A formwork panel assembly for concrete building construction has a pair of formwork panels with parallel walls, an elongate support member extending between the walls and a clamp securing the walls of the formwork panels to the support member. The support member has a substantially U-shaped cross-section with a pair of opposite sides and an opening between the opposite sides. The clamp has a pair of clamp jaws each having a first projecting portion, the support member and the parallel walls extending between the first projecting portions of the jaws, and a second projecting portion, the second portions extending into the opening between the opposite sides of the U-shaped cross-section. A wedge displaces the clamp jaws relative one another to cause the first portions to exert a clamping pressure urging the pair of parallel walls against the opposite sides of the U-shaped cross-section and simultaneously urging the second portions apart from one another against the opposite sides of the U-shaped cross-section to counteract distortion of the opposite sides by the clamping pressure.
FIG. 4
FORMWORK PANEL ASSEMBLIES AND CLAMP

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention
[0002] The present invention relates to formwork panel assemblies for use in casting concrete building construction and to formwork panel clamps.
[0003] 2. Description of the Related Art
[0004] In the construction of concrete buildings, wall-forms made of formwork panels secured in position by clamps are employed for the casting of walls. The formwork panels are made of boards, for example plywood boards, of rectangular shape, which are mounted in frames formed by elongate metal extrusions, and clamps secure the metal extrusions to elongate support members, for example hollow extrusions, to hold the formwork panels in position while they are employed as forms for the casting of the concrete walls.
[0005] In U.S. Pat. No. 4,881,716, issued Nov. 21, 1989 to Gerhard Dingler, there is disclosed a clamp or lock for securing together a pair of frame arms which form parts of formwork panels. The frame arms are each of hollow closed cross-section, and the clamp has projections which engage in corrugations in opposite sides of the frame arms to secure the frame arms together and thereby to secure the formwork panels to one another. However, the clamp disclosed by Dingler does not provide means to counteract any excessive clamping force which may deform the opposed walls of a support member which has a substantially U-shaped transverse cross section and hollow interior. There is therefore a need for an improved clamp for use in holding formwork panels in position when there is a support member having a substantially U-shaped transverse cross-section and hollow interior extending between the walls of the formwork panel.

BRIEF SUMMARY OF THE INVENTION

[0006] According to one aspect of the present invention, there is provided a formwork panel assembly comprising a pair of formwork panels having parallel walls, an elongate support member extending between the walls of the formwork panels, and a clamp securing the walls of the formwork panels to the support member. The support member has a substantially U-shaped cross-section and the U-shaped cross-section has a pair of opposite sides and an opening between the opposite sides. The clamp comprises a pair of clamp jaws with the clamp jaws each having a first projecting portion, the support member and the parallel walls of the formwork panels extending between the first projecting portions of the jaws, and a second projecting portion, the second portions extending into the opening between the opposite sides of the U-shaped cross-section. A wedge displaces the clamp jaws towards one another causing the first portions to exert a clamping pressure urging the pair of parallel walls of the formwork panels against the opposite sides of the U-shaped cross-section and simultaneously urging the second portions apart from one another to exert pressure on the opposite sides of the U-shaped cross-section to counteract distortion of the opposite sides by the clamping pressure.
[0007] The opposite sides of the U-shaped cross-section may have C-shaped edge portions defining T-shaped recesses and the clamping surfaces may be in clamping engagement with the C-shaped edge portions. The parallel walls of the formwork panels may have longitudinal recesses and the first projecting portions of the jaws may extend into the recesses and the parallel walls may have flat inner surfaces in the vicinity of the recesses, the inner surfaces may be in surface-to-surface clamping contact with the opposite sides of the U-shaped cross-section.
[0008] According to another aspect of the invention, there is provided a formwork panel assembly comprising a pair of formwork panels and a clamp securing the formwork panels to an elongate support member extending between the formwork panels. The support member has opposite sides, spaced apart edge portions and a hollow interior between the opposite sides. The hollow interior is open to the exterior of the support member between the spaced apart edge portions of the opposite sides. The formwork panels have respective parallel walls at opposite sides of the support member and the walls are parallel to one another. The clamp comprises a pair of jaws and a wedge engages in wedge openings in the jaws. The jaws each having a first projecting portion at one side of the support member and abutting a respective one of the walls at the exterior of the support member, and a second projecting portion in the interior of the support member and abutting the opposite side of the support member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The invention will be more readily understood from the following description of an embodiment thereof given, by way of example only, with reference to the accompanying drawings, in which:—

[0010] FIG. 1 is a side perspective view of a formwork assembly comprising a pair of formwork panel assemblies, according to an embodiment of the invention;
[0011] FIG. 2 is a plan view, taken partly in transverse cross-section, of one of the formwork panel assemblies of FIG. 1 and showing a formwork panel clamp;
[0012] FIG. 3A is a view taken in transverse cross-section through a parallel wall of a formwork panel forming part of one of the formwork panel assemblies of FIG. 1;
[0013] FIG. 3B is a view taken in transverse cross-section and corresponding to FIG. 3A but showing parts of a wall of a modified formwork panel;
[0014] FIG. 4 is a view taken in transverse cross-section through an elongate support forming part of one of the formwork assemblies of FIG. 1;
[0015] FIG. 5 is a plan view of a first clamp jaw of a clamp forming part of the formwork assembly of FIG. 1;
[0016] FIG. 6 is a view, taken in cross-section along the line 6-6 of FIG. 5, of the first clamp jaw of FIG. 5;
[0017] FIG. 7 is a view taken in end elevation in the direction of arrow C of FIG. 5, of the first clamp jaw of FIG. 5;
[0018] FIG. 8 is a plan view of a second clamp jaw of the clamp shown in FIG. 2;
[0019] FIG. 9 is a partially exploded, top perspective view of the clamp of FIG. 2, with a wedge withdrawn from the rest of the clamp;
[0020] FIG. 10 is a top perspective view of the clamp and wedge combination forming part of the assembly of FIG. 1;
[0021] FIG. 11 is a plan view, taken partly in transverse cross-section, of the clamp of FIG. 2 in a formwork panel assembly according to another embodiment of the invention; and
DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, and first to FIG. 1, there is shown a wall form assembly generally indicated by reference numeral 10. The wall form assembly 10 is comprised of a pair of opposed formwork panel assemblies 12a and 12b, according to a preferred embodiment of the invention, secured together at a spacing from one another by taper ties 14. The formwork panel assemblies 12a and 12b each comprise a formwork panel indicated generally by reference numeral 20, elongate support members indicated generally by reference numeral 22, which extend between a pair of the formwork panels 20, and clamps indicated generally by reference numeral 24. The clamps 24 secure the formwork panels 20 to the support members 22 as best shown in FIG. 2.

In other embodiments of the present invention, the formwork panel assemblies 12a and 12b further include filler panels (not shown). Filler panels are thicker and are therefore able to span widths greater than the modular widths of the formwork panels 20.

The formwork panels 20 each have, at opposite sides, parallel walls in the form of extrusions 26 which are secured to edge portions of the formwork panels 20. The extrusions 26 along with spaced-apart transverse struts 16, which are shown in FIG. 1 and extend between the extrusions 26, form frames for the formwork panels 20. Longitudinal struts 18 extend between the transverse struts and offer additional support to the formwork panels. In the present embodiment of the invention, the formwork panels 20 are plywood sheets. However, other known materials, e.g. a steel sheet, may be used as the panels.

The extrusions 26, one of which is best shown in FIG. 3A, have at opposite sides of the extrusions 26 an inner surface 30 and outer surface 32. The inner surface 30 is interrupted by longitudinal recesses 34 extending longitudinally of the exterior of the extrusion 26. The outer surface 32 is a flat outer surface in the vicinity of the indentation 34, the outer surfaces 32 at the opposite sides of the extrusion 26 being in surface-to-surface clamping contact with an adjacent side of the support member 22. Each extrusion 26 also has, at opposite edges of the extrusion 26, laterally projecting, longitudinal edge portions in the form of laterally projecting portions in the form of first projecting portions 36 and second projecting portions 38 extending longitudinally of the extrusion 26 and at right angles to the extrusion 26. There is a shoulder 39 near the first projecting portion 36 for supporting engagement with one of the formwork panels 20.

An alternate embodiment of the extrusion, indicated by reference numeral 261, is shown in FIG. 3B, wherein like parts have been given like numerals with the additional designation "1". The extrusion 261 of FIG. 3B is similar to the extrusion 26 of FIG. 3A but further includes a flange 40 extending longitudinally of the extrusion 26.1 and at right angle to the extrusion 26.1. The flange 40 forms the shoulder 391 for supporting a filler panel 20.1. It will be apparent to those skilled in the art that the extrusions 26 and 26.1 may be dimensioned to accommodate formwork panels 20 and 20.1 of different thicknesses in a manner such that the formwork panels are flush with first end portions 36 and 36.1, as shown in FIGS. 3A and 3B.

The elongate support members 22, one of which is shown in cross-section in FIG. 4, each comprise a beam or channel member which has a substantially U-shaped transverse cross-section with a hollow interior 23 defined by a pair of spaced-apart opposed sides or walls 42 and 44 and an intermediate wall 46 extending between the opposed walls 42 and 44. The intermediate wall 46 has an outer surface 48 which, in the formwork assembly 10, as viewed in FIG. 2, is flush with upper surfaces 49 of the adjacent formwork panel 20. The opposed walls 42 and 44 extend at right angles to the intermediate wall 46 to define an opening 50 between edge portions 52a and 52b of the opposed walls 42 and 44. The edge portions 52a and 52b are of a C-shaped cross-section defining T-shaped recesses, indicated generally by reference numerals 54a and 54b, which, as viewed in FIG. 2, are downwardly open, with openings facing away from the formwork panels 20, and serve to receive wedge clamps (not shown) for securing accessories, e.g. plumbing brackets, working platforms, splices and plates, to the support member 22. The opening 50 allows for the removal of any concrete which may seep into the support member 22 along the taper ties 14 shown in FIG. 1.

The opposed walls 42 and 44 of the elongate support member 22 are formed, at their exteriors, with longitudinal recesses 58 adjacent the edge portions 52a and 52b, and with longitudinal shoulder-shaped recesses 60 adjacent opposite ends of the intermediate wall 46. As can be seen in FIG. 2, the shoulder-shaped recesses 60 are engaged with the first projecting portions 36 of the extrusions 26, while the longitudinal recesses 58 are engaged with the second projecting portions 38 of the extrusions 26 which abut the C-shaped edge portions 52a and 52b of the opposed walls 42 and 44 respectively. The flat surfaces 32 of the extrusions 26 abut the opposed walls 42 and 44 of the support member 22 opposite the longitudinal recesses 34 of the extrusions 26.

As best shown in FIG. 2, each clamp 24 has a first clamp jaw indicated generally by reference numeral 64 and second clamp jaw indicated generally by reference numeral 66. The clamp jaws 64 and 66 comprise first projecting portions 68a and 68b, second projecting portions 71a and 71b, and body portions 70a and 70b. The first projecting portions 68a and 68b extend past the edge portions 52a and 52b respectively of the opposed walls 42 and 44 of the support member 22, and terminate in round end portions 72a and 72b, which engage in the longitudinal recesses 34 of the corresponding extrusions 26. The body portions 70a and 70b, which in the present embodiment are each formed in one piece with the first projecting portions 68a and 68b, extend in opposite directions past the opening 50 between the opposed walls 42 and 44. The body portions 70a and 70b are each provided with formations in the form of the second projecting portions 71a and 71b, which extend into the opening 50 between the C-shaped edge portions 52a and 52b of the opposed walls 42 and 44 and abut respective ones of the C-shaped edge portions 52a and 52b.

The second projecting portions 71a and 71b are located between the first projecting portions 68a and 68b. The first projecting portion 68a of the first clamp jaw 64 is opposed to the second projecting portion 71b of the second clamp jaw 66 to form a first clamp gap therebetween which
engages the C-shaped edge portions 52b of opposed wall 44. The first projecting portion 68b of the second clamp jaw 66 is opposed to the second projecting portion 71a of the first clamp jaw 64 to form a second clamp gap therebetween which engages the C-shaped edge portion 52a of opposed wall 42.

0032. The clamp jaws 64 and 66, which are best shown in FIGS. 5 and 8 respectively, further comprise recesses 75a and 75b located between flat clamping surfaces 67a and 67b of the first projecting portions 68a and 68b and inside edges 69a and 69b of the body portions 70a and 70b of the clamp jaws 64 and 66. As shown in FIG. 2, recess 75a of the first clamp jaw 64 partially receives the C-shaped edge portion 52a of opposed wall 42, while flat clamping surface 67a of the first projecting portion 68a of the first clamp jaw 64 abuts one side of the C-shaped edge portion 52a of opposed wall 42 and the surface 30 of the extrusion 26.

0033. The inside edge 69a of the body portion 70a of the first clamp jaw 64 abuts the underside of the C-shaped edge portion 52a. Recess 75a allows for rotation of clamp jaw 64 about the C-shaped edge portion 52a of opposed wall 42 in the direction generally indicated by arrows B, thereby allowing the clamp 24 to secure the formwork panels 20 to the support members 22 despite imperfections in machining or alignment.

0034. When the components are assembled, as shown in FIG. 2, the clamping surfaces 67a and 67b urge the projecting portions 38 of the formwork panel walls or extrusions 26 into the recesses 58 in the opposed walls 42 and 44 of the support member 22, and also urge the projecting portions 36 of the extrusions 26 into engagement with the shoulder shaped recesses 60 of the support member 22, thereby securing the extrusions 26 to the support member 22. Also, as viewed in FIG. 2, the undersides of the projecting portions 38 abut the tops of the C-shaped edge portions 52a and 52b.

0035. Recess 75b of the second clamp jaw 66 may partially receive either the C-shaped edge portion 52b of opposed wall 44 or the body portion 70b of the first clamp jaw 64, while the flat clamping surface 67b of the first projecting portion 68b of the second clamp jaw 66 abuts both one side of the C-shaped edge portion 52b of opposed wall 44 and the second projecting portion 38 of the extrusion 26. The inside edge 69b of the body portion 70b of the first clamp jaw 64 abuts both the underside of the C-shaped edge portion 52b. Recess 75b allows for increased movement of the second clamp jaw 66 relative to the first clamp jaw 64 in the direction generally indicated by arrows A, thereby allowing the clamp 24 to secure the formwork panels 20 to the support members 22 of varying dimensions.

0036. Referring now to FIG. 6, which shows a view of the first clamp jaw 64 taken in cross-section along the line 6-6 of FIG. 5, the body portion 70a of clamp jaw 64 is formed with an opening 94 between opposite sides 78 and 80 and a bridge portion 82. As can be seen from FIG. 5, the bridge portion 82 extends along only a portion of the opposite sides 78 and 80. FIG. 7 shows a view in end elevation of the clamp jaw 64 taken in the direction of arrow C of FIG. 5. The body portion 70b of the second clamp jaw 66 extends through the opening 94 of the body portion 70a of the first clamp jaw 64.

0037. The body portions 70a and 70b of the clamp jaws 64 and 66 are also formed with rectangular slots or wedge openings 74a and 74b through which a wedge 76 is inserted to cause movement of the first projecting portions 68a and 68b towards one another and movement of the second projecting portions 71a and 71b away from one another.

0038. In use of the above-described clamp 24, and when the formwork panels have been installed on the support members 22, the clamp 24 is engaged around the support members 22 as best shown in FIG. 2, and the wedge 76 is inserted into the slots 74a and 74b of the clamp jaws 64 and 66. As the wedge 76 is thus inserted, it exerts a wedging action on the clamp jaws 64 and 66, so that the round end portions 72a and 72b of the clamp jaws 64 and 66, engaged in the longitudinal recesses 34 in the corresponding extrusions 26, press against the extrusions 26, and thereby clamp the formwork panels 20, which are attached by screws (not shown) to the extrusions 26, to the support members 22. At the same time, flat clamping surfaces 73a and 73b of the second projecting portions 71a and 71b are pressed against the edge portions 52a and 52b of the opposed walls 42 and 44 so as to urge the opposed walls apart from one another and thereby to counteract the effect of forces from the clamp jaws 64 and 66 urging the opposed walls 42 and 44 together.

0039. The flat clamping surfaces 67a and 67b of the first projecting portions 68a and 68b of the clamp jaws 64 and 66 resist forces resulting from the pressure of the concrete acting on the formwork assemblies 12a and 12b, which tend to urge the opposed walls 42 and 44 away from each other. Referring now to FIG. 11, a formwork panel assembly is shown according to a second embodiment of the invention where parts which correspond to those of FIG. 2 and which therefore have been given like reference numerals with the additional numerical suffix “2”. In the formwork panel assembly of FIG. 11, first projecting portions 36.2 and second projecting portions 38.2 of parallel walls formed by extrusions 26.2 of adjacent formwork panels 20.2 abut. Support members 130 adjacent the inner surfaces 30.2 of each parallel extrusion 26.2 each have a first portion 132 of a U-shaped cross-section defined by a pair of opposed walls 134 and 136, and an intermediate wall 138 extending therebetween, and a second portion 140 of a C-shaped cross-section defining a T-shaped recess, indicated generally by reference numeral 142.

0041. An outer surface 139 of intermediate wall 138 of the first portions 132 of the support members 130 is interrupted by longitudinal recess in the form of an indentation 144 extending longitudinally of the exterior of the intermediate walls 138. The first portion 132 of the support member 130 also have, at the opposite wall 134 remote from the second portion 140, a laterally projecting longitudinal edge portion 144, extending at a right angle to the opposite wall 134, in surface-to-surface clamping contact with the inner surfaces 30.1 of the respective parallel extrusions 26.2. A first side 145 of the second portion 140 of the support members 130 is also in surface-to-surface contact with the respective parallel extrusions 26.2. In a more preferred embodiment of the invention, the laterally projecting edge portion 144 of the first portion 132 of the support members 130 and the first side 145 of the second portion 134 of the support members 130 are welded to the parallel extrusions 26.2.

0042. In the embodiment of the invention shown in FIG. 11, the support members 130 do not extend the entire length of formwork panels 20.2 but are restricted to a length of the formwork panels 20.2 where clamping pressure is applied. Where clamping pressure is not applied, the abutting parallel extrusions 26.2 of the adjacent formwork panels 20.2 may
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be held together by other fastening means such as a bolt 160 and nut 162 extending through corresponding openings 165 of the parallel extrusions 262, as shown in FIG. 12. This allows for simplified construction of a wallform assemblies by removing the need for an elongate support member that extends between the formwork panels along the entire length of the formwork panels. This is particularly advantageous when smaller formwork panels are added to a periphery of a wallform assembly in order to construct of wallform assemblies of varying sizes.

As will be apparent to those skilled in the art, various modifications may be made in the above-described embodiment of the present invention within the scope of the appended claims.

1 claim:

1. A formwork panel assembly, comprising a pair of formwork panels having parallel walls, an elongate support member extending between the walls of the formwork panels, and a clamp securing the walls of the formwork panels to the support member;

the support member having a substantially U-shaped cross-section, the U-shaped cross-section having a pair of opposite sides and an opening between the opposite sides;

the clamp comprising a pair of clamp jaws;

the clamp jaws each having a first projecting portion, the support member and the parallel walls of the formwork panels extending between the first projecting portions of the jaws, and a second projecting portion, the second projecting portions extending into the opening between the opposite sides of the U-shaped cross-section;

a wedge for displacing the clamp jaws towards one another to cause the first projecting portions to exert a clamping pressure urging the pair of parallel walls of the formwork panels against the opposite sides of the U-shaped cross-section and simultaneously urging the second projecting portions apart from one another to exert pressure on the opposite sides of the U-shaped cross-section to counteract distortion of the opposite sides by the clamping pressure.

2. A formwork assembly as claimed in claim 1, wherein the first projecting portions of the jaws include end portions on the jaws provided on ends of the first projecting portions and contacting the parallel walls and wherein the first projecting portions include clamping surfaces in surface-to-surface contact with the walls of the formwork panels and the opposite sides of the U-shaped cross-section.

3. A formwork panel assembly as claimed in claim 2, wherein the opposite sides of the U-shaped cross-section have C-shaped edge portions defining T-shaped recesses, the clamping surfaces being in clamping engagement with the C-shaped edge portions.

4. A formwork panel assembly as claimed in claim 3, wherein the parallel walls of the formwork panels have laterally projecting longitudinal edge portions in clamping contact with the opposite sides of the U-shaped cross-section.

5. A formwork panel assembly as claimed in claim 4, wherein the longitudinal end portions abut the C-shaped edge portions.

6. A formwork panel assembly as claimed in claim 1, wherein the parallel walls of the formwork panels have longitudinal recesses, the first projecting portions of the jaws extending into the recesses, and the parallel walls have flat inner surfaces in the vicinity of the recesses, the inner surfaces being in surface-to-surface clamping contact with the opposite sides of the U-shaped cross-section.

7. A formwork panel assembly as claimed in claims 1, wherein the parallel walls of the formwork panels have laterally projecting longitudinal edge portions in clamping contact with the opposite sides of the U-shaped cross-section.

8. A formwork panel assembly as claimed in claim 7, wherein the opposite sides of the U-shaped cross-section are formed with longitudinal recesses receiving the longitudinal edge portions of the walls of the formwork panels.

9. A formwork panel assembly, comprising:

a pair of formwork panels; and

an elongate support member extending between the formwork panels;

a clamp securing the formwork panels to the support member;

the support member having opposite sides, spaced apart edge portions and a hollow interior between the opposite sides, and the hollow interior being open to the exterior of the support member between the spaced apart edge portions of the opposite sides;

the formwork panels having respective parallel walls at opposite sides of the support member, the walls being parallel to one another;

the clamp comprising a pair of jaws;

the jaws having wedge openings; and

a wedge engaging in the wedge openings in the jaws;

the jaws each having a first projecting portion at one side of the support member and abutting a respective one of the walls at the exterior of the support member and a second projecting portion in the interior of the support member.

10. A formwork panel assembly as claimed in claim 9, wherein the first projecting portions include clamping surfaces in surface-to-surface contact with the walls of the formwork panels and with the edge portions of the opposite sides of the support member.

11. A formwork panel assembly as claimed in claim 9, wherein the second projecting portions are in surface-to-surface contact with the edge portions of the opposite sides of the support member within the interior of the support member.

12. A formwork panel assembly as claimed in claim 9, wherein the walls of the formwork panels and the opposite sides of the support member are formed with interengaged, longitudinally extending lateral recessed and projecting portions.

13. A formwork panel assembly as claimed in claim 9, wherein the walls of the formwork panels have longitudinally extending, laterally protruding portions formed with clamping surfaces in surface-to-surface contact with the opposite sides of the support member.

14. A formwork panel assembly as claimed in claim 13, wherein the laterally protruding portions are formed by longitudinal indentations in the walls of the formwork panels and the first projecting portions of the jaws engage in recesses formed by the indentations.

15. A formwork panel assembly as claimed in claim 9, wherein the edge portions of the opposite sides of the support member are channel-shaped with openings facing away from the formwork panels.
16. A formwork panel assembly as claimed in claim 15, wherein the edge portions are of C-shaped cross-section defining T-shaped hollow interiors in the edge portions.

17. A formwork panel assembly as claimed in claim 9, wherein the clamp jaws comprise a first clamp jaw formed with an opening extending through a body portion of the first clamp jaw and a second clamp jaw extending through the opening in the first clamp jaw, the first clamp jaw having a pair of the second projecting portions.

18. A formwork panel assembly, comprising a pair of formwork panels, the formwork panels having mutually abutting parallel walls, a pair of support members adjacent the parallel walls of the formwork panels, and a clamp securing the parallel walls of the formwork panels to the support members:

the support members each having a first portion, the first portion having a substantially U-shaped cross-section defined by a pair of opposite walls and an intermediate wall extending between the opposite walls, and a second portion, the second portion having a substantially C-shaped cross-section defining a T-shaped recess;

the clamp comprising a pair of clamp jaws;

the jaws each having a first projecting portion;

the support members and the abutting walls of the formwork panels extending between the first projecting portions of the jaws; and

a wedge urging the clamp jaws towards one another to cause the first projecting portions to exert a clamping pressure urging the support members against the parallel walls and thereby urging the abutting parallel walls against one another.

19. A formwork assembly as claimed in claim 18, wherein the first projecting portions of the jaws include end portions on the jaws provided on ends of the first projecting portions and contacting the intermediate walls of the first portions of the support members and wherein the first portions of the jaws include clamping surfaces in surface-to-surface clamping contact with the second portions of the support members.

20. A formwork panel assembly as claimed in claim 18, wherein the support members have laterally projecting longitudinal edge portions remote form the second portions of the support members and in surface-to-surface clamping contact with the corresponding parallel walls.

21. A formwork panel assembly as claimed in claim 18, wherein the intermediate walls of the support members have a longitudinal recesses, the first projecting portions of the jaws extending into the recesses.

22. A formwork panel assembly as claimed in claim 18, wherein the second portions of the support members are in surface-to-surface clamping contact with the corresponding parallel walls of the formwork panels.

23. A formwork panel comprising:

first and second clamp jaws;

a wedge;

the clamp jaws each having a body portion, a first projecting portion and a second projecting portion;

the second projecting portions being located between the first projecting portions and the first projecting portion of the first clamp jaw being opposed to the second projecting portion of the second clamp jaw to form a first clamp gap therebetween and the first projecting portion of the second clamp jaw being opposed to the second projecting portion of the first clamp jaw to form a second clamp gap therebetween; and

the clamp jaws being displaceable relative to one another by the wedge to simultaneously displace the first projecting portions towards one another and the second projecting portions away from one another.

24. The formwork panel as claimed in claim 23, wherein each of the body portions has a wedge opening and the wedge extends through the wedge opening for displacing.

25. The formwork panel as claimed in claim 23, wherein the first clamp jaw is formed with an opening through the body portion of the first clamp jaw and the second clamp jaw extends through the opening in the first clamp jaw.

26. The formwork panel as claimed in claim 23, wherein the first projecting portion of the first clamp jaw has a flat clamping surface opposed to the second projecting portion of the second clamp jaw and the first projecting portion of the second clamp jaw has a flat clamping surface opposed to the second projecting portion of the first clamp jaw.

27. The formwork panel as claimed in claim 23, wherein the second projecting portion of the first clamp jaw has a flat clamping surface opposed to the first projecting portion of the second clamp jaw and the second projecting portion of the second clamp jaw has a flat clamping surface opposed to the first projecting portion of the first clamp jaw.

28. The formwork panel as claimed in claim 23, wherein the first projecting portions of the jaws include rounded end portions.