(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 094 167 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.04.2001 Bulletin 2001/17

(51) Int. Cl.[7]: **E04B 2/74**

(21) Application number: **00121802.3**

(22) Date of filing: **05.10.2000**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **22.10.1999 IT TV990113**

(71) Applicant: **Faram S.p.A.**
31040 Giavera del Montello (TV) (IT)

(72) Inventor: **Del Missier, Daniele**
31040 Giavera del Montello (TV) (IT)

(74) Representative:
D'Agostini, Giovanni, Dr.
D'AGOSTINI ORGANIZZAZIONE SRL,
Via G. Giusti 17
33100 Udine (IT)

(54) Partition wall structure with quick assembly of filler panels

(57) Partition wall structure, particularly for dividing internal areas, of a type having clips that operate in conjunction with hooking sections for the quick assembly of filler panels, comprised of: uprights that co-operate with corresponding sections and other fixing means on the ceiling and on the floor, or also with a mono-block partition, to whose uprights filler panels are fixed side by side on the two opposite sides, such as: at least one filler panel or a frame used to support the panel, having a longitudinal seating along the vertical edge adjacent to the said uprights, that grips a corresponding hooking section held on the opposite side, by at least a clip that is, in turn, inserted into a corresponding seating along the side of the upright in question; and also in which, in correspondence with each clip, there is a perpendicular seal that seals the gap between the adjacent panel that is mounted in the same way to the same upright.

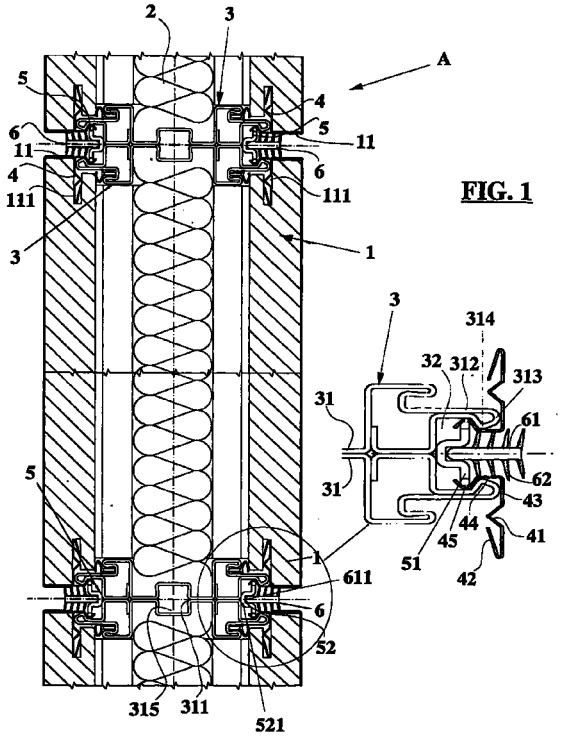


FIG. 1

EP 1 094 167 A2

Description

[0001] The object of the invention contained herein is a partition wall structure, used particularly for dividing internal areas, of the type with clips that work in conjunction with hooking sections for the quick assembly of filler panels.

[0002] The invention has particular, but not necessarily exclusive, application in the furnishing sector, such as elements to divide multifunctional areas which are used mainly as office space, for commercial activities or, more simply, as exhibition areas.

FOREWORD

[0003] Prefabricated partition walls are widely used. Because of their particular structure, some of these walls, such as those that are to be fitted out, are widely used in the home environment, for example with certain types of furnishing such as bedrooms or kitchens, because they can be adapted and adjusted horizontally to hold shelves, wall units and many other kinds of accessories. Other types, according to their characteristics and versatility, are mainly used to split-up environments.

[0004] The first group is made up of modular dividing walls that are mainly mounted vertically, and which later evolved into the horizontal type. The first type uses, basically, a series of flat panels which are joined together side by side by inserting aluminium upright sections, the profile of which is similar to an "H". Along both sides of each panel, the longer ones in this case, there is a vertical channel cut into it, and into which the aluminium section is inserted and held by means of a tooth that runs along the long side of the upright. In this way, a partition wall made up of a series of panels is obtained, with intervals of vertical guides that separate each panel from the next one. As an alternative, with a similar system, a "U" shaped section is used, placed along the wall and fixed by screws to hold the whole structure together. At the base of the uprights, a series of evenly-pitched slots are obtained vertically, into which accessory hooks at the ends of metallic segments are inserted perpendicular to the wall, and are used as support brackets for shelves that can then be regulated in height according to requirements.

[0005] A second category of partition walls is widely employed, and uses a series of various shaped panels that are fitted together, either to the floor or to the ceiling, by means of a series of accessories. They generally require a long time for assembly which certainly makes successive operations more difficult, such as the laying of cables or the simple removal of single panels.

[0006] Other panelled solutions foresee localised spot-connection systems, such as by using brackets or plates, which can also render one panel movable with respect to another, such as with the use of hinges, or rigid connecting systems that fit together by insertion or by fixing with screws. The drawbacks to be noted in this case are that, if the connection system is of the spot-type, there is no continuity to the wall between one panel and another, leading to unsightly gaps. If the connection is of the continuous type, on the other hand, the connection is not as flexible as would be desired.

[0007] A further solution has been proposed in the Italian patent N° 1 210 108. This system uses header sections along the jointing sides, made up of strike plates fixed to the panel and a mobile means for fixing it against the strike plate, which form two equal and contrasting longitudinal grooves that can be opened and closed, with a transversal, preferably shaped, section that sticks out longitudinally along, or close to, their respective corners. In this way, it is possible to insert a corresponding connecting section made of flexible material by sliding it in longitudinally, and that has its corresponding and opposite longitudinal edges that fit into the grooves so that, when they are tightened, the panels are joined with aligned borders at their headers by means of at least one of these sections, which are, respectively, along one or both of the opposite corners of the two panels to be connected.

[0008] These systems are certainly more functional than the previous ones, which most connecting techniques currently used are based on, and which require either a support backbone or structure and a time consuming operation to apply the filler panels to both sides. An example of this application foresees the use of both a primary and a secondary structure; the first one is made up of a series of uprights, while the second one is made up of cross bars. To allow this type of structure to be carried out, it is necessary to fix a "U" shaped channel to the floor and to the ceiling into which the uprights are fixed. The cross bars are then fixed directly to the uprights. The application of the filler panels to the structure is by using a hooking means, with one side of the panels having a series of hooks that fit into the fixing means attached to the structure. The disadvantage of this system is that the fixing means for the panel is not particularly efficient and there is a lack of stability. Furthermore, the hooking system is insecure, which could lead to the panels falling off. It is also a non-modular system lacking in flexibility. Finally, it is not easy to lay water pipes or cables because, due to the jointed structure, there is a lack of available space.

[0009] A variation of the preceding solution foresees a support structure that includes uprights with pusher ends for blocking them into the floor and ceiling sections. Similarly in this case, the uprights allow filler panels to be fixed on by means of a longitudinal guide, in which a height-adjustable plate is inserted. In spite of this, various drawbacks similar to the previous solution are to be found.

[0010] Another example is made up of a system whereby a rotating hook that is turned by means of a transversal screw is inserted in the panels. The use of this type of panel requires an adequate upright which

means that there will also be a series of crossbars from one side to the other onto which the hooking means is fixed. The solution proposed has a series of drawbacks which are even more problematic than those indicated previously. In fact, there is the possibility of the panel breaking in the point where the hook is inserted due to the excessive force to which the panel is exposed.

[0011] An improvement of the aforementioned techniques is foresees the use of a support structure for the panels, especially for constructing partition walls, made up of:

- a primary support structure with hooking means for the panels which can be used simultaneously;
- a secondary orthogonal support structure which intersects the primary structure, with its elements that are connected to each other at their headers, clamping the said primary support structure;
- filling means made up of panels with corresponding hooking means for attaching them to the primary structure;
- pusher ends for the primary support structure by means of holding sections with spacers positioned between them.

[0012] In the aforementioned solutions there are a number of disadvantages, some of which are common among the various solutions. Amongst these disadvantages, the main one to be mentioned is the fact that they all require complex operations for the fabrication of the single panels, for the metalwork required and for the other components required for the systems. Furthermore, the inherent complex assembly operation for each solution, and above all with relation to the required reciprocal positioning of the hooking means and their handling, does not permit a quick and flexible assembly, nor does it allow easy removal of the single panels to carry out maintenance work or any other type of intervention.

STATE OF THE ART

[0013] Some of the problems described beforehand have been resolved by the proposal contained in the Italian patent application n° TV98A000014 (Faram). The patent describes a partition wall, particularly for dividing internal environments, with clips on the exposed face of the filler panels for quick assembly, and includes a series of symmetrical uprights that have their ends fitted in to anchorage blocks on the floor and on the ceiling, and to which a series of vertical panels are hooked along each vertical side facing the said uprights and close to the edges. There are reciprocal hooking means, or clips, on the corresponding portion of the upright, which are fitted into a housing located along the inner side, close to the vertical ends of the said panels. The clips are made of spring steel with a means on one side for fixing them to the filler panel, while on the other side there is a female portion where a male fitting with a wedge-shaped head that runs along a portion of the connection upright is inserted.

[0014] The aim of the invention is to create an alternative partition which is extremely flexible in use, more complete and more stable than the previous ones wnile, at the same time, improving its overall application.

SUMMARY OF THE INVENTION

[0015] This and other aims are achieved with the invention according to the characteristics in the attached claims by means of a partition wall structure particularly used in internal environments, of a type having clips that operate in conjunction with hooking sections for the quick assembly of filler panels, comprised of: uprights that work in conjunction with corresponding sections and other fixing means on the ceiling and on the floor, or also with a mono-block partition, and to whose uprights filler panels are fixed side by side on the two opposite sides, such as: at least one filler panel or a frame used to support the panel, with a longitudinal seating along the vertical edge adjacent to the said uprights, that grips a corresponding hooking section held on the opposite side, by at least one clip that is, in turn, inserted into a corresponding seating along the side of the upright in question; and also in which, in correspondence with each clip, there is a perpendicular seal that closes the gap between the adjacent panel that is mounted in the same way to the same upright.

ADVANTAGES

[0016] In this way, through the creative contribution that has the effect of constituting an immediate technical progress, various advantages are achieved.

[0017] First of all, each single panel is attached more solidly and firmly to its corresponding upright, which leads to a more stable partition wall. At the same time, the advantages regarding sound-proofing are exploited to the full, achieved by eliminating or isolating the contact points between the various points that, with the previous solutions, favour the propagation of sound waves.

[0018] There is also an increase in the speed at which the partition wall is assembled, which makes removal or application of the panels quicker and easier, regardless of the type of intervention carried out on the partitions, and without recurring to the use of special tools or equipment.

[0019] A further advantage is that only the upright elements of the support structure are required compared with the traditional support structures, since the transversal elements are no longer necessary. The advantage, therefore, apart from the unparalleled flexibility of the system for a number of reasons such as the possibility of using various types of panelling, is that the overall structure is lighter.

[0020] Another advantage is that, unlike the previously described solutions in which drawn aluminium sections are mainly used, in this system sheet steel sections are used which are much cheaper than the other solutions.

[0021] As far as the cost of the system is concerned, a further reduction is achieved since the amount of metalwork and sections required is considerably reduced.

[0022] These and other advantages, with the aid of the included drawings, will be outlined in the following detailed description of a typical use of the invention, the particulars of which are not to be considered exhaustive but merely a typical example.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023]

Fig. 1 is a horizontal sectional view of a portion of a partition, with treated filler panels joined to both sides of the supporting structure.

Fig. 2 is a horizontal sectional view of an alternative to the previous partition, dressed with metallic filler panels.

Fig. 3 is a horizontal sectional view of an alternative to the previous partitions, dressed with glass panels joined on both sides to the support structure by gluing or by insertion.

Fig. 4 is a horizontal sectional view of an alternative to the previous partitions, dressed with a single glass panel.

Fig. 5 is a horizontal sectional view of a joint of a partition structure in correspondence with a blind door.

Fig. 6 is a horizontal sectional view of a joint of a partition structure in correspondence with a glass door.

Fig. 7 is a horizontal sectional view of a joint of a partition structure in correspondence with a three-directional fitting.

Fig. 8 is a horizontal sectional view of a joint of a partition structure in correspondence with a corner fitting.

Fig. 9 is a horizontal sectional view of a partition structure to which two filler panels in imitation treated wood are attached to each side.

Fig. 10 is a horizontal sectional view of a joint of a mono-block partition to which two treated filler panels are attached to each side.

Fig. 11 is a horizontal sectional view of an alternative to the partition structure shown in fig. 9, to which two metallic filler panels are attached to each side.

Fig. 12 is a horizontal sectional view of an alternative to the mono-block partition structure shown in fig. 10, to which two metallic filler panels are attached to each side.

Fig. 13 is a horizontal sectional view of an alternative to the previous partition structures, made up of a single glass panel.

Fig. 14 is a horizontal sectional view of a monoblock partition structure, of the type with a single glass panel.

Fig. 15 is a horizontal sectional view of a partition structure, of the type with two glass panels stuck on.

Fig. 16 is a horizontal sectional view of a monoblock partition structure, of the type with two glass panels stuck on, each one on the corresponding side to be dressed.

Fig. 17 is a horizontal sectional view of a partition structure, of the type with two glass panels inserted.

Fig. 18 is a horizontal sectional view of a monoblock partition structure, of the type with two glass panels inserted, each one on the corresponding side to be dressed.

DESCRIPTION OF VARIOUS WAYS OF USING THE SYSTEM

[0024] The above figures show a modular-type dividing partition (A), especially for internal furnishing, to allow, according to requirements, a continuity of similar partitions (A1, A2, An), or the fitting of one end to an existing wall or the connection, with similar partitions (A1, A2, An) by means of multi-directional connection pieces. Each partition (A) is made by forming a sandwich of at least two flat, vertical elements which, in this case, can be made of a filler panel (1) attached to both viewed sides of the partition (A) in melamine, plasterboard or a similar material, including transparent material such as glass, and between which, if required, a layer of insulating or fire-proof material may be inserted (2).

[0025] The support structure or frame to which the said opposite filler panels (1) are fixed to in a parallel and vertical position, is made up of a series of evenly-pitched uprights (3) that are previously positioned in order to match the width of the filler panels (1). The upper and lower ends of the said uprights (3) are fixed to the floor by means of correspondingly-shaped mounting blocks or feet by commonly used fixing methods, in order to guarantee the required stability to the structure.

[0026] Each upright (3) of the partition wall (A) is made up of two mirror-image monolithic parts (31) which are joined firmly together at their backs (311), made up of zinc-plated steel which is folded over a number of times. The shape of each part (31) of the upright (3) leads to an "L"-shaped form, created by folding the section various times, along the vertical sides (312) which correspond to the opposite sides, which is then folded again at the end (313) towards the inside to form, initially, a protruding lip (314) and then a box. By joining the two monolithic parts (31) with the "L"-shape

of each opposite vertical side, a continuous seat (32) is obtained in an assembled upright (3) with a profile that is "U"-shaped. A further particular is that each vertical side (312) has a portion that is thicker at the ends, with a lip with an inclined surface that acts as a holding tooth (314) and which, with the parts (31) joined together, sticks out from the internal side of the "U"-shaped seat thus obtained..

[0027] As far as the intermediate stretch (315) is concerned that, for each of the part (31) of the upright (3), joins the opposite ends of the "L"-shape (312), it includes a back, at the centre of which a continuous "U"-shaped form along the vertical is created with slightly diverging sides. With the parts (31) joined together the said "U"-shape makes, with the similar mirror-image form of the adjacent section, a four-sided shape that strengthens the structure, and which basically emerges from the outer side of the section.

[0028] In order to allow the filler panels (1) to be fixed to their respective structural support made up of uprights (3), each panel (1) has at least one longitudinal groove (111) running parallel along the header, that is, each vertical side (11) that faces the adjacent filler panel. The groove (111) is not central and is closer to the inner face of the panel (1) than to the outer face. Furthermore, towards the inner face, the edge of the panel (1) is machined in order to form a continuous tooth close to the edge (11).

[0029] A hooking section (4) of the panel (1), which is formed out of a piece of sheet steel, is located inside the groove (111). The said hooking section (4) is made up of a part that goes inside the seat (111), and a part that, protruding from the groove, goes into the adjacent "U"-shaped seat (32) which runs longitudinally to the upright (3) and to which the panel (1) is fixed. The first part of the section (4) is characterised by a central pyramid-shaped portion (41) that comes out of a flat portion (43), and a part of the extremity (42) that, having its end folded over on the previous portion (43), is inclined. Both the height of the pyramid-shaped portion (41) and the folded extremity (42) form a thickening of the sheet, so as to compensate for the width of the groove (111). These thickened parts slightly impede their insertion, so that the said parts have to be forced into their respective seat (111) to avoid them slipping out accidentally. Furthermore, it leads to a certain shock-absorbing effect to the natural movement of the panel (1). The part of the section (4) that protrudes from the seat (111) and that goes towards the inside of the "U"-shaped seat (32) is made up of a short stretch (44) that is level with respect to the side of the panel (1), followed by a "V"-shaped stretch (45) that has its open part facing towards the inside part of the "U"-shaped seat (32).

[0030] By positioning the panel (1) on the upright (3), the extremity (45) of the section (4), previously inserted in the seat (111), pushes slightly against the lip (314) which, having a lead, gives elastically at the end (45) until it passes the said lip to partially overlap, with a distinctive click. In the same way, the adjacent panel is positioned (1) so that, once joined together by the same sides to the respective upright (3), the filler panels can be fixed in position.

[0031] The fixing is carried out by using a hooking clip (5), called a safety clip, which is also made out of steel. The clip (5) is made up of two fins (51) at the sides of a central "U"-shaped portion (52). It is inserted along the gap between the two panels (1) hooked to the side of the upright (3) so as to be, with the base (521), in contact with the back of the "U"-shaped seat (32) foreseen by the upright (3). When inserting the clip (5) the fins (51) push on both sides (44) of the hooking section (4) and elastically give slightly, so that each fin goes into the corresponding "V"-shaped seat (45) of the external portion of the hooking section (4). In this way, the yielding of the portion (44, 45) of the hooking section is avoided, guaranteeing that the filler panel (1) is held to the side (32) of the upright (3).

[0032] To hide the hooking clip (5) and partially hide the gap between the headers of the two panels (1) fixed commonly to the same upright (3), an extruded PVC seal is foreseen (6). The said seal (6) is made up of a central body (61), the extremity of which (611) fits inside the "U"-shaped seat (52) of the clip (5). The pressure applied by the seal (6) on the clip (5) is given by a series of plates (62), in this case four, which are slightly slanted and run longitudinally on each of the longitudinal sides of the central body (61).

[0033] A first variation to the solution of filler panels (1) in melamine. shown in fig. 1, foresees the use of metallic panels (7) of sheet steel in the uprights (3). Fig. 2 shows an example of this application. The said panel (7) has a core (71) made up of low density material, with a layer of sheet steel (72) attached to one side, and that dresses five of the six sides of the core (71). The metallic filling (72) of each panel (7) is longer than the core (71), with the headers (721) folded over and orthogonal with respect to the viewed side (72), in order to leave a space (711) between the header of the material (71) that forms the core and the folded side (721) that forms the vertical header of the filler panel (7). The terminal portion (722) of each folded side (721) forms a "V"-shape, with its open side facing towards the inside of the seat (32) in which it is inserted. In this case, the terminal portion (722) sits against the bottom of the said seat (32) of the upright (3). At the same time, the vertical extremity of the seat (32) of the upright (3), that is of each partition (312), are partially inserted inside the residual gap (711). There is also a clip (5) in this case , similar to the one previously described, that guarantees the holding of the panel (7) to the side of its respective upright (3), pushing the fins (51) inside the corresponding seats (722) along the headers of each filler panel (7). Finally, similarly to the solution previously described, there is a seal (6) that presses on the clip (5) and that seals the remaining gap between the headers of the two panels (7) that are level with each other.

[0034] A third variation to the aforementioned solutions regards a portion of the partition and its filling, that is, with filler panels made out of glass. In this case, refer to the hypothesis in fig. 3 where, instead of the filler panels (1) or (7), there are sheets of glass (8). The sheets of glass (8) may either be stuck to a support frame (9) as shown in figs. 15 and 16, or inserted, as in figs. 17 and 18. In both cases, in order to hold and fix the lateral sides of the glass panel, a metallic frame is used. (9). It is made up of drawn aluminium (9) with two flats on the lateral extremities (91), along which the glass (8) is positioned and held in place by two fins (92) which are orthogonal to the respective flats (91), allowing the seating of the headers of the glass sheets (8). In the area immediately below the flat (91) there is a seat (93) with its opening facing the seat (32) of the upright (3). In this way, on the inside of the said seat (93), the hooking section (4) fits into the pressed portion (41-43). In order to avoid the section (4) coming out of the seat (93), there is a tooth (931) on the drawn piece (9), against which the terminal point (43) of the said section (4) sits. A clip (5) is also used in this case to guarantee the holding of the piece, which is inserted along the seat (32) of the upright (3), so that, in this way, the fins (51) press on the portion of the section (45) that overlaps the lip (314). Finally, a similar seal (6) closes the gap between the adjacent filling element, by being inserted longitudinally and pressed against the clip (5).

[0035] The set up of the frames, and in this case of the drawn section (9), that are used to laterally support at least one glass sheet (8), vary. For example, in one case, as seen at the side of fig. 3, the drawn section (9) may include at least one boxed side (10) that forms a "C"-shaped seat (101), in order to contain the vertical side of the sheet of glass (8). Similarly in this case, the seat (93) along a side of the hooking section (4) is formed in the part immediately below the boxed portion (10).

[0036] Apart from the use of the single filler panels (1, 7 and 8) along the vertical sides, there are various conformations of the upper and lower transversal elements of the support frame that are used to support the said panels.

[0037] For example, the conformation of the support frame for the glass panels (8) shown in figs. 13 to 18 vary according to whether normal or mono-block versions are used, or whether one or two filler panels made of glass or a similar material (8) are used.

[0038] In fig. 13, a single glass panel (8) is shown which has its lower part resting inside a "U"-shaped seat (121) along the drawn piece (12) of the two drawn pieces for lateral gripping (12, 12A) and cover at least one inferior side of the partition. In turn, each drawn piece, on the left hand and right hand sides (12, 12A), overlaps a channel (13) made of sheet steel where the support feet (14) are located. The extremity (141) of the support foot (14) hinges on a "U"-shaped support element (142), with its extremities sitting against the lower side of a monolithic transversal element (15) and, above which, the lower part of the two drawn pieces (12, 12A) are positioned. The conformation of the said transversal element (15), made out of sheet steel, foresees a further "U"-shaped portion in the central part (151) which matches the internal profile of the said "U"-shaped support element (142). On both sides of the central part (151) of the transversal element (15), there is a portion (152) that is folded over parallel to the wall of the central part (151), the extremity of which is folded over towards the outside at 90°, in order to form a support (153). The function of this piece is to support the boxed sides (122) of each drawn piece (12, 12A) on the lower side. As far as the upper side is concerned, in order to hold the glass panel (8) there is the interaction of the opposing drawn pieces (12, 12A), similar to those on the lower side. In this case, there is a spring pusher (16) that pushes on the ceiling on one side, while the other side acts against the upturned "U"-shaped extremity (161) in order to hold both drawn pieces (12, 12a) that are part of the support frame for the glass (8).

[0039] In the mono-block version of the partition with a single glass panel (8), which is shown in fig. 14, for both the upper side and the lower side of the glass support frame, there is the same interaction between the transversal element (15), in this case located between a pushing element (161), and the two drawn pieces (12, 12A). Therefore, also in this case, the upper side of each glass panel (8) is held in place by holding fins (153) in the transversal element (15), around the perimeter of the boxed border (122) of each drawn piece (12, 12A) in order to position the border of a corresponding sheet of glass (8).

[0040] In another version of a partition, which is shown in fig. 15, there are two glass filler panels (8), one for each side of the partition. In this case, the conformation of the single drawn pieces is different from the version with one glass panel shown in fig. 13. Since it has to support two glass panels (8), which in this case are stuck in place, each drawn piece (17, 17A) is a mirror-image of the other. There is at least one lower and one upper boxed transversal element (171) on each side of the partition, with a protruding orthogonal fin (172). Each fin (172) overlaps at least two of the outside borders of the glass in question (8), the lower and the upper sides respectively. In the base version, the support element of the assembly, that is the transversal element (15), is present on the lower side of the partition only, and is positioned between the "U"-shaped support (142) of the foot (141) and the two drawn pieces (17, 17A). With the partition shown in fig. 16, showing a mono-block type with two glass panels (8) with one on each side of the partition, the use of a transversal element (15) positioned between the "U"-shaped support, in this case (161) of the pusher (16), and the two drawn pieces (17, 17A), is also foreseen on the upper side.

[0041] The versions shown in figs. 17 and 18 regard the transversal conformations of the elements that sup-

port the two inserted glass panels (8), one on each side. Similarly in this case, two types of partition are foreseen, a base version and a mono-block version.

[0042] Going into detail, the conformation of the frame varies with the two versions, and is made up of at least two symmetrical drawn elements (18, 18A) on the upper side and on the lower side. Each drawn piece (18, 18A) foresees boxed borders (181) that are as long as the upper side and the lower side. In between the two boxed borders (181), relative to each side of the partition in question, there is a chamber that is used to position the glass (8). Along the lower side of the upper boxed border (181) and the upper side of the lower boxed border (181) there is a "U"-shaped seat (182) that straddles the relative glass panel (8) along its sides. In the base version of the partition, the transversal element (15) regards only the lower side of each of the two drawn pieces (18, 18A). Similarly to the two solutions previously described, it is positioned between the "U"-shaped support element (142) for the foot (141) and the two overhanging drawn pieces (18, 18A). In a different way, with the partition shown in fig. 18, which is a mono-block type with two glass panels, one on each side of the partition, the transversal element (15), which is positioned between the "U"-shaped support, in this case (161) of the pusher (16) and the two drawn pieces (18, 18A), also regards the upper side of the frame.

[0043] Finally, the same construction variations are repeated in the solutions shown in figs. 9 and 10. for a partition with filler panels treated with melamine (1), a base version and a mono-block version respectively, and for the partitions shown in figs. 11 and 12, a mono-block type with filler panels in sheet steel (7). With these versions, however, the drawn aluminium pieces for supporting the glass panels (8) are not required. Consequently, the transversal element (15), particularly the fins (153), supports the single panels (1, 7). The central part (151) of the transversal element with the "U"-shaped seat is used to hold the lower extremity of the insulated panel (2), which is positioned between the two mirror-image panels (1) or (7).

[0044] As far as particular applications of the partition are concerned, for example the corner fitting shown in fig. 8, the orthogonal joint between two partitions is carried out by inserting a corner element (19). The said corner element (19), in this case made out of treated chipboard, has a longitudinal groove (111) along the two lateral extremities, similar to the one along the panels (1). In this way, the corner piece (19) can be placed next to the two uprights (3) which, positioned along the extremity (191) of the fitting (19), allows the same hooking system foreseen for joining the two filler panels (1, 7 and 8) to be used. In this case, to help with the fixing to the upright (3), a "W"-shaped contrast piece in sheet steel (192) is foreseen that is placed inside the fitting (19), and to which a component (193) is attached externally to act as a support for the header side of the upright (3).

[0045] Further special applications include, for example, a three-directional fitting (fig. 7). Similarly in this case, a sheet steel element is foreseen (20), which is positioned between the three uprights (3) that surround the structure, two of which are diametrically opposite and a third one that is positioned between the said two. The element positioned in between (20), therefore, has three protrusions (21), positioned at approximately 90° apart, along each of which the respective upright (3) is positioned. A fourth side of the element (20), open in this case, is dressed with a filler panel, for example (1), which gives a logical continuity to the partition. In order to allow the headers of the three uprights (3) to be pushed home, the intermediate protruding body (21) has a compensating boxed element (22) on two sides, similar to the component (193) used for the corner fitting (19).

[0046] In the partition structure (A), it is also possible to insert an access door (23, 24) as shown in figs. 5 and 6. The said doors have a boxed frame (25), also made out of sheet steel, fastened along the header of the upright (3). The same sheet steel section, used as a frame (25) to support the relative hinges, acts also as a door post (23, 24), which is also fastened to the side of the upright (3).

[0047] Finally, there are seals (26) positioned between the support elements of each type of partition and the single filler panels (1, 7 e 8).

Claims

1. Wall structure, particularly for dividing internal areas, of a type having clips that operate in conjunction with hooking sections for the quick assembly of filler panels, comprised of: uprights (3) that co-operate with corresponding sections and other fixing means on the ceiling (16) and on the floor (13), also with a mono-block wall, to whose uprights (3) filler panels are fixed side by side on the two opposite side, characterised by the fact that at least one filler panel (1, 7, 8), or a frame used to support the panel, has a longitudinal seating (111, 711, 93) along the vertical edge adjacent to the said uprights (3) that grips a corresponding hooking section held on the opposite side by at least one clip (5), and that the said clip (5) is, in turn, inserted into a corresponding seating (32), along the side of the upright in question (3).

2. Wall structure, particularly for dividing internal areas, according to claim 1, characterised by the fact that the hooking section has at least one portion of plate (45, 722) that overlaps one of the two partitions (312) that form the seating (32) made up longitudinally along the upright (3).

3. Wall structure, particularly for dividing internal areas, according to claims 1 and 2, characterised

by the fact that the hooking section is formed by a plate, preferably in steel shaped to form an "L", in which;

- a first part, comprised of a central pyramid-shaped portion (41) that sticks out from a flat portion (43), and an end part (42) that, having its end folded over the preceding portion (43), appears inclined;
- a second part that is orthogonal to the said first part, made up of a short portion (44) followed by a "V"-shaped portion (45).

4. Wall structure, particularly for dividing internal areas, according to the previous claims, characterised by the fact that at least one filler panel (1, 8), has a longitudinal slot (111, 93) running parallel to the exposed face along at least one of its headers or vertical border (11, 92)

5. Wall structure, particularly for dividing internal areas, according to the previous claims, characterised by the fact that inside the slot (111, 93) a part of the hooking section (4) is inserted, the said part being made up of a central pyramid-shaped portion (41) that sticks out from a flat portion (43), and an end part (42) that, having its end folded over the preceding portion (43), appears inclined and, in which, both the height of the pyramid-shaped portion (41) and the folded-over end (42) form a thickening of the plate, in order to compensate for the width of the slot (111, 93).

6. Wall structure, particularly for dividing internal areas, according to the previous claims, characterised by the fact that the external part of the hooking section that sticks out of the slot (111, 93), made up respectively of a short piece (44) followed by a "V"-shaped portion (45), is positioned in the adjacent "U"-shaped seat (32) formed longitudinally to the upright (3), and to which the panel (1) is fixed.

7. Wall structure, particularly for dividing internal areas, according to the previous claims, characterised by the fact that the part of the hooking section that is directed towards the inside of the "U"-shaped seat (32), is made up of a short portion (44) level with the header (11, 92) of the panel (1, 8), followed by a "V"-shaped portion (45) with the open part facing the inside of the "U"-shaped seat (32), overlapping the partition (312).

8. Wall structure, particularly for dividing internal areas, according to the previous claims, characterised by the fact that a filler panel (1) in treated wood has a squared portion removed from it towards the inside face to form a tooth (112).

9. Wall structure, particularly for dividing internal areas, according to claims 1-8, characterised by the fact that a filler panel (8) in glass or similar material is held along its header by a support frame (9), made up of at least one piece of drawn aluminium, with the said frame (9) having a seat (93) along the header orthogonal to the support side of the filler panel (8), on the inside of which a portion of the hooking section is inserted (4), made up of a central pyramid-shaped portion (41) that sticks out from a flat portion (43), and an end part (42) that, having its end folded over the preceding portion (43), appears inclined.

10. Wall structure, particularly for dividing internal areas, according to the previous claim, characterised by the fact that a frame (9) has, two flat surfaces (91) along its lateral extremities, along which the glass (8) sits on the same side, held in place by two limit fins (92) which are orthogonal to the respective flat surfaces (91), and in the area immediately below the flat surface (91) there is a seat (93) with its opening facing the seat (32) of the upright (3).

11. Wall structure, particularly for dividing internal areas, according to claim 9, characterised by the fact that the drawn piece may include at least one boxed side (10), with one side of which forming a "C"-shaped seat (101) used to hold the vertical edge of the glass sheet (8), and in which the seat (93) for receiving along the head of the corresponding hooking section (4) is obtained in the part immediately beneath the boxed section (10).

12. Wall structure, particularly for dividing internal areas, according to claims I and 2, characterised by the fact that the filler panel (7) has a low-density core coupled on one side with a layer of plate (72) which goes beyond with respect to the core (71) with the headers (721) bent orthogonal with respect to the viewed side (72), in order to leave a space (711) between the header of the material (71) that makes up the core and the bent side (721) that makes up the vertical header of the filler panel (7).

13. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that the terminal part (722) of each bent side (721) forms a "V"-shaped hook at its extremity, with the open part facing the inside of the seat (32) in which it is fitted.

14. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that at least one upright (3) and one inter-partition (A) is made up of two monolithic mirror-image parts (31) held firmly

together and opposite on the back (311), and made up, in this case, by a zinc-plated plate bent and folded various times, and in which the form of each part (31) of an upright (3) is such that along both vertical sides (312), that correspond to the two opposite partitions, an "L" shape is formed by bending the section various times, and at its extremity (313) it is bent towards the inside, to form a protruding rim (314).

15. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that by joining the two monolithic parts (31) with the "L" shape of each opposite vertical side, a continuous seat (32) with a "U"-shaped section is obtained along the upright (3), in which each vertical side (312) forms a rim along its extremity that is used as a holding tooth (314), and that sticks out from inside the of the "U"-shaped seat (32) thus obtained.

16. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that in a filler panel (7) at least one partition (312) is partially positioned inside the remaining space (711).

17. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that the extremity (45) of the hooking section (4) of a filler panel (1, 8), that is the hooking extremity (722) of a filler panel (1) is fixed to an upright (3) with at least one hooking clip (5).

18. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that the clip (5) is made up of two fins (51) on the sides of a central "U"-shaped portion (52), inserted along the space between two filler panels (1, 7 and 8) hooked along the side of the upright (3) so that, along with the base (521), it is close to, or in contact with, the back of the "U"-shaped seat (32) foreseen by the upright (3).

19. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that the fins (51) enter the corresponding "V"-shaped seat (45, 722) of the external portion of the hooking section.

20. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that the a seal (6) acts upon the clip (5) and closes the remaining space between the headers of the two mating filler panels (1, 7 and 8).

21. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that the hooking section (4) with the loaded portion (41-43) enters a seat (93), and the end (43) of the hooking section (4) stops against a tooth (931) obtained from the drawn piece (9).

22. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that at least two parallel filler panels (1, 7 and 8) that dress the right hand and the left hand sides of each partition are held along the lower sides by a transversal element (15), the said transversal element being made up of a "U"-shaped profile that straddles the lower channel (13) with, on both sides of the central shape (151), a folded stretch (152) that is parallel to the partition of the central shape (151), the extremity of which is folded towards the outside at 90° to form a seat (153) for the filler panel (1, 7 and 8) support or the frame of the support.

23. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that each drawn piece on the right and on the left, respectively (12, 12A), (17, 17A), (18, 18A) supports a corresponding transversal element (15), which goes over a channel (13) made from sheet, inside which the support feet (14) are positioned.

24. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that each extremity (141) of the support foot (14) works in conjunction with a "U"-shaped element (142), the extremities of which rest against the side beneath the monolithic transversal element (15) above which the lower sides of the corresponding drawn pieces (12, 12A), (17, 17A), (18, 18A) sit.

25. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that the monolithic transversal element (15) touches the upper side of each parallel filler panel (1, 7 and 8).

26. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that the orthogonal joint of two partitions is carried out by means of inserting an angular element (19) which has, along the two lateral extremities, a longitudinal slot (111).

27. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that a contrast

piece (192) is foreseen on the inside of the fitting (19), obtained by folding a sheet into a "W" shape, to which an element (193) is externally fixed to act as a support for the header of each of the two uprights (3).

28. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that a three-point fitting is foreseen, with at least one sheet-steel element (20), that is positioned between the three uprights (3) that surround the structure, two of which are diametrically opposite with a third one positioned between the two, called intermediate element (20), with three protrusions (21) at 90° from each other, along which the respective upright (3) is positioned.

29. Wall structure, particularly for dividing internal areas, according to one or more of the previous claims, characterised by the fact that a seal (6) in extruded PVC is made up of a central body (61), the extremity of which (611) fits inside the "U"-shaped seat (52) of the clip (5), the said central body having a series of strips (62) that are slightly slanted running longitudinally along each of the two longitudinal sides of the central body (61).

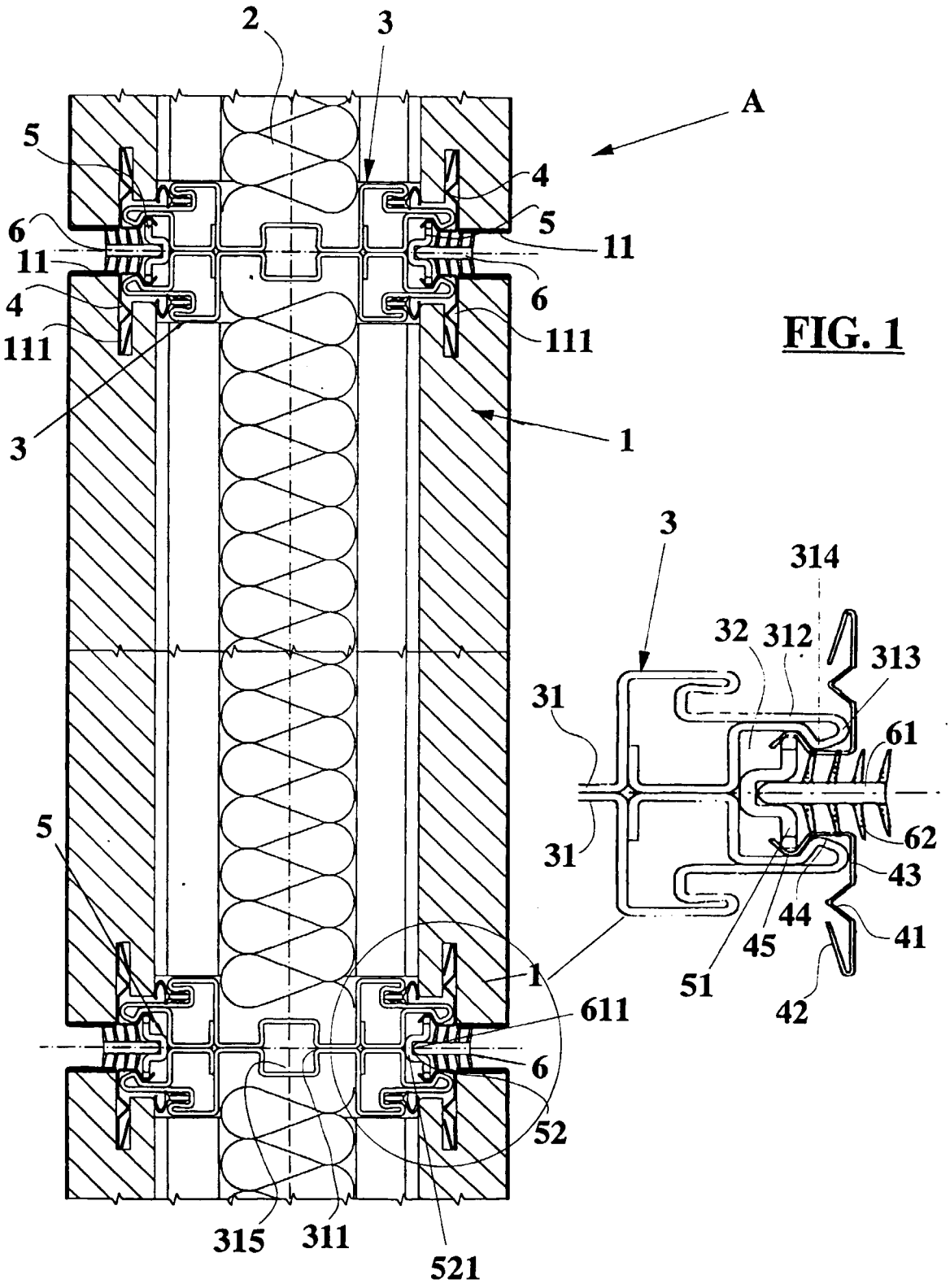

2
3
A
5
4
6
11
5
11
6
4
111
111
3
1
3
314
32
312
313
31
61
31
62
43
44
45
41
51
42
5
1
611
6
52
315
311
521

FIG. 1

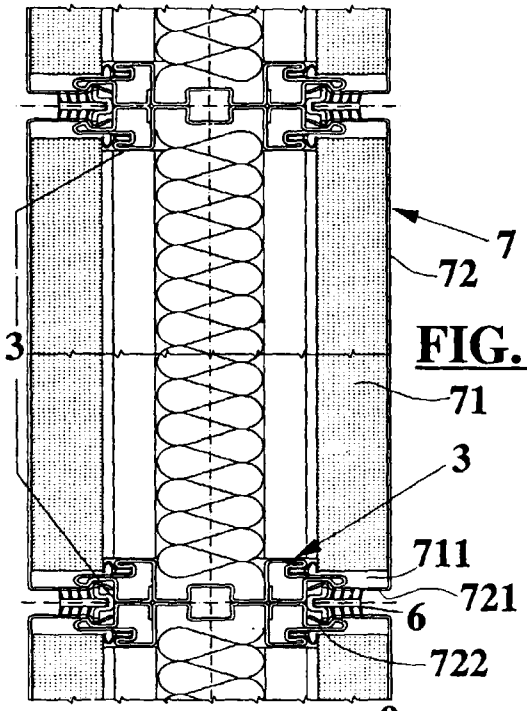


FIG. 2

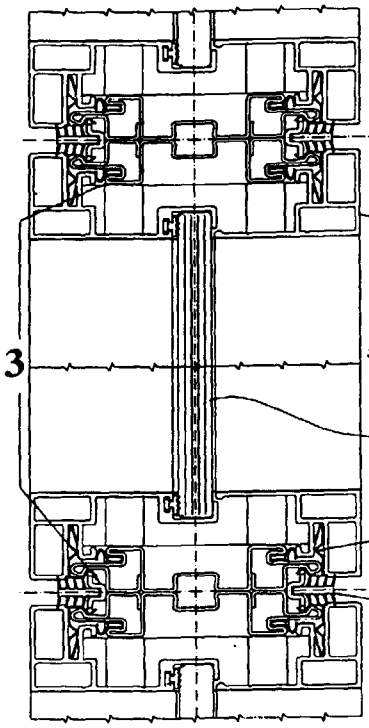


FIG. 4

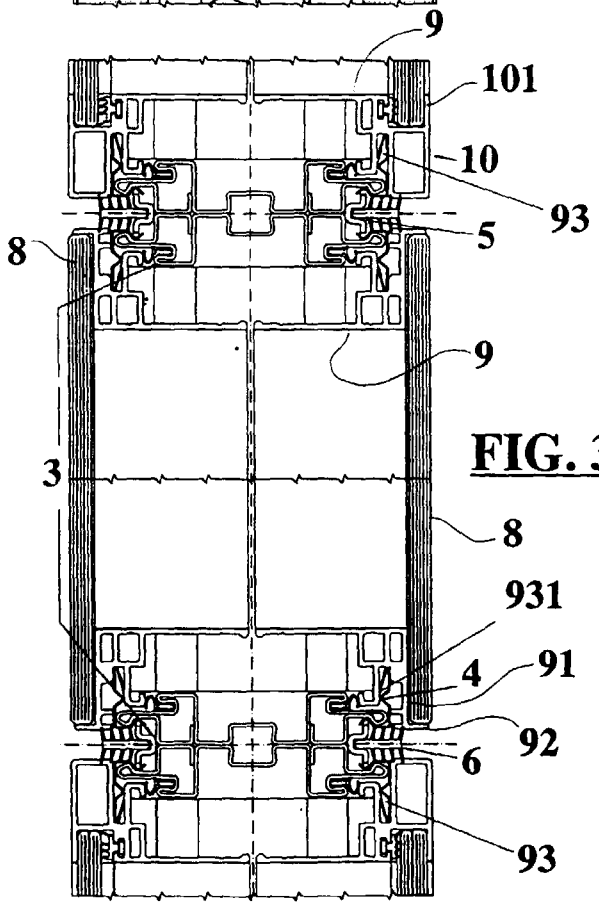
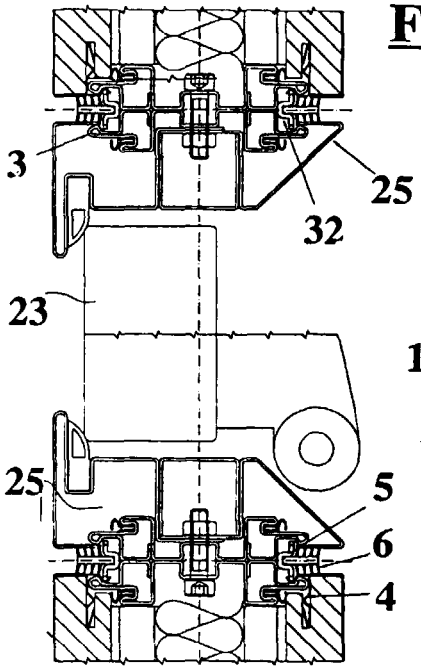


FIG. 3

FIG. 5



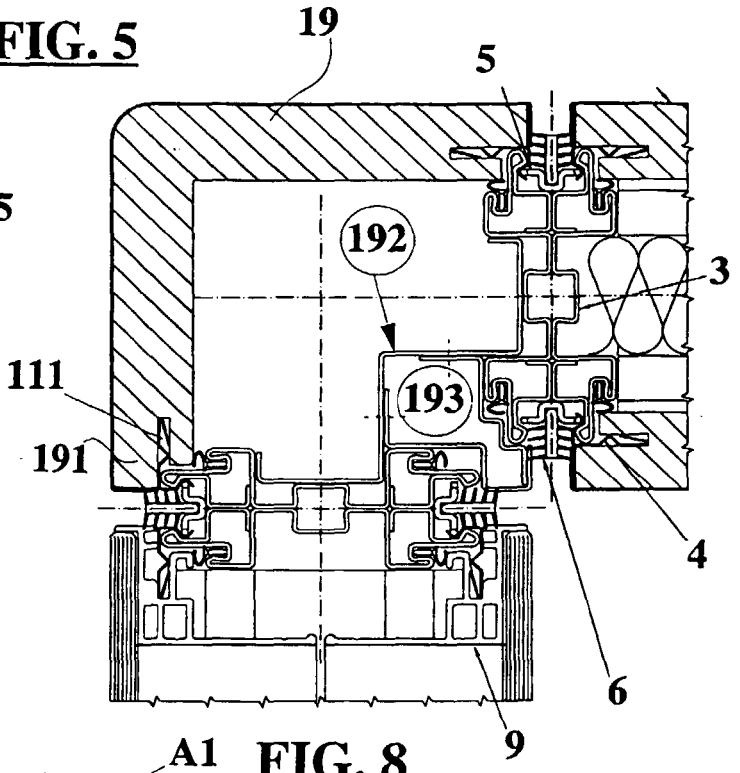


FIG. 8

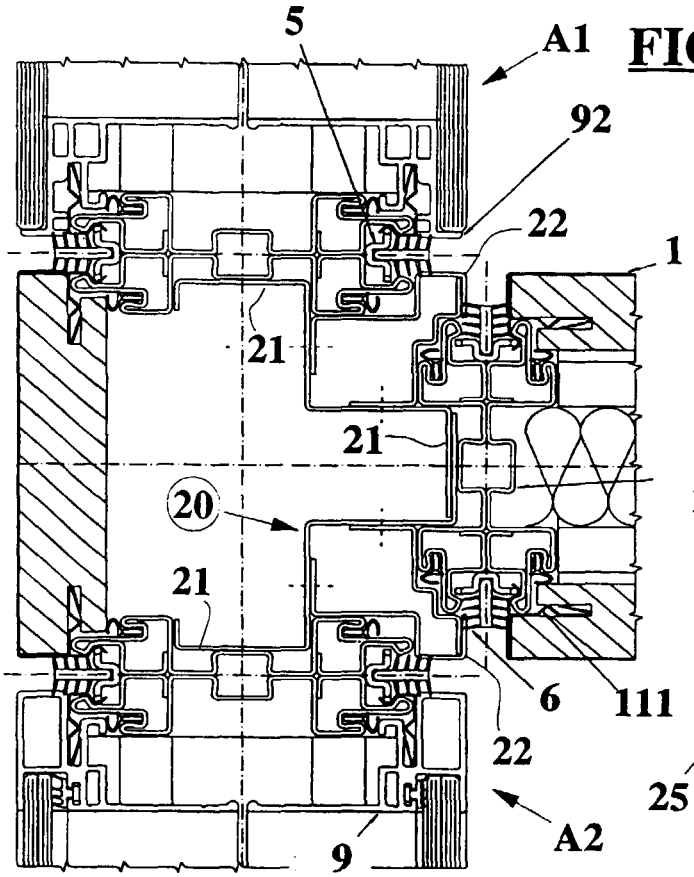


FIG. 7

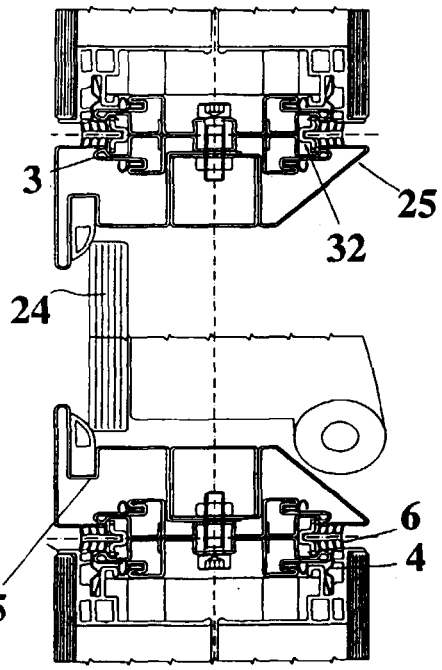


FIG. 6

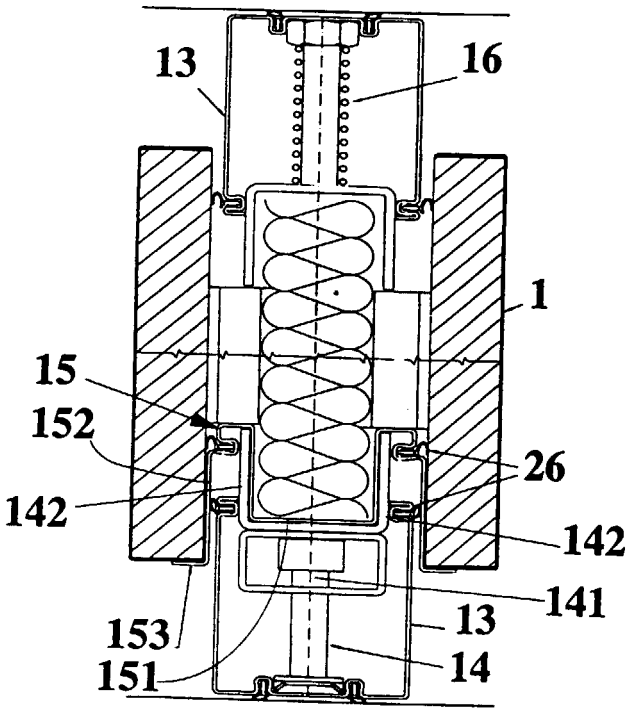


FIG. 9

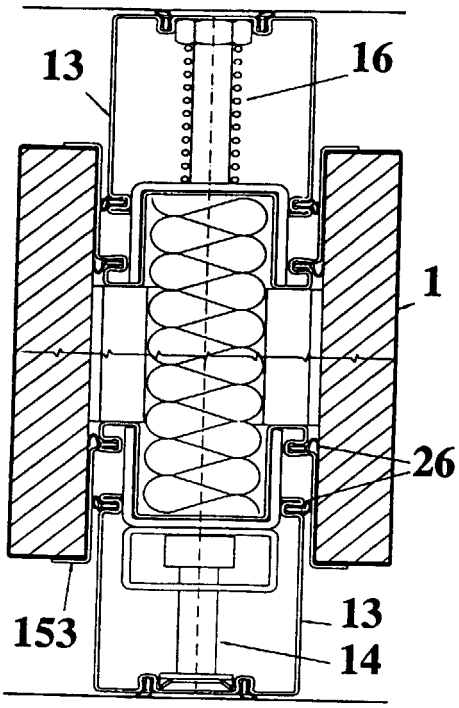


FIG. 10

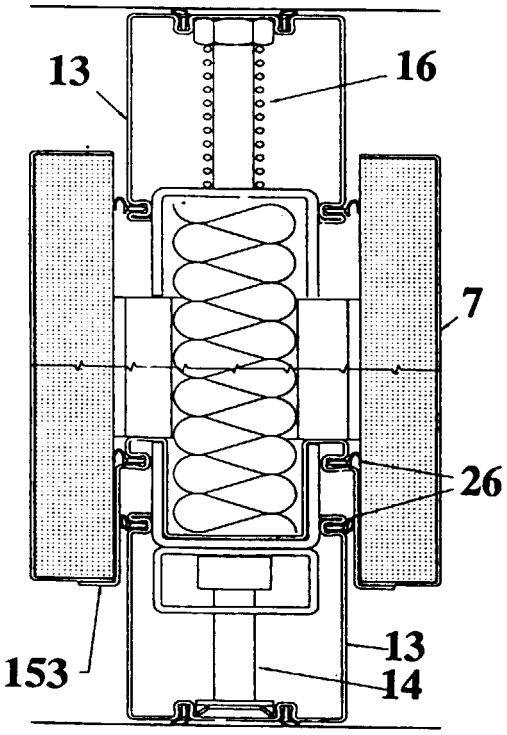


FIG. 11

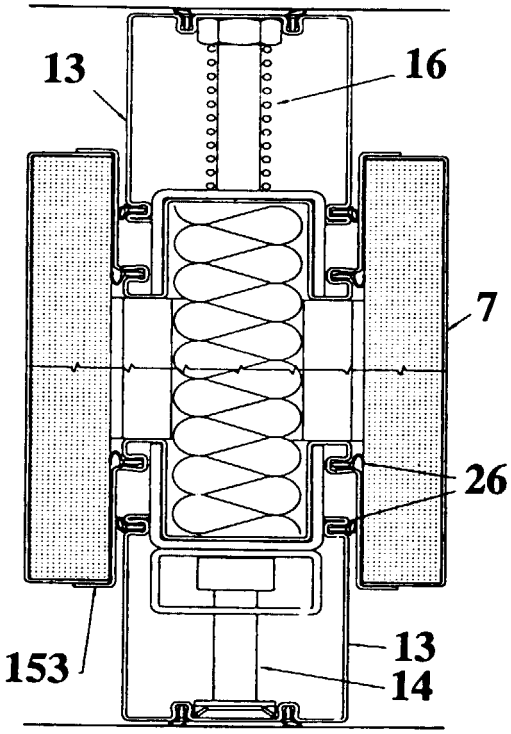


FIG. 12

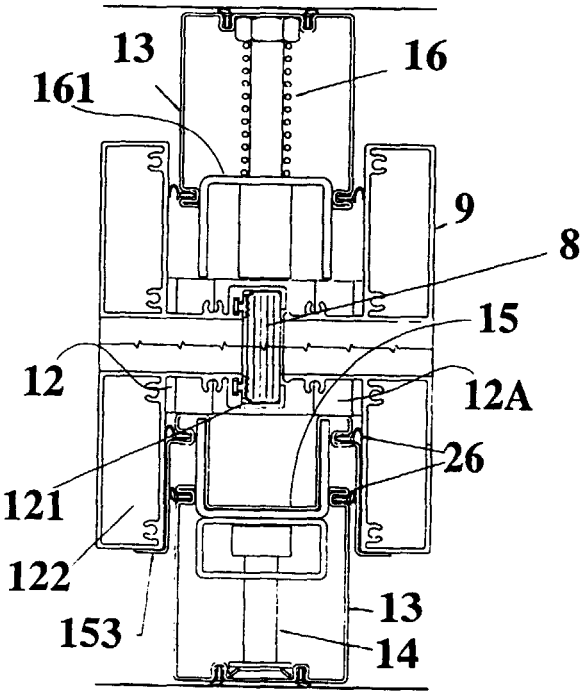


FIG. 13

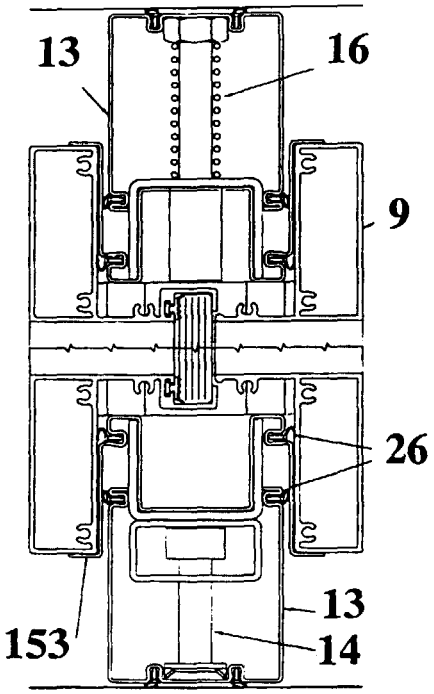


FIG. 14

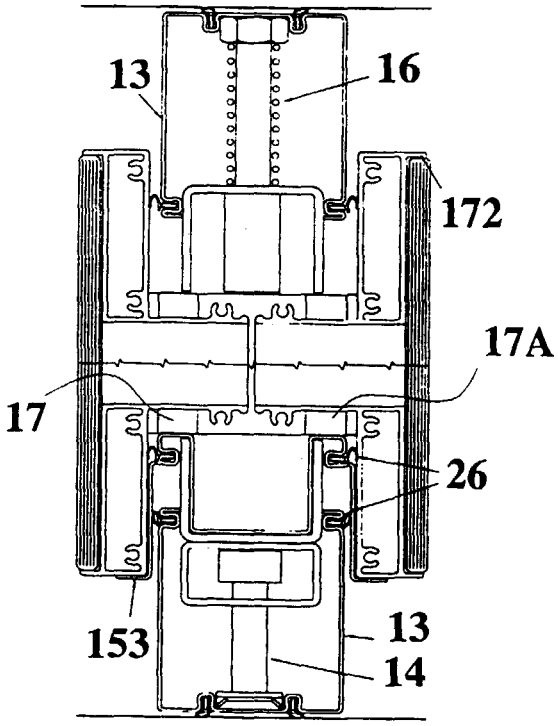


FIG. 15

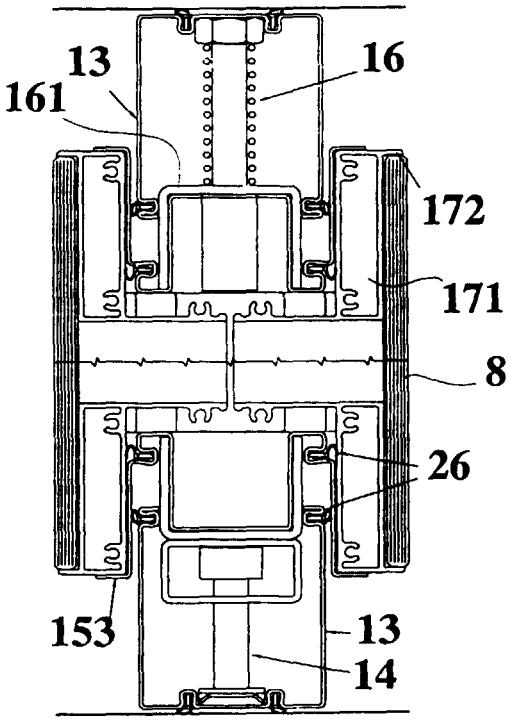


FIG. 16

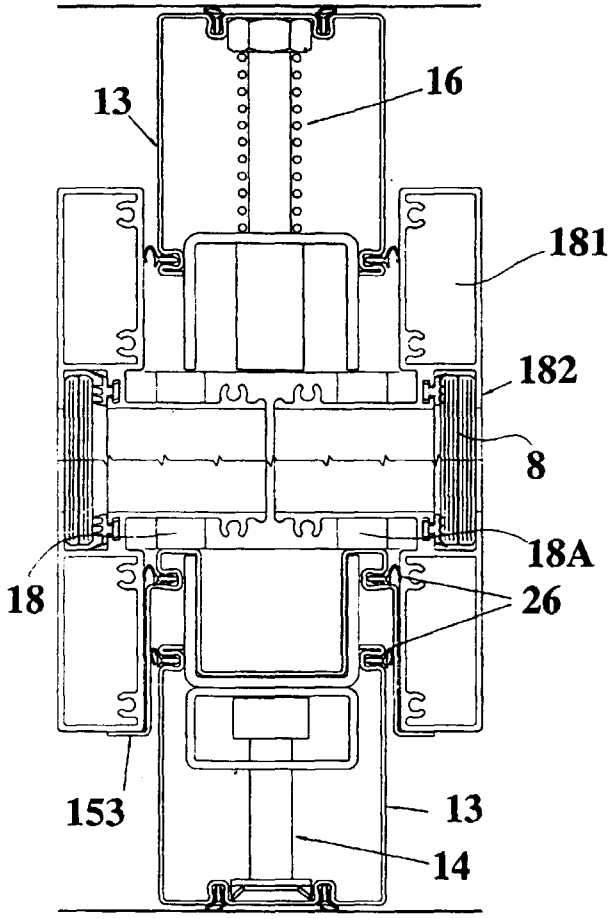


FIG. 17

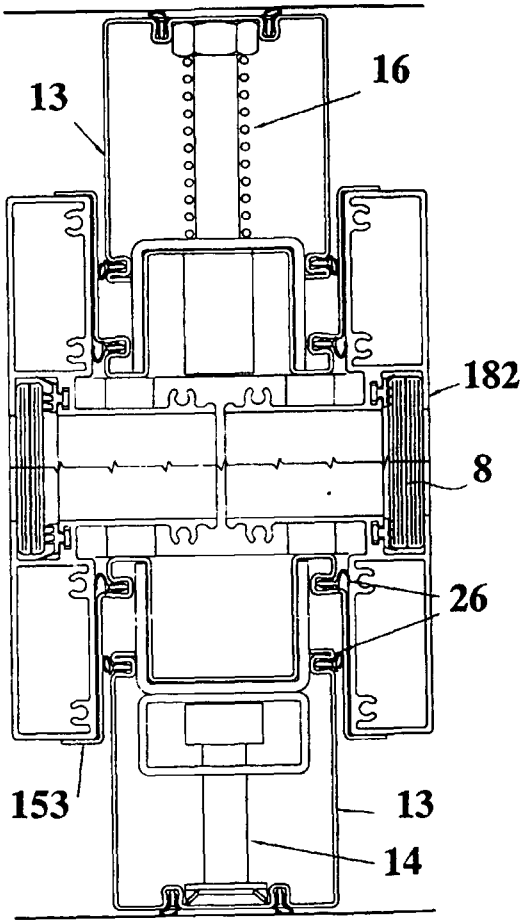


FIG. 18