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(54) **COUPLING ASSEMBLY FOR COUPLING A LEAF AND RELATIVE MOULDINGS OF A DOOR TO A FIXED FRAME OF AN EXISTING DOOR AND PROFILED SECTION FOR THE SAID COUPLING ASSEMBLY**

(57) A leaf (2) and the relative mouldings (24)(25) of a door (1) are coupled to a fixed frame (4) of an existing door by means of an additional frame (10), which, in use, is surrounded by the fixed frame (4), is directly fixed to the fixed frame (4) and is defined by profiled sections

(13) having a flattened portion (15), to which the leaf (2) is hinged, and projecting portions (25)(33)(34) defining attachment elements attaching both mouldings (24)(25) to the additional frame (10).

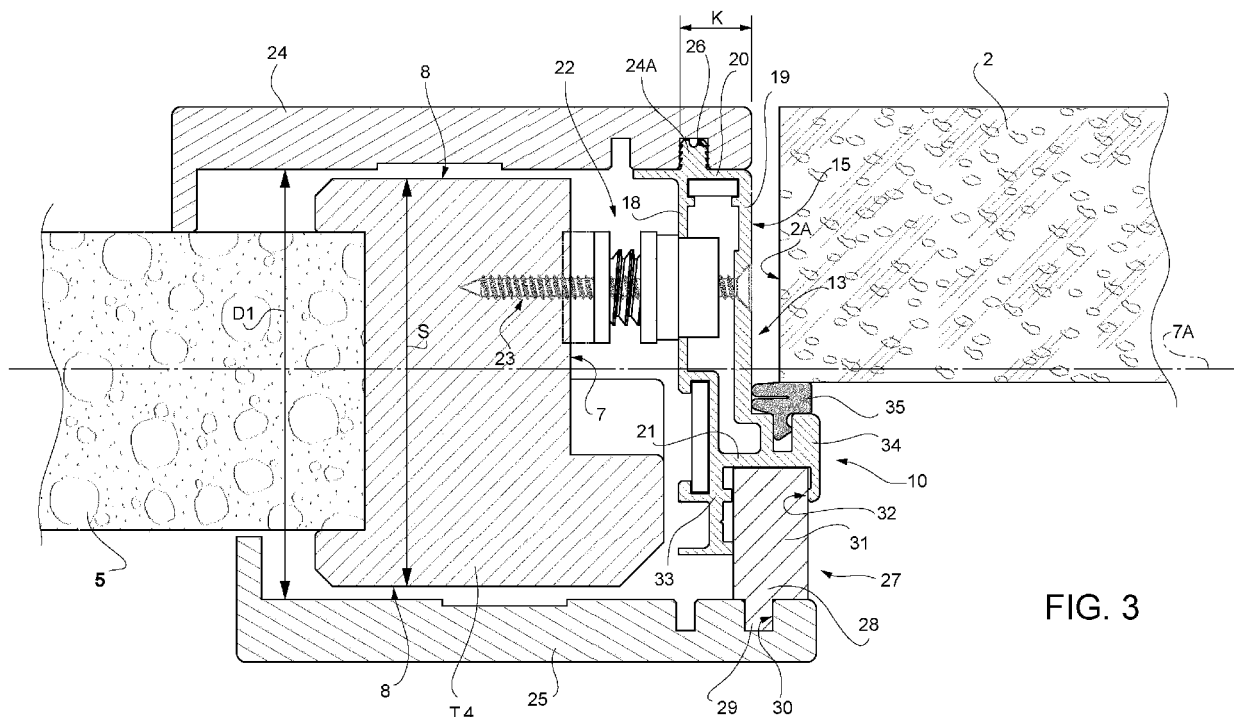


FIG. 3

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This Patent Application claims priority from Italian Patent Application No. 102020000031691 filed on December 21, 2020.

TECHNICAL FIELD

[0002] The invention relates to a connection assembly for connecting a leaf and relative mouldings of a door to a fixed frame of an existing door.

BACKGROUND ART

[0003] As it is known, a door comprises a leaf and a frame, which surrounds the leaf and to which the leaf is connected by means of relative movement elements.

[0004] There are different ways to connect a door to a wall or dividing wall.

[0005] According to a first connection solution, a subframe is firmly connected to, technically "embedded" in the wall or dividing wall and, after that, the frame of the door is fixed to the subframe, normally by means of screws and/or foams and the space or clearance present between the frame and the subframe, which is used to install and adjust the frame, is screened with flat or shaped elements universally known as "mouldings".

[0006] The use of the subframe allows the door to be replaced with no need for building operations.

[0007] According to a different connection solution, which is schematically shown in figure 1A, the leaf A is supported by a frame T of its own, which is directly fixed to, technically "embedded" in the wall or dividing wall D. In this case, the frame T comprises portions P for covering or screening the area of contact or interface between the frame T and the wall or dividing wall D. The covering portions generally extend in a projecting manner from the frame T and partially overlap the wall.

[0008] This connection solution, despite being used, suffers from some drawbacks, the main one being that of requiring the uncoupling of the frame from the wall or dividing wall every time the door needs to be replaced. The uncoupling, namely the removal of the frame is neither immediate nor simple.

[0009] In addition, in the presence of thin dividing walls, which are not particularly sturdy, compact or even, the removal of the frame causes an inevitable demolition of at least part of the wall, which has to be restored after the installation of the door with consequent costs for the building operations that are far from being small and with significant inconveniences for the rooms affected by the replacement.

DISCLOSURE OF INVENTION

[0010] The object of the invention is to provide a con-

nection assembly for connecting a leaf and the relative mouldings of a door to a fixed frame of an existing door, which can solve the problems discussed above in a simple and economic fashion and, in particular, allows an existing door to be replaced, in an extremely quick manner, with no need for building operations and without posing limitations to the type and size of the new door to be installed as well as independently of the dimensions of the wall or dividing wall.

[0011] According to the invention, there is provided a coupling assembly for coupling a leaf and relative mouldings of a door to a fixed frame of an existing door; the assembly being characterised in that it comprises an interface frame, which at least partially surrounds the leaf and is surrounded, in use, by said fixed frame, and in that it furthermore comprises fixing means for fixing said interface frame to said fixed frame, relative movement means interposed between said leaf and said interface frame and attachment means for attaching said mouldings exclusively to said interface frame.

[0012] Preferably, in the assembly defined above, the interface frame comprises profiled sections obtained by transversally cutting an extruded metal profile.

[0013] The invention further relates to a profiled section.

[0014] According to the invention, there is provided a profiled section as claimed in claim 10.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The invention will now be described with reference to the accompanying drawings, which show a non-limiting embodiment thereof, wherein:

Figure 1A shows, in a cross section view, a door according to the prior art;
figure 1 shows, in side elevation, a door whose leaf and whose mouldings are connected to a fixed frame of an existing door by means of a connection assembly according to the invention;
figure 2 is a cross section according to line II-II of figure 1;
figure 3 is a cross section, on a much larger scale, according to line III-III of figure 1; and
figure 4 is a perspective view, on a much larger scale, of a detail of figure 2.

BEST MODE FOR CARRYING OUT THE INVENTION

[0016] In figure 1, number 1 indicates, as a whole, a leaf door comprising a leaf 2 and a connection assembly 3 connecting the leaf 2 to a fixed frame 4 of an existing door embedded in a wall 5, the wall D of figure 1A.

[0017] The fixed frame 4, for example made of wood, exactly corresponds to the frame T of the wall of figure 1A and is delimited, on the sides, by a surface 7 and, at the front, by two flat surfaces 8 parallel to the wall 5.

[0018] With reference to figure 2 and, in particular, to

figure 3, the assembly 3 comprises an interface frame 10, which, like the fixed frame 4, comprises two uprights 11 and a cross member 12, which extend close to the uprights and the cross member of the fixed frame 4 so as to partially surround the leaf 2 and be surrounded by the fixed frame 4.

[0019] Conveniently, the interface frame 10 is obtained by means of profiled sections 13 (figure 4), which are obtained by cutting one single extruded metal profile, which is preferably - though not necessarily - made of an aluminium alloy.

[0020] With reference to figures 3 and 4, each profiled section 13 comprises a tubular portion 15, which has, in cross section, a substantially rectangular shape and a flattened shape in a direction 7A, which is orthogonal to a peripheral surface 2A of the leaf 2 and to the surface 7. Conveniently, the tubular portion 15 has a size K, measured in the direction 7A, that is variable from nine to fourteen millimetres. Preferably, the size K measures eleven millimetres.

[0021] Each tubular portion comprises, in turn, two substantially flat larger side walls 18 and 19 spaced apart from one another and two smaller front walls 20 and 21 orthogonal to the larger side walls 18 and 19 and parallel to the direction 7A.

[0022] Of the walls 18 and 19, the wall 18 is parallel to and faces the surface 7, whereas the wall 19 faces the peripheral surface 2A of the door 2.

[0023] The tubular portions 15 are fixed to the fixed frame 4 by means of known fixing and adjustment devices 22, which are part of the assembly 3 and each comprise a respective fixing screw 23 going through the walls 18 and 19 and screwed into the fixed frame 4.

[0024] With reference to figures 1 and 3, the fixed frame 4 and the interface frame 10 are housed between two mouldings 24 and 25 of the door 1. The mouldings 24 and 25 are exclusively coupled or connected to the interface frame 10 in a releasable manner and are arranged on opposite front sides both of the fixed frame 4 and of the interface frame 10, so as to screen them both (figure 1).

[0025] The moulding 24 is arranged in contact with the wall 20 and is directly connected, in a releasable manner, to the profiled section 13 by means of a toothed rib 24A, which orthogonally projects from the wall 20, is integral to the wall 20 and is forced into a groove 26 of the moulding 24.

[0026] The moulding 25, on the other hand, is connected to the profiled section 13 by means of a connection device 27, which is adjustable as a function of the thickness S of the fixed frame 4 or of the wall 5.

[0027] The device 27 allows the distance D1 between the two mouldings 24,25 to be changed and comprises an infill wall 28, which can be cut to size as a function of the thickness S of the fixed frame 4 and has a rib 29 inserted into an inner groove 30 of the moulding 25 and an opposite end portion 31 inserted or fitted, in a sliding manner, into a retention seat 32 of the profiled section 13.

[0028] Conveniently, the retention seat 32 is defined by two shaped appendixes 33 and 34 of the same profiled section 13, which extend starting from the opposite ends of the wall 21 in two orthogonal direction, one of them being parallel to the direction 7A, so as to be arranged in a position facing the surface 7 of the fixed frame 4 and in a position facing the door 2, respectively.

[0029] The appendix 34 defines an abutment shoulder of the leaf 2 and supports, anchored in a recess of its, an abutment seal 35 of the leaf 2.

[0030] The replacement of an existing door shown in figure 1A is carried out by removing the leaf A (figure 1A) and the relative hinges from the relative fixed frame T, which, on the contrary, remains intact and embedded in the wall 5,D.

[0031] At this point, the interface frame 13 is put in position and fixed to the fixed frame 4,T by screwing the profiled sections 13 onto the surface 7 of the fixed frame by means of the screw 23. After that, the new leaf 2 is coupled to the interface frame 10 by means of hinges or other relative movement elements and the door is completed by directly coupling the moulding 24 and the moulding 25 to the interface frame 10 after having cut the wall 28 to size as a function of the thickness S of the fixed frame 4 and of the thickness D1 of the wall 5,D.

[0032] Owing to the above, it is evident that the connection assembly 3 disclosed herein permits the replacement of an existing wall with any other door without removing, adapting or changing the existing fixed frame and with no need for building operations.

[0033] The replacement of the existing door solely requires the removal of the leaf and of the hinges hinging the leaf, the simple screwing of the interface frame 10 onto the existing fixed frame and the coupling of the relative mouldings to the interface frame, these operations being carried out in extremely short times, for all the parts making up the door 2 are exclusively carried by the interface frame 10, and with difficulties that are comparable to the ones arising when installing traditional doors with a dedicated frame of their own to be screwed onto the relative subframe.

[0034] Moreover, the connection assembly 3 described herein allows a new door to be installed as a replacement for an existing door regardless of the thickness of the wall or dividing wall to which it is connected. This is basically due to the fact the both mouldings 24 and 25 are exclusively connected to the interface frame 10 and, in particular, to the fact that one of the mouldings, in this specific case the moulding 24, is placed and held in a fixed position relative to the interface frame 10, while the distance of the other moulding, the moulding 25, from the moulding 24 can arbitrarily be changes by changing the width of the wall 28.

[0035] The use of flattened profiled bodies or sections, namely having small dimensions measured orthogonally to the surface 7, allows a new door to be installed leaving the opening of the previous door practically unchanged.

[0036] Owing to the above, it is evident that assembly

3 described herein can be subjected to changes and variants, without for this reason going beyond the scope of protection set forth in the claims.

[0037] In particular, the profile used to create the interface frame 10 could be geometrically different from the one described above and the way in which the mouldings 24 and 25 are connected to the interface frame 10 could be different from the one described above, as well.

Claims

1. A coupling assembly for coupling a leaf and relative mouldings of a door to a fixed frame of an existing door; the assembly being **characterised in that** it comprises an interface frame, which at least partially surrounds the leaf and is surrounded, in use, by said fixed frame, and **in that** it furthermore comprises fixing means for fixing said interface frame to said fixed frame, relative movement means interposed between said leaf and said interface frame and attachment means for attaching said mouldings exclusively to said interface frame.
2. The assembly according to claim 1, **characterised in that** said interface frame comprises profiled sections obtained by transversally cutting an extruded metal profile.
3. The assembly according to claim 1 or 2, **characterised in that** the attachment means are releasable attachment means.
4. The assembly according to any one of the preceding claims, **characterised in that** said mouldings are arranged on the opposite front sides of said interface frame and, in use, also of said fixed frame and house said interface frame between one another.
5. The assembly according to any one of the preceding claims, **characterised in that** said attachment means comprise adaptable connection means for adjusting the distance between said mouldings arranged on opposite sides of said interface frame according to the characteristics of said fixed frame or the wall with which the fixed frame is coupled.
6. The assembly according to claim 5, **characterised in that** said adaptable connection means comprise an infill wall which can be cut to size and coupled to said interface frame on one side and coupled with a relative said moulding on the other side.
7. The assembly according to claim 6, **characterised in that** said adaptable connection means comprise a retention seat obtained on said interface wall and housing an attachment portion of said infill wall.
8. The assembly according to claim 7, **characterised in that** each said profiled section comprises a tubular portion and two shaped portions extending in a cantilever fashion from said tubular portion in two mutually orthogonal directions; said two shaped portions defining said retention seat between one another.
9. The assembly according to claim 8, **characterised in that** said tubular portion is flattened in a direction orthogonal to a peripheral surface of said leaf.
10. A profiled section for a connection assembly for connecting a leaf and relative mouldings of a door to a fixed frame of an existing door, the profiled section being **characterised in that** it comprises a flattened tubular portion having, in section, a substantially rectangular shape and comprising two substantially flat larger side walls spaced from one another and two smaller side walls orthogonal to said larger side walls; said smaller side walls carrying attachment portions for a first profile and, respectively, for a second mouldings the door and said larger side walls having at least one through opening for a fixing element for fixing the profile to the existing door frame.
11. The profiled section according to claim 10, **characterised in that** it comprises two shaped appendixes extending in a cantilever fashion from the opposite ends of one of said smaller side walls in two mutually orthogonal directions; said two appendixes defining part of said attachment portions and limiting between one another a retention seat of an infill wall which can be cut to size of said connection assembly.
12. The profiled section according to claim 11, **characterised in that** one of said appendixes has a shoulder at least partially defining an abutment for said leaf and delimits an anchorage seat of a seal.
13. The profiled section according to claim 11 or 12, **characterised in that** one of said smaller side walls carries a toothed retention rib of one of said mouldings.

FIG. 1

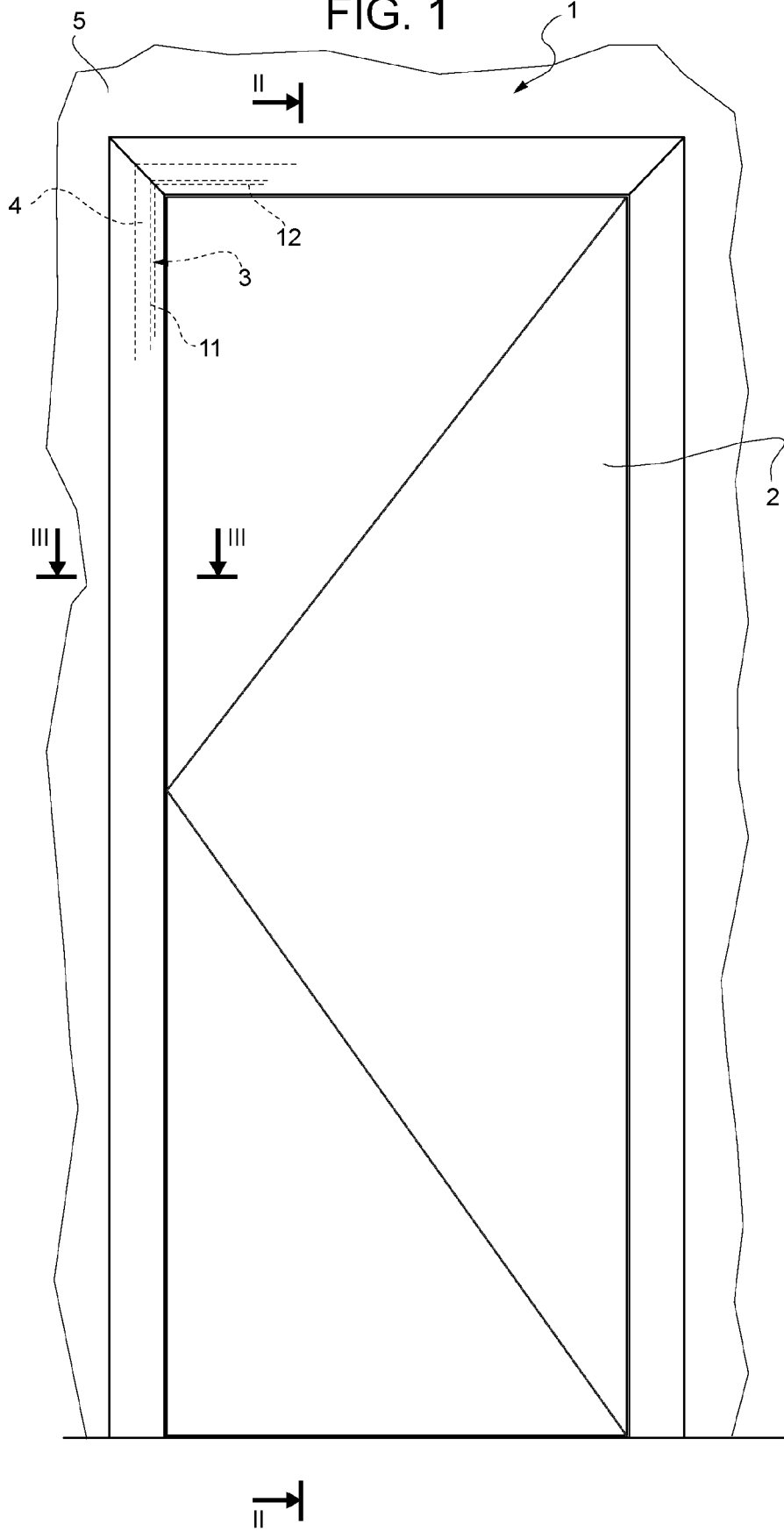
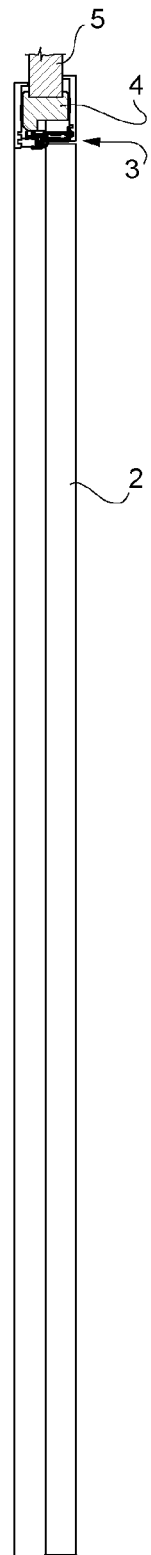
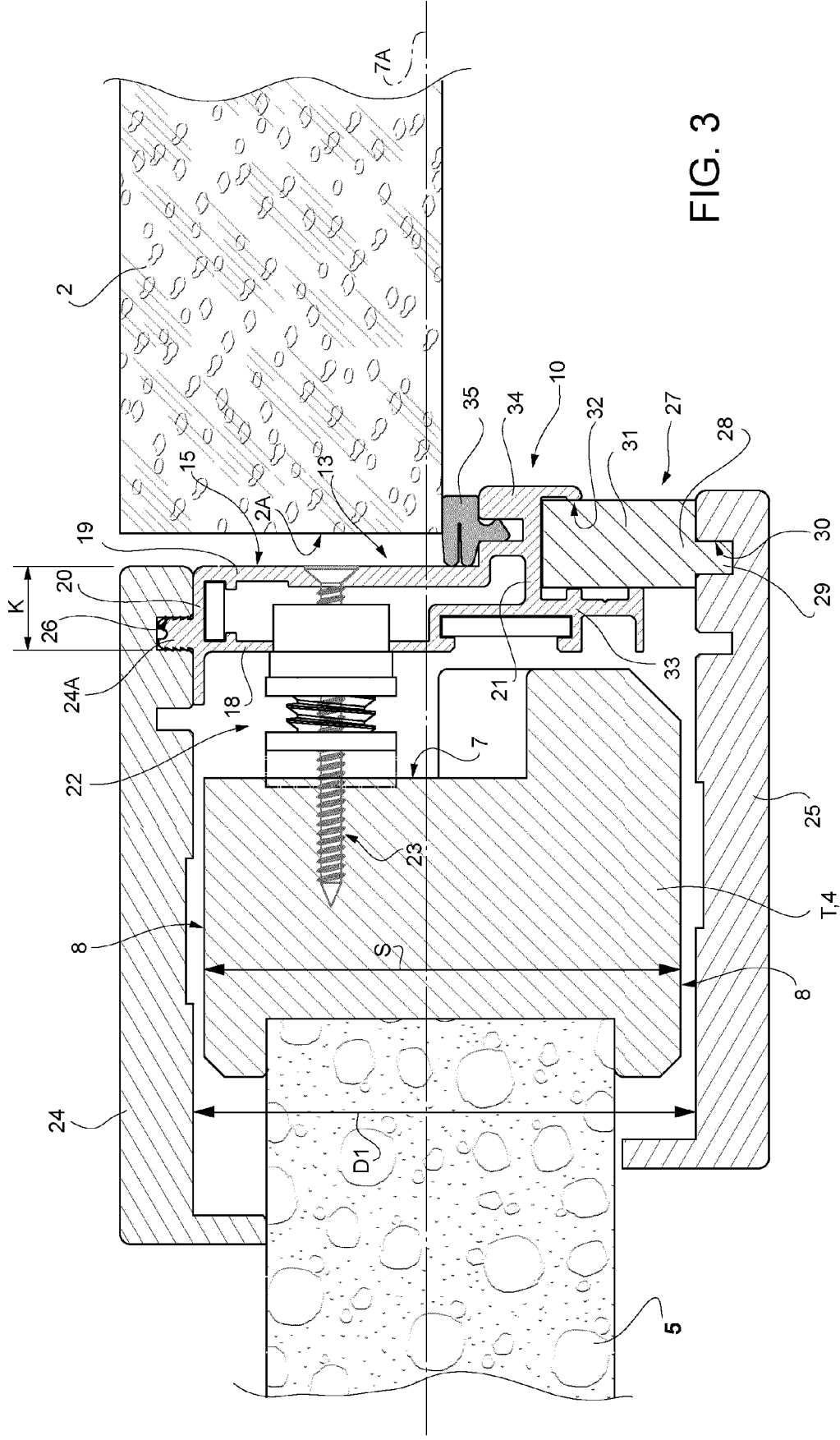


FIG. 2





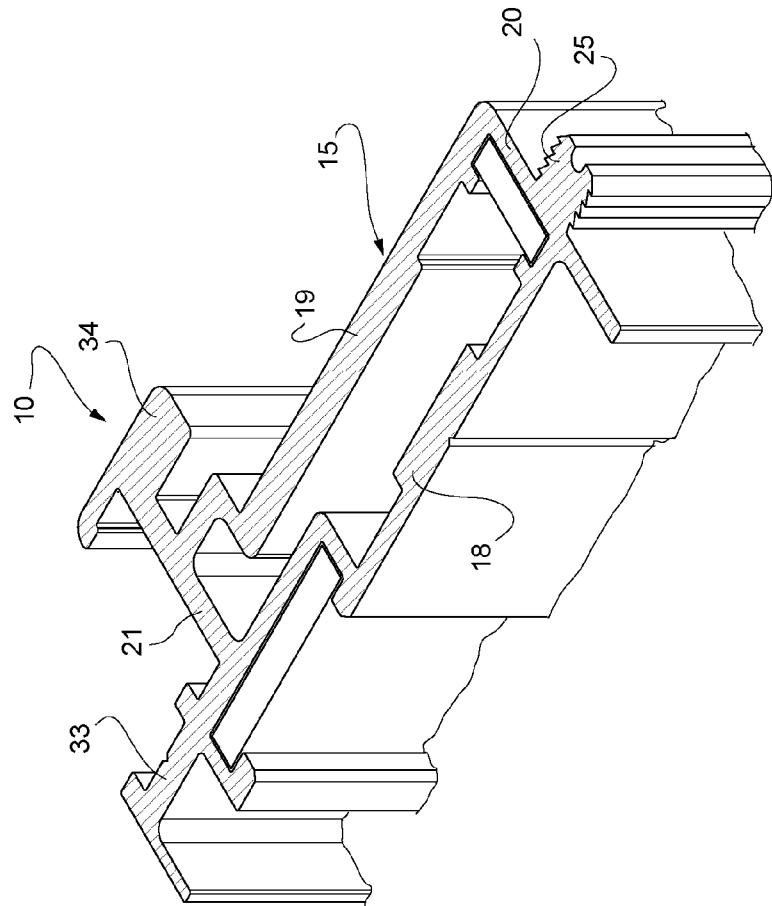


FIG. 4

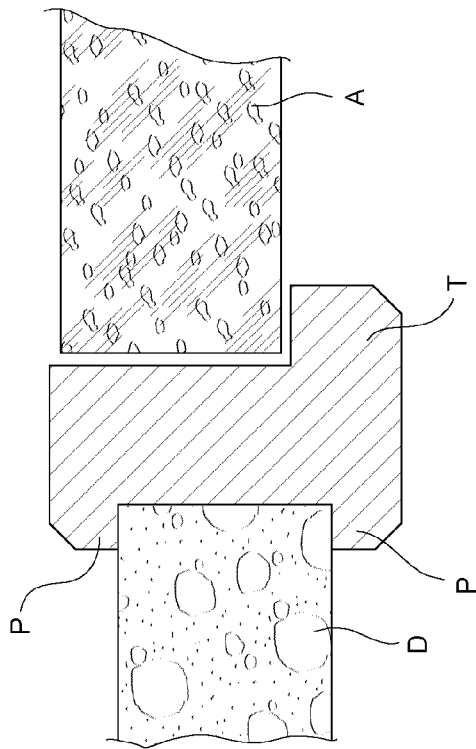


FIG. 1A



EUROPEAN SEARCH REPORT

Application Number

EP 21 21 6643

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EPO FORM 1503 03.82 (P04C01)

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	EP 1 528 209 A1 (DOOR 2000 SRL [IT]) 4 May 2005 (2005-05-04) * figures 1, 4, 6 *	1-7	INV. E06B1/34 E06B1/20 E06B1/16 E06B1/60
X	WO 2020/129051 A1 (TRABELSI MOSHE [IL]; ELEPHANT DOOR LTD [IL]) 25 June 2020 (2020-06-25) * figures 3, 4 *	10	
A	DE 92 08 691 U1 (WASSNER, LEO [AT]) 17 September 1992 (1992-09-17) * figure 1 *	10-13	
A	IT 2019 0000 0466 A1 (ALBAN GIACOMO SPA [IT]) 11 July 2020 (2020-07-11) * figure 7 *	10-13	
A	EP 2 299 016 A1 (VERMEULEN CHRIS MEDARD GUSTAARF [BE]) 23 March 2011 (2011-03-23) * figure 1 *	10-13	
A	IT VI20 090 285 A1 (BARAUSSE S P A) 28 May 2011 (2011-05-28) * figure 3 *	1-13	TECHNICAL FIELDS SEARCHED (IPC) E06B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 February 2022	Examiner Crespo Vallejo, D
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ON EUROPEAN PATENT APPLICATION NO.**

EP 21 21 6643

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28-02-2022

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1528209 A1	04-05-2005	NONE	
WO 2020129051 A1	25-06-2020	NONE	
DE 9208691 U1	17-09-1992	AT 396808 B	27-12-1993
		DE 4241597 A1	09-09-1993
		DE 9208691 U1	17-09-1992
IT 201900000466 A1	11-07-2020		
EP 2299016 A1	23-03-2011	BE 1018641 A5	03-05-2011
		EP 2299016 A1	23-03-2011
		PL 2299016 T3	29-04-2016
IT VI20090285 A1	28-05-2011		

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EPO FORM P0459

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- IT 102020000031691 [0001]