, an in-wall frame is provided which has a portion covered by plasterboard panels so as to form a seat for the concealment of the door in the open configuration.

[0010] This in-wall frame comprises two terminal lateral shoulders which extend vertically and are surmounted and joined by a profiled element with a guide which extends horizontally. Two or more pairs of vertically extended elements are furthermore present which are adapted for the resting of the crossmember and to form the inlet of a seat for the concealment of a door in the open configuration.

[0011] Between these vertical elements and one of the two shoulders there are crossmembers in order to strengthen the structure and provide a support onto which to fix the plasterboard panels that close externally the accommodation seat of a leaf, when it is in the open configuration.

[0012] In order to be able to slide, the door is fixed in an upward region to one or more carriages which translate within a guide that is integral with the upper profile of the in-wall frame.

[0013] However, these known methods have drawbacks.

[0014] The guide is normally anchored stably to the upper profile and/or interlocked inside it, during the installation of the in-wall frame, and it is not possible to remove it subsequently without considerable effort and awkward operations.

[0015] Another drawback is due to the fact that generally the upper profile and the guide have predefined standard lengths.

[0016] This entails the need, for installation technicians and retailers, to have a considerable storehouse to store the elements of the various sizes.

[0017] Furthermore, in the case of installations of doors smaller than a standard size, it is necessary to measure the desired length and perform a cut. These operations are not possible with currently commercially available products.

[0018] The aim of the present invention is to provide a composite profiled element of an in-wall frame for sliding doors that is capable of improving one or more of the aspects of the background art indicated above.

[0019] Within this aim, an object of the invention is to provide a composite profiled element of an in-wall frame for sliding doors that allows easy removal of the guiding profile from the supporting profile if needed.

[0020] Another object of the invention is to provide a composite profiled element of an in-wall frame for sliding doors that allows to optimize the profile storage volumes of installation technicians.

[0021] A further object of the invention is to provide a composite profiled element of an in-wall frame for sliding doors that allows quick and easy installation in the case of a door smaller than a standard size.

[0022] A 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.

[0023] Another object of the invention is to provide a composite profiled element of an in-wall frame for sliding doors that is highly reliable, relatively easy to provide and at competitive costs.

[0024] This aim, as well as these and other objects which will become better apparent hereinafter, are achieved by a composite profiled element of an in-wall frame for sliding doors, comprising a first supporting profile and a second guiding profile, characterized in that it is provided with means for detachable association between said first profile and said second profile.

[0025] Further characteristics and advantages of the invention will become better apparent from the description of a preferred but not exclusive embodiment of the composite profiled element according to the invention, illustrated by way of nonlimiting example in the accompanying drawings, wherein:

Figure 1 is a view of a composite profiled element of an in-wall frame for sliding doors, according to the invention, in a functional application;

Figure 2 is a perspective view of a portion of a composite profiled element of an in-wall frame for sliding doors according to the invention;

Figure 3 is a sectional view of the composite profiled element of Figure 2;

Figure 4 is a perspective view of a portion of a detail

of the composite profiled element of Figure 2;

Figure 5 is a perspective view of a portion of a different detail of the composite profiled element of Figure 2;

Figure 6 is a perspective view of a portion of a further detail of the composite profiled element of Figure 2.

[0026] With reference to the cited figures, a composite profiled element of an in-wall frame for sliding doors, according to the invention, is designated generally by the reference numeral 10.

[0027] The profiled element 10 is applied in the upper part of an in-wall frame 11 for at least one sliding door 12.

[0028] In the example shown in the figures, the sliding door has a single leaf; however, the invention is applicable also in installations with more than one leaf.

[0029] The profiled element 10 comprises a first supporting profile 13 which is self-supporting and is arranged horizontally in the configuration for use.

[0030] The first profile 13 has, considering in particular the transverse cross-section shown in Figure 3, two opposite lateral tabs, respectively 14a and 14b, which are mirror-symmetrical.

[0031] The tabs 14a and 14b are adapted to form a seat for the insertion of a lintel and/or for the support and retention of plasterboard panels. The tabs 14a and 14b extend in the opposite portion with respect to the one proximate to the sliding door 12, in a direction that is perpendicular to the upper plane 26 of the first profile 13.

[0032] The terms "upper" and "lower", in the present description, refer to the configuration for use of the profiled element 10.

[0033] This first profile 13 comprises, in the portion that is opposite to the one for the extension of the tabs 14a and 14b, a seat 15 for the insertion of a second self-supporting guiding profile 16.

[0034] One of the particularities of the invention consists of the presence of means for detachable association between the first profile 13 and the second profile 16.

[0035] In the embodiment shown in the figures, said means are constituted by a plurality of fixing elements 17, which are monolithic with the second profile 16 and are adapted to enter corresponding through openings 18 provided on the first profile 13, so as to obtain a bayonet coupling.

[0036] In a different embodiment, not shown in the figures, the fixing elements are monolithic with the first profile and the corresponding openings are located on the second profile.

[0037] In particular, the fixing elements 17 extend from the upper surface of the second profile 16, in contact with the lower surface of the first profile 13, after installation.

[0038] The fixing elements 17 are constituted for example by tabs having an arc-like contour.

[0039] The openings 18 are arranged along two lines which are parallel to each other and to the lateral tabs 14a, 14b.

[0040] Likewise, the fixing elements 17 extend along two lines which are parallel to each other and to the axis of extension of the second profile 16.

[0041] In this manner it is possible to engage easily and simply the second profile 16 with the first profile 13.

[0042] It is equally easy and quick to remove the second profile 16 from the first profile 13 if needed.

[0043] The first profile 13 comprises a tab 25, with an extension in the same portion in which the lateral tabs 14a and 14b extend and parallel thereto.

[0044] The tab 25 is lower than the end tabs 14a and 14b but higher than the portion of the fixing elements 17 that protrudes from the upper surface 26 of the first profile 13 after the engagement of the second profile 16 with the latter.

[0045] The tab 25 is adapted to ensure the minimum maneuvering height for the fixing elements 17 after installation and to prevent the first profile 13 from being too close to the lintel, thus entailing the risk of compromising the engagement system of the second profile 16.

[0046] The second profile 16 comprises a channel 19, which has an open portion 24, with an extension that corresponds to the extension of the second profile 16. A track is present inside the channel 19 so as to form with its rails 20a and 20b the ends of the open portion 24.

[0047] Two or more carriages 21 fixed to the upper portion of the door 12 slide on said track.

[0048] In order to avoid mutual sliding between the second profile 16 and the first profile 13 during the use of the door 12 and its consequent disengagement, it is possible to use means for preventing mutual sliding, constituted for example by a screw and/or pin, not shown in figures, which is inserted in two corresponding and superimposed through holes: respectively 22 and 23.

[0049] The first hole 22 is arranged on the first profile 13 and has an extension that is perpendicular to the upper plane 26, while the corresponding second hole 23 is located on the second profile 16 and has the same axis of extension as the first hole 22.

[0050] Advantageously, the profiled element 10 can have two finishing profiles 27a and 27b, for example in the case of application of an in-wall frame that is flush with the wall, therefore without a border trim.

[0051] The finishing profiles 27a and 27b have the same length and the same extension as the first profile 13 and are complementary to its lateral portions 28a and 28b.

[0052] The finishing profiles 27a and 27b have a substantially L-shaped mirror-symmetrical contour and a component 29 adapted to be inserted with interference in a corresponding seat 30 located in the corresponding lateral portion 28a or 28b in order to ensure the coupling between the first profile 13 and the finishing profiles 27a, 27b.

[0053] The component 29 is monolithic with the corresponding finishing profile 27a, 27b and has: a length equal to the length of the corresponding finishing profile 27a, 27b in which it is located, and an axis of extension that is parallel to the axis of extension of said finishing

profile 27a, 27b.

[0054] Likewise, the seat 30 has a length that is equal to the length of the corresponding lateral portion 28a, 28b in which it is located, and an axis of extension that is parallel to the axis of extension of the first profile 13.

[0055] In particular, the finishing profiles 27a and 27b completely cover the outer lateral surfaces of the corresponding portions 28a and 28b of the first profile 13.

[0056] The expression "outer lateral surfaces" cited above is understood to refer to the surfaces of the portions 28a and 28b that are not directed toward the second profile 16 or toward the shoulders of the frame 11.

[0057] Each finishing profile 27a, 27b has a portion 31, which is proximate the second profile 16 and is inclined with respect to the door 12.

[0058] The portion 31 has a seat for the insertion of a brush which has an extension that is linear and parallel to the sliding direction of the door 12. This inclined brush, not shown in the figures, is adapted to hinder the diffusion of the light that arrives from the environment located beyond the door 12 when said door is in the closed configuration.

[0059] As an alternative to the brush, or in addition thereto, it is possible to use a sealing element of a known type.

[0060] All the parts of this profiled element 10 are made of aluminum or similar materials and have a class C5 corrosion resistance according to the table set in the UNI EN ISO 12944 standard.

[0061] Another of the particularities of the invention resides in that all the profiles that compose it are provided in standard lengths and have markings and/or guides for cutting 32, accompanied by specific machining methods associated with the product, which are provided at specific lengths, for the installation of doors of different dimensions and/or smaller than a standard size.

[0062] In this manner it is possible to reduce the storage volumes of retailers and installation technicians.

[0063] In practice it has been found that the invention achieves the intended aim and objects, a composite profiled element of an in-wall frame for sliding doors having been provided that allows easy installation and removal of the guiding profile from the supporting profile and allows to optimize the storage volumes of the profiles.

[0064] 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.

[0065] 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.

[0066] The disclosures in Italian Patent Application No. 102018000005930 from which this application claims priority are incorporated herein by reference.

[0067] 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 composite profiled element (10) of an in-wall frame (11) for sliding doors (12), comprising a first supporting profile (13) and a second guiding profile (16), **characterized in that** it is provided with means (17, 18) for detachable association between said first profile (13) and said second profile (16).

2. The profiled element (10) according to claim 1, **characterized in that** said association means (17, 18) are monolithic with said first profile (13) and/or with said second profile (16).

3. The profiled element (10) according to one or more of the preceding claims, **characterized in that** said association means (17, 18) comprise a plurality of fixing elements (17) and a plurality of corresponding through openings (18).

4. The profiled element (10) according to one or more of the preceding claims, **characterized in that** said fixing elements (17) are constituted by tabs having an arc-like contour.

5. The profiled element (10) according to one or more of the preceding claims, **characterized in that** said openings (18) and said fixing elements (17) are arranged along two lines which are parallel to each other and to the axis of extension of said second profile (16).

6. The profiled element (10) according to one or more of the preceding claims, **characterized in that** said first supporting profile (13) comprises a tab (25), in the portion that is opposite the one proximate to said door (12), in a direction that is perpendicular to an upper plane (26) of said first supporting profile (13), said tab (25) being higher than the portion of said fixing elements (17) that protrudes from said upper surface (26), after the engagement of said second profile (16) with said first profile (13).

7. The profiled element (10) according to one or more of the preceding claims, **characterized in that** it comprises means for preventing mutual sliding between said second profile (16) and said first profile (13).

8. The profiled element (10) according to one or more of the preceding claims, **characterized in that** said

means for preventing mutual sliding are constituted by:

- a first through hole (22) on said first profile (13), with an extension that is perpendicular to said upper plane (26),
- a corresponding second through hole (23), which is located on said second profile (16) and has the same axis of extension as said first hole (22),
- a screw and/or pin.

9. The profiled element (10) according to one or more of the preceding claims, **characterized in that** it has two finishing profiles (27a, 27b), said finishing profiles (27a, 27b) having the same length and the same extension as said first profile (13) and being each complementary to a corresponding lateral portion (28a, 28b) of said first profile (13).

10. The profiled element (10) according to one or more of the preceding claims, **characterized in that** said finishing profiles (27a, 27b) have a substantially L-shaped mirror-symmetrical contour, and a component (29) adapted to be inserted with interference in a corresponding seat (30) arranged in said corresponding lateral portion (28a, 28b) of said first profile (13), said finishing profiles (27a, 27b) completely covering the outer lateral surfaces of the corresponding lateral portions (28a, 28b) of said first profile (13).

11. The profiled element (10) according to one or more of the preceding claims, **characterized in that** each finishing profile (27a, 27b) has a portion (31) which is proximate to said second guiding profile (16) and is inclined with respect to said door (12), said portion (31) having a seat for the insertion of a brush and/or gasket which has an extension that is linear and parallel to the sliding direction of said door (12).

12. The profiled element (10) according to one or more of the preceding claims, **characterized in that** it has a plurality of markings and/or guides for cutting (32), which are present at given lengths.

13. The profiled element (10) according to one or more of the preceding claims, **characterized in that** it is made of aluminum or the like and has a class C5 corrosion resistance.

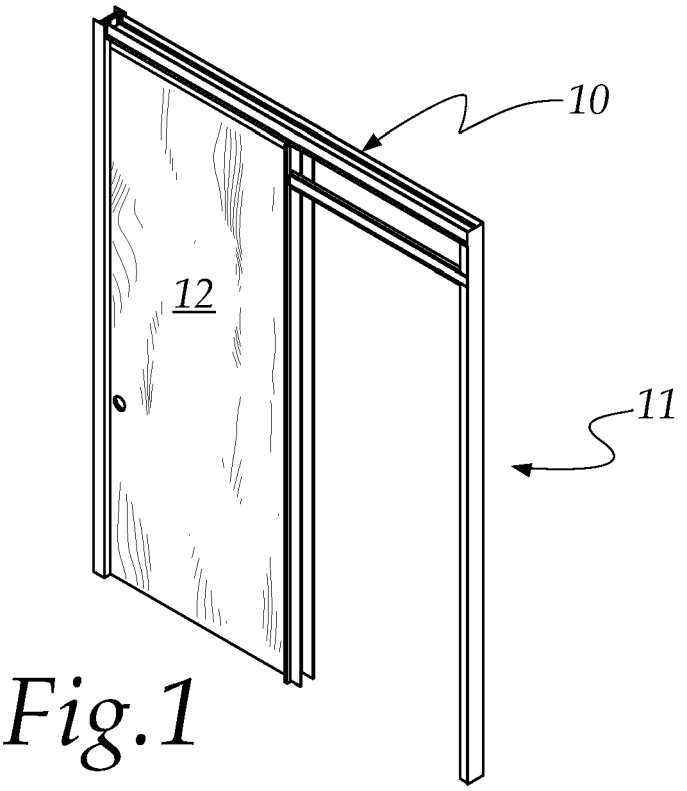


Fig.1

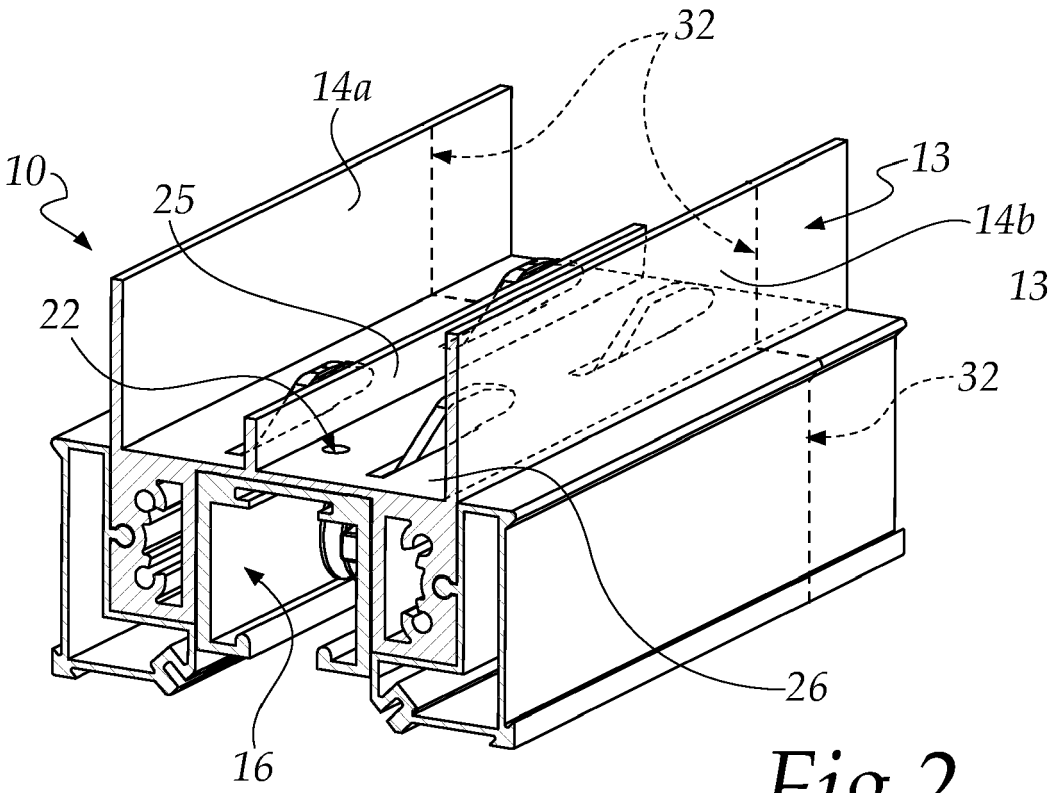


Fig.2

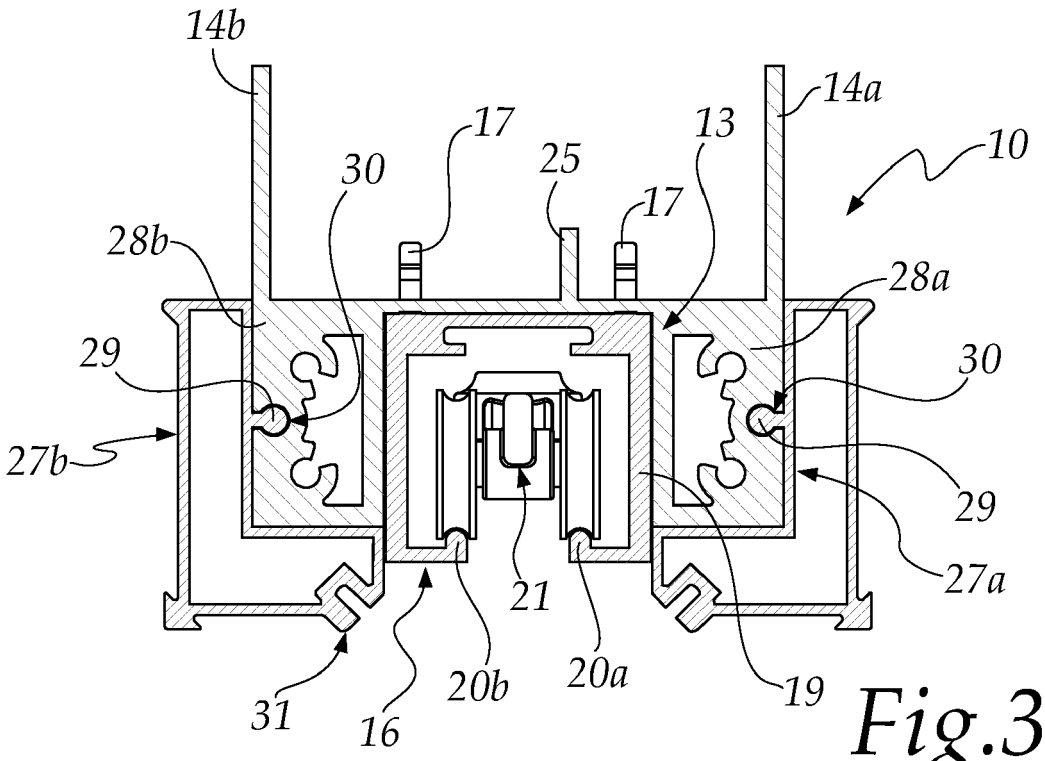
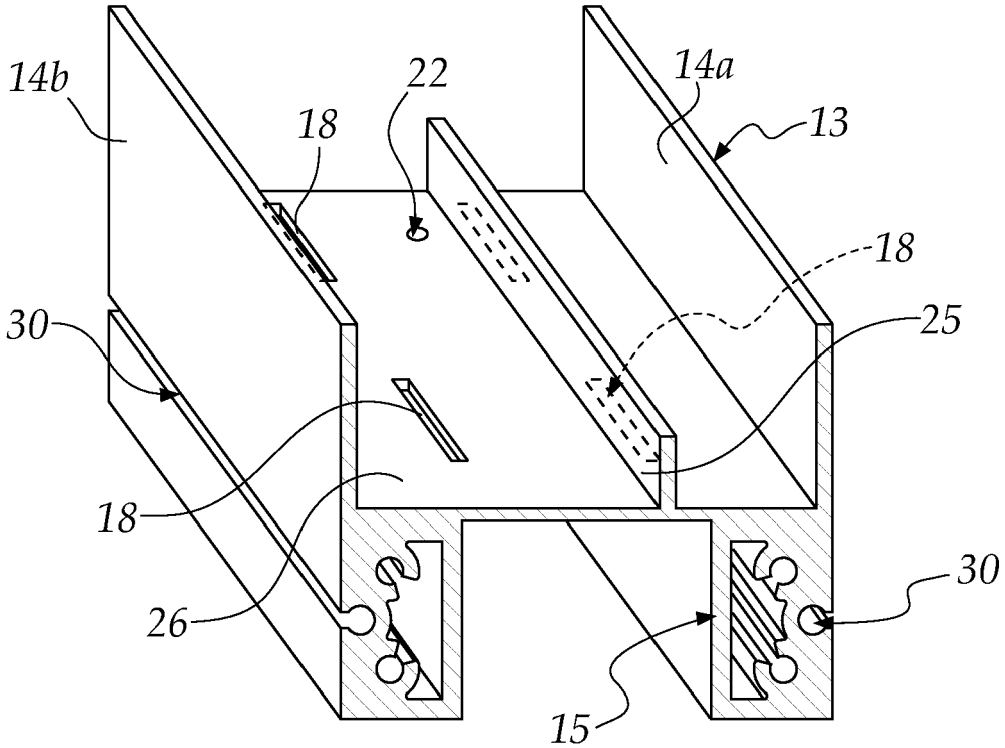

14b
14a
17
13
10
30
25
17
28b
28a
29
30
27b
29
27a
21
31
16
20b
20a
19

Fig.3


14b
22
14a
18
13
18
30
25
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26
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15

Fig.4

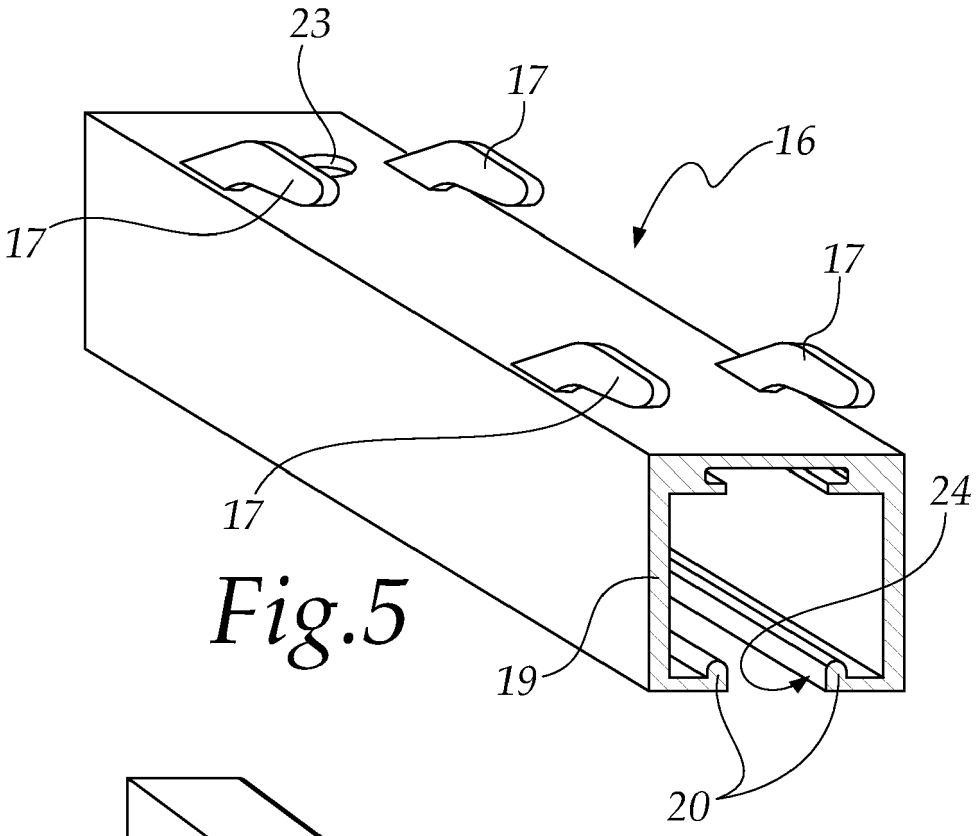

Fig.5

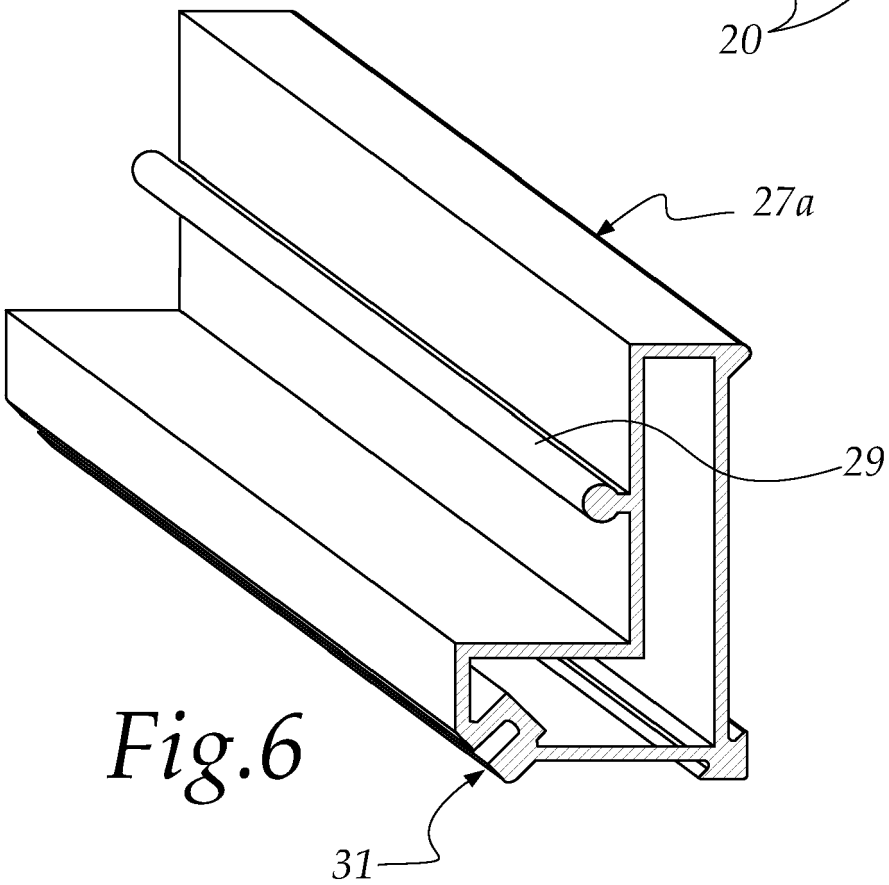

Fig.6

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EUROPEAN SEARCH REPORT

Application Number
EP 19 17 5176

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	DE 100 12 511 A1 (DANA TUERENINDUSTRIE [AT]) 19 October 2000 (2000-10-19) * figures 1, 4, 5, 8 *	1-5,7-9, 11-13	INV. E06B3/46 E05D15/06
A	US 2014/075863 A1 (LARONDE MARK [CA]) 20 March 2014 (2014-03-20) * figures 7, 8 *	12	
A	DE 10 2005 030757 A1 (GEZE GMBH [DE]) 18 January 2007 (2007-01-18) * figures 1-2 *	1	

TECHNICAL FIELDS SEARCHED (IPC)

E06B
E05G
E05D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	3 June 2019	Crespo Vallejo, D

CATEGORY OF CITED DOCUMENTS

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03-06-2019

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

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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