

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in or relating to Framework Construction Members

I, SAI KHEONG KWAN, a British subject, of 14, Bukit Tunggul Road, Singapore 11, do hereby declare the invention, for which I pray that a Patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to channel-section framework construction members for interlock engagement of one frame member with another frame member in forming a structure in which the inter-fitted members are arranged in right-angular relationship. An object of the invention is to provide a member so adapted for this use that when a first member has been fitted through a second member, lateral displacement of said first member in the required direction will effect interlock of said members to prevent endwise movement of said first member and to locate said second member against lateral movement.

According to one aspect of the invention, one frame member of a pair of channel-section members for use in constructing a framework, has at least one of its cheeks slotted in correspondence with the cross-section of the other frame member to allow said second member to be inserted through said cheek and be disposed at right angles to said first member, the said second member having openings to enable it to be displaced longitudinally of said first member after having been inserted to a predetermined extent, said openings serving to receive cheek portions of said first member to permit such displacement, whereby interlock is effected to prevent endwise movement of said second member and/or lateral movement of said first member along said second member.

The slotting of the first member may be arranged so that the cheeks of said second

member will extend longitudinally of said first member, and the bridging portion of said second member will extend transversely of the first member, said bridging portion of the second member being slotted, the cheeks of said second member being notched at their free edges, said slotting and notching of said second member affording reception for cheek portions of said first member, thereby permitting said second member to be displaced longitudinally of said first member for interlock engagement therewith, as aforesaid.

In another aspect of the invention a channel-section frame member is provided which is adapted to serve as either one or other of the frame members aforesaid. In this aspect the invention consists in the provision of a frame member for interlock engagement with a second identical frame member in forming a framework, said member having at least one of its cheeks slotted in correspondence with the cross-section of the member to allow the second member to be inserted through said cheek and be disposed at right angles to the first member, said member having openings to enable it, when used as said second member, to be displaced longitudinally of the first member after having been inserted to a predetermined extent, said openings serving to receive cheek portions of said first member to permit such displacement, whereby interlock is effected to prevent endwise movement of said second member and/or lateral movement of said first member along said second member. In this case the slotting of said member preferably is arranged so that the cheeks of such a member when used as the second member will extend longitudinally of the first member, said member having a slot in its bridging portion and having a notch in the free edges of its cheeks, thereby affording reception for cheek portions of said first member to permit said second member to be

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displaced longitudinally of said first member for interlock therewith.

Conveniently, in respect of a member provided by the invention to serve alternatively as the first member or second member aforesaid, each of the parallel cheeks thereof being formed with a slot in correspondence with the cross-section of said member, the parallel limbs of the slot being longitudinal of the member, these slots of said cheeks being opposite each other to allow such a member when used as the second member to be passed through the slots of both cheeks of the first member, both of the said cheeks being notched at their free edges so that in respect of use as a second member the notches will receive portions of the parallel cheeks of the first member, the bridging portion of the member being slotted so that, in respect of use as the said second member, the slots of said bridging portion will receive portions of the cheeks of the first member which exist between the limbs of the cheek slots.

A framework construction member of one convenient form in accordance with the invention and the mode of employment thereof will now be described with the aid of the drawings accompanying the Provisional Specification, wherein:—

Figure 1 is a perspective view of said member.

Figure 2 is a fragmentary face view showing in broken lines the disposition of an identical second member when in interlock engagement with said member, and

Figure 3 is a perspective diagrammatic view showing, by way of example, three members of the form shown in Figure 1 employed in the same zone of framework, the arrangement affording engagement and interlock of one horizontal member with respect to both another horizontal member and a vertical member.

Referring to Figures 1 and 2, the framework member is of channel section, each of the parallel cheeks 1 of same having the same formation of slots and notches, as are shown in the cheek seen in this view, the slots and notches of one cheek being directly opposite (i.e., in register with) the corresponding slots and notches of the other cheek. Thus each cheek 1 is formed at regular intervals with H-shaped slots, the parallel portions 2a, 2b and 2c, 2d of each slot being longitudinal of the member. If this slot is regarded as being devoid of its limbs 2a and 2c, or devoid of its limbs 2b and 2d so that there remains a U-shaped slot comprising the portions 2a, 2c and 2e, or comprising the portions 2b, 2d and 2e, this U-shaped slot is in correspondence with the cross-sectional shape and general cross-sectional dimensions of the member to allow a second corresponding member to be inserted through said slot by position-

ing said second member at right angles to the member being considered and with its bridging portion 3 horizontal. Slight excess dimensioning of the portions of slot X affords clearance for this insertion.

Pairs of notches 4 are cut in the free edges of cheeks 1 on each side of each H-shaped slot, each pair being equally spaced from the nearest end of this adjacent slot. The two notches 4 of each pair are spaced in correspondence with the spacing of cheeks 1 of the member. At positions which, transversely of the member, are in register with the notches 4, the bridging portion 3 of the member is formed with transverse slots 5, these slots 5 extending across the full width of the space between the cheeks 1.

At a central position between adjacent pairs of notches 4 and their associated slots 5, the member may be formed with a notch 6 in each cheek 1, and with a slot 7, in the bridging portion 3, which are in the same plane transversely of the member, the purpose of these being to define a cutting line, whereby the member can be conveniently cut into sections (e.g., by employing a hack saw in notch 6) which will have their various slots and notches correspondingly spaced from the extremities of the sections; the dotted line denotes the intended line of cut. As an alternative to providing the notch 6 and slot 7 there may be an inscribed line denoting the intended line of cut.

As already stated, a second member of identical form can be inserted into one of the H-shaped slots by arranging said second member at right angles to the first member and placing it for its cheeks 1 to enter the slot portions 2b, 2d (or 2a, 2c as the case may be) and for its bridging portion 3 to enter the slot portion 2e. The second member can now be displaced longitudinally of the first member to effect interlock of the two members, the second member thus reaching the position shown in broken lines in Figure 2. This is permitted by virtue of the notches 4 and slots 5; the notches 4 of the second member will accommodate the portions of cheeks 1 of the first member which exist immediately beyond the extremities of slot portions 2b and 2d, the slots 5 of the second member affording passage for the cheek portions of the first member which exist between the slot limbs 2b and 2d. The notches 4 and slots 5 have width dimensions slightly exceeding the thickness of cheeks 1 to afford clearance for this displacement of the member when employed as the second member aforesaid.

By reason of the slot X being of H form, it will be understood that the second member aforesaid can be inserted with its channel facing in either one or other direction longitudinally of the first member. Or, if desired, two inserted members can be employed, these



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being inserted and displaced in succession, said members being back-to-back so as to have their channels facing in the two opposite directions, and being displaced respectively in those directions.

In the example of use of the invention shown in Figure 3, a horizontal member A is, in the course of constructing the framework, inserted into member B and downwardly displaced for interlock therewith, member C being inserted into member A and displaced in a direction away from member B for interlock of members A and C.

WHAT I CLAIM IS:—

1. A pair of channel-section frame members for use in constructing a framework, wherein one of said members has at least one of its cheeks slotted in correspondence with the cross-section of the other frame member to allow said second member to be inserted through said cheek and be disposed at right angles to said first member, the said second member having openings to enable it to be displaced longitudinally of said first member after having been inserted to a predetermined extent, said openings serving to receive cheek portions of said first member to permit such displacement, whereby interlock is effected to prevent endwise movement of said second member and/or lateral movement of said first member along said second member.

2. A pair of channel-section frame members for use in constructing a framework, wherein one of said members has at least one of its cheeks slotted in correspondence with the cross-section of the other frame member to allow said second member to be inserted through said cheek and be disposed at right angles to said first member, the slotting of said first member being arranged so that the cheeks of said second member will extend longitudinally of said first member, and the bridging portion of said second member will extend transversely of said first member, said bridging portion of the second member being slotted, and the cheeks of said second member being notched at their free edges, said slotting and notching of said second member affording reception for cheek portions of said first member, thereby permitting said second member to be displaced in a direction longitudinally of said first member, whereby interlock is effected to prevent endwise movement of said second member and/or lateral movement of said first member along said second member.

3. A channel-section frame member for interlock engagement with a second identical frame member in forming a framework, said member having at least one of its cheek slotted in correspondence with the cross-section of the member to allow the second member to be inserted through said cheek and be disposed at right angles to the first member, said member

having openings to enable it, when used as said second member, to be displaced longitudinally of the first member after having been inserted to a predetermined extent, said openings serving to receive cheek portions of said first member to permit such displacement, whereby interlock is effected to prevent endwise movement of said second member, and/or lateral movement of said first member along said second member.

4. A frame member according to Claim 3, wherein the slotting of said member is arranged so that the cheeks of such a member, when used as the second member, will extend longitudinally of the first member, said member having a slot in its bridging portion and having notches in the free edges of its cheeks, thereby affording reception for cheek portions of said first member to permit said second member to be displaced longitudinally of said first member for interlock therewith.

5. A channel section frame member according to Claim 4, wherein each of the cheeks thereof is formed with a slot in correspondence with the cross-section of said member, the parallel limbs of the slots being longitudinal of the member, these slots of said cheeks being opposite each other to allow such a member when used as the second member to be passed through the slots of both cheeks of the first member, both of the said cheeks being notched at their free edges so that in respect of use as a second member the notches will receive portions of the parallel cheeks of the first member, the bridging portion of the member being slotted so that, in respect of use as the said second member, the slots of said bridging portion will receive portions of the cheeks of the first member which exist between the limbs of the cheek slots.

6. A frame member according to Claim 3, 4 or 5, wherein the cheek or cheeks adapted to receive an identical member arranged as the said second member, is or are formed with a series of slots at equally distributed positions along the length of said cheek or cheeks for this purpose, each of said slots being in correspondence with the cross-section of the member.

7. A frame member according to Claims 4 and 6 or Claims 5 and 6, wherein the said cheek slots at distributed positions are alternated with groups of cheek edge notches provided for the purpose set forth in Claim 4 or 5.

8. A frame member according to Claim 7 having a defined cutting line central in each group of cheek edge notches.

9. A frame member as claimed in Claim 5, or Claims 5 and 6, wherein the cheek slots are H-shaped to permit an identical member, when used as the second member, to be arranged with its channel facing in one direction or the opposite direction, or to

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being inserted and displaced in succession, said members being back-to-back so as to have their channels facing in the two opposite directions, and being displaced respectively in those directions.

In the example of use of the invention shown in Figure 3, a horizontal member A is, in the course of constructing the framework, inserted into member B and downwardly displaced for interlock therewith, member C being inserted into member A and displaced in a direction away from member B for interlock of members A and C.

WHAT I CLAIM IS:—

1. A pair of channel-section frame members for use in constructing a framework, wherein one of said members has at least one of its cheeks slotted in correspondence with the cross-section of the other frame member to allow said second member to be inserted through said cheek and be disposed at right angles to said first member, the said second member having openings to enable it to be displaced longitudinally of said first member after having been inserted to a predetermined extent, said openings serving to receive cheek portions of said first member to permit such displacement, whereby interlock is effected to prevent endwise movement of said second member and/or lateral movement of said first member along said second member.

2. A pair of channel-section frame members for use in constructing a framework, wherein one of said members has at least one of its cheeks slotted in correspondence with the cross-section of the other frame member to allow said second member to be inserted through said cheek and be disposed at right angles to said first member, the slotting of said first member being arranged so that the cheeks of said second member will extend longitudinally of said first member, and the bridging portion of said second member will extend transversely of said first member, said bridging portion of the second member being slotted, and the cheeks of said second member being notched at their free edges, said slotting and notching of said second member affording reception for cheek portions of said first member, thereby permitting said second member to be displaced in a direction longitudinally of said first member, whereby interlock is effected to prevent endwise movement of said second member and/or lateral movement of said first member along said second member.

3. A channel-section frame member for interlock engagement with a second identical frame member in forming a framework, said member having at least one of its cheek slotted in correspondence with the cross-section of the member to allow the second member to be inserted through said cheek and be disposed at right angles to the first member, said member

having openings to enable it, when used as said second member, to be displaced longitudinally of the first member after having been inserted to a predetermined extent, said openings serving to receive cheek portions of said first member to permit such displacement, whereby interlock is effected to prevent endwise movement of said second member, and/or lateral movement of said first member along said second member.

4. A frame member according to Claim 3, wherein the slotting of said member is arranged so that the cheeks of such a member, when used as the second member, will extend longitudinally of the first member, said member having a slot in its bridging portion and having notches in the free edges of its cheeks, thereby affording reception for cheek portions of said first member to permit said second member to be displaced longitudinally of said first member for interlock therewith.

5. A channel section frame member according to Claim 4, wherein each of the cheeks thereof is formed with a slot in correspondence with the cross-section of said member, the parallel limbs of the slots being longitudinal of the member, these slots of said cheeks being opposite each other to allow such a member when used as the second member to be passed through the slots of both cheeks of the first member, both of the said cheeks being notched at their free edges so that in respect of use as a second member the notches will receive portions of the parallel cheeks of the first member, the bridging portion of the member being slotted so that, in respect of use as the said second member, the slots of said bridging portion will receive portions of the cheeks of the first member which exist between the limbs of the cheek slots.

6. A frame member according to Claim 3, 4 or 5, wherein the cheek or cheeks adapted to receive an identical member arranged as the said second member, is or are formed with a series of slots at equally distributed positions along the length of said cheek or cheeks for this purpose, each of said slots being in correspondence with the cross-section of the member.

7. A frame member according to Claims 4 and 6 or Claims 5 and 6, wherein the said cheek slots at distributed positions are alternated with groups of cheek edge notches provided for the purpose set forth in Claim 4 or 5.

8. A frame member according to Claim 7 having a defined cutting line central in each group of cheek edge notches.

9. A frame member as claimed in Claim 5, or Claims 5 and 6, wherein the cheek slots are H-shaped to permit an identical member, when used as the second member, to be arranged with its channel facing in one direction or the opposite direction, or to



permit two of such members to be employed as second members arranged back-to-back.

10. A frame member for interlock with an identical frame member in forming a framework, substantially as herein described, and as shown in the drawings accompanying the Provisional Specification.
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