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(54) **Support framework for doors and similar elements**

(57) Support framework for doors and similar elements, comprising at least a first and a second vertical stanchion and an upper crosspiece joined with said first and second stanchion, wherein each stanchion and the crosspiece are constituted by a first and a second component (46,47), adapted to be applied on and secured to the corresponding wall opposite surfaces of each access opening, and by a third and a fourth component (48,49) interposed between said first and second component (46,47) and displaceable on different adjustment positions, so as to change their reciprocal distance within determined extents, depending on the wall thicknesses and for correcting any possible measure inaccuracy and error of the walls.

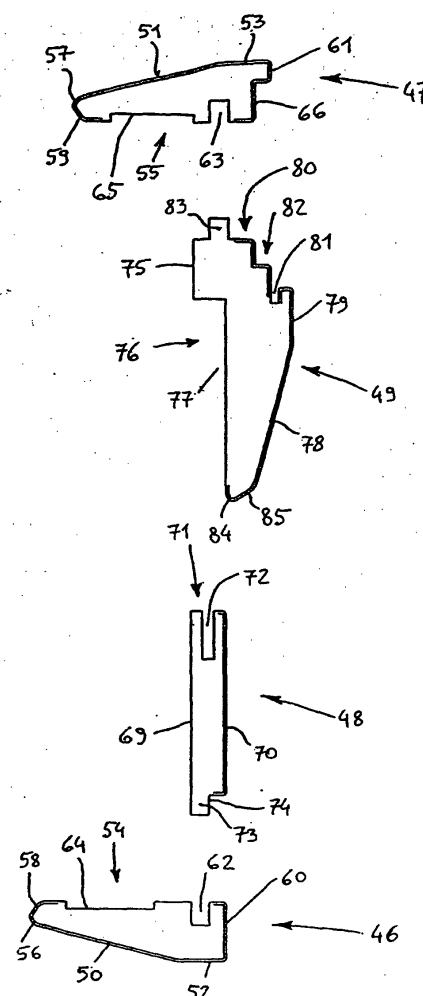


FIG. 10

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Description

[0001] The invention relates to a support framework for doors and similar elements, which is so shaped as to be fitted on the relative installation positions and to permit the doors and similar elements to be adapted thereon.

[0002] Support frameworks for doors and similar elements are known, which are adapted to be fitted on to counter-frameworks applied along the peripheral edges of access openings for inhabited building walls, and each comprising a peripheral framework shaped with the shape and size and the relative access opening, so as to be secured for the entire thickness of the same opening, and constituted by an upper crosspiece and two vertical side stanchions, onto one of them there are fitted the pintles onto which the door and the like is supported and articulated.

[0003] These frameworks are prepared in advance and purposely for the different access openings, and need a set of working operations for being assembled on to each installation position, by employing hardware which can be found on the commerce, which is housed into grooved hollows obtained by milling the framework, and for assembling each door on to the framework, which often needs that some operations be performed for adapting the framework to imprecise masonries and for securing the door to the framework, which operations are required for adjusting correctly the door along the height and the vertical direction, in presence of measurement errors of the framework and/or the door and/or not perfectly executed housings.

[0004] The present invention has the object to provide for a support framework for doors adapted to be Installed on access openings having different shape and size, in a simple and quick manner, without the need to prepare in advance from time to time particular frameworks for each needed installation, and with the possibility to adapt the framework to the masonry and to assemble correctly the door on to the same framework, without the need that additional workings on these component parts be performed, as in the case of the currently used frameworks.

[0005] This framework is made with the substantially described constructive characteristics thereof, with particular reference to the enclosed claims of the present patent.

[0006] The invention will be better understood from the following description, given solely by way of not limitative example and with reference to the accompanying drawings, wherein :

- Fig. 1 shows a partial front view of the different component parts of the framework according to the invention, on a first embodiment thereof ;
- Fig. 2 shows a plan view of the various component parts of the framework of Fig. 1 ;
- Fig. 3 shows, with the same view of Fig. 2, the com-

ponent parts assembled together on an assembled condition thereof ;

- Fig. 4 shows, with the same view of Fig. 2, the component parts assembled together on another assembled condition thereof ;
- Fig. 5 shows a plan view of a constructive variant of the framework according to the invention ;
- Fig. 6 shows a plan view of another constructive variant of the framework according to the invention ;
- Fig. 7 shows a plan view of the fixing of a door wing on the framework according to the invention;
- Fig. 8 shows a front view of the support framework for a door according to the invention, on another embodiment thereof ;
- Fig. 9 shows a side view of the support framework of Fig. 8 ;
- Fig. 10 shows a plan view of the various component parts of the framework of Fig. 8 ;
- Fig. 11 shows, with the same view of Fig. 10, the component parts assembled together on a first assembled condition thereof ;
- Fig. 12 shows, with the same view of Fig. 10, the component parts assembled together on a second assembled condition thereof.

[0007] The above mentioned Figs. 1-5 schematically represent a peripheral framework 6 according to the invention, on a first embodiment thereof, which is adapted to support in an articulated manner some doors and similar elements which are installed on access openings for inhabited building walls, such framework being secured along the peripheral edges of each access opening, for the entire thickness thereof, and being constituted by an upper rectilinear crosspiece 7 with horizontal extent, and two rectilinear side stanchions 8 with vertical extent, joined to the horizontal crosspiece 7 by means of suitable joining means such as for example pins 9 (visible on Fig. 1), engaging corresponding cams (not shown) or fixing or coupling joints or similar means. Now, with reference to Fig. 2, on which one of the stanchions or the crosspiece of the framework 6 is shown with a plan view and for the entire thickness thereof, it is noted that it is constituted substantially by a first side component element 10 and a second side component element 11, which are applied respectively on to a surface portion of the wall provided with the access opening and an opposite surface portion of that wall, or they are applied on to the counter-framework which already would have been secured to the peripheral edges of such access opening. Moreover, this stanchion or crosspiece is constituted by a third and a fourth central component element 12 and 13, situated on a position interposed between said first and second component element and cooperating with each other as it will be described later on, as well as adapted to engage respectively the first and the second component element in the manner and for the function hereinafter described. In particular, the first component element 10 and the second component el-

element 11 are constituted by a respective convex curved surface portion 14 and 15 turned outwards and whose outer surface has the needed aesthetical and decorative appearance and performs the function of decorative frame, and are also constituted by a respective flat and indented surface portion 16 and 17, which are symmetrical with each other and turned toward each other, adapted to be laid on the corresponding building wall surfaces and secured to such walls by means of building binder material or fixing means commonly available on commerce, such flat surface portions being radiused with the relative convex surface portion with a reduced radius angle at one end portion thereof and with a respective further flat surface portion 18 and 19 at the other end portion thereof, which portion is turned toward the insertion zone of the door wing 20 (see Fig. 7). The flat and indented surfaces 16 and 17 of said first and second component element are formed by a respective slot 21 and 22, for joining the corresponding third and fourth central component element 12 and 13 as it will be described later on, and by a respective hollow 23 and 24 with a depth smaller than that of the slot, and whose function is to permit an effective adhesion of the component element to the walls or counter-frameworks having irregular surfaces, and to avoid possible dimensional and aesthetical changes of the convex surface portions of the same element, in presence of different thermal conditions, by compensating the material expansions or shrinkages as a consequence of such changed thermal conditions. Finally, at least one of the further flat surface portions, in this case the portion 18, is shaped with a hollow 25 for adapting the corresponding door wing 20 which is assembled on the present framework as it will be hereinafter described. In turn, the third and fourth central component element 12 and 13 are so shaped as to be interposed between the first and the second component element 10 and 11, with the possibility to change the thickness of the present support framework within determinate extents, in the manner hereinafter described, to adapt such framework to walls and/or counter-frameworks with imprecise shape and/or not correct measures. To this purpose, the third component element 12 is shaped with a flat back surface 26 adapted to be adequately arranged on and secured to the wall or the counter-framework, and a front surface formed by a flat surface portion 27 and a hollowed surface portion 28, joined to the preceding one through a slot 29 assigned to house the door sealing gasket (not shown) and shaped with a hollow 30 aligned with the hollow 25 of the first component element 10, to house, together with such hollow 25, the hardware of the door 20. Besides, this third component element is shaped with a projection 31 joined with the hollowed surface portion 28 and adapted to be inserted in the corresponding slot 21 of the first component element when this latter is connected with a fixed or a coupling joint with the third component element. Such third component element 12 is further shaped with an enlarged cavity 32 at the side op-

posite to that where the projection 31 is provided, so as to permit the fourth component element 13 to be connected with a fixed or a coupling joint thereto, as it will be hereinafter described. Finally, the fourth component element 13 is shaped with a flat back surface 33 adapted to be suitably arranged on and secured to the wall or the counter-framework, and with a flat front surface 34 which are spaced away of an extent identical to the thickness of the same component element, and joined to each other respectively with a flat terminal surface 35 where a narrow slot 36 is provided at the end portion turned toward the enlarged cavity 32, and a projection 37 and a hollow 38 at the end portion turned toward the second component element 11. Furthermore, this fourth component element is realized with such a thickness as to allow its projection 37 to be inserted or coupled on the corresponding slot 22 of the second component element, when this latter is coupled with said fourth component element, and its flat terminal surface 35 to be inserted or coupled on the corresponding enlarged cavity 32 of the third component element 12, when this latter is coupled with said fourth component element. The Fig. 3 makes it evident the framework on the condition of reciprocal coupling of its four component elements, in which the terminal surface 35 of the fourth component element 13 is coupled with the enlarged cavity 32 of the third component element 12, in a way to space away from each other the various component elements of the extent needed to adapt them to the inhabited building wall or counter-framework. Besides, the Fig. 4 makes it visible the framework on the condition of reciprocal coupling solely of the first component element with the third component element and the second component element with the fourth component element, wherein however the third component element and the fourth component element aren't coupled to each other in presence of walls or counter-frameworks with thickness larger than that of the present framework. Then, under these circumstances the coupling of the third component element with the fourth component element is made possible by adding at least a spacer (not shown), shaped for being coupled at one end portion thereof with the enlarged cavity 32 of the third component element 12 and at the other end portion thereof with the slot 36 of the fourth component element 13, and dimensioned in such a manner that to permit with its use to increase the distance between the first component element 10 and the second component element 12, thereby adapting the present framework to walls or counter-frameworks with larger thicknesses. Moreover, it is to point out that, independently from the use or not use of the possible cited spacer, it is preferred to provide for the present framework to be laid on place with its component elements which are coupled together as indicated from Fig. 4, in order to simplify the operations and working times required to put it on place, like cutting the finishing frames and putting them on place, in that the operator in this case shall solely couple together the third and the fourth

component element of each stanchion and the cross-piece, and join the two vertical stanchions 8 and the horizontal crosspiece 7, with consequent quick and quite accurate assembling thereof, since all the machining and cutting operations on the various component elements are effected on the factory with high technology operating automatic machines. Figs. 5 and 6 show now the first component element 10 made on different versions thereof, whose convex curved surface portion 14 has, with respect to the curved surface portion of the previous element 10, a bending with different bending radius (Fig. 5) and a bending formed by two convex surface portions 39 and 40 joined to each other by a concave surface portion 41 (Fig. 6). Likewise, also the second component element 11 is shaped in the same manner as described, and here isn't represented. Obviously, these surface portions may be shaped also with different shapes and aesthetical and decorative appearances than those indicated solely by way of example, thus without departing from the protection sphere of the present invention. Turning now to the Fig. 7, in which the application mode of the door wing or panel 20 on the present support framework is shown, it is noted that in this case a special hardware 42 is employed, which is formed by a first and a second bent shank 43 and 44 joined together and with a head 45, of which the first shank 43 is bent for being housed on and fixed to the pre-formed cavity of the first and third component element 10, 12 and defined by the respective hollows 25 and 30 of said component elements, and the second shank 44 is bent orthogonally thereto, for being inserted on and fixed to the door wing or panel 20, while the head 45 is slightly projected laterally with respect to the outer profile of both said first component element and said wing. In this way, the installation on position of the hardware and therefore also of the door is effected simply and quickly, without the need to mill the framework to provide for the housing of the same hardware, in that the framework component elements are already pre-formed with the hollows 25 and 30, and therefore it is sufficient to house such shaped hardware directly on said hollows and to secure it on position. Now, the remaining Figs. 8-12 schematically represent a peripheral framework 1 according to the invention, on a second embodiment thereof, which is made for the same purposes of the previously described framework.

[0008] Turning now to Fig. 9, in which the side view of a door or similar elements is shown, and to Fig. 10 in which the side cross-section of one of the stanchions or the crosspiece of the framework 1, on a plan view and for the entire thickness thereof is shown, it is noted that it is substantially constituted by a first side component element 46, a second side component element 47 and a third and a fourth central component element 48 and 49, co-operating with each other and performing the same function of the above described components. In particular, the first component element 46 and the second component element 47 are constituted by a respec-

tive pair of surface portions 50, 51 and 52, 53 turned outwards, and whose outer surface portions have the required aesthetical and decorative appearance and perform the function of a decorative frame, and are also constituted by a respective flat and indented surface portion 54 and 55, symmetrical and turned toward each other, adapted to be laid on to the corresponding building wall surfaces and secured to such walls by means of building binder or fixing means commonly available on commerce, such flat surface portions being radiused with the relative surfaces 50 and 52 with a corresponding curved surface 56 and 57 with reduced radius angle and a flat surface 58 and 59 at one end portion thereof, and with a respective further flat surface portion 60 and 61 at the other end portion thereof, which portion is turned toward the door wing insertion zone (see Figs. 11 and 12). The flat and indented surfaces 54 and 55 of said first and second component element are formed by a respective slot 62 and 63, for joining the corresponding third and fourth central component element 48 and 49 as it will be described, and by a respective hollow 64 and 65 with depth smaller than that of the slot, and whose function is that to permit an effective adhesion of the component element to the walls or counter-frameworks with irregular surfaces and to avoid possible dimensional and aesthetical changes of the convex surface portions of the same element, in presence of different thermal conditions, by compensating the material expansions and shrinkages as a consequence of such changed thermal conditions. Finally, at least one of the further flat surface portions, in this case the portion 54, is shaped with a slot 66 for housing the corresponding wing 67 of the door 68, which is assembled on the present framework as it will be described. In turn, the third and fourth central component element 48 and 49 are shaped for being interposed between the first and second component element 46 and 47, with the possibility to change within determinate extents the thickness of the present support framework, in the manner which will be described, for adapting such framework to walls and/or counter-frameworks with inaccurate shape and/or not correct measures. To this purpose, the third component element 48 is shaped with a flat back surface 69 adapted to be arranged on and adequately secured to the wall and/or the counter-framework, and a front flat surface 70, which are spaced away of an extent identical to the thickness of the same component element, and radiused to each other respectively with a flat terminal surface 71, in which a narrow slot 72 is provided at the end portion thereof turned toward the fourth component element 49, and a projection 73 and a hollow 74 at the end portion thereof turned toward the first component element 46. Moreover, this third component element 48 is made with such a thickness that to permit its projection 73 to be inserted and coupled on the corresponding slot 62 of the first component element 46, when this latter is coupled with said third component element 48, and the removable coupling of its flat terminal surface 71 with

the fourth component element 49, in the manner which will be described.

[0009] Finally, the fourth component element 49 is shaped with a back surface formed by a flat surface portion 75 adapted to be arranged on and secured properly to the wall or the counter-framework, and by a hollowed surface portion 76 shaped with a hollow 77 adapted to house a part of or the whole third component element 48, by arranging the front flat surface 70 of this latter on to such hollowed surface portion 76 of the hollow 77, on the coupled condition of the component elements 48 and 49, and by letting such front flat portion 70 to slide along the hollow 77 up to the desired adjustment position thereof. The back surface of the component element 49 is also radiused with a front surface, formed by a skew surface portion 78, a flat surface portion 79 and a hollowed surface portion 80, radiused with the previous one with a slot 81 assigned to house the door sealing gasket (not shown) and shaped with a slot 82 aligned with the slot 66 of the second component element 47 for housing, together with such slot 66, the hardware of the wing 67. Besides, this fourth component element 49 is shaped with a projection 83 radiused with the back surface and adapted to be inserted in the corresponding slot 63 of the second component element 47, when this latter is joined by a fixed or a coupling joint with the fourth component element 49, such hollowed surface portion 76 and skew surface 78 being radiused to each other by means of a curved surface 84 with reduced radius angle and a skew surface 85. Fig. 11 makes it evident the framework on a first condition of reciprocal coupling of its component elements, in which the third component element 48 is coupled with the hollow 77 of the fourth component element 49, and is inserted partially in the same hollow in a manner to space away from each other the various component elements of the required extent, to adapt them to the inhabited building wall or counter-framework, and these component elements are fixed by means of a fifth component element 86, which is formed by a square of extended form 87, extended for the entire height of the peripheral framework 1 and shaped with a first flat flange 88 adapted to be inserted on and to be secured suitably to the corresponding slot 72 of the third component element 48, for the entire height of this latter, and a second flat flange 89 radiused with the preceding flange 88 and offset with respect thereto, and adapted to be laid on to the hollowed surface portion 76 of the hollow 77, for the entire height of the third component element, for being subsequently secured to such hollowed surface portion by suitable and common fixing means like screws or rivets 90. The same Fig. 11 also shows the mode of applying the wing or panel 67 of the door 68 on the present support framework, wherein it is noted that also in this case a special hardware 42 is employed, which is formed in the same manner than that described, and that this applying mode of this wing or panel is also performed as previously described, for the same purposes and the same previously described ad-

vantages. Besides, Fig. 12 makes it visible the framework on a second condition of reciprocal coupling of its component elements, wherein the third component element 48 is fully inserted in the hollow 77 of the fourth component element 49, and secured to this latter by means of the second flat flange 89 of the profiled square 87, which in this case is laid on and fixed, as previously, to the flat surface portion 75 of the fourth component element 49, while the first flat flange 88 of such square is always inserted in and secured to the third component element 48, as previously. It is also to point out that it is preferred to provide the present framework to be put on place in a way that the first and the third component elements 46 and 48 as well as the second and the fourth component elements 47 and 49 are coupled in advance to each other, and thereafter to join these component units with the profiled square 87, in order to simplify the operations and working times required for putting them on place, like cutting the finishing frames and putting them on place, with consequent quick and extremely accurate assembling of the present peripheral framework, since all operations and cuttings performed on the various component elements are effected on the factory with high technology operating automatic machines. Obviously, the visible surfaces of all component elements may be shaped also with forms and aesthetical and decorative appearances different than those indicated solely by way of example, thus without departing from the protection sphere of the present invention.

Claims

1. Support framework for doors and similar elements, comprising at least a door wing or panel, which can be installed on access openings for inhabited building walls, said framework being applied along the peripheral edges of each access opening or on possible counter-frameworks applied to said peripheral edges, and said door being fixable by means of hardware on to said framework, **characterized by** at least a first and a second vertical stanchion (8) and an upper crosspiece (7) joined with said first and second stanchions (8) and **characterized in that** each stanchion and the crosspiece is constituted by a first and a second component element (10, 11; 46, 47), adapted to be applied and secured to the corresponding opposite surfaces of the wall of each access opening, and by a third and a fourth component element (12, 13; 48, 49) interposed between said first and second component element (10, 11; 46, 47) and adapted to connect these latter to each other on different adjustment positions, so as to change their reciprocal distance within a determined extent, depending on the wall thicknesses, and for the correction of any possible measure inaccuracy and error of walls or said counter-frameworks.

2. Framework according to claim 1, **characterized in that** said first and second component (10, 11) are constituted by a respective convex surface portion (14, 15) turned outwards and performing the function of decorative frame, and by a respective flat and indented surface portion (16, 17) which are symmetrical with each other and turned toward each other, adapted to be laid on the corresponding wall surfaces and secured to such surfaces by means of building binder material and per se known fixing means, and also constituted by a respective further flat surface portion (18, 19) turned toward the insertion zone of said door wing or panel (20), said flat and indented surface portion (16, 17) being shaped for the junction with said third component element (12) and said fourth component element (13) and said further flat and indented (18) being shaped with at least a hollow (25) for adapting said hardware on the assembled position of said door wing or panel (20).
3. Framework according to claim 2, **characterized in that** said third component element (12) is shaped with a flat back surface (26) adapted to be arranged on and secured to the wall or the counter-framework, and a front surface formed by a flat surface portion (27) and a hollowed surface portion (28) shaped for housing at least a sealing gasket for said door and at least a hollow (30) adapted to house, together with said hollow (25), said hardware, said third component element (12) being also shaped for the junction with both said first component element (10) and said fourth component element (13).
4. Framework according to claim 3, **characterized in that** said fourth component element (13) is shaped with a flat back surface (33) adapted to be arranged on and secured to the wall or counter-framework, and a flat front surface (34), and is adapted to be coupled with said second component element (11) and said third component element (12), with a possible interposition of spacer means, in presence of walls or counter-frameworks with larger thickness.
5. Framework according to claim 4, **characterized in that** said hardware (42) is shaped for being housed on and secured to the respective hollows (25, 30) of said first and third component element (10, 12) coupled to each other, and inserted on and secured to said door wing or panel (20).
6. Framework according to claim 1, **characterized in that** to comprise a fifth component element (86) adapted to secure said third and fourth component element (48, 49) on different adjustment positions, so as to change their reciprocal distance within predetermined extents, depending on the wall thicknesses and for correcting any possible measure inaccuracy and error of walls or said counter-frameworks.
7. Framework according to claim 6, **characterized in that** said first and second component (46, 47) are constituted by a respective pair of flat surfaces (50, 51 ; 52, 53) turned outward, performing the function of decorative frame, and by a respective flat and indented surface portion (54, 55) which are symmetrical and turned toward each other, adapted to be laid on the corresponding wall surfaces and secured to such surfaces by means of building materials and per se known fixing means, and also constituted by a respective further flat surface portion (60, 61) turned toward the insertion zone of said door wing or panel (68), said flat and indented surface portion (54, 55) being shaped for the junction with said third component element (48) and said fourth component element (49) and said further flat surface portion (61) being shaped with at least a slot (66) for adapting said hardware (42) on the assembled position of said wing or panel (67) of said door (68).
8. Framework according to claim 7, **characterized in that** said third component element (48) is shaped with a flat back surface (69) adapted to be arranged on and secured to the wall or counter-framework, and a front flat surface (70) adapted to and a flat terminal surface (71) where a narrow slot (72) is provided, adapted to be coupled with said fifth component element (86), and by a projection (73) and a hollow (74) adapted to be coupled with a corresponding slot (62) of said first component element (46).
9. Framework according to claim 8, **characterized in that** said fourth component element (49) is shaped with a flat back surface portion (75) adapted to be arranged on and secured to the wall or counter-framework, by a hollowed surface portion (76) shaped with a hollow (77), by a skew front surface portion (78) and a flat front surface portion (79) and a hollowed surface portion (80) adapted to house, together with said slot (66), the hardware (42) for supporting and rotating said wing (67), said flat surface portion (75) and hollowed surface portion (76) being adapted to house said fifth component element (86), on the coupled condition of said third and fourth component element (48, 49).
10. Framework according to claim 9, **characterized in that** said fifth component element (86) is formed by a square (87) of extended form, extended for the entire height of said framework (1) and shaped with a first flat flange (88) and a second flat flange (89) joined to and offset with respect to the preceding flange, said first flat flange (88) being able to be in-

serted on and secured to said slot (72) and said second flat flange (89) being adapted to be laid on and secured to, by means of fixing means (90), said flat surface portion (75) and hollowed surface portion (76), on the inserted condition of said third component element (48) to said hollow (77). 5

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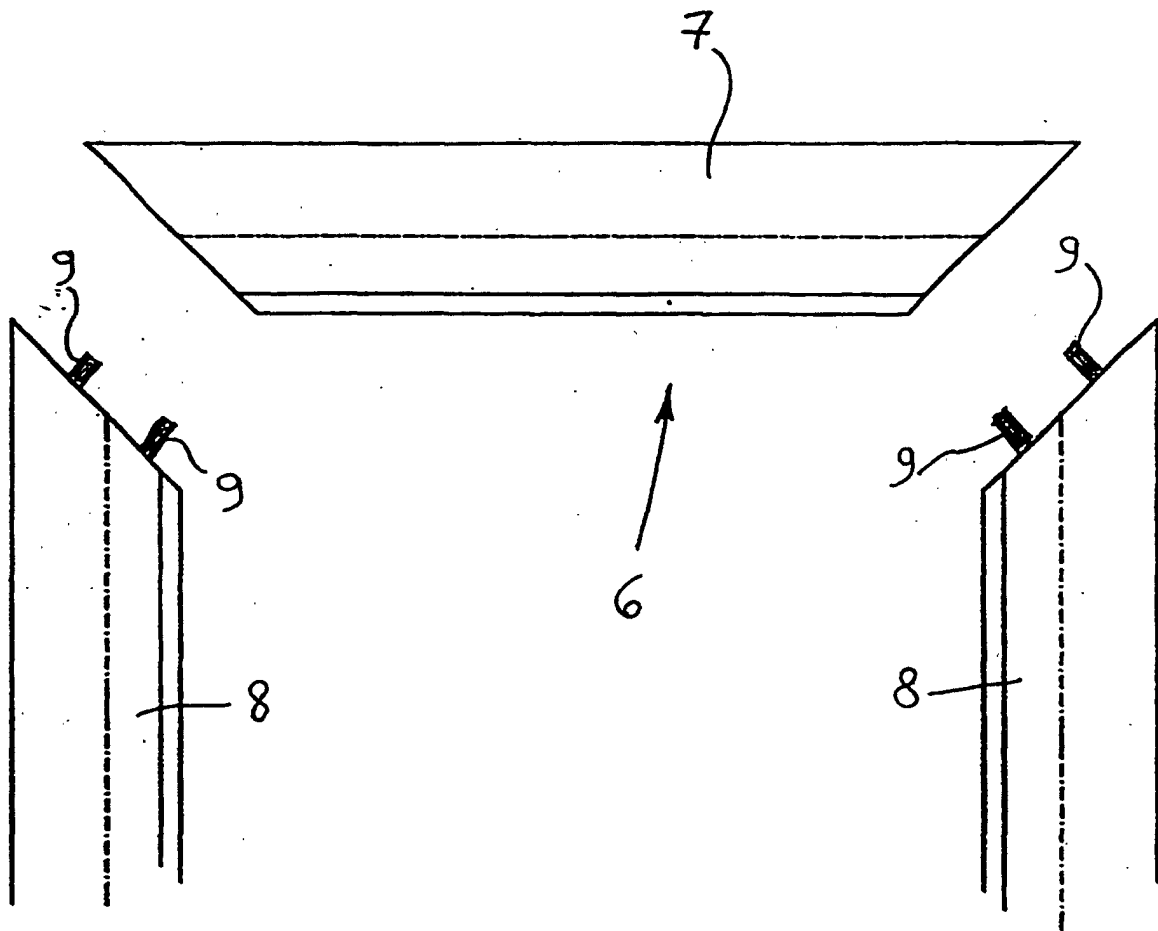


FIG. 1

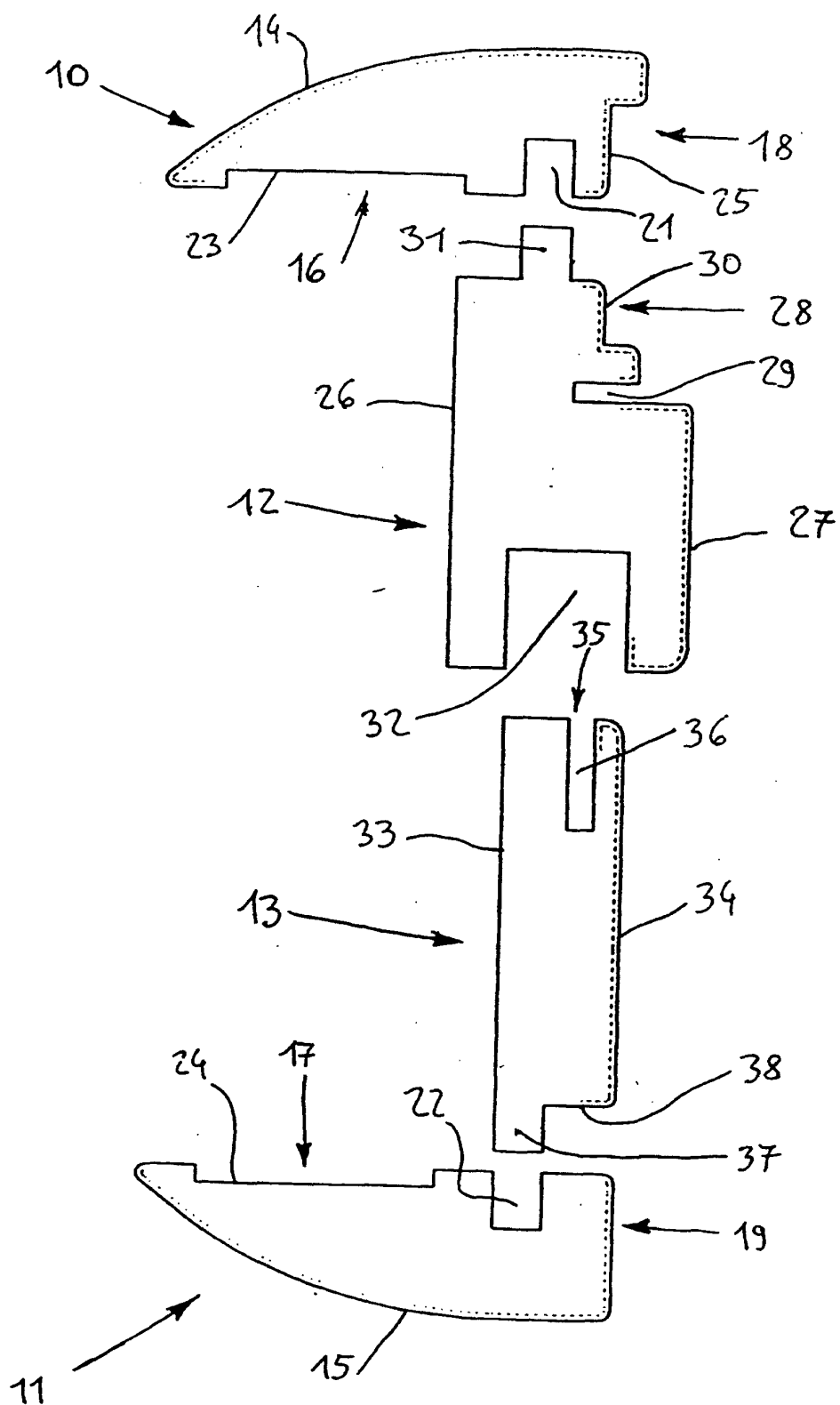
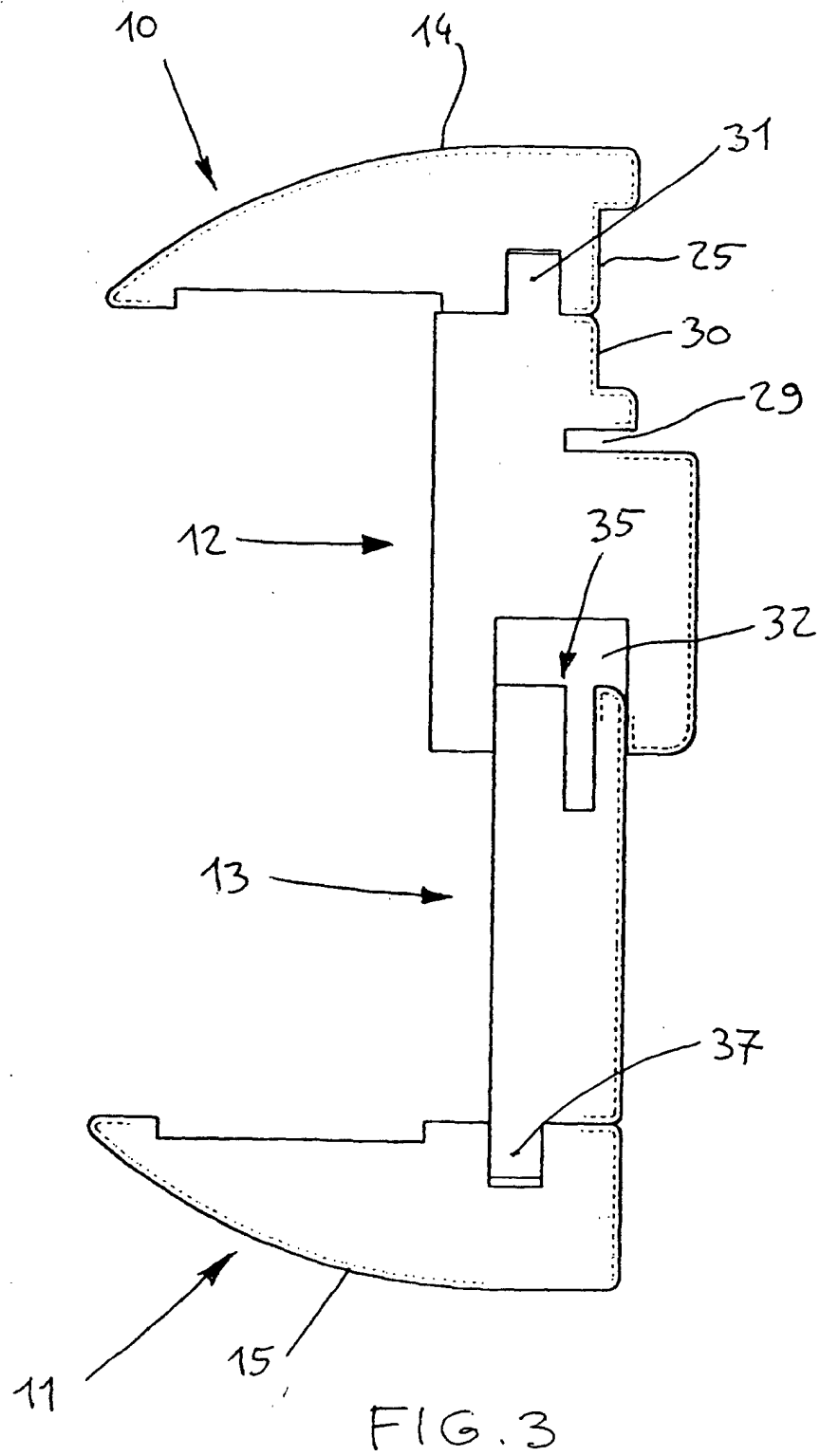
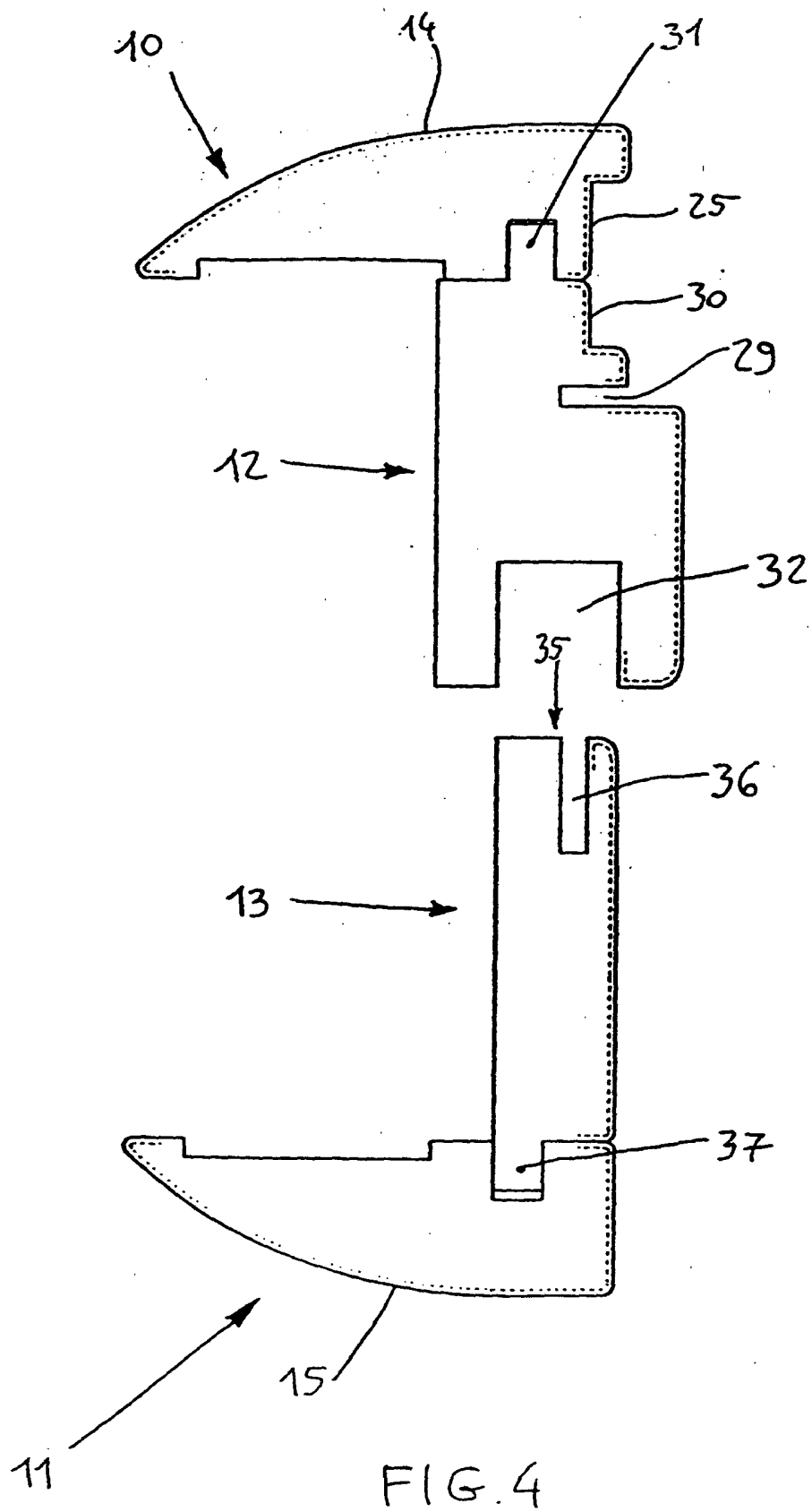


FIG. 2





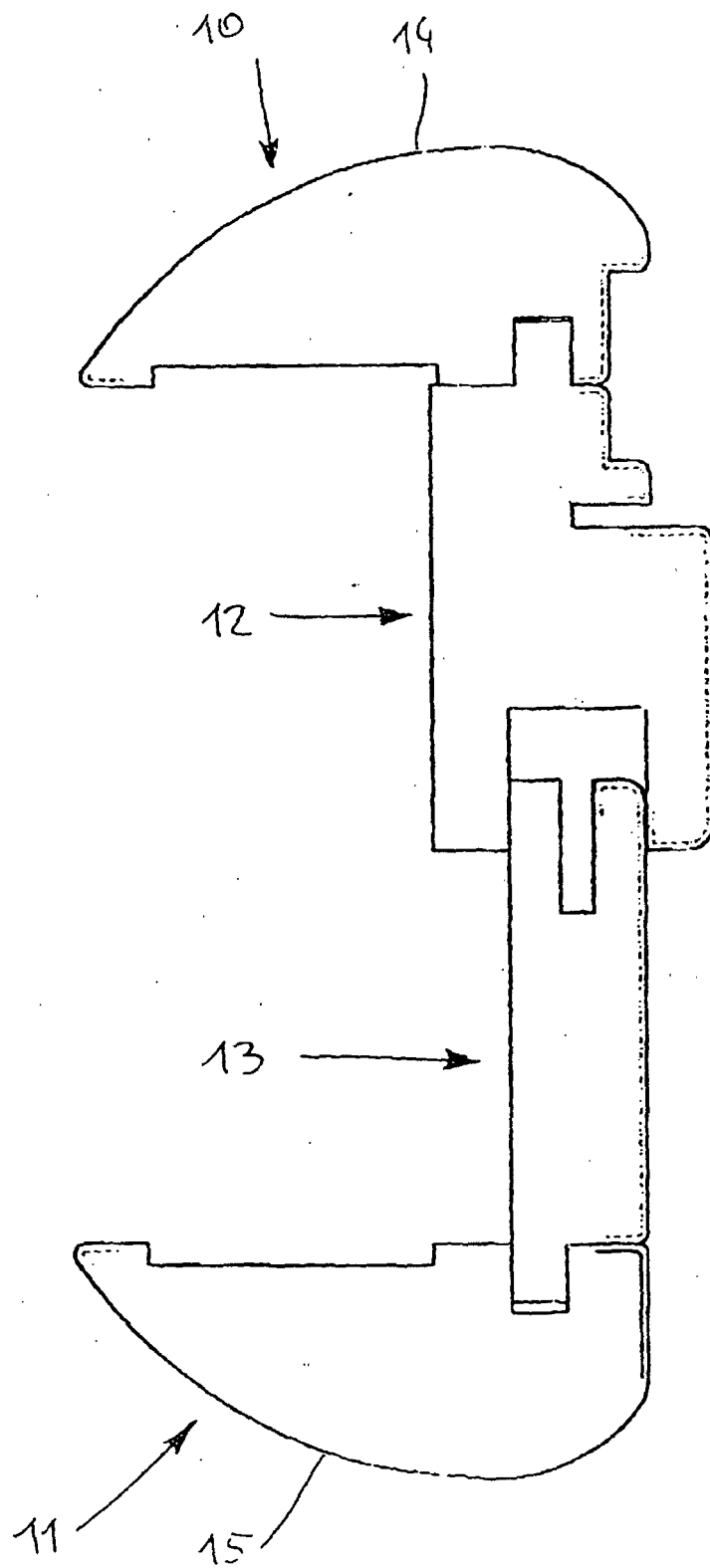


FIG. 5

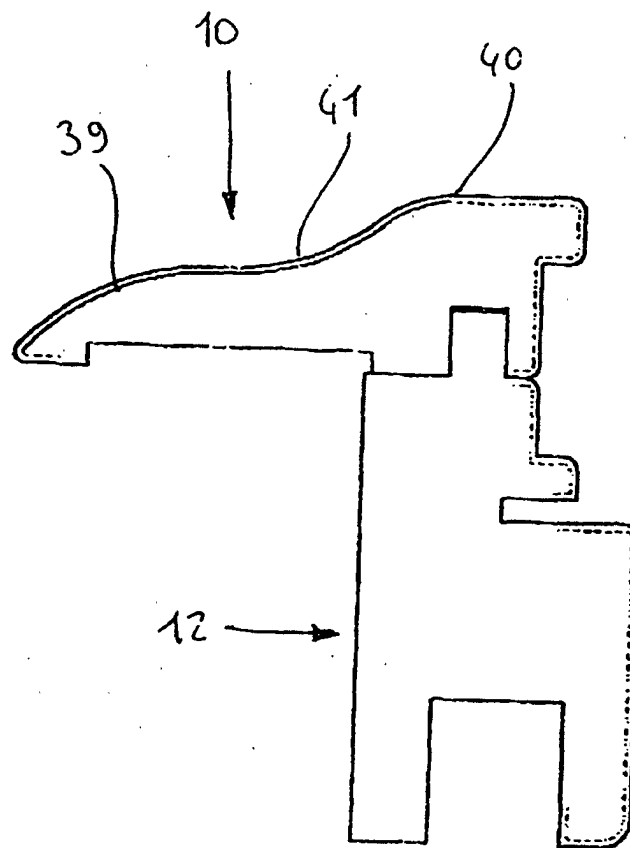


FIG. 6

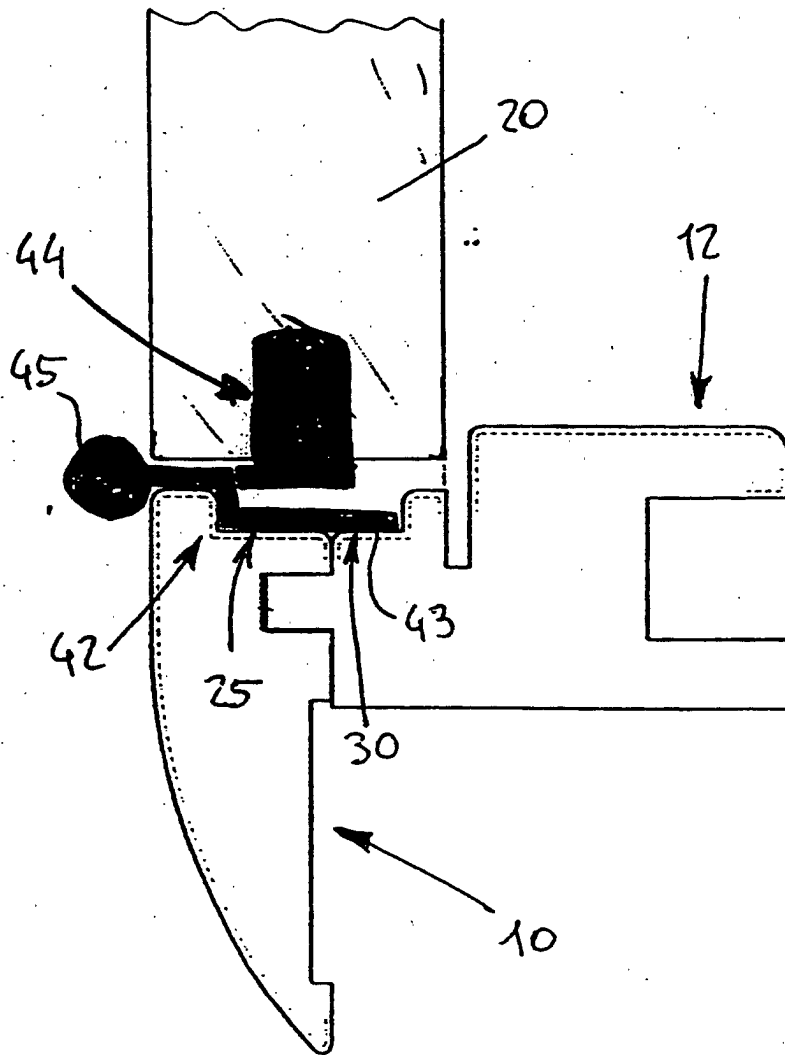
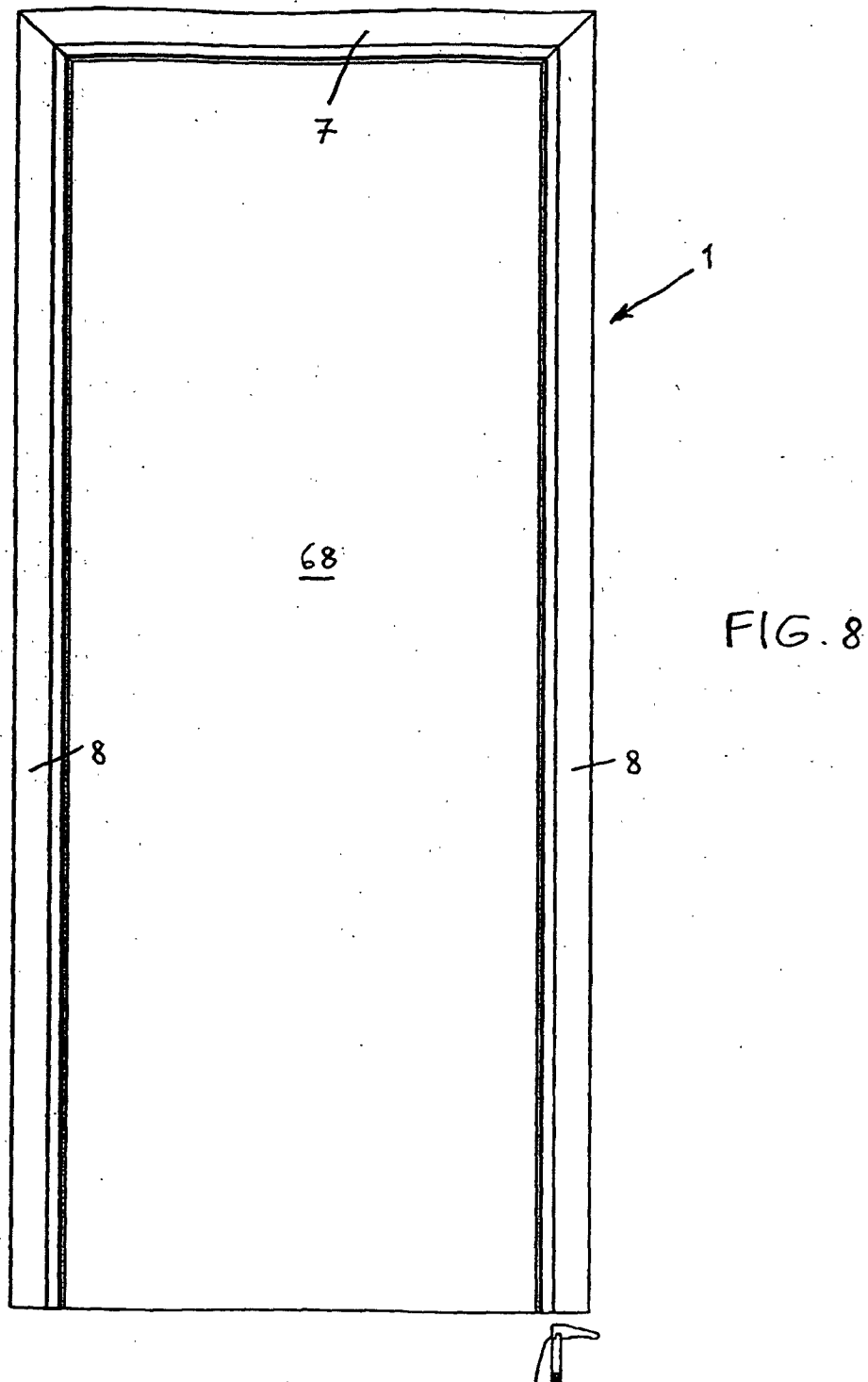


FIG. 7



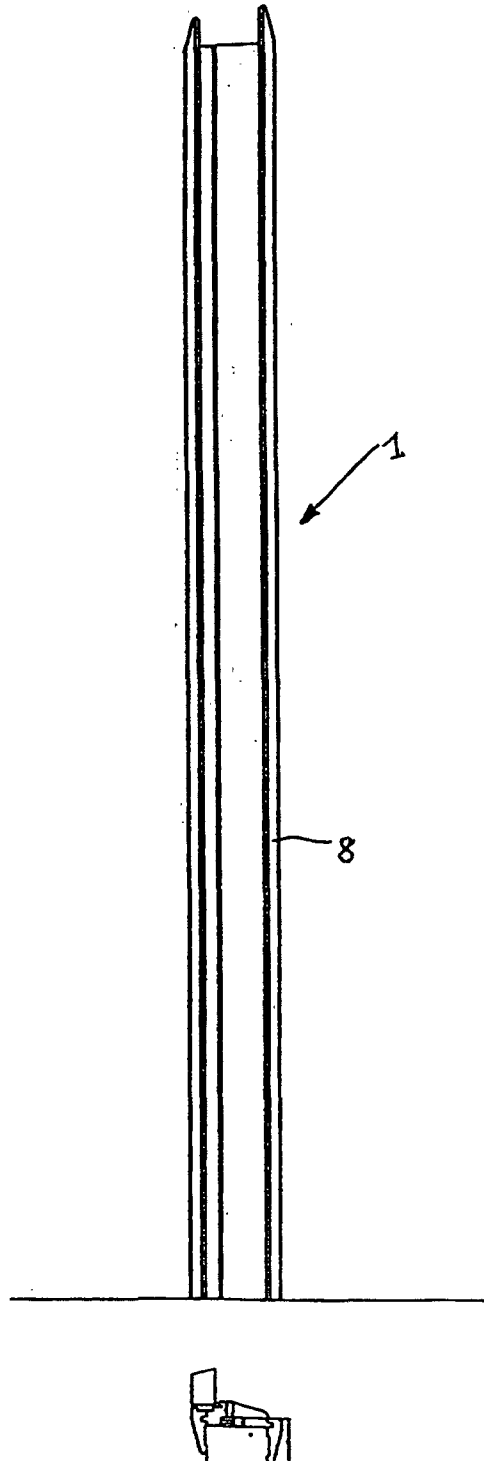


FIG. 9

