

**Title: FRAME MEMBER FOR SPACE DIVIDERS, SCREENS,
SIMILAR PANEL STRUCTURES**

This invention relates to frame members, such as are used in space dividers and screens for sub-dividing office and other space, and in other panel structures. In particular, the invention is concerned with frame members which are intended to be used vertically at the sides of a panel structure, and which are designed to permit two or more such panel structures to be connected together by inter-engaging formations on the frame members.

It has been proposed to use at the vertical sides of a divider or screen an extruded, elongate member, which has a particular formation on its sideways facing surface. The formation on one side of one divider engages with the formation on the adjacent side of a further divider. Once the formations are engaged to each other, a locking member may be applied to retain the members and thus the screens together.

Conventionally, two different forms of frame member are required, one being used at one side of the screen and the other being used at the other side.

The use of two different forms of frame member (that is, frame members having different transverse cross-sectional shapes) requires two different dies to make the frame members. Also, in assembling a screen, care must be taken that the correct frame member is used at each side of the screen.

The present invention provides a frame member having a particular cross-sectional shape which can be used for both sides of a screen or other panel structure.

The frame member of the invention is of elongate form and has a side surface adapted to co-operate with a like side surface of a second similar frame member. The side surface has at least one formation which extends longitudinally of the member and is of uniform cross-sectional shape throughout its length and which comprises

a projection and a complementary recess. The projection and recess are disposed on respectively opposite sides of and symmetrically with respect to a longitudinal median plane of the member which extends normal to said surface.

- 5 The frame member further includes means for receiving a locking member for maintaining a frame member in side-by-side relationship with a said second similar frame member with the said side surfaces of the respective members in abutment. The formations of the side surfaces of the
- 10 respective frame members then inter-engage for preventing lateral movement between the members. The frame member further includes respective slots at opposite ends of the side surface, the slots opening laterally of the surface and extending longitudinally of the frame member and
- 15 providing said means for receiving a locking member. Preferably, two U-shaped locking members are employed.

In conventional arrangements for connecting the two adjacent frame members of a pair of screens, the two frame members are locked together by a locking member

20 which slides longitudinally over formations on the frame members. It is a preferred feature of the present invention that the locking member is applied by sideways movement; that is, movement normal to the longitudinal axis of the frame member.

- 25 Additional formations can be provided on the frame member for the attachment of, or the attachment to, other members.

The invention will be readily understood by the following description of certain embodiments, by way of

30 example, in conjunction with the accompanying drawings, in which:

Fig. 1 is a transverse cross-sectional view of one form of frame member in accordance with the present invention;

Fig. 2 is a transverse cross-sectional view of two frame members as in Fig. 1, shown in positions immediately before being engaged and locked together;

5 Fig. 3 is a similar view to that of Fig. 2, but with the two frame members in engagement and locked;

Fig. 4 is a perspective view of the locking member shown in Fig. 3;

Fig. 5 is an end view of a locking member of Fig. 4;

5 Fig. 6 is a transverse cross-sectional view through another form of frame member in accordance with the present invention;

Fig. 7 is a transverse cross-sectional view through two frame members of the form of Fig. 6, shown
10 immediately before being engaged and locked together;

Fig. 8 is a view similar to Fig. 7, but with the two frame members in engagement and locked; and,

Fig. 9 is a perspective view showing a panel in accordance with the invention, and part of a further
15 similar panel positioned for connection with the first-mentioned panel.

Fig. 1 illustrates, in transverse cross-section, a frame member 10, which in this example is a hollow metal extrusion. The frame member is elongate, of a length
20 useable as a frame member for a divider or screen, or other panel structure.

Frame member 10 has a side surface 12 adapted to co-operate with a like side surface of a second, similar frame member (see Figs. 2 and 3). Side surface 12 has two
25 formations, each comprising a projection and a recess respectively. In the example illustrated, projection 17 and recess 18 comprise one such formation and are disposed on respectively opposite sides of and symmetrically with respect to a longitudinal median plane A-A of member 10.
30 Projection 16 and recess 19 comprise a second such formation and are similarly disposed with respect to one another.

At each end of the surface 12 there is a laterally extending web 20, which forms part of surface 12
35 and is spaced from a wall portion 22 of the extrusion.

Frame member 10 has a side surface 30 opposite surface 12, which is provided with a partially enclosed

groove or slot 32, having a narrow neck 34, disposed in plane A-A. On end surfaces 36 and 38 of the extrusion are formed webs 40 and 42, respectively, connected by central ribs 44, to the end surfaces, and forming respective
5 narrow grooves or slots 46 between the webs and the end surfaces 36 and 38.

If desired, various strengthening webs can be formed within the frame member, for example, as shown at 48.

10 In Figs. 2 and 3, one length of frame member 10, as in Fig. 1, is positioned to the left. On the right is positioned a further length of the same frame member, which has been turned about its longitudinal axis, so that the side surfaces 12 of the respective frame members
15 confront one another. It will be seen that the formations on the two frame members comprising projections 16, 17 and recesses 18, 19 are then positioned to co-operate and connect the frame members together. This is seen in Fig. 3.

20 Also seen in Fig. 3 is a clip-in locking member 60. Locking member 60 is applied by positioning it opposite the two slots 24 at the ends of the respective side surfaces 12 of the two extrusions, and then pushing the locking member in (which distorts it somewhat). The
25 form of the locking member is seen in Figs. 4 and 5. It is an elongate channel-shaped member, having legs 62 extending from a back 64. Relaxed (that is not applied) the legs slant inwardly slightly. On pressing the legs into the slots 24, the legs bend outward to grip the
30 extrusions. If desired a ribbed surface can be formed on one or both surfaces of the slots 24 to aid in retaining the locking members. A capping member 65 is shown in dotted outline at one end in Fig. 3. Capping or sealing members can be provided at each end. If desired one or
35 both surfaces of the slots 46 can be ribbed, as shown at 66.

It will be seen that a neat, symmetrical

assembly is provided. The frame members can be attached to dividers, and other members, by means of a rib on the divider sliding into the partially enclosed grooves or slot 32. However, other ways of attaching the frame member can be used.

Figs. 6 , 7 and 8 illustrate a frame member 68 with only one formation 70 comprising a projection 74 and a recess 76 disposed on respectively opposite sides of and symmetrical about a median longitudinal plane B-B. Where applicable, the same reference numerals as those used in Figs. 1, 2 and 3 have been used to denote like parts. Formation 70 is part of a side surface 72 at each end of which is a laterally extending web 20 and slots 24. A partially enclosed groove or slot 32 is formed in the opposite side surface 78. End surfaces 36 and 38 have webs 40 and 42 forming slots 46.

Fig. 6 illustrates a single frame member, 68, in cross-section. Fig. 7 illustrates a first frame member 68 on the left and a second frame member of the same cross-sectional shape on the right. In Fig. 8 the two frame members are shown in engagement, with the projection 74 on one member in the recess 76 in the other. The two members are locked together by locking members 60.

As described with reference to Figs. 1, 2 and 3, the frame members 68 are attached to dividers, screens or other panel member at the side surfaces 78 as by a projection extending into the slot 32. Other forms of attachment can be used. Capping strips can be applied, by means of slots 46. Ribbing can be provided at 66.

Normally the formations comprising projections 16, 17 and recesses 18, 19 or 74 and 76 extend for the whole length of a frame member but, if desired, the formations may be intermittent. When the members are extruded, it is usually more convenient to make the formations continuous. The formations are shaped so that only sideways movement is necessary to join the two frame members together, without any longitudinal movement.

Similarly the locking member is applied by sideways movement directly into the grooves 24, without any longitudinal movement.

Once locked together by the locking members, a
5 very strong, stable connection is obtained.

Fig. 9 illustrates a panel structure 90, in the example a divider screen. The panel structure comprises a central panel member 92 having a frame member 10 on each side. The frame members are attached to the panel member
10 by a rib 94 extending down each side of the panel and situated in the grooves 32. To position the frame members relative to the panel a bottom member 96 can be provided at each side. Similar members, or a single long member, can be provided at the top and bottom to complete a frame
15 for the panel. Feet 98 provides for standing the panel on a floor. A further panel structure 90(a) is illustrated positioned adjacent to the first panel structure, ready for connection to the panel structure 90. This is effected by moving one panel structure laterally towards
20 the other, engaging the respective formations and pressing in locking member 60 into the slots 24.



WE CLAIM:

1. A frame member for a divider, screen or other panel structure, the member being of elongate form and having a side surface adapted to co-operate with a like
5 side surface of a second similar frame member, said side surface having at least one formation which extends longitudinally of the member and is of substantially uniform cross-sectional shape throughout its length and which comprises a projection and a complementary recess,
10 said projection and recess being disposed on respectively opposite sides of and symmetrically with respect to a longitudinal median plane of the member which extends normal to said surface, the frame member further including means for receiving a locking member for maintaining the
15 frame member in side-by-side relationship with a said second similar frame member with the said side surfaces of the respective members in abutment, whereby the said formations of the side surfaces of the respective frame members inter-engage for preventing relative lateral
20 movement therebetween, the frame member further including respective slots at opposite ends of said side surface, said slots opening laterally of said surface and extending longitudinally of the frame member and providing said means for receiving a locking member.

25 2. A frame member as claimed in claim 1, including two said formations each of which comprises a projection and a complementary recess, said projection and recess being disposed on respectively opposite sides of and symmetrically with respect to a longitudinal median plane
30 of the member which extends normal to said surface, the projection of each said formation being disposed immediately adjacent to the recess of the other formation.

3. A frame member as claimed in claim 1, including a second side surface parallel to the first-mentioned side



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surface and having an inwardly extending groove with a narrow neck.

4. A frame member as claimed in claim 1, including end surfaces extending generally normal to said side surface, a web on each end surface spaced from said end surface, to define a slot.

5. A frame member as claimed in claim 1, in the form of a hollow extrusion.

6. A panel structure having a frame which includes upright frame members at opposite ends of the structure, each frame member being of elongate form and having a side surface facing outwardly of the panel structure and including at least one formation which extends longitudinally of the member and is of substantially uniform cross-sectional shape throughout its length and which comprises a projection and a complementary recess, said projection and recess being disposed on respectively opposite sides of and symmetrically with respect to a longitudinal median plane of the member which extends normal to said surface, the frame member further including means for receiving a locking member for connecting said panel structure to an adjacent similar panel structure, each said frame member further including respective slots at opposite ends of said side surface, said slots opening laterally of said surface and extending longitudinally of the frame member and providing said means for receiving a locking member.

7. A panel structure as claimed in claim 6, wherein each said frame member includes two said formations each of which comprises a projection and a complementary recess, said projection and recess being disposed on respectively opposite sides of and symmetrically with respect to a longitudinal median plane of the member which



extends normal to said surface, the projection of each said formation being disposed immediately adjacent to the recess of the other formation.

8. A panel structure as claimed in claim 6, wherein
5 each said frame member includes a second side surface parallel to the first-mentioned side surface and having an inwardly extending groove with a narrow neck.

9. A panel structure as claimed in claim 6, wherein
10 each said frame member includes end surfaces extending generally normal to side surfaces, a web on each end surface spaced from said end surface, to define a slot.

10. A panel structure as claimed in claim 6, wherein each said frame member comprises a hollow extrusion.

11. A panel structure as claimed in claim 6, in
15 combination with a second similar panel structure, wherein a said upright frame member at one end of the panel structure is maintained in side-by-side relationship and locked to a corresponding said frame member at an adjacent end of the second panel structure with the side surfaces
20 of the respective frame members in abutment and the formations of the side surfaces of the respective frame members inter-engaged for preventing relatively lateral movement therebetween, the combination further comprising two channel-section locking members disposed at
25 respectively opposite sides of the abutting frame members with the side limbs of the channel members engaged in said slots for receiving the locking members, the locking members being substantially co-extensive with the frame members.