

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification: **08.06.88**

(51) Int. Cl.⁴: **E 04 F 13/12**

(21) Application number: **84308929.3**

(22) Date of filing: **20.12.84**

(54) **Cladding buildings.**

(30) Priority: **24.12.83 GB 8334475**

(43) Date of publication of application:
03.07.85 Bulletin 85/27

(45) Publication of the grant of the patent:
08.06.88 Bulletin 88/23

(84) Designated Contracting States:
AT BE CH DE FR IT LI LU NL SE

(56) References cited:
AT-A- 374 867
DE-A-1 960 222
FR-A-2 186 590
GB-A-1 249 765
GB-A-2 049 008
US-A-3 388 518

(73) Proprietor: **WARD BUILDING SYSTEMS LIMITED**
Widespan Works Sherburn
Malton North Yorkshire YO17 8PQ (GB)

(72) Inventor: **Frederiksen, Anton Robert**
Archways House, Carr Lane
East Heslerton, Malton, North Yorkshire (GB)
Inventor: **Wallis, Malcolm Robert**
High Noon, Kilham
Driffield, East Yorkshire (GB)

(74) Representative: **Leach, John Nigel et al**
FORRESTER & BOEHMERT Widenmayerstrasse
4/1
D-8000 München 22 (DE)

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European patent convention).

Courier Press, Leamington Spa, England.

Description

This invention relates to a method of securing, to a support member, cladding panels; and a cladding panel in or for a building.

DE—A—1960222 discloses a method of securing panels to a support member by interengaging an inwardly directed first edge portion of one panel with an inwardly directed second edge portion of an adjacent similar panel as a result of resilient deformation of at least one of said portions and connecting the second such portion of the first panel to a support member by a fastener means comprising a hook-like part and thereby connecting the first edge portion to the support member.

However the adjacent edge portions are not retained from displacement in all directions normal to the edges by the resultant interengagement nor is the second edge portion connected to the support by the interengagement. The interengagement only retains the edge portions from movement normal to the edges and parallel to the general plane of the panels. Movement in a direction normal to the edges and perpendicular to the general plane of the panels is not prevented by the interengagement but by the fastener means and presence of the support member itself between which the first edge portion and the second edge portion are both trapped. Thus the first edge portion is connected to the support solely as a result of this trapping and not as a result of the interengagement with the edge portion. Consequently it is necessary to interengage the first and second edge portions before the second edge portion is connected to the support. This renders the cladding operation slow and inconvenient.

GB—A—1249765 discloses a metal building panel having first and second edge portions which can be interengaged as a result of resilient deformation of at least one of said portions but this specification discloses no method of or means for securing cladding panels to a support member.

The disadvantage of the cladding method disclosed in DE—A—1960222 is overcome according to one aspect of the invention wherein we provide a method of securing, to a support member, first and second cladding panels, each panel having a web part, to provide a generally outwardly facing surface of the panel, having at one edge thereof an inwardly directed first edge portion and at the opposite edge thereof an inwardly directed second edge portion; the method comprising the steps of interengaging the first edge portion of the first panel with the second edge portion of the second panel as a result of resilient deformation of at least one of said edge portions and securing the panels to the support member utilising fastener means and characterised by connecting the first edge portion of the first panel to the support member by a fastener means and connecting the second edge portion of the second panel to the support member by said interen-

gement with the first edge portion and retaining the adjacent edges from displacement in all directions normal to the edges by said interengagement.

The first edge portion of the first panel may be connected to the support member before interengaging the first and second edge portions.

Alternatively, the first edge portion of the first panel may be connected to the support member after interengaging the first and second edge portions.

In each case the first edge portion may be connected to the support member by applying the fastener means from the side of the panel having said outwardly facing surface.

Alternatively, in each case the first edge portion may be connected to the support member by applying the fastener means from the side of the panel opposite to that having said outwardly facing surface.

The method may include the step of causing the fastener means to extend through an opening in the first edge portion.

After causing the fastener means to extend through the opening in the first edge portion, there may be performed the step of interengagement of the first and second edge portions so as to dispose a part of the fastener means therebetween.

The fastener means may be caused to be in clamping engagement with the first edge portion.

After causing the fastener means to be in said clamping engagement, there may be performed the step of interengaging the first and second edge portions.

Alternatively, after the step of interengaging the first and second edge portions, there may be performed the step of causing the fastener means to be in said clamping engagement.

The second edge portion of the second panel and the first edge portion of the first panel may be resiliently inter-engaged by moving the second panel relative to the support member and to the first panel whilst the second panel is orientated so that the first edge portion is not closer to the support than is the second edge portion.

The step of resiliently inter-engaging the second edge portion of the second panel and the first edge portion of the first panel may be performed whilst the second panel is orientated so that the web part thereof is parallel or substantially parallel to the web part of the first panel.

The first edge portion of each panel may comprise a main flange extending generally perpendicular to said web part, a second flange extending generally perpendicularly away from the main flange on the opposite side and at the opposite end thereof to the web part, the second flange having at the opposite end thereof to the main flange a lip which extends from the second flange on the same side thereof as, and generally parallel to, the main flange, and the second edge portion of each panel comprising a main flange extending generally perpendicular to said web part on the same side thereof as the main flange

of the first edge portion, a second flange extending generally perpendicularly away from the main flange on the same side thereof as, but at the opposite end thereof to, the web part, and wherein the step of resiliently interengaging the second and first edge portions may be performed so that the second flange of the second edge portion of the second panel lies between the main flange and lip of the first edge portion of the first panel and between the second flange of the first edge portion of the first panel and the web part of the second panel.

The main flanges of the edge portions of each panel may be provided with interengageable male and female parts and wherein said step of interengagement may be performed so as to interengage said male and female parts to restrain movement of said adjacent panels in a direction perpendicular to said web part with the male and female parts being maintained in engagement in a direction parallel to said web parts by virtue of engagement between the second flange of the second edge part of the second panel and the lip of the first edge part of the first panel.

In each panel, the distance, in a direction parallel to the second flange, between the main flange and the closest part of the portion of the lip of the second flange which is engaged, in use, by the free end of the second flange of the second edge portion, to the main flange, of the first edge portion, is not less than the distance between the surface of the main flange facing away from the second flange and the part of the second flange furthest from the main flange, of the second edge portion and wherein said step of resiliently interengaging the second and first edge portions may be performed by moving the second panel relative to the first panel and to the support whilst the second panel is orientated so that the first edge portion is not closer to the support than is the second edge portion.

The step of resiliently interengaging the second and first edge portions may be performed whilst the second panel is orientated so that the web part thereof is parallel or substantially parallel to the web part of the first panel.

According to a second aspect of the invention, we provide a cladding panel for a building adapted for the performance of a method according to the first aspect of the invention comprising a web part, to provide a generally outwardly facing surface of the panel, having at one edge thereof an inwardly directed first edge portion and at the opposite edge thereof an inwardly directed second edge portion, the first edge portion being interengagable with the second edge portion of an adjacent similar panel as a result of resilient deformation of at least one of said edge portions, and the first edge portion of the panel being engagable by a fastening means connect to the panel to the building, in use, characterised in that the first and second edge portions are provided with a configuration such that when the first edge portion of a panel is in interengagement

with the second edge portion of an adjacent similar panel the edges are retained from displacement in all directions normal to the edges by means of said interengagement and the second edge portion is connected to the building by means of said interengagement.

The first edge portion may be provided with an opening to receive a shank of a fastener means and the first and second edge portions are configured to accommodate a head of the fastener therebetween.

The first edge portion may be provided with a part for engagement with a first part of a clamp means which comprises said fastener means.

The first edge portion may comprise:

a main flange extending generally perpendicular to said web part,

a second flange extending generally perpendicularly away from the main flange on the opposite side and at the opposite end thereof to the web part, the second flange having at the opposite end thereof to the main flange a lip which extends from the second flange on the same side thereof as, and generally parallel to, the main flange, and

the second edge portion may comprise:

a main flange extending generally perpendicular to said web part on the same side thereof as the main flange of the first edge portion, a second flange extending generally perpendicularly away from the main flange on the same side thereof as, but at the opposite end thereof to, the web part,

the first and second edge portions being interengageable, in use, so that when two similar panels are disposed in side-by-side relationship, the second flange of the second edge portion of one of said panels lies between the main flange and lip of the first edge portion of the other of said panels and between the second flange of the first edge portion of said other panel and the web part of said one panel.

The distance, in a direction parallel to the second flange, between the main flange and the closest part of the portion of the lip of the second flange which is engaged, in use, by the free end of the second flange of second edge portion, to the main flange, of the first edge portion, is not less than the distance between the surface of the main flange facing away from the second flange and the part of the second flange furthest from the main flange, of the second edge portion.

The main flanges of said edge portions may be provided with interengageable male and female parts to restrain movement of said adjacent panels in a direction perpendicular to said web part and the male and female parts being maintained in engagement in a direction parallel to said web parts by virtue of engagement between the second flange of the second edge portion of said one panel and the lip of the first edge portion of the other panel.

The main flange of the first edge portion may be provided with a generally channel-shaped recess adapted to receive a projection of cooperating configuration provided on the main

flange of the second edge portion to provide the interengageable male and female parts.

The interengageable male and female parts may be provided with a sub-recess therebetween to accommodate a sealant.

The sub-recesses provided by a portion of the channel-shape recess in the first edge portion may be of greater depth than the remainder and adjacent the second flange thereof.

The second flange of the second edge portion may be disposed closer to the web part over at least a portion of its length than it is disposed at the position at which it is connected to the main flange, thereby providing a space, in use, between the second flange parts of the first and second edge portions to accommodate a head part of a fastener, the shank of which passes through an opening in the second flange part of the first edge portion.

The distance between the free end of the second flange of the second edge portion and the surface of the main part of the second edge portion facing away therefrom may be less than the distance between the lip and main flange of the first edge portion, thereby to provide, in use, a space between the lip and the free end of the second flange of the second edge portion to accommodate therebetween a first part of a clamp means which comprises said fastener means.

It will be seen, therefore, that the current invention provides a cladding panel which can be secured in position by a fastener applied either from the exterior of the building or from the interior of the building.

The invention will now be described in more detail by way of example with reference to the accompanying drawings wherein:—

FIGURE 1 is a broken away horizontal cross-section through a wall of a building structure embodying the invention;

FIGURES 2a to 2f show diagrammatically a sequence of assembly of cladding panels in the building shown in Figure 1;

FIGURES 3a to 3e show diagrammatically an alternative sequence of assembly to that shown in Figures 2a to 2f;

FIGURE 4 shows an alternative fixing between a structural member of a building and a panel embodying the invention to that illustrated in Figures 1 to 3e;

FIGURE 5 shows a further alternative fixing between a structural member of a building and a panel embodying the invention to that illustrated in Figures 1 to 3e or Figure 4; and

FIGURE 6 shows an alternative configuration of panel.

Referring now to Figure 1, there is illustrated part of a building structure comprising a structural member in the form of a horizontally extending rail 10 having a vertical outwardly facing surface 11 on a flange 12 which has at the upper end an inwardly directed lip 13. The flange 12 at its other end is connected to a web part 14 having a lower flange 15 and inwardly directed lip 16. The

support member 10 is secured in position in the building by any suitable means, such as by means of vertical columns not shown and preferably a plurality of support members 10 are disposed in spaced parallel relationship throughout the height of the wall of the building.

In order to clad the building externally of the support members 10 are provided a plurality of cladding panels, three of which are indicated at 20, 20a and 20b in Figure 1.

Each cladding panel comprises a web part 21 providing an outwardly facing cladding surface 22 for the building. In the example illustrated each web part 21 has two planar edge surface portions 23 and a central planar portion 24 disposed inwardly of the plane in which the portions 23 lie and connected thereto by inclined planar portions 25. However, the web part 21 may be of any other desired configuration.

The web part 21 has at one side edge 26 a first edge portion 27 and at the opposite edge 28 a second edge portion 29.

The first edge portion 27 comprises a main flange 30 which extends at right angles to the web part 21 inwardly towards the structural member 10 and has at the end thereof distant from the web part 21 a second flange 31 which extends perpendicular to the first flange 30 and has, at the end thereof distant from the first flange 30, a lip 32 which extends at right angles to the second flange 31 away from the structural member 10.

The second edge portion 29 comprises a main flange 33 extending at right angles to the web part 21 towards the structural member 10 and having at the end thereof distant from the web part 21 a second flange 34 which at its free end has a bent over part 35 for strength. The second flange 34 is stepped as indicated at 36 so that an end part 37 is spaced above the second flange shown at 31a of the first edge portion 27a of a panel 20a identical and adjacent to the panel 20.

The main flange 30 of the first edge portion 27 has a longitudinally extending, generally channel-shaped, recess 38 adjacent the second flange 31 which has a sub-recess 39 formed therein. The main flange 33 of the second edge portion 29 is similarly formed with a recess 40 having an external configuration so as to interfit with the internal configuration of the recess 38 formed in the first edge portion of an adjacent panel, as indicated at 38a in Figure 1.

The inter-engagement between the portions 38 and 40 of adjacent panels prevents relative movement between adjacent panels in a direction away from the structural member 10. Moreover, the small clearance shown in Figure 1 between the end of the second flange part 34 of each second edge portion and the lip 32 of the first edge portion of an adjacent panel together with cooperation between the face parts 41, 42 respectively of the recesses in the first and second edge portions prevents at least any significant movement between adjacent panels in a direction parallel to the structural member 10.

As shown in Figure 1, the second flange of each

first edge portion is secured to the flange 12 of the support member by means of a self-drilling/tapping screw 43, the head 44 of which is accommodated in the space hereinbefore mentioned, provided by the stepped part 36, between the end part 37 of the second flange 34 of the second edge portion 29 and the second flange 31 of the adjacent first edge portion. Alternatively, an opening comprising an aperture or slot may be provided in the second flange of the second edge portion to provide a clearance opening for the head 44.

Where the cladding panels are thus secured to the support member 10, the sequence of fixing operation may be as illustrated in Figures 2a to 2f from which it will be seen that in Figure 2a a self-drilling/tapping screw 43 is aligned with a dimple 45 formed in the second flange part 31 of the first edge portion 27 of a panel 20 from the exterior of the building and taps its own hole so that it passes through an opening thus formed in the second flange part 31 and the flange 12 of the support member 10 until it occupies the position shown in Figure 2b. A second panel 20b is then positioned as shown in Figure 2b and moved to the position shown in Figure 2c. It is then manipulated to the position shown in Figure 2d resiliently to distort the second edge portion 29 to inter-engage the recess portions 38 of the first edge portion 27 of the already fixed in position panel 20 with recess portion 40b of the second edge portion 29b of the further panel 20b until they occupy the inter-engaged position shown in Figure 2f, identical to the position illustrated in Figure 1.

It will be noted that the web part of the second panel 20b is maintained parallel or substantially parallel to the web part of the first panel 20 during inter-engagement of the first and second edge portions.

In an alternative mode of assembly shown in Figures 3a to 3e a first panel 20 is secured to a support member 10 as shown in Figures 3a and 3b in a manner identical to that described above in connection with the embodiment shown in Figures 2a to 2f. A second identical panel 20b is then positioned as shown in Figure 3b and manipulated through the positions shown in Figures 3c and 3d to the position shown in Figure 3e which is identical to that shown in Figure 1.

In this case, it will be noted that during said inter-engagement of the first and second edge portions, the second panel is orientated so that the first edge portion is spaced either the same distance away from the support as is the second edge portion, i.e. the orientation shown in Figure 3b, or the first edge portion is spaced further away from the support than is the second edge portion, i.e. the orientation shown in Figure 3c. Thus throughout this mode of assembly, the panel is orientated so that the first edge portion is not closer to the support than is the second edge portion.

It will be seen, therefore, from Figures 2a—2f and 3a—3f that once a panel has been fixed in

position by means of a fastener applied from the exterior of the building, further panels can be applied either by an initial movement perpendicular to the support member or by an initial lateral movement generally parallel to the support member.

The stepped portions also facilitates inter-engagement of the first and second edge formations as it reduces the amount of deformation which would otherwise be required and so reduces the load it is necessary to apply to the second panel to effect the inter-engagement.

Referring now to Figure 4, in this embodiment a panel 120 is identical to the panel 20 of the previously described embodiment and is secured to a support member 110 identical to the support member 10 previously described. The panel 120 has a first and second edge portion identical to that described hereinbefore and the second flange 131 of the first edge portion 127 is secured to the flange 112 of the support member 110 by means of a two-part clip member 50, one part, 50a, of which is provided with a U-shaped clip portion 51 which engages the lip 113 of the support member 110, and has a laterally extending flange 52 provided with a clearance opening 53 for a screw 54 which is threadedly engaged with a threaded opening 55 in a flange part 56 of a second clip portion 50b having a U-shaped part 57 to engage the lip 132 of the first edge portion 127, and having a further flange 58 to lie within the second flange 131.

Thus, in this embodiment a panel 120 is secured to the support member 110 by means of the two-part clip 50a, 50b which can be applied from the interior of the building. When a second identical panel is disposed adjacent the first panel with the first and second edge portions inter-engaged as described previously with reference to Figures 1 to 3e, the clip 50 is hidden from view from the exterior of the building.

The above described clip configuration provides a secure fixing and avoids any risk of the clip becoming disengaged, for example, in the event of reverse wind loading. Thus the form of clip described with reference to and as shown in Figure 6 is preferred compared with that described with reference to and as shown in Figure 4.

Figure 6 illustrates a modified channel-shaped recess. In Figure 6 the same reference numerals are used as have been used in the preceding drawings but with the addition of a prime sign. By providing the limbs 60', 61' of the channel-shaped recesses 38', 40' so that they are inclined as illustrated, it will be appreciated that an improved inter-engagement is achieved because of the hooking action of the part 62' within the corresponding recess 63' of an adjacent panel. The base limb 64' of the recess 40' is inclined so as to be parallel to the limb 61' to facilitate "snap" inter-engagement of the part 40' within the recess 38'. It is also to be noted that in this embodiment, instead of rolling over the end of the limb 34', the end is merely turned up to provide a lip 35'. The

lip 32' of the flange 31' is of stepped configuration.

The recess 65' provided by the angled limb 60' facilitates retention of the panel to the building by clip means received within the recess 65'. In this embodiment there is a positive retention of the clip within the recess 65' whereas in the embodiment described with reference to Figures 1 to 4 any such attachment clip is maintained in engagement with the panel only as a result of frictional engagement because the limb in these embodiments extends parallel to the flange 31'.

In all the embodiments, it will be noted that the shortest distance, $d1$, $d1'$, parallel to the second flange, between the main flange and the closest part (of the portion of the lip of the second flange which is engaged, in use, by the free end of the second flange of the second edge portion), to the main flange, of the first edge portion, is not less than the greatest distance between the surface of the main flange facing away from the second flange and the part of the second flange furthest from the main flange, of the second portion, i.e. the distance $d2$, $d2'$.

This relationship ensures that the first and second panels can be interengaged whilst the second panel is orientated as set out above.

The panel of the present invention can, therefore, be secured in position in a building by applying a fastener either from the exterior of the building or from the interior of the building as desired. It will also be noted that the first and second edge portions because of the presence of the secondary recess 39 breaks any capillary action which may exist between the adjacent edge portions and, if desired, a sealing strip, not shown, can be provided in the space thus provided.

Although a self-drilling/self-tapping fastener has been described above in the embodiment of Figures 1 to 3e, if desired the fastener may be a self-tapping screw or a nut and bolt connection, or any other fixing means may be desired. Similarly, although clips have been described with reference to Figures 4 and 5, if desired some other form of internal fixing means may be provided.

The panels described hereinbefore may be used as a liner system in either "over-rail" or "under-rail" methods as desired. Furthermore, access to fit the panels to the building is required from one side only, i.e. the side used for insertion of the fasteners according to the procedure chosen.

The configuration of the inter-engageable male and female parts described above provide, in all the embodiments, a "snap" inter-engagement as a result of resilient deformation of at least one of the parts on inter-engagement. The resultant inter-engagement retains the adjacent edges of the adjacent panels from displacement in directions normal to the edges. In addition, assembly is facilitated since it is merely necessary to perform the above described "snap" inter-engagement operation in order to connect a new panel to an already positioned panel without requiring the use of any fasteners or the like.

In all embodiments, by providing the inter-engageable male and female parts of generally

channel configuration, stiffness is imparted to the panel and the achieving of accurate dimensional tolerances is facilitated.

The features disclosed in the foregoing description or the accompanying drawings expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, or a class or group of substances or compositions, as appropriate, may, separately or any combination of such features, be utilised for realising the invention in diverse forms thereof.

Claims

1. A method of securing, to a support member (10; 110; 210), first and second cladding panels (20; 120; 220; 20b), each panel having a web part (21), to provide a generally outwardly facing surface (22) of the panel, having at one edge (26) thereof an inwardly directed first edge portion (27; 127; 227) and at the opposite edge (28) thereof an inwardly directed second edge portion (29); the method comprising the steps of interengaging the first edge portion (27; 127; 227) of the first panel (20; 120, 220) with the second edge portion (29b) of the second panel (20b) as a result of resilient deformation of at least one of said edge portions and securing the panels to the support member utilising fastener means and characterised by connecting the first edge portion (27; 127; 227) of the first panel (10; 120; 220) to the support member (10; 110; 210) by a fastener means (43; 50; 250) and connecting the second edge portion (29b) of the second panel to the support member (10; 110; 210) by said interengagement with the first edge portion, and retaining the adjacent edges from displacement in all directions normal to the edges by said interengagement.

2. A method according to Claim 1 wherein the first edge portion (27; 127; 227) of the first panel (20; 120; 220) is connected to the support member (10; 110; 210) before interengaging the first (27; 127; 227) and second (29) edge portions.

3. A method according to Claim 1 wherein the first edge portion (27; 127; 227) of the first panel (20; 120; 220) is connected to the support member (10; 110; 210) after interengaging the first (27; 127; 227) and second (29) edge portions.

4. A method according to Claim 1 or Claim 2 wherein the first edge portion (27; 127; 227) is connected to the support member (10; 110; 210) by applying the fastener means (43; 50; 250) from the side of the panel (20; 120; 220) having said outwardly facing surface.

5. A method according to any one of Claims 1 to 3 wherein the first edge portion (27; 127; 227) is connected to the support member (10; 110; 210) by applying the fastener means (43; 50; 250) from the side of the panel (20; 120; 220) opposite to that having said outwardly facing surface.

6. A method according to any one of the preceding Claims including the step of causing the fastener means (43) to extend through an opening in the first edge portion (27).

7. A method according to any one of Claims 1 to 5 including the step of causing the fastener means (50; 250) to be in clamping engagement with the first edge portion (127; 227).

8. A method according to any one of the preceding Claims wherein the second edge portion (29) of the second panel (205) and the first edge portion (27; 127; 227) of the first panel (20; 120; 220) are resiliently interengaged by moving the second panel (29) relative to the support member (10; 110; 210) and to the first panel (20; 120; 220) whilst the second panel (29) is orientated so that the first edge portion (27; 127; 227) is not closer to the support (10; 110, 210) than is the second edge portion (29).

9. A method according to any one of Claims 1 to 7 wherein the first edge portion (27; 127; 227) of each panel comprises:—

a main flange (30) extending generally perpendicular to said web part (21), a second flange (31) extending generally perpendicularly away from the main flange (30) on the opposite side and at the opposite end thereof to the web part (21),

the second flange (31) having at the opposite end thereof to the main flange (30) a lip (32) which extends from the second flange on the same side thereof as, and generally parallel to, the main flange,

and the second edge portion (29) of each panel comprising;

a main flange (33) extending generally perpendicular to said web part (21) on the same side thereof as the main flange (30) of the first edge portion (27; 127; 227), a second flange (34) extending generally perpendicularly away from the main flange (30) on the same side thereof as, but at the opposite end thereof to, the web part (21), and wherein the step of resiliently interengaging the second (29) and first edge portions (27; 127; 227) is performed so that the second flange (34) of the second edge portion (29) of the second panel (20b) lies between the main flange (30) and lip (32) of the first edge portion (27; 117; 227) of the first panel (20; 120; 220) and between the second flange (31) of the first edge portion (27; 127; 227) of the first panel (20; 120; 220) and the web part (21) of the second panel (20b).

10. A method according to Claim 9 wherein, in each panel, the distance (d1), in a direction parallel to the second flange (31), between the main flange (30) and the closest part of the portion of the lip (32) of the second flange (31) which is engaged, in use, by the free end of the second flange (34) of the second edge portion (29), to the main flange (30), of the first edge portion (27), is not less than the distance (d2) between the surface of the main flange (33) facing away from the second flange (34), and the part of the second flange (34) furthest from the main flange (33), of the second edge portion (29) and wherein said step of resiliently interengaging the second (29) and first edge portions (27) is performed by moving the second panel (20b) relative to the first panel (201) and to the support (101) whilst the second panel (20b) is orientated so that

the first edge portion (27) is not closer to the support (10) than is the second edge portion (29).

11. A cladding panel for a building adapted for the performance of a method according to any one of Claims 1 to 10 comprising a web part (21), to provide a generally outwardly facing surface (22) of the panel (20; 120; 22), having at one edge (26) thereof an inwardly directed first edge portion (27; 127; 227) and at the opposite edge (28) thereof an inwardly directed second edge portion (29), the first edge portion (27; 127; 227) being interengagable with the second edge portion (29b) of an adjacent similar panel as a result of resilient deformation of at least one of said edge portions, and the first edge portion of the panel being engagable by a fastening means (43; 50; 250) to connect the panel (20; 120; 22) to the building, in use, characterised in that the first (27; 127; 227) and second (29) edge portions are provided with a configuration (30; 31; 32; 33; 34) such that when the first edge portion (27; 127; 227) of a panel (20; 120; 220) is in interengagement with the second edge portion (29b) of an adjacent similar panel (20b) the edges are retained from displacement in all directions normal to the edges by means of said interengagement and the second edge portion (29b) is connected to the building by means of said interengagement.

12. A cladding panel according to Claim 11 wherein the first edge portion (27) is provided with an opening to receive a shank of a fastener means (43) and the first and second edge portions are configured (36) to accommodate a head (44) of the fastener (43) therebetween.

13. A cladding panel according to Claim 11 or Claim 12 wherein the first edge portion (27; 227) is provided with a part (132) for engagement with a first part (50b) of a clamp means which comprises said fastener means (50).

14. A cladding panel according to any one of Claims 11 to 13 wherein the first edge portion (27) comprises;

a main flange (30) extending generally perpendicular to said web part (21),

a second flange (31) extending generally perpendicularly away from the main flange (30) on the opposite side and at the opposite end thereof to the web part (21), the second flange (31) having at the opposite end thereof to the main flange a lip (32) which extends from the second flange (31) on the same side thereof as, and generally parallel to, the main flange, (30) and

the second edge portion (29) comprises;

a main flange (33) extending generally perpendicular to said web part (21) on the same side thereof as the main flange (32) of the first edge portion (27), a second flange (34) extending generally perpendicularly away from the main flange (33) on the same side thereof as, but at the opposite end thereof to, the web part (21),

the first and second edge portions (27; 29) being interengageable, in use, so that when two similar panels are disposed in side-by-side relationship, the second flange (34) of the second

edge portion (29) of one (20b) of said panels (20) lies between the main flange (30) and lip (32) of the first edge portion (27) of the other (20) of said panels and between the second flange (31) of the first edge portion (27) of said other (20) panel and the web part (21) of said one (20b) panel.

15. A cladding panel according to Claim 14 wherein the distance (d1), in a direction parallel to the second flange (31), between the main flange (301) and the closest part of the portion of the lip (32) of the second flange (31) which is engaged, in use, by the free end (34) of the second flange of the second edge portion (29), to the main flange (30), of the first edge portion (27), is not less than the distance (d2) between the surface of the main flange (33) facing away from the second flange (34) and the part of the second flange (34) furthest from the main flange (37), of the second edge portion (29).

16. A cladding panel according to Claim 14 or Claim 15 wherein the main flanges (30, 33) of said edge portions (27, 29) are provided with interengageable male and female parts to restrain movement of said adjacent panels in a direction perpendicular to said web part (21) and the male and female parts being maintained in engagement in a direction parallel to said web parts (21) by virtue of engagement between the second flange (34) of the second edge portion (29) of said one panel (20b) and the lip (32) of the first edge portion (27) of the other panel (20).

17. A cladding panel according to Claim 16 wherein the main flange (30) of the first edge portion (27) is provided with a generally channel-shaped recess (38) adapted to receive a projection (40) of cooperating configuration provided on the main flange (33) of the second edge portion (29) to provide the interengageable male and female parts.

18. A cladding panel according to any one of Claims 14 to 17 wherein the second flange (34) of the second edge portion (29) is disposed closer to the web part (21) over at least a portion (37) of its length than it is disposed at the position at which it is connected to the main flange (33), thereby providing a space (31a), in use, between the second flange parts (31; 34) of the first and second edge portions (27, 29) to accommodate a head part (44) of a fastener (40), the shank of which passes through an opening in the second flange part (31) of the first edge portion (27).

19. A cladding panel according to any one of Claims 14 to 17 wherein the distance between the free end of the second flange (34) of the second edge portion (29) and the surface (33) of the main part of the second edge portion (29) facing away therefrom is less than the distance between the lip (32) and main flange (30) of the first edge portion (27), thereby to provide, in use, a space between the lip (32) and the free end (34) of the second flange of the second edge portion (29) to accommodate therebetween a first part (50b; 250b) of a clamp means which comprises said fastener means (50; 250).

20. A cladding panel according to any one of

Claims 11 to 19 when the cladding panel and a second similar panel are connected to the support member (10; 110; 210) of a building.

5 Patentansprüche

1. Verfahren zum Befestigen an einem Träger (10; 110; 210) erste und zweite Verkleidungsplatten (20; 120; 220; 20b) mit jeweils einem Stegteil (21) zur Schaffung einer im wesentlichen nach außen weisenden Fläche (22) der Platte, der an einer Kante einen nach innen gerichteten Kantenabschnitt (27; 127; 227) und an der gegenüberliegenden Kante (28) einen nach innen gerichteten zweiten Kantenabschnitt (29) aufweist, wobei das Verfahren die Schritte des Ineinandergreifens des ersten Kantenabschnitts (27; 127; 227) der ersten Platte (20; 220) mit dem zweiten Kantenabschnitt (29b) der zweiten Platte (20b) als Ergebnis einer nachgiebigen Deformation wenigstens einer der Kantenabschnitte und Befestigen der Platten an dem Träger unter Verwendung von Befestigungsmitteln aufweist und gekennzeichnet durch Verbinden des ersten Kantenabschnitts (27; 127; 227) der ersten Platte (10; 120; 220) mit dem Träger (10; 110; 210) durch ein Befestigungsmittel (43; 50; 250) und Verbinden des zweiten Kantenabschnitts (29b) der zweiten Platte mit dem Träger (10; 110; 210) durch das Eingreifen mit dem ersten Kantenabschnitt, und Hindern der benachbarten Kanten von einer Verschiebung in allen Richtungen normal zu den Kanten durch das Ineinandergreifen.

2. Verfahren nach Anspruch 1, wobei der erste Kantenabschnitt (27; 127; 227) der ersten Platte (20; 120, 220) mit dem Träger (10; 110, 210) verbunden ist vor dem Ineinandergreifen des ersten (27; 127; 227) mit dem zweiten Kantenabschnitts (29).

3. Verfahren nach Anspruch 1, wobei der erste Kantenabschnitt (27; 127, 227) der ersten Platte (20, 120; 220) mit dem Träger (10; 110; 210) verbunden wird nach dem Ineinandergreifen des ersten Kantenabschnitts (27; 127; 227) und des zweiten Kantenabschnitts (29).

4. Verfahren nach Anspruch 1 oder 2, wobei der erste Kantenabschnitt (27; 127; 227) mit dem Träger (10; 110; 210) verbunden wird durch Anbringen der Befestigungsmittel (43; 50, 250) von der Seite der Platten (20; 120; 220) mit der nach außen weisenden Fläche.

5. Verfahren nach einem der Ansprüche 1 bis 3, wobei der erste Kantenabschnitt (27; 127; 227) mit dem Träger (10; 110; 210) durch Anbringung der Befestigungsmittel (43; 50; 250) von der Seite der Platte (20; 120; 220), die derjenigen mit der nach außen weisenden Fläche gegenüber liegt, verbunden wird.

6. Verfahren nach einem der vorangehenden Ansprüche, mit dem Schritt der Verursachung einer Erstreckung der Befestigungsmittel (43), durch eine Öffnung in dem ersten Kantenabschnitt (27).

7. Verfahren nach einem der Ansprüche 1 bis 5, mit dem Schritt des Verursachens einer Klemm-

verbindung der Befestigungsmittel (50; 250), mit dem ersten Kantenabschnitt (127; 227).

8. Verfahren nach einem der vorangehenden Ansprüche, wobei der zweite Kantenabschnitt (25) der zweiten Platte (205) und der erste Kantenabschnitt (27; 127; 227) der ersten Platte (20; 120; 220) nachgiebig miteinander verbunden werden durch Bewegen der zweiten Platte (29) relativ zu dem Träger (10; 110; 210) und der ersten Platte (20; 120; 220), während die erste Platte (29) so orientiert ist, daß der erste Abschnitt (27; 127; 227) nicht näher zu dem Träger (10; 110; 210) ist als der zweite Kantenabschnitt (29).

9. Verfahren nach einem der Ansprüche 1 bis 7, wobei der erste Kantenabschnitt (27; 127; 227) jeder Platte aufweist:

einen sich im wesentlichen senkrecht zu dem Stegteil (21) erstreckenden Hauptflansch (30), einen sich im wesentlichen senkrecht weg von dem Hauptflansch (30) auf der gegenüberliegenden Seite und an dem gegenüberliegenden Ende von diesem zu dem Stegteil (21) erstreckenden zweiten Flansch (31),

wobei der zweite Flansch (31) an seinen gegenüberliegenden Enden zu dem Hauptflansch (30) eine Lippe (32) hat, die sich von dem zweiten Flansch auf derselben Seite wie der und im wesentlichen parallel zu dem Hauptflansch erstreckt, und

wobei der zweite Kantenabschnitt (29) jeder Platte aufweist:

einen Hauptflansch (33), der sich im wesentlichen senkrecht zu dem Stegteil (21) auf derselben Seite wie der Hauptflansch (30) des ersten Kantenabschnitts (27; 127; 227) erstreckt, einen zweiten Flansch (34), der sich im wesentlichen senkrecht weg von dem Hauptflansch (30) auf derselben Seite von diesem wie der Stegteil (21) aber an der gegenüberliegenden Seite von diesem, erstreckt, und wobei der Schritt des nachgiebigen Ineinandergreifens des zweiten Kantenabschnitts (29) und des ersten Kantenabschnitts (27; 127; 227) so durchgeführt wird, daß der zweite Flansch (34) des zweiten Kantenabschnitts (29) der zweiten Platte (20b) zwischen dem Hauptflansch (30) und einer Lippe (32) des ersten Kantenabschnitts (27; 127; 227) der ersten Platte (20; 120; 220) und zwischen dem zweiten Flansch (31) des ersten Kantenabschnitts (27; 127; 227) der zweiten Platte (20; 120; 220) und dem Stegteil (21) der zweiten Platte (20b) liegt.

10. Verfahren nach Anspruch 9, wobei bei jeder Tafel die Entfernung (d1) in einer Richtung parallel zu dem zweiten Flansch (31) zwischen dem Hauptflansch (30) und dem nächsten Teil des Abschnitts der Lippe (32) des zweiten Flansches (31), der bei Verwendung durch das freie Ende des zweiten Flansches (34) des Kantenabschnitts (29) in Eingriff steht, zu dem Hauptflansch (30) des ersten Kantenabschnitts (27) nicht kleiner ist als der Abstand (d2) zwischen der weg von dem zweiten Flansch (34) weisenden Oberfläche des Hauptflansches (33) ist, und dem Teil des zweiten Flansches (34), der von dem Hauptflansch (33) des zweiten Kantenabschnitts (29) am weitesten

entfernt ist, und wobei der Schritt des nachgiebigen Ineinandergreifens des zweiten Kantenabschnitts (29) mit dem ersten Kantenabschnitt (27) durchgeführt wird durch Bewegen der zweiten Platte (20b) relativ zu der ersten Platte (201) und zu dem Träger (101), während die zweite Platte (20b) so ausgerichtet wird, daß der erste Kantenabschnitt (27) nicht näher zu dem Träger (10) ist als der zweite Kantenabschnitt (29).

11. Verkleidungsplatte für ein Gebäude, die zur Durchführung eines Verfahrens nach einem Ansprüche 1 bis 10 ausgebildet ist, mit einem Stegabschnitt (21) zur Schaffung einer im wesentlichen nach außen weisenden Fläche (22) der Platte (20; 120; 220), der an einer Kante einen nach innen gerichteten ersten Kantenabschnitt (27; 127; 227) und an der gegenüberliegenden Kante einen nach innen gerichteten zweiten Kantenabschnitt (29) hat, wobei der erste Kantenabschnitt (27; 127; 227) mit dem zweiten Kantenabschnitt (26b) einer benachbarten ähnlichen Platte in Eingriff gebracht werden kann aufgrund einer nachgiebigen Deformation wenigstens einer der Kantenabschnitte, und wobei der erste Kantenabschnitt der Platte von einem Befestigungsmittel (43; 50; 250) bei Verwendung ergriffen werden kann, um die Platte (20; 120; 220) mit dem Gebäude zu verbinden, dadurch gekennzeichnet, daß der erste Kantenabschnitt (27; 127; 227) und der zweite Kantenabschnitt (29) mit einer solchen Ausbildung (30; 31, 32; 33; 34) versehen sind, daß bei einem Ineinandergreifen des ersten Kantenabschnitt (27; 127; 227) der Platte (20, 120, 220) mit dem zweiten Kantenabschnitt (29b) einer benachbarten ähnlichen Platte (20b) die Kanten an einer Verlagerung in allen Richtungen normal zu den Kanten durch das Ineinandergreifen gehindert werden und der zweite Kantenabschnitt (20b) mit dem Gebäude durch das Ineinandergreifen verbunden ist.

12. Verbindungsplatte nach Anspruch 11, wobei der erste Kantenabschnitt (27) mit einer Öffnung zur Aufnahme eines Schaftes eines Befestigungsmittels (43) versehen ist und der erste und der zweite Kantenabschnitt (36) so ausgebildet sind, daß sie den Kopf des Befestigungsmittels (43) zwischen sich aufnehmen.

13. Verkleidungsplatte nach Anspruch 11 und Anspruch 12, wobei der erste Kantenabschnitt (27; 227) mit einem Teil (132) zur Verbindung mit einem ersten Teil (50b) eines Klemmmittels versehen sind, der das Befestigungsmittel (50) aufnimmt.

14. Verkleidungsplatte nach einem der Ansprüche 11 bis 13, wobei der erste Kantenabschnitt (27) aufweist:

einen sich im wesentlichen senkrecht zu dem Stegabschnitt (21) erstreckenden Hauptflansch (30),

einen sich im wesentlichen senkrecht weg von dem Hauptflansch (30) auf der gegenüberliegenden Seite und an dessen gegenüberliegenden Ende des Stegteils (21) erstreckenden zweiten Flansch (31), der an dessen gegenüberliegenden Ende zu dem Hauptflansch eine Lippe (32) hat, die

sich von dem zweiten Flansch (31) auf derselben Seite wie der und im wesentlichen parallel zu dem Hauptflansch (30) erstreckt, und

der zweite Kantenabschnitt (29) aufweist:

einen Hauptflansch (33), der sich im wesentlichen senkrecht zu dem Stegteil (21) auf derselben Seite wie der Hauptflansch (32) des ersten Kantenabschnitts (27) erstreckt, und einen zweiten Flansch (34), der sich im wesentlichen senkrecht weg von dem Hauptflansch (32) auf derselben Seite wie, aber an dessen gegenüberliegenden Ende zu dem Stegteil (21) erstreckt,

wobei der erste und der zweite Kantenabschnitt (27; 29) bei Verwendung miteinander in Eingriff gebracht werden können, so daß bei einer Anordnung von zwei ähnlichen Platten Seite an Seite der zweite Flansch (34) des zweiten Kantenabschnitts (29) einer (20b) der Platte (20) zwischen dem Hauptflansch (30) und der Lippe (32) des ersten Kantenabschnitts (27) der anderen (20) der Platten und zwischen dem zweiten Flansch (31) des ersten Kantenabschnitts (27) der anderen (20) und dem Stegteil (21) der ersten (20b) Platte liegt.

15. Verkleidungsplatte nach Anspruch 14, wobei der Abstand (d1) in einer Richtung parallel zu dem zweiten Flansch (31) zwischen dem Hauptflansch (30) und dem nächsten Teil des Abschnitts der Lippe (32) des zweiten Flansches (31), mit dem es bei Verwendung durch das freie Ende (34) des zweiten Flansches des zweiten Kantenabschnitts (29) in Eingriff steht zu dem Hauptflansch (30) des ersten Kantenabschnitts (27) nicht kleiner ist als der Abstand (d2) zwischen der Oberfläche des Hauptflansches (33) der weg von dem zweiten Flansch (34) weist und dem Teil des zweiten Flansches (34), der am weitesten weg von dem Hauptflansch (37) des zweiten Kantenabschnitts (29) ist.

16. Verkleidungsplatte nach Anspruch 14 oder 15, wobei die Hauptflansche (30, 33) der Kantenabschnitte (27, 29) mit ineinander eingreifenden Vater- und Mutterteilen versehen sind, um eine Bewegung der benachbarten Platten in einer Richtung senkrecht zu dem Stegteil (21) zu verhindern, wobei Vater- und Mutterteil in Eingriff in einer Richtung parallel zu dem Stegteil (21) gehalten werden durch Eingriff zwischen dem zweiten Flansch (34) des ersten Kantenabschnitts (29) der ersten Platte (20b) und der Lippe (32) des ersten Kantenabschnitts (27) der anderen Platte (20).

17. Verkleidungsplatte nach Anspruch 16, wobei der Hauptflansch (30) des ersten Kantenabschnitts (27) mit einer im wesentlichen kanalförmigen Ausnehmung (38) versehen ist, die eingerichtet ist zur Aufnahme eines Vorsprungs (40) einer zusammenwirkenden Ausbildung, die auf dem Hauptflansch (33) des zweiten Kantenabschnitts (29) vorgesehen ist, um die ineinander eingreifenden Vater- und Mutterteile zu schaffen.

18. Verkleidungsplatte nach einem der Ansprüche 14 bis 17, wobei der zweite Flansch (34) des zweiten Kantenabschnitts (29) näher zu dem Stegteil (21) angeordnet ist über wenigstens einen Teil (37) seiner Länge als es angeordnet ist in der Position, in der es mit dem Hauptflansch (33)

verbunden ist, wobei bei Verwendung ein Raum (31a) geschaffen wird zwischen den zweiten Flanschteilen (31, 34) des ersten Kantenabschnitts (27) und des zweiten Kantenabschnitts (29), um den Kopfteil (44) eines Befestigungselements (44) aufzunehmen, dessen Schaft durch eine Öffnung in dem zweiten Flanschteil (31) des ersten Kantenabschnitts (27) erstreckt.

19. Verkleidungsplatte nach einem der Ansprüche 14 bis 17, wobei der Abstand zwischen dem freien Ende des zweiten Flansches (34) des zweiten Kantenabschnitts (29) und die Oberfläche (33) des Hauptteils des zweiten Kantenabschnitts (29), der weg von diesem weist, geringer ist als der Abstand zwischen der Lippe (32) und dem Hauptflansch (30) des ersten Kantenabschnitts (27), wodurch bei Verwendung ein Abstand zwischen der Lippe (32) und dem freien Ende (34) des zweiten Flansches des zweiten Kantenabschnitts (29) gebildet wird, um einen ersten Teil (50b; 250b) einer Klemmeinrichtung aufzunehmen, die die Befestigungsmittel (50, 250) aufweisen.

20. Verkleidungsplatte nach einem der Ansprüche 11 bis 19, wobei die Verkleidungsplatte und eine zweite ähnliche Platte mit dem Träger (10; 110; 210) eines Gebäudes verbunden sind.

Revendications

1. Procédé de fixation sur un élément de support (10; 110; 210), des premier et second panneaux de bardage (20; 120; 220; 20b), chaque panneau comportant une partie d'âme (21) pour fournir une surface (22) de façon générale dirigée vers l'extérieur, du panneau, comportant sur un bord (26) une première portion de bord (27; 127; 227) dirigée vers l'intérieur et sur le bord opposé (28) de celui-ci, une seconde portion de bord dirigée vers l'intérieur (29); le procédé comprenant les étapes consistant à mettre en engagement ou contact réciproque la première portion de bord (27; 127; 227) du premier panneau (20; 120; 220) avec la seconde portion de bord (29b) du second panneau (20b) par suite de la déformation élastique d'au moins l'une des portions de bord et à fixer les panneaux sur l'élément de support en utilisant un moyen de fixation et caractérisé par le raccordement de la première portion de bord (27; 127; 227) du premier panneau (10; 120; 220) sur l'élément de support (10; 110; 210) par un moyen de fixation (43; 50; 250) et par le raccordement de la seconde portion de bord (29b) du second panneau sur l'élément de support (10; 110; 210) par engagement ou mise en contact réciproque avec la première portion de bord, et en empêchant les bords contigus de se déplacer dans toutes les directions perpendiculaires aux bords par cette mise en contact réciproque.

2. Procédé selon la revendication 1, dans lequel la première portion de bord (27; 127; 227) du premier panneau (20; 120; 220) est raccordée à l'élément de support (10; 110; 210) avant la mise en contact réciproque des première (27; 127; 227) et seconde (29) portions de bord.

3. Procédé selon la revendication 1, dans lequel la première portion de bord (27; 127; 227) du premier panneau (20; 120; 220) est raccordée à l'élément de support (10; 110; 210) après mise en contact réciproque des première (27; 127; 227) et seconde (29) portions de bord.

4. Procédé selon la revendication 1 ou la revendication 2, dans lequel la première portion de bord (27; 127; 227) est raccordée à l'élément de support (10; 110; 210) en appliquant le moyen de fixation (43; 50; 250) depuis le côté du panneau (20; 120; 220) comportant ladite surface dirigée vers l'extérieur.

5. Procédé selon l'une quelconque des revendications 1 à 3, dans lequel la première portion de bord (27; 127; 227) est reliée à l'élément de support (10; 110; 210) en appliquant un moyen de fixation (43; 50; 250) depuis le côté du panneau (20; 120; 220) en relation opposée par rapport à celui comportant ladite surface dirigée vers l'extérieur.

6. Procédé selon l'une quelconque des revendications précédentes comprenant l'étape consistant à faire en sorte que le moyen de fixation (43) s'étend à travers une ouverture dans la première portion de bord (27).

7. Procédé selon l'une quelconque des revendications 1 à 5 comprenant l'étape consistant à faire en sorte que le moyen de fixation (50; 250) se trouve en contact de bridage avec la première portion de bord (127; 227).

8. Procédé selon l'une quelconque des revendications précédentes dans lequel la seconde portion de bord (29) du second panneau (205) et la première portion de bord (27; 127; 227) du premier panneau (20; 120; 220) sont mises en contact réciproque élastiquement en déplaçant le second panneau (29) par rapport à l'élément de support (10; 110; 210) et par rapport au premier panneau (20; 120; 220) tandis que le second panneau (29) est orienté de façon que la première portion de bord (27; 127; 227) ne soit pas plus près du support (10; 110; 210) que ne l'est la seconde portion de bord (29).

9. Procédé selon l'une quelconque des revendications 1 à 7, dans lequel la première portion de bord (27; 127; 227) de chaque panneau comprend:

une aile principale (30) s'étendant de façon générale perpendiculairement à ladite partie d'âme (21), une seconde aile (31) s'étendant de façon générale perpendiculairement en éloignement de l'aile principale (30) sur le côté opposé et sur l'extrémité opposée de celle-ci par rapport à la partie d'âme (21),

la seconde aile (31) comportant sur l'extrémité opposée de celle-ci par rapport à l'aile principale (30) une lèvre (32) que s'étend depuis la seconde aile sur le même côté de celle-ci comme, et de façon générale parallèle à l'aile principale,

et la seconde portion de bord (29) de chaque panneau comprenant:

une aile principale (33) s'étendant de façon générale perpendiculairement à la partie d'âme (21) sur le même côté de celle-ci que l'aile princi-

pale (30) de la première portion de bord (27; 127; 227), une seconde aile (34) s'étendant de façon générale perpendiculairement en éloignement de l'aile principale (30) sur le même côté de celle-ci comme la partie d'âme (21), mais sur l'extrémité opposée de celle-ci, et dans lequel l'étape consistant à mettre en contact réciproque élastiquement les seconde (29) et première portions (27; 127; 227) est effectuée de façon que la seconde aile (34) de la seconde portion de bord (29) du second panneau (20b) se situe entre l'aile principale (30) et la lèvre (32) de la première portion de bord (27; 117; 227) du premier panneau (20; 120; 220) et entre la seconde aile (31) de la première portion de bord (27; 127; 227) du premier panneau (20; 120; 220) et la partie d'âme (21) du second panneau (20b).

10. Procédé selon la revendication 9 dans lequel, dans chaque panneau, la distance (d1), dans une direction parallèle à la seconde aile (31), entre l'aile principale (30) et la partie la plus proche de la portion de la lèvre (32) de la seconde aile (31) qui est en contact, pendant l'utilisation, par l'extrémité libre de la seconde aile (34) de la seconde portion de bord (29), sur l'aile principale (30), de la première portion de bord (27), n'est pas inférieure à la distance (d2) entre la surface de l'aile principale (33) opposée à la seconde aile (34), et la partie de la seconde aile (34) la plus éloignée par rapport à l'aide principale (33), de la seconde portion de bord (29) et dans lequel l'étape consistant à mettre en contact réciproque élastiquement les seconde (29) et première portions de bord (27) s'effectue en déplaçant le second panneau (20b) par rapport au premier panneau (201) et par rapport au support (101) tandis que le second panneau (20b) est orienté de façon que la première portion de bord (27) ne soit pas plus près du support (10) que ne l'est la seconde portion de bord (29).

11. Panneau de bardage pour une construction apte à la réalisation d'un procédé selon l'une quelconque des revendications 1 à 10 comprenant une partie d'âme (21), pour fournir une surface (22) dirigée de façon générale vers l'extérieur du panneau (20; 120; 22) comportant sur un bord (26) de celui-ci une première portion de bord dirigée vers l'intérieur (27; 127; 227) et sur le bord opposé (28) de celui-ci, une seconde portion de bord dirigée vers l'intérieur (29), la première portion de bord (27; 127; 227) pouvant être mise en contact réciproque avec la seconde portion de bord (29b) d'un panneau similaire contigu par suite d'une déformation élastique d'au moins l'une des portions de bord, et la première portion de bord du panneau pouvant être mise en contact par un moyen de fixation (43; 50; 150) pour raccorder le panneau (20; 120; 22) sur la construction, lors de l'utilisation, caractérisé en ce que les première (27; 127; 227) et seconde (29) portions de bord sont dotées d'une configuration telle (30; 31; 32; 33; 34) que lorsque la première portion de bord (27; 127; 227) d'un panneau (20; 120; 220) est en contact réciproque avec la seconde portion de bord (29b) d'un panneau similaire contigu

(20b), les bords sont retenus contre le déplacement dans toutes les directions perpendiculaires aux bords au moyen de la mise en contact réciproque et la seconde portion de bord (20b) est rapportée à la construction au moyen de cette mise en contact réciproque.

12. Panneau de bardage selon la revendication 11, dans lequel la première portion de bord (27) est munie d'une ouverture pour recevoir une tige d'un élément de fixation (43) et les première et seconde portions de bord présentent une configuration (36) propre à recevoir une tête (44) du moyen de fixation (43) entre celles-ci.

13. Panneau de bardage selon la revendication 11 ou la revendication 12, dans lequel la première portion de bord (27; 227) est munie d'une partie (132) destinée à la mise en contact sur une première partie (50b) d'un moyen de bridage qui comprend lesdits moyens de fixation (50).

14. Panneau de bardage selon l'une quelconque des revendications 11 à 13, dans lequel la première portion de bord (27) comprend:

une aile principale (30) s'étendant de façon générale perpendiculairement à la partie d'âme (21),

une seconde aile (31) s'étendant de façon générale perpendiculairement en éloignement de l'aile principale (30) sur le côté opposé et sur l'extrémité opposée de celle-ci par rapport à la partie d'âme (21), la seconde aile (31) comportant sur l'extrémité opposée de celle-ci par rapport à l'aile principale une lèvre (32) qui s'étend depuis la seconde aile (31) sur le même côté de celle-ci que, et généralement de façon parallèle à l'aile principale, (30) et

la seconde portion de bord (29) comprend:

une aile principale (33) s'étendant de façon générale perpendiculairement à la partie d'âme (21) sur le même côté de celle-ci que l'aile principale (32) de la première portion de bord (27), une seconde aile (34) s'étendant de façon générale perpendiculairement en éloignement par rapport à l'aile principale (33) sur le même côté de celle-ci que, mais sur l'extrémité opposée de celle-ci par rapport à, la partie d'âme (21),

les première et seconde portions de bord (27, 29) pouvant être mises en contact réciproque, pendant l'utilisation, de sorte que lorsque deux panneaux similaires sont disposés en relation côte à côte, la seconde aile (34) de la seconde portion de bord (29) de l'un (20b) des panneaux (20) se situe entre l'aile principale (30) et la lèvre (32) de la première portion de bord (27) de l'autre (20) desdits panneaux, et entre la seconde aile (31) de la première portion de bord (27) de l'autre panneau (20) et la partie d'âme (21) de l'un des panneaux (20b).

15. Panneau de bardage selon la revendication 14, dans lequel la distance (d1) dans une direction parallèle à la seconde aile (31), entre l'aile principale (301) et la partie la plus proche de la portion de la lèvre (32) de la seconde aile (31) qui est en contact, pendant l'utilisation, par l'extrémité libre

(34) de la seconde aile de la seconde portion de bord (29), sur l'aile principale (30), de la première portion de bord (27), n'est pas inférieure à la distance (d2) entre la surface de l'aile principale (33) opposée à la seconde aile (34) et la partie de la seconde aile (34) la plus éloignée de l'aile principale (37) de la seconde portion de bord (29).

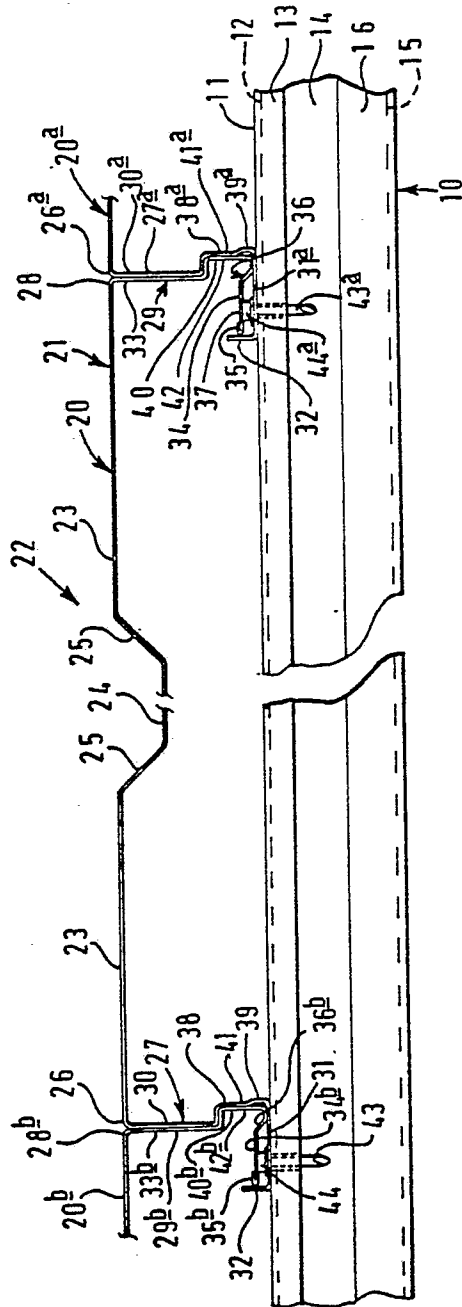
16. Panneau de bardage selon la revendication 14 ou la revendication 15, dans lequel les ailes principales (30, 33) des portions de bord (27, 29) sont munies de parties mâle et femelle pouvant être mises en contact réciproque pour empêcher le mouvement des panneaux contigus dans une direction perpendiculaire à la partie d'âme (21) et les parties mâle et femelle étant maintenues en engagement dans une direction parallèle aux parties d'âme (21) grâce à l'engagement entre la seconde aile (34) de la seconde partie de bord (29) d'un panneau (20b) et la lèvre (32) de la première portion de bord (27) de l'autre panneau (20).

17. Panneau de bardage selon la revendication 16, dans lequel l'aile principale (30) de la première portion de bord (27) est munie d'un évidement (38) de façon générale en forme de chenal apte à recevoir une saillie (40) de configuration coopérante prévue sur l'aile principale (33) de la seconde portion de bord (29) pour fournir les pièces mâle et femelle venant en contact réciproque.

18. Panneau de bardage selon l'une quelconque des revendications 14 à 17, dans lequel la seconde aile (34) de la seconde portion de bord (29) est disposée de façon plus rapprochée par rapport à la partie d'âme (21) sur au moins une portion (37) de sa longueur qu'elle n'est disposée sur la position dans laquelle elle est raccordée à l'aile principale (33), fournissant ainsi un espace (31a), lors de l'utilisation, entre les secondes parties d'aile (31; 34) des première et seconde portions de bord (27; 29) pour recevoir une partie de tête (44) d'un moyen de fixation (40), dont la tige traverse une ouverture dans la seconde partie d'aile (31) de la première portion de bord (27).

19. Panneau de bardage selon l'une quelconque des revendications 14 à 17, dans lequel la distance entre l'extrémité libre de la seconde aile (34) de la seconde portion de bord (29) et la surface (33) de la partie principale de la seconde portion de bord (29) opposée à celle-ci est inférieure à la distance entre la lèvre (32) et l'aile principale (30) de la première portion de bord (27), de façon à fournir dans l'utilisation, un espace entre la lèvre (32) et l'extrémité libre (34) de la seconde aile de la seconde portion de bord (29) pour recevoir entre celle-ci une première partie (50b; 250b) d'un moyen de bridage qui comprend le moyen de fixation (50; 250).

20. Panneau de bardage selon l'une quelconque des revendications 11 à 19 lorsque le panneau de bardage et un second panneau similaire sont raccordés à l'élément de support (10; 110; 210) d'une construction.



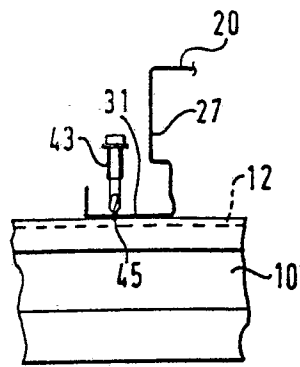


FIG 2a

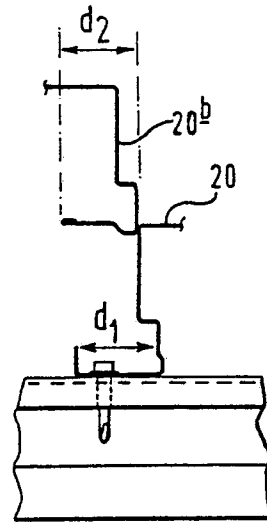


FIG 2b

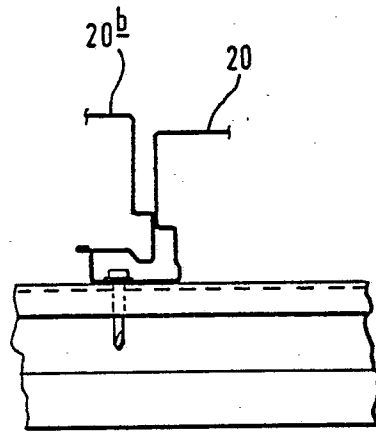


FIG 2c

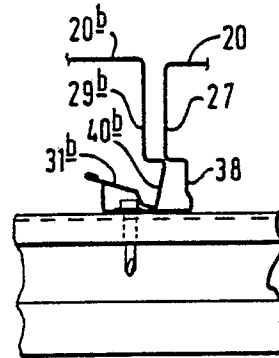


FIG 2d

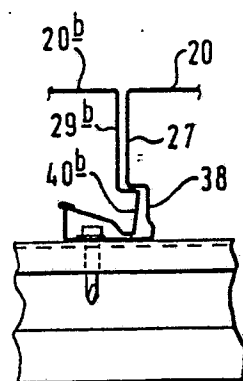


FIG 2e

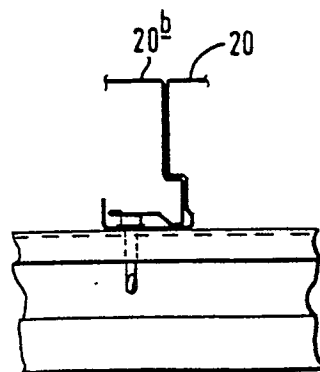
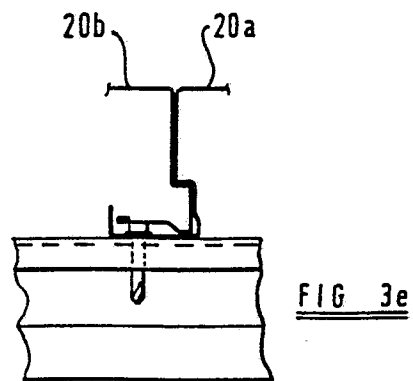
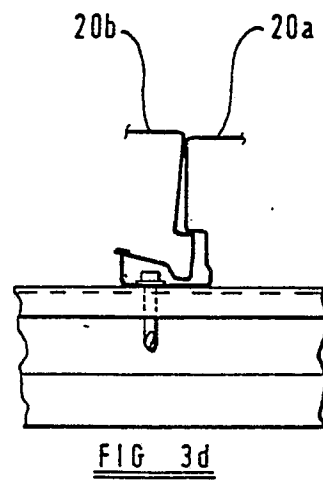
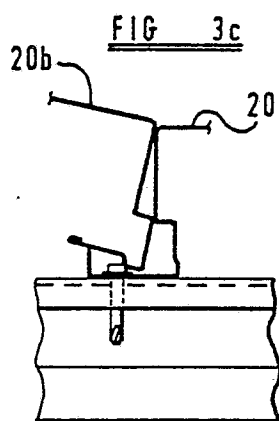
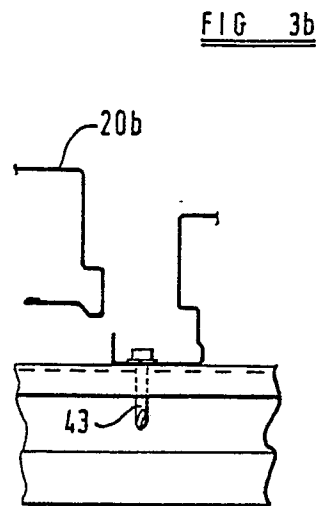
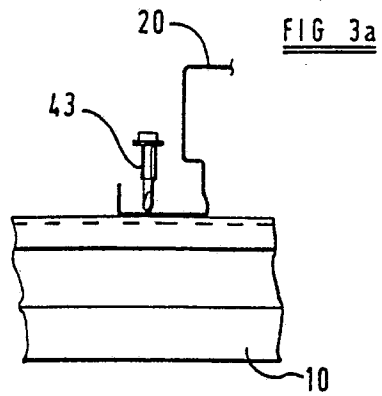
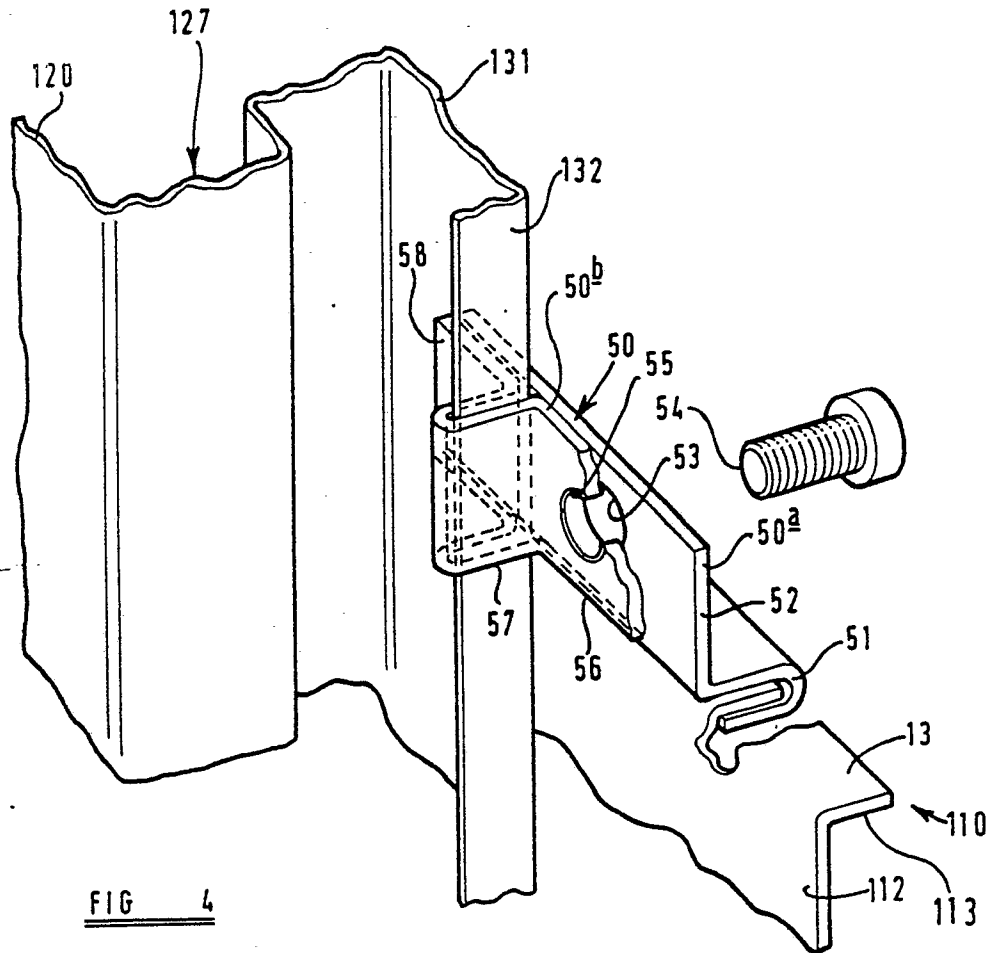
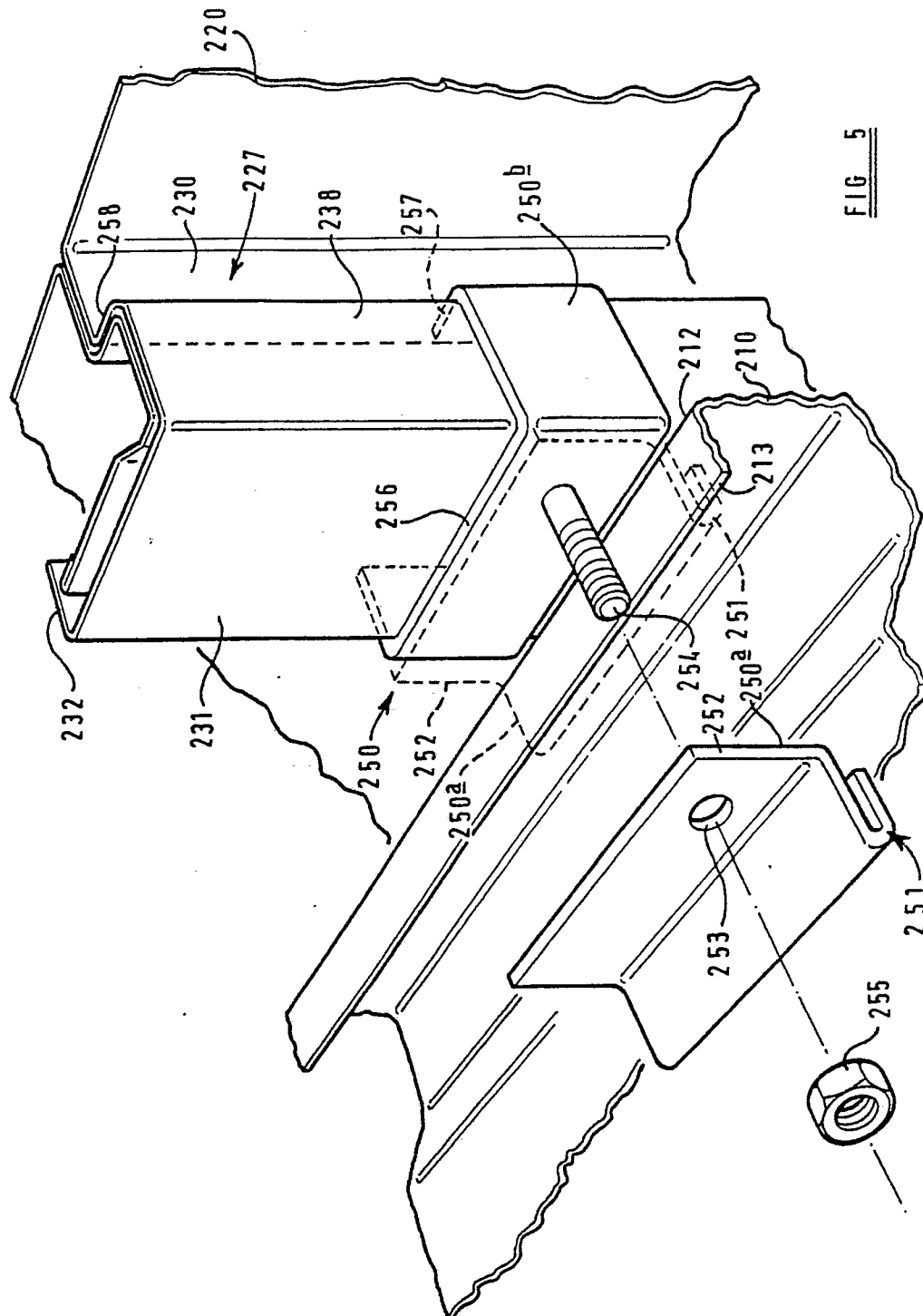


FIG 2f





FIG 5

