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(54) Kit for making wall-mounted furniture elements.

(57) An assembly kit for erecting wall-type furniture elements comprises a plurality of anchor rails (1) intended for mounting to a wall in a horizontal position, a plurality of vertical uprights (5), first clamps (13) for attaching the uprights (5) to the anchor rails (1), a plurality of hook-on rails (9), second clamps (14) for attaching the hook-on rails (9) horizontally to the uprights (5). Panelling boards (24) may be hooked onto the hook-on rails (9). The first clamps (13) allow for three-way adjustment of each upright (5) position relative to each anchor rail (1), and the second clamps (14) allow each hook-on rail (9) to be secured in a selected fixed position relative to each upright (5).

In this way, compensating for any floor and wall unevenness can be made an extremely simple operation.

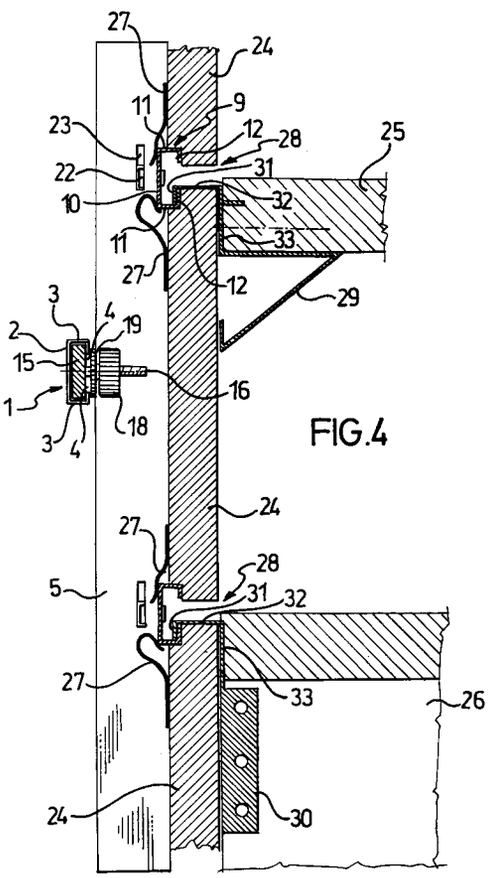

FIG.4

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This invention relates to an assembly kit for erecting such wall-type furniture elements as panellings, shelvings, and cabinets.

The erection of furniture elements as above frequently requires that any uneven conditions or planarity or verticality errors, in the floor and the wall involved, be compensated for to prevent them from showing up as defects in the finished structure.

The underlying problem of this invention is to make adjustment for any untrueness of the wall and the floor not only feasible but also extremely simple.

This problem is solved, according to the invention, by an assembly kit for erecting wall-type furniture elements, comprising a plurality of anchor rails intended for attachment to a wall in a horizontal position, a plurality of vertical uprights, first clamps for securing the uprights to the anchor rails, a plurality of hook-on rails, second clamps for securing the hook-on rails in horizontal positions to the uprights, panelling boards adapted to be hooked onto the hook-on rails, wherein the first clamps allow for three-way adjustment of the position of each upright relative to each anchor rail and the second clamps allow each hook-on rail to be secured in a predetermined fixed position relative to each upright.

This arrangement enables highly accurate positioning of the uprights, thereby to compensate for any wall offplumb, floor offlevelness and/or errors in the anchor rail positioning. In fact, by suitable adjustment of the first clamps to set the vertical uprights true both in a parallel plane to the wall and in a perpendicular plane thereto, as well as the upright position in both the vertical and horizontal directions, the mutual connection point of each upright and anchor rail can be varied.

Where upperworks, such as shelves, wall plates, cabinets, etc., are to be mounted additionally to the wall panelling boards, gaps should be provided for access to the hook-on rails between adjacent panelling boards, along with supporting members for the upperworks which can be hooked onto the hook-on rails by passing them through the access gaps.

In this way, the upperworks assembly process, following installation of the panelling boards, is greatly facilitated.

Advantageously, each of the first clamps comprises an engagement element adapted to engage with the anchor rail slidably therealong, a screw stud fitting into a threaded hole in the engagement element, a knob threaded onto the stud and being adjustable in position therealong, and a circumferential groove formed around the knob, the uprights being provided with vertical slots wherein said knob groove will ride, each slot ending in an enlargement to admit the knob therethrough.

A clamp so constructed will provide the required adjustment features in a most simple manner.

Preferably, the uprights have interlock sockets for the hook-on rails, and each second clamp has a tab attached to the hook-on rail and at least one receiving slot for the tab, which receiving slot is formed in the upright at the location of the interlock socket.

A clamp construction so conceived can provide the wanted accuracy in the relative positioning of the uprights and the hook-on rails, in a non-adjustable fashion.

Preferably, the anchor rails have an open cross-sectional shape, and the engagement element is a small quadrangular plate fitting slidably inside the anchor rails. This plate, which would be inserted into the hollow profile of the rail from one end, is allowed to slide to a desired position and can be locked there by threading in the stud into abutment against the web of the hook-on rail.

Alternatively, the anchor rails may have an omega-like cross-sectional shape; in that case, the engagement member would be a quadrangular plate, C-shaped in cross section and fitting slidably over the anchor rails. The manner of use would remain unvaried.

Preferably, the vertical uprights are C-shaped in cross section, and the interlock sockets for the hook-on rails are notch pairs formed on the uprights themselves.

For improved economy of the manufacturing process, the hook-on and anchor rails have preferably the same cross-sectional shape.

For the attachment of upperworks, the support members are preferably comprised of a hooking portion for insertion into the hook-on rail, an extension portion jutting out through the access gaps, and a rest portion arranged to lie close against the panelling board. Such hooking arrangements can be used both for holding shelves and wall plates and cabinets (elements of furniture).

In order to change the positions of the upperworks along the vertical direction independently of the positions of the hook-on rails, the support member may be provided with a ratchet mechanism whereby the upperworks can be shifted vertically relative to the hooking and extension portions.

Further features and advantageous aspects of the invention will become apparent from the following description of an embodiment thereof as illustrated by the accompanying drawings. In the drawings:

Figure 1 is a perspective view of part of an assembly kit according to the invention, with an upright being shown attached to an anchor rail and a hook-on rail ready to be secured thereon;

Figures 2 and 3 are detail views of the upright in the scheme of Figure 1;

Figure 4 is a cross-sectional view taken through the upright of the scheme shown in Figure 1, with panelling boards and upperworks mounted thereon; and

Figure 5 shows a variation of the scheme in Figure 1.

An assembly kit for erecting wall-type furniture elements comprises a plurality of anchor rails 1 intended for mounting in a horizontal position onto a wall, in a manner known per se; for this purpose, the anchor rails 1 are provided with a plurality of holes, not shown, all along their lengths. The anchor rails 1 have an open rectangular shape in cross section, including a web 2 intended to lie against the wall surface, two side legs 3 extending parallel to each other and orthogonally from the web 2, and two flanges 4 which extend coplanar with and opposite to each other perpendicularly from the side legs 3.

The assembly kit also comprises a plurality of vertical uprights 5 being C-shaped in cross section with a web 6 and two side legs 7 extending parallel to each other and orthogonally from the web 6; two flanges 8 may also be provided coplanarly with and oppositely to each other which would extend perpendicularly from the side legs 7.

The assembly kit further comprises a plurality of hook-on rails 9 similar in shape to the anchor rails 1, i.e. having an open rectangular cross-sectional shape with a web 10, two side legs 11 and two flanges 12.

Additionally, this assembly kit comprises first clamps 13 for securing the uprights 5 to the anchor rails 1, and second clamps 14 for securing the hook-on rails 9 to the uprights 5.

The first clamps 13 are arranged for three-way positional adjustment of each upright 5 relative to each anchor rail 1. To this aim, the first clamps 13 comprise an engagement element 15 for engaging the anchor rail 1 slidably therealong; a screw stud 16 fitting in a threaded through-hole (not shown in the drawings) of the engagement element 15; and a knob 18 threaded onto the stud 16 and being formed with a circumferential groove 19.

The engagement element 15 consists of a small rectangular plate and fits slidably inside the anchor rail 1, being held captive therein by the rail flanges 4. The stud 16 can be threaded in to abut against the web 2 of the anchor rail 1, thereby locking the engagement element 15 to the anchor rail 1.

The knob 18 position is adjustable along the screw stud 16.

The uprights 5 are formed with vertical slots 20 in which the grooves 19 of the knobs 18 will ride; these slots 20 extend vertically along the upright 5 and are enlarged at their bottom end as at 21 to enable the knob to be passed therethrough.

The uprights 5 also have interlock sockets 17 formed thereon for receiving the hook-on rails 9, which sockets may consist of notch pairs cut in the side legs 7 of the upright 5, for example.

The second clamps 14 are arranged to secure each hook-on rail 9 in a selected fixed position on each upright 5, allowing of no adjustment. For the purpose, the second clamps 14 have a tab 22 attached to the hook-on rail 9 in releasable engagement with respective receiving slots 23 formed in the side legs 7 of the uprights 5, at the location of the interlock notches 17. The tabs 22 may be a pivotable type (as shown in the drawings) or a snap type, but are in either cases fastened to the web 10 of the hook-on rail 9.

On the structure formed by the rails 1, 9 and the uprights 5, there can be mounted variously disposed panelling boards 24 and such upperworks as shelves 25 or cabinets 26 or else. To this aim, the panel boards 24 are provided with clips 27 adapted to engage the outside of the side legs 11 of the hook-on rails 9, as shown in Figure 4. Between adjacent panel boards 24, there is left a gap 28 for access to the hook-on rail 9. For the installation of upperworks, on the other hand, special support members 29 (for shelves and wall plates) and 30 (for cabinets) would be used which comprise a hooking portion 31 to be fitted inside the hook-on rail 9 in engagement with its lower flange 12, an extension portion 32 jutting out through the access gap 28, and a rest portion 33 lying close against the panel board 24.

The uprights 5 are also provided with levelling feet 34.

The various component parts of the kit are assembled as described herein below.

The necessary anchor rails 1 are first mounted to the wall in horizontal positions. This mounting operation is carried out quite conventionally, using screw anchors, for example.

Thereafter, the plates 15, with the studs 16 and knobs 18, are inserted into the rails 1, and the uprights 5 are roughly positioned (i.e. given a preliminary coarse setting) with the grooves 19 riding in the slots 20, after passing the knobs 18 through the enlargements 21.

Each upright 5 is then given a fine position setting with respect to the anchor rails 1. For the horizontal direction position and inclination settings in the wall plane, the plates 15 would be shifted along the anchor rails 1; once each plate 15 is brought to the proper position, the stud 16 is threaded in to lock the plate 15 in place. For the inclination setting orthogonally to the wall, the knob 19 is threaded in or out to set the upright 5 in varying degrees off the wall surface. For position

setting in the vertical direction, each upright 5 is raised a greater or lesser amount (by manipulating the levelling feet 34, where provided) while allowing the grooves 19 to ride freely in the slots 20.

After all the uprights 5 are properly set as above, the hook-on rails 9 are secured by fitting them in their respective interlock sockets 17 provided on the uprights 5 and inserting the tabs 22 through their respective receiving slots 23. No adjustment feature is provided for the positioning of the hook-on rails 9 relative to the uprights 5, as this would be pointless in view of all the adjustments required for accommodating uneven spots of the wall or the floor having been made at the upright 5 setting stage already.

Once the structure formed of the rails 1, 9 and the uprights 5 is completed, the panelling boards 24, and any shelves 25 and cabinets 26, are mounted.

The panelling boards 24 are snap fitted using the clips 27, which will engage with the outside of the hook-on rails 9. The shelves 25 or cabinets 26 are instead mounted by first attaching support members 29 and 30 thereto, and then fitting the hooking portions 31 of the latter inside the hook-on rails 9; the portions 31 will engage on the inside of the bottom flanges 12 of each rail 9.

On completion of the panelling board installation, and after checking for any positional defects, the vertical positions of the uprights 5 can be further adjusted by means of the levelling feet 34.

Where additionally thereto, the vertical positions of the upperworks are to be changed independently of the positions of the hook-on rails 9, the supporting members may incorporate a ratchet mechanism (not shown in the drawings) for shifting the upperworks in the vertical direction relative to the hooking 31 and extension 32 portions.

Understandably, the cross-sectional shapes of the various elements (rails and uprights) illustrated may be changed. As an example, shown in Figure 5 is an embodiment wherein the anchor rails 1a have an omega-shaped cross section; in this case, the engagement elements would be substantially C-shaped in cross section, thereby hugging the wings 4a of the omega-shaped cross section. The manner of use would remain unchanged.

Notice that none of the operations, but for securing the anchor rails 1 on the wall, involves the use of any tools additionally to one's hands.

Claims

1. An assembly kit for erecting wall-type furniture elements, comprising a plurality of anchor rails (1) intended for attachment to a wall in a horizontal position, a plurality of vertical uprights (5), first clamps (13) for securing the uprights (5) to the anchor rails (1), a plurality of hook-on rails (9), second clamps (14) for securing the hook-on rails (9) in horizontal positions to the uprights (5), panelling boards (24) adapted to be hooked onto the hook-on rails (9), wherein the first clamps (13) allow for three-way adjustment of the position of each upright (5) relative to each anchor rail (1) and the second clamps (14) allow each hook-on rail (9) to be secured in a predetermined fixed position relative to each upright (5).

2. An assembly kit according to Claim 1, having gaps (28) provided between adjacent panelling boards (24) for access to the hook-on rails (9), and including support members (29,30) for upperworks (25,26) adapted to be hooked onto the hook-on rails (9) through the access gaps (28).

3. An assembly kit according to either Claim 1 or 2, wherein each first clamp (13) comprises an engagement element (15) for engaging the anchor rail (1) slidably therealong, a screw stud (16) fitting into a threaded hole of the engagement element (15), a knob (18) threaded over the screw stud (16) and being adjustable in position therealong, a circumferential groove (19) formed around the knob (18), the uprights (5) being formed with vertical slots (20), for the groove (19) to ride therein, having an enlargement (21) to admit the knob (18) therethrough.

4. An assembly kit according to either Claim 1 or 2, wherein the uprights (5) have interlock sockets (17) for the hook-on rails (9), and wherein each second clamp (14) includes a tab (22) attached to the hook-on rail (9) and at least one tab (22) receiving slot (23) formed in the upright (5) at the location of the interlock socket (17).

5. An assembly kit according to Claim 3, wherein the anchor rails (1) have an open rectangular cross section and the engagement element is a small quadrangular plate (15) fitting slidably inside the anchor rail (1).

6. An assembly kit according to Claim 3, wherein the anchor rails (1a) have an omega-shaped cross section and the engagement element is a small quadrangular plate (15a) C-shaped in cross section and fitting slidably over the anchor rails (1a).

7. An assembly kit according to Claim 4, wherein the vertical uprights (5) have a C-shaped cross section and the interlock sockets for the hook-

on rails (9) comprise notch pairs (17) formed on the upright (5).

8. An assembly kit according to Claim 5, wherein the hook-on (9) and anchor (1) rails have the same cross-sectional shape.

9. An assembly kit according to Claims 2 and 8, wherein the support members (29,30) comprise a hooking portion (31) for insertion into the hook-on rail (9), an extension portion (32) jutting out through the access gap (28), and a rest portion (33) intended to lie close against a panelling board (24).

10. An assembly kit according to Claim 9, wherein the support member (29,30) incorporates a ratchet mechanism for shifting upperworks (25,26) vertically with respect to the hooking (31) and extension (32) portions.

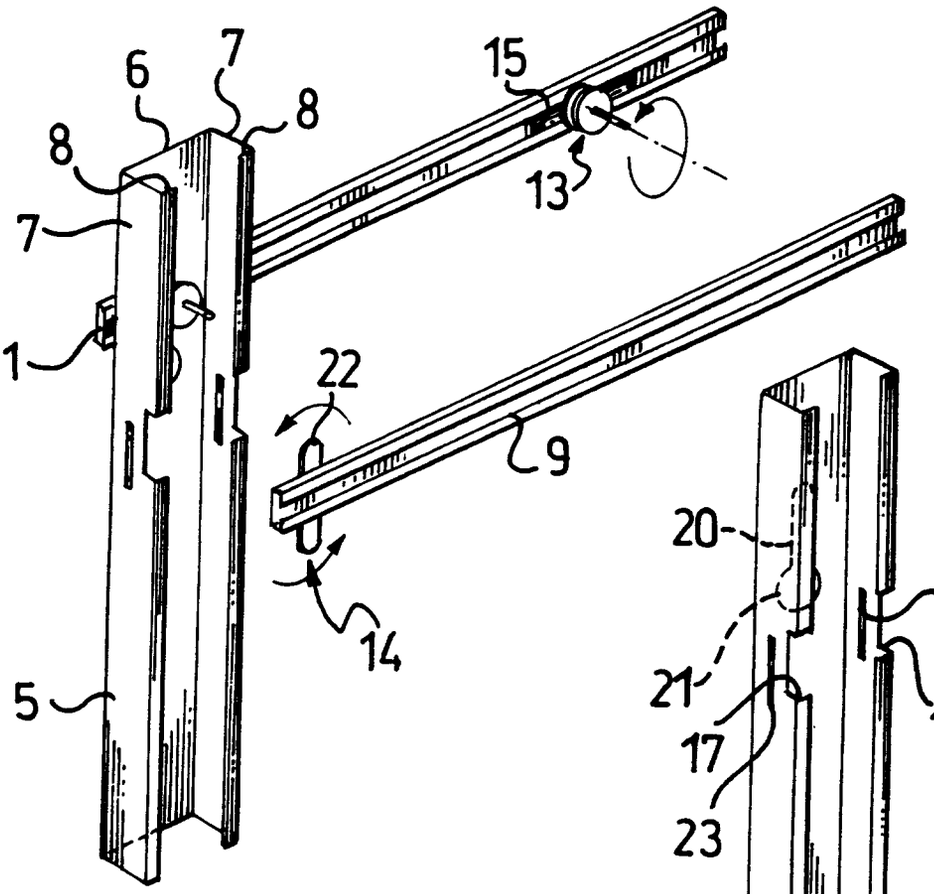

FIG.1

FIG.2

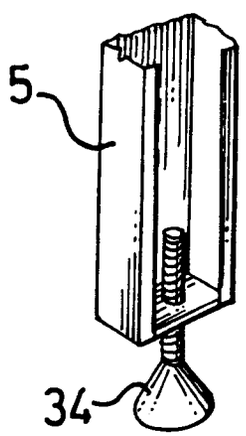

FIG.3

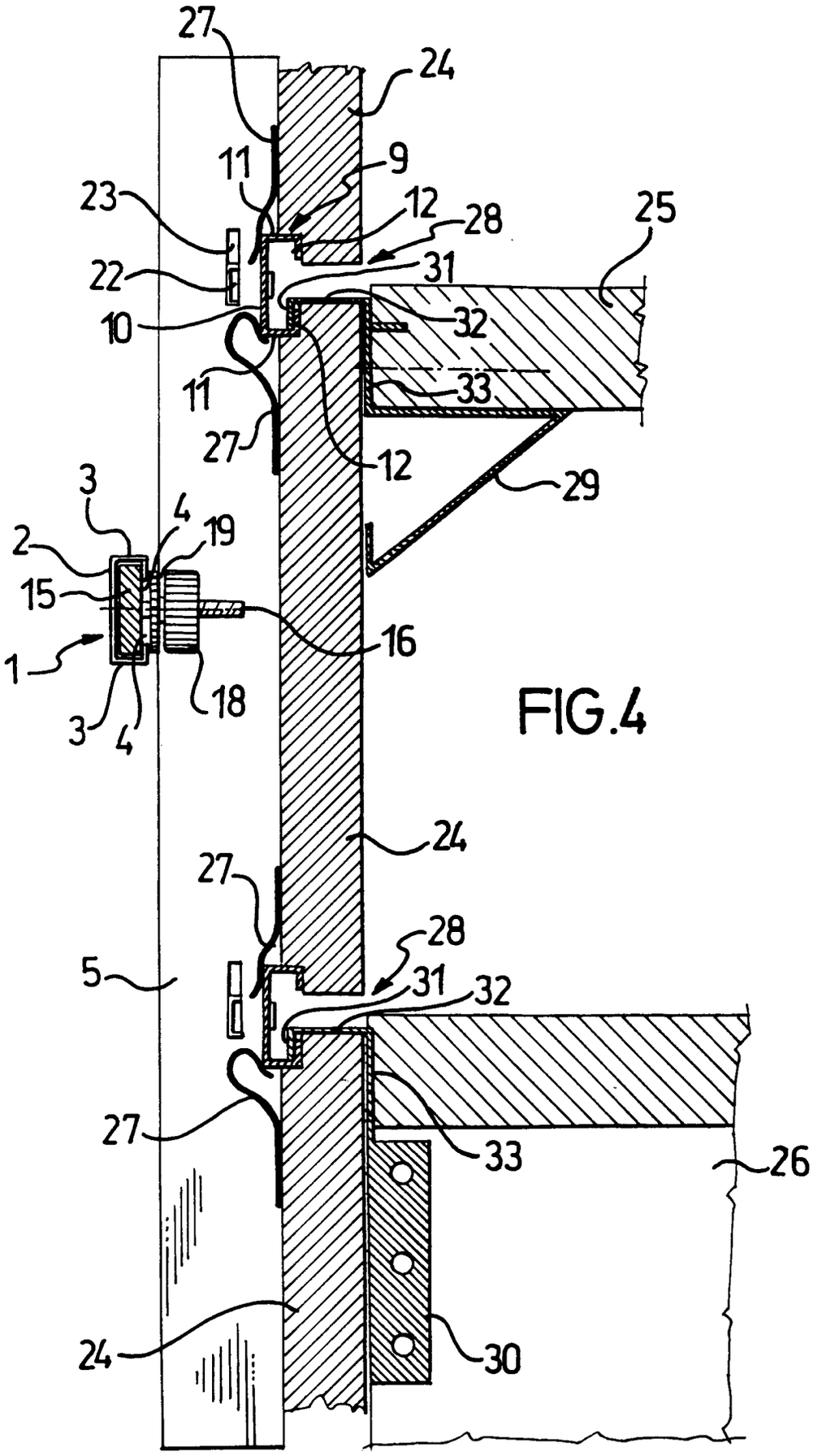
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FIG.4

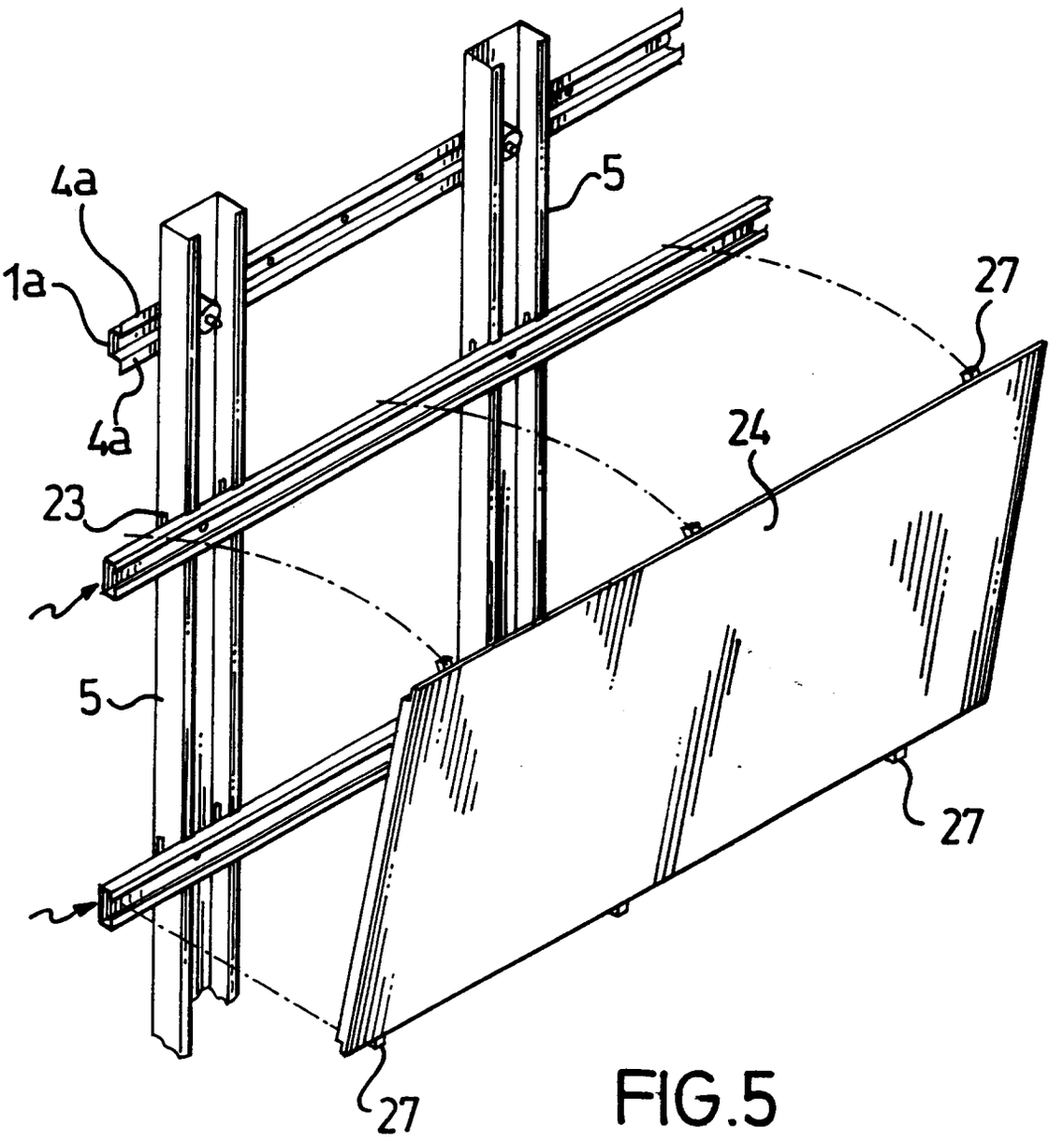

FIG.5