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(54) Partitions comprising dismountable panels.

(57) A partition (10) comprising a pair of juxtaposed dismountable panels (11,12), a connecting member (30) mounted on one of the panels (11) and movable between an inoperative position in which the panels (11,12) may be moved into and out of juxtaposition and an operative position in which the panels (11,12) are connected together in juxtaposition.

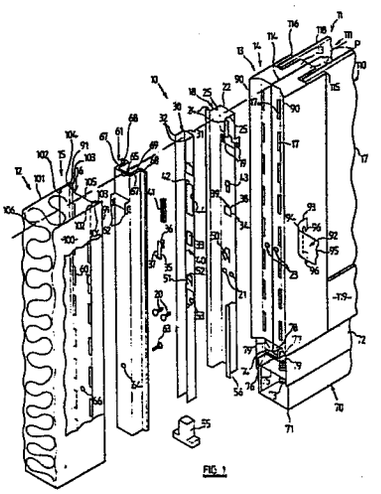

FIG. 1

EP 0 287 375 A1

Description

Partitions comprising demountable panels.

Description of Invention

This invention relates to partitions comprising demountable panels.

Such partitions permit of versatility in the subdivision of rooms into smaller units, for example, offices or for industrial purposes by means of partitions which are capable of re-arrangement if it is desired to change the configuration of the smaller units.

It is becoming common to make the partitions from prefabricated elements supplied to site. For example, "solid" panels, door panels, window panels or the like are manufactured in a factory and are then transported to site where they are mounted in interconnected juxtaposition to form a partition. Such partitions must satisfy acoustic insulation requirements and, in at least some constructions, prevent a fire spreading from one side of the partition to the other. It is, therefore, necessary to connect the panels together and hitherto this has been done by using connector pieces between adjacent edges of the panels and subsequently covering these connector pieces with cover strips. Generally, a relatively large space has been provided between the edges of adjacent panels to enable access into the joint in order to perform the connection.

According to one aspect of the present invention we provide a partition comprising a pair of juxtaposed dismountable panels, a connecting member mounted on one of the panels and moveable between an inoperative position in which the panels may be moved into and out of juxtaposition and an operative position in which the panels are connected together in juxtaposition.

According to a second aspect of the invention we provide a partition comprising a pair of juxtapositioned dismountable panels wherein one edge of one panel is provided with a plurality of slots to receive first limb of a bracket, the bracket having a second limb which extends generally perpendicular to the first limb so as to extend between adjacent edges of the juxtaposed panels and project outwardly of a side surface of the panels.

According to a third aspect of the invention we provide a partition wherein one of the panels is a twin glazing panel comprising a pair of sub units, each sub-unit comprising a glazed frame and the sub-units being disposed so that the glazing is in face to face spaced relationship and means are provided to maintain the sub-units in said relationship.

According to a fourth aspect of the invention we provide a partition wherein one of the panels comprises a junction panel comprising at least two inclined limbs, the junction between the limbs being permanent and the edges of the limbs being provided with connection means whereby the edges may be connected to other panels of the system in the same manner that the other panels are themselves connected together.

A demountable partition will now be described by way of example with reference to the accompanying drawings wherein

FIGURE 1 is an exploded fragmentary perspective view of a bottom part of a partition embodying the invention, and

FIGURE 2 is a fragmentary perspective view showing a top part of the one panel of the partition shown in Figure 1.

FIGURE 3 is a fragmentary perspective view showing a top part of the other panel of the partition shown in Figure 1, and

FIGURES 4a-4e are diagramatic horizontal cross-sectional view showing various configuration of junction panel.

FIGURE 5 is an exploded fragmentary perspective view of a bottom part of an alternative partition embodying the invention.

Referring to figures 1 to 4 of the drawings, a partition is indicated generally at 10 and comprises a plurality of dismountable panels arranged in edge to edge juxtaposition. In Figure 1 part of two such panels 11, 12 is shown. The partition may comprise any desired number of identical panels and the partition may extend rectilinearly or through any desired angular configuration therebeing appropriate means provided at the corners. The partition may comprise panels of any desired type for example "solid" panels, glazed panels or door panels. In the illustrated example the panel 11 is a twin glazed panel whilst panel 12 is a "solid" panel.

The preferred construction of the panels 11 and 12 will be described hereinafter although other constructions may be provided if desired but irrespective of the detailed construction, the panels are provided with mullion members which extend vertically along the two opposite vertical edges of the panels. Thus, a first edge 13 and a second edge, not shown, of the one panel 11 is provided with a first mullion member 14 whilst a first edge, not shown, and a second edge 15 of the other panel 12 is provided with a second mullion member 16. The precise constructional details of the mullion members may vary from panel to panel particularly where the panels are of different type, as will be more apparent from a detailed description of the panel constructions hereinafter, but the mullion members are functionally similar.

For convenience the structure at only the first edge 13 of the one panel will now be described, the second edge thereof being the same. The first mullion member 14 is provided with a plurality of pairs of slots 17 at equally spaced positions along the height of the mullion member. A first generally channel shaped member 18 is attached to the first mullion member 14 by means of two pairs of pressed-out hook parts 19 which are received within the slots 17 of two pairs of slots and by means of two self-tapping securing screws 20 which pass through apertures 21 in a base part 22 of the channel member 18 and are threadedly engaged in apertures 23 of the first mullion member 14.

If desired a different number of pairs of hook parts and securing screws may be provided.

The first generally channel shaped member 18 has out-turned lips 24 at the free ends of the limbs 25 thereof. Movably mounted between the limbs 25 is a channel shaped connecting member 30 having a base 31 and spaced limbs 32. The spacing of the limbs 32 is such that they are a sliding fit within the limbs 25 of the first generally channel shaped member 18.

The base 31 of the connecting member 30 is provided with three apertures 33 at spaced positions along its length, only one of which is shown in Figure 1, whilst a corresponding number of square apertures 34 are formed in the base 22 of the first member 18. A clip 35 having a U-shaped portion 36 and a downwardly depending leg 37 is positioned so that the U-shaped part 36 is engaged over the edge 38 of the aperture 34, therebeing a tag pressed out of the limb of the U-shaped part 36 which is connected to the downwardly depending leg 37 which engages in a slot 39 formed in the base 22 to retain the clip in position. The leg 37 overlies the base 31 of the connecting member 30 and engages therewith in the region indicated at 40 and thus resiliently biases the base 31 of the connecting member 30 against the base 22 of the first generally channel shaped member 18. A single coil tension spring 41 is engaged between a tag 42 formed on the base 31 of the connecting member 30 and a tag 43 provided on the base 25 of the first generally channel shaped member 18, therebeing an aperture 44 provided in the base 31 to accommodate the main body of the spring 41. The spring 41 thus resiliently biases the connecting member 30 downwardly.

If desired more than one spring or some other form of resilient biasing means may be provided.

Two cams, only one of which is shown at 50 in Figure 1, are provided by tags pressed out of the base 22 of the first generally channel shaped member 18 so as to extend upwardly and outwardly of the first edge 13 of the panel 11. A corresponding tag 51 is pressed out of the base 31 of the connecting member 30 and the tag which provides the cam 50 passes through the resultant aperture 52 formed thereby so that the under surface of the tag 50 provides a cam for engagement with the upper surface of the tag 51. If desired the tag 51 may be omitted and simply an appropriately shaped aperture provided in the base 31 the lower edge of which would provide a cam follower for engagement with the cam provided by the tag 50.

An aperture 53 is provided in the base 31 to permit access to be gained to the screws 20 hereinbefore described. A foot 55 is fixed to the bottom of the connecting member 30 so that the foot 55 projects below the bottom 56 of the first generally channel shaped member 18 and hence below the bottom of the panel 11 so that a stepped configuration is provided between the bottom of the connecting member 30 and the remainder of the panel 11.

For convenience the structure at only the second edge 15 of the other panel 12 will now be described; the first edge thereof being the same. The second mullion member 16 is formed with pairs of slots 60 similar to the slots 17 of the first mullion member 14 and a second generally channel shaped member 61 is attached to the second mullion member 16 by means of hook portions 62 similar to the hook portions 19 and by a single self-tapping securing screw 63 which passes through an aperture 64 in a base part 65 of the second channel member 61 and is threadedly received in an aperture 66 provided in the second mullion member 16. Again a different number of pairs of hook portions and securing screw may be provided.

The second generally channel shaped member 61 has spaced limbs 67 having out-turned lips 68.

The second channel member 61 is provided with an acoustic foam material gasket 69 the spacing of the limbs 67 being such as to provide adequate space between the gasket surfaces to receive the connecting channel 30.

The panels 11, 12 are supported at their bottoms on a floor track 70 and are located at their upper edges 80 by a ceiling track 81 as best shown in Figures 2 and 3.

The floor track 70 comprises a base part 71 adapted to be secured to the floor in any convenient manner and a panel engaging part 72 which is adjustable vertically relative to the base part 71 by a screw jack means 73 so that any uneveness in the floor can be accommodated.

The panel engaging part 72 has a channel shaped elongate socket 74 the base 75 of which carries a high friction material such as a high density synthetic rubber strip 76 which is engaged by the apex 77 of a V-shaped tongue 78 provided on the under side of the panels. The free edges of the limbs 79 of the socket 74 engage the sides of the tongue. The frictional engagement between the tongue 78 and the strip 76 restrains movement of the panels in a direction parallel to their central plane and hence restrains the panels from separation in this direction.

Referring now to Figures 2 and 3 the ceiling track 81 is of generally inverted channel shape having a base 82 connected to the ceiling in a desired manner and spaced side limbs 83 the space between which is occupied by rockwool or other acoustic and/or thermally insulating material. The side limbs 83 provided a tongue part 84 which is received within a elongate groove or socket 85 having spaced limbs 87, provided in a top member 86 of the panels. The relative lengths of the limbs 83 and 87 are such as to permit of the tongue and socket parts 84, 85 being engaged whilst the tongue 78 can be lifted over a limb 79 of the floor track 70 and when the panel is lowered to engage the tongue 78 with the strip 76.

In use, when it is desired to mount a panel, such as the panel 11, in juxtaposition with another panel such as the panel 12 the panel 11 is first manipulated so that the tongue part 84 is engaged between the limbs 87 of the socket 85 and with the panel is positioned longitudinally closely adjacent the edges of the adjacent panels 12 and then the tongue 78 is lifted over a limb 79 of the track 70. The panel 11 is then lowered and the feet 55 then engage the free ends of the limbs 79 before the remainder of the panel engages the floor track 70.

Consequently, a resultant force exists between

the locking members 30 at the first and second edges of the panel 11 and the remainder of the panel, acting in a vertically upward direction, and this causes each cam follower 51 to slid along the associated cam 50 and thus cause the locking members 30 to move upwardly and outwardly away from the associated first and second edges 13 of the one panel 11 and into engagement within the limbs 67 of the second channel 61 of the adjacent panels 12. Consequently, the panels 11 and 12 are connected together from movement transverse to the central plane P of the panels. It will be appreciated that because the connecting members 30 only move into engagement within the second channel members 61 over the last portion of downward movement of the panel 11 the panel 11 can be offered up into position simply by a transverse movement of the first panel 11 without requiring any longitudinal movement of the panel 11 in the direction towards the panels 12.

When it is desired to dismount the panel 11 a reverse sequence of operations is performed.

The corners 90, 91 of the panels 11, 12 are, when the panels are connected together as hereinbefore described spaced apart by a small distance sufficient to permit a shelf or other mounting bracket 92 to pass therebetween. The bracket 92 comprises a first limb 93 having a pair of hook formations 96 which are received in adjacent slots 17. The limb 93 is connected by a curve part 94 to a second limb 95 which is of a desired configuration, not shown, to support a shelf or any other desired component. The brackets 92 are manipulated in position by initially aligning the limb 95 generally parallel to the central plane P of the panel 11 and then passing the limb 93 through the gap between the corners 90, 91. As the curved part 94 passes through the gap the bracket is manipulated by rotating through 90° until it occupies the orientation shown in Figure 1 and then the strip is moved downwardly to engage the hook formations 96 in the slots 17. Preferably guide surfaces are provided adjacent the slots 17 to guide the hook formations 96 therein.

The bracket 92 may, instead, be positioned to extend from the opposite side of the panels to that illustrated or could be engaged with the slots 60, with of course, the orientations of the limbs 93 and 95 arranged correspondingly.

It will be appreciated that the out-turned lips 24 of the first channel member 18 are disposed in engagement with the coated out-turned lips 68 of the adjacent second channel members 61 both to effect an acoustic and fire seal and also to position the corners 90, 91 at the desired spacing.

The small gap necessary to accommodate the relatively thin bracket 92 may, in regions where no bracket is provided, be trimmed with an appropriate trim strip is desired. Where no facility for bracket provision is required then the length of the limbs of the first and second channel members 18, 61 may be arranged so that the corners 90, 91 are in abutment.

In the present example the "solid" panel 12 comprises inner and outer skins 100, 101 made of 1 mm steel plate externally coated with plastics material. The skins 100, 101 receive therebetween the second mullion members 16 which are each a one-piece member of generally channel shape the limbs 102 of the channel being received within the skins 100, 101 and the skins 100, 101 having in-turned flanges 103 which overlie inclined parts 104 of the base 105 of the mullion members 16. Rivets or screws are provided between the overlaped parts of the skins and mullion members to secure them together. Appropriate thermal and/or acoustic insulating material 106, such as rockwool is provided between the skins 100 and 101.

The panel 11 shown in Figure 1 is a twin glazing unit. Such a twin glazing unit may, if desired, have a venetian blind disposed between the glazing panels.

Such twin glazing units because of the presence of two sheets of glass are relatively heavy and hence difficult to manipulate and, in addition, if made so as not to be readily dismantable it is difficult or impossible to service any venetian blind or the like disposed between the glass panes.

The twin glazing unit 11 comprises two sub-units 110, 111. Each sub-units 110, 111 comprises a sub-mullion members 112, 113 which combine together to form the first mullion member 14 described hereinbefore. The sub-mullion members 112, 113 are separated by an anti-vibration and acoustic damper material, for example, high density synthetic rubber as indicated at 114. The sub-mullion units may be made of any suitable material and have a recess 115, 116 which receive edge parts of respective glass panels 117, 118. A similar sub mullion assembly is provided at the opposite edge of the panel.

Bottom sub members 119 are also provided and combine together to provide the hereinbefore described V-shaped tongue 78 at the bottom of the panel.

At the top, the sub-units have sub top members 120, 121 provided respectively with recesses 122, 123 for the glass panels 117, 118 and have projecting flanges 124, 125 the free edges of which are forced into abutment with a thermal and/or acoustic insulating material therebetween if desired by the hereinafter described means for securing the sub-units together. The members 120, 121 provide the socket 85 which receives the tongue part 84 of the ceiling track 81. A suitable sealing strip 126 is provided.

The sub-units 110, 111 are held together by virtue of engagement of the hooks 19 in the slots 17 of the sub-units and the screws 20 engaged in the apertures 23. The part V-shaped tongues of the bottom sub member 119 also serve to urge the sub-units 110, 111 together. It will be appreciated, therefore, that it is relatively easy to assemble the twin glazing unit on site by standing the sub-units 110, 111 on the track and then securing them together with the generally channel shaped members 18, as described above. Conversely the panels can be easily disassembled on site by reversing the procedure.

It is preferred that the mullion members, first and second generally channel shape members and locking member are made by pressing in steel but may be made of other material and/or other ways for

example by rolling or moulding or extrusion in synthetic plastics material.

It will be appreciated that the sub-units 110, 111 are isolated from acoustic vibration from each other due to the presence of the anti-vibration damper strip 114.

Referring to Figure 4, when it is desired that the partition changes direction a special junction panel is provided of the appropriate configuration. For example, where the partition is to turn through a corner of 90° then a panel 12a of the configuration shown in Figure 4a is provided. The panel is of the same construction as the panel 12 described hereinbefore except that instead of the inner and outer skins comprising planar parallel sheets they each comprise L-shaped sheets. The edges 13a, 15a are each provided with a first generally channel shaped member and connecting member, or second generally channel shaped member corresponding to the members 18 and 30 or 61 described with reference to Figure 1. The limbs of such a corner shaped panel may be of equal length as shown in Figure 4a or of different lengths as shown for example in Figure 4b. It will be appreciated that the relative length of the limbs may be as desired.

Where the partition is to join a further partition, for example at a T-junction then a T-shaped panel may be provided as shown at Figure 4c the edges of the panels being provided with channel shaped members or channel members and connecting members as necessary to interfit with adjacent panels. Figure 4d shows the shape of panel which would be used where four partitions are to meet orthogonally whilst Figure 4e shows how three partitions may intersect, two at right angles and one at 120°. Any other desired configuration may be provided and would, of course, be provided with appropriate generally channel shape or generally channel shaped and connecting members. By providing such panels of specific configuration it is arranged that the connection between all panels of a partition is identifical and thus a constant standard of connection is achieved throughout the partition with no exception at corners or other junctions. There is therefore no interruption of the integrity of the partitioning in the vicinity of a corner or other junction.

Various modifications may be made without departing from the scope of the invention. For example, a modified connecting means between for example, two solid panels is shown in Figure 5. Similar parts to those shown in Figures 1 to 3 are indicated by the same reference numerals but the prime sign added.

In this arrangement, two solid panels are indicated at 12′ and 12a. Panel 12′ is substantially the same as panel 12 of Figure 1 whilst the portion of panel 12a as seen in Figure 5 is the same as the unseen portion of the panel 12 in Figure 1.

A first channel shaped member 18′ is provided but this does not have hooks such as shown at 19 in Figure 1, to engage in slots 17′, but is secured to the mullion 14′ of panel 12a simply by screws 20′ spaced along the edge 13′ of the panel 12a. If the panel 12a were a glazed panel similar to panel 11 of Figure 1, the screws 20′ would need to be offset in order that the member 18′ will be connected to both sub-units of glazed panel 11.

Similarly a second channel shaped channel member 61′ of the Figure 5 version does not have hooks to engage in slots 60′ of panel 12′ but again is simply secured by spaced screws 63′. The spring 41 is omitted in the Figure 5 arrangement but a clip 35′ is provided to bias a connecting member 30′ to the first member 18′.

In place of two cams 50,51 as in Figure 1, a moulded block B is secured to the mullion 14′ of the panel 12a and has an inclined surface S which engages with a tag 50′ which may be provided by member 18′ which is itself engaged by a lower edge 51′ of an opening 52′ of the connecting member 30′ as the connecting member 30′ moves upwardly, so that the connecting member 30′ is constrained to move outwardly and upwardly relative to the edge 13′ of panel 12a when panel 12a is moved into juxtaposition with channel 12′.

Thus the slots 60′ and 17′ of the first and second channel shaped members 18′ and 61′ in the Figure 5 arrangement, are only used to be engaged by brackets 92′.

In all other respects, the connecting means of Figure 5 operates as described with reference to the Figures 1 to 3 arrangements.

The features disclosed in the foregoing description, in the following claims or the accompanying drawings, expressed in their specific forms or terms of a means of 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 in any combination of such features, be utilised for realising the invention in diverse forms thereof.

Claims

1. A partition comprising a pair of juxtaposed dismountable panels (11,12) characterised in that a connecting member (3) is mounted on one of the panels (11) and movable between an inoperative position in which the panels (11,12) may be moved into and out of juxtaposition and an operative position in which the panels (11,12) are connected together in juxtaposition.

2. A partition according to Claim 1 characterised in that the connecting member (30) is elongate and extends over the full, or substantially the full, height of the one panel (11) and is received, in its operative position, in a socket (61) of the other panel (12) of the pair which also extends over the full, or substantially the full, height of the other panel (12).

3. A partition according to Claim 1 or Claim 2 characterised in that the connecting member (30) is movable in a plane lying in or parallel to a central plane of the one panel (11) in a direction which is inclined upwardly and outwardly of a first edge (13) of the one panel (11) when moving from the inoperative to the inoperative

to the operative position and in the reverse direction when moving from the operative to the inoperative position.

4. A partition according to Claim 3 characterised in that drive means (50,51) are provided to move the connecting member (30) between said operative and inoperative positions as a result of moving the panels (11,12) into and out of juxtaposition, the drive means comprising an inter-engageable cam (50) and cam follower (51) provided between the one panel (11) and the connecting member (30) whereby a resultant force acting between the panel (11) and the connecting member (30) in a direction parallel to the first edge (13) of the one panel causes movement of the connecting member (30) in the inclined direction.

5. A partition according to any one of the preceding claims characterised in that the connecting member (30) is movably mounted on and received between, the limbs (25) of a first generally channel shaped member (18) fixed relative to the one panel (11), means (35) being provided between the first generally channel shaped member (18) and the connecting member (30) normally to bias the connecting member (30) towards the inoperative position wherein the connecting member (30) is received in the first channel shaped member (18).

6. A partition according to Claim 5 characterised in that force is applied to oppose the biasing means (35) as a result of engagement between a bottom (55) of the connecting member (30) with a first abutment (79) when the one panel (11) is lowered onto a second abutment (70) during movement of the one panel (11) into said juxtaposition.

7. A partition according to any one of Claims 2 to 6 where appendent to Claim 2 characterised in that the socket (61) of the other panel (12) comprises a second generally channel shaped member (61) fixed relative to the other panel (12) and between the limbs (67) of which the connecting member (30) is received in said operative position.

8. A partition according to any one of Claims 5 to 7 where appendent to Claim 5 characterised in that slots (17) are provided in first mullion members (14) provided at the first and second edges (13) of the one panel (11) at least some of the slots (17) of the first mullion member (14) receiving attachment parts (19) of the first generally channel shaped member (18) to attach the first generally channel shaped member (18) to the first mullion members (14).

9. A petition according to Claim 7 or Claim 8 where appendent to Claim 7 characterised in that slots (60) are provided in second mullion members (16) provided at the first and second edges (15) of the other panel (12), at least some of the slot (60) of the second mullion members (16) receiving attachment parts (62) of the second generally channel shaped members (61) to attach the second generally channel shaped members (61) to the second mullion members (16).

10. A partition comprising a pair of juxtaposition dismountable panels (11,12) characterised in that one edge of one panel (12) is provided with a plurality of slots (17) to receive a first lumb(93) of a bracket (92), the bracket (92) having a second limb (95) which extends generally perpendicular to the first limb (93) so as to extend between adjacent edges (13,15) of the juxtaposed panels (11,12) and project outwardly of a side surface of the panels (11,12).

11. A partition according to any one of the preceding claims characterised in that the partition includes a floor track (70) with which the bottoms of the panels (11,12) are engaged and a ceiling track (81) with which the tops of the panels (11,12) are engaged, the floor and ceiling tracks being fixed to the floor and ceiling, respectively, of the room in which the partition (10) is erected.

12. A partition according to Claim 11 characterised in that the floor track (70) comprises a base part (71) and a panel engaging part (72) with adjustment means (73) therebetween to permit of adjustment of the height of the panel engaging part (72) relative to the base part (71).

13. A partition according to Claim 11 or Claim 12 characterised in that the ceiling track (81) comprises a tongue part (84) which is received within a groove or socket part (86) provided at the top of each panel (11,12), the ceiling track (81) being of generally inverted channel shape with the base (82) of the channel being secured to the ceiling of the room and the space between the limbs (83) being occupied by thermally and/or accoustically insulating material, the relative lengths of the limbs (83) of the tongue (84) and socket parts (86) being such as to permit of the top edges (80) of the panels (11,12) being raised sufficiently to permit the bottom edges of the panels (11,12) to be manouuvred into engagement with the floor track (70) whilst retaining the tongue part (84) of the ceiling track (81) between the limbs (83) of the socket part when the panels (11,12) are seated on the floor track (70).

14. A partition according to any one of the preceding claims characterised in that one of the panels is a twin glazing panel (11) comprising a pair of sub-units (110,111) each sub-unit comprising a glazed frame (112,113,119) and the sub-units being disposed so that the glazing (117,118) is in face to face spaced relationship and means (18,72) are provided to maintain the sub-units (110,111) in said relationship.

15. A partition according to any one of the preceding claims characterised in that one of the panels (12a) comprises a junction panel comprising at least two inclined limbs, the junction between the limbs being permanent and the edges (13,13a) of the limbs being provided with connection means (61) whereby

the edges (13a,15a) may be connected to other panels (11,12) of the system in the same manner that the other panels (11) are themselves connected together.

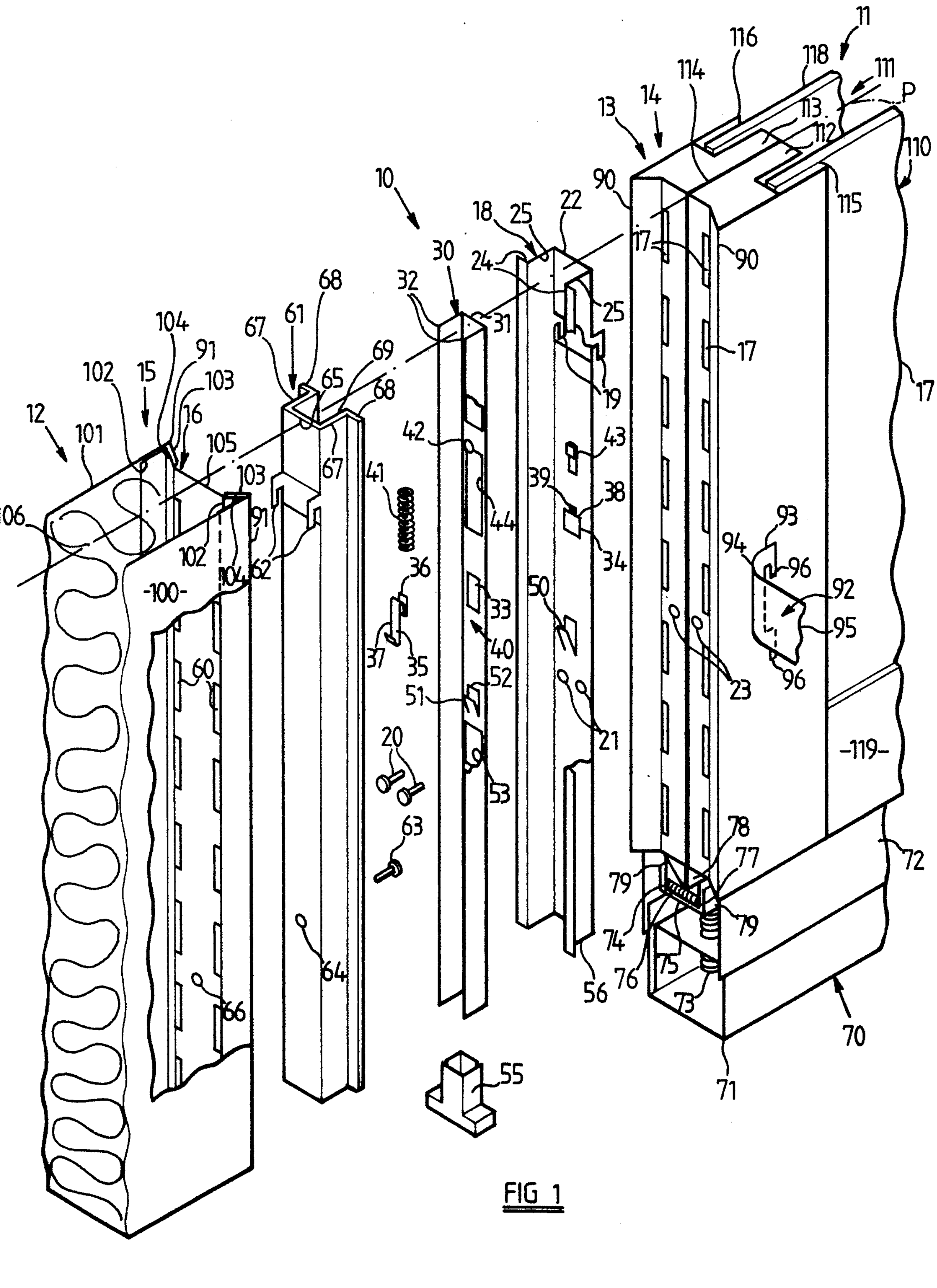
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FIG 1

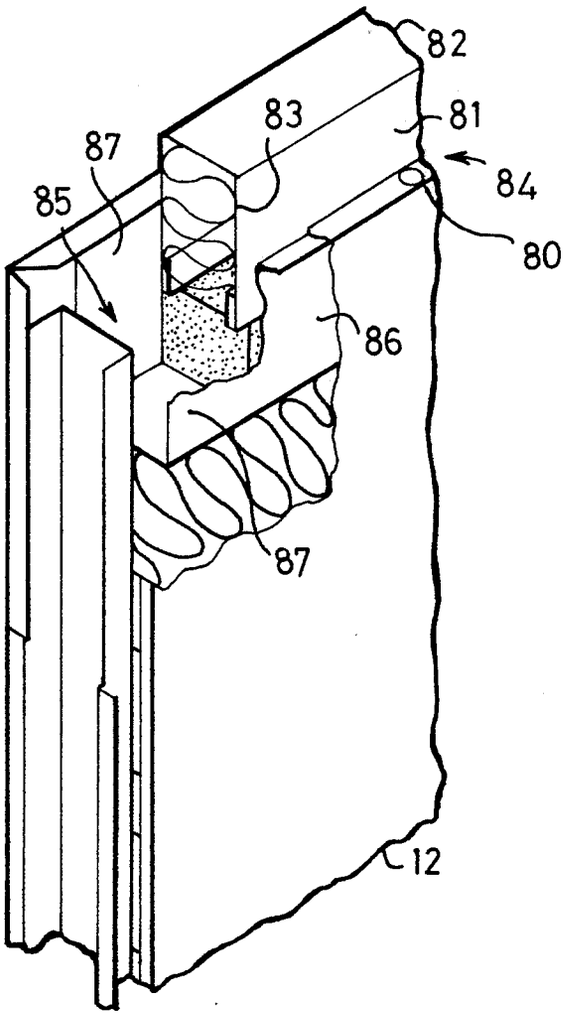
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FIG 2

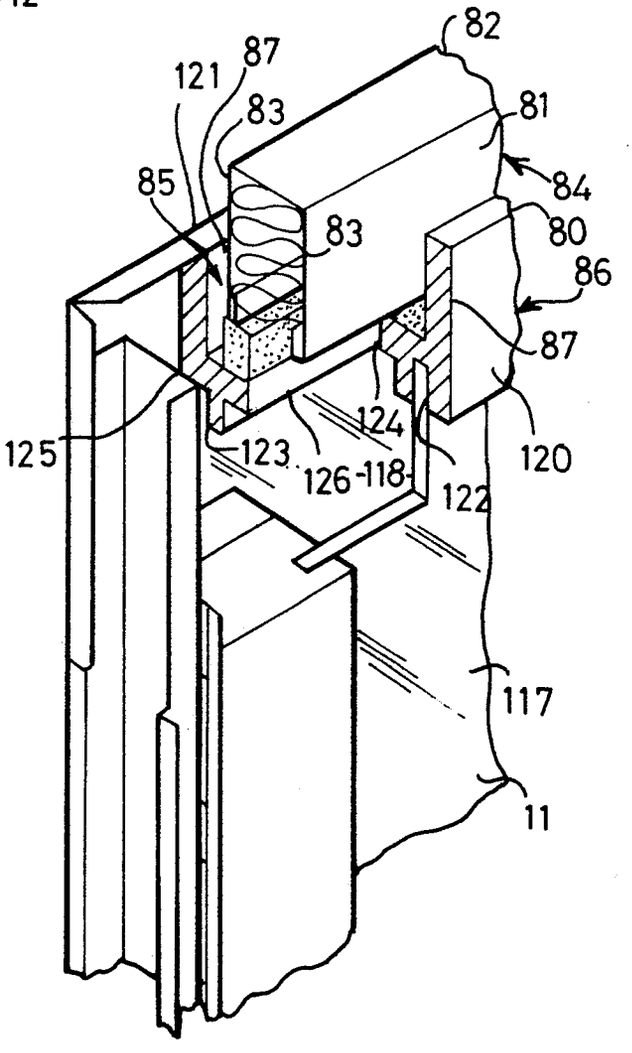
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FIG 3

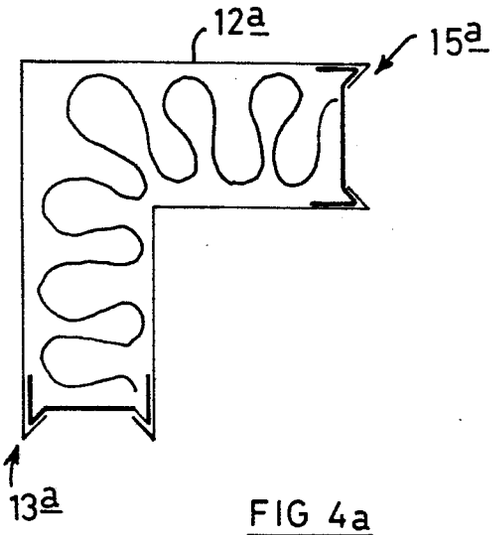

FIG 4a

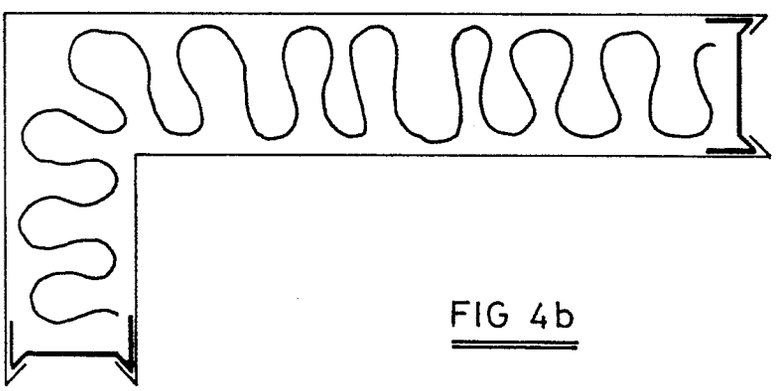

FIG 4b

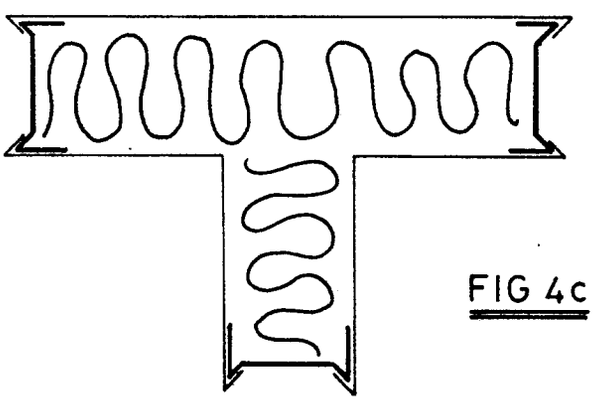

FIG 4c

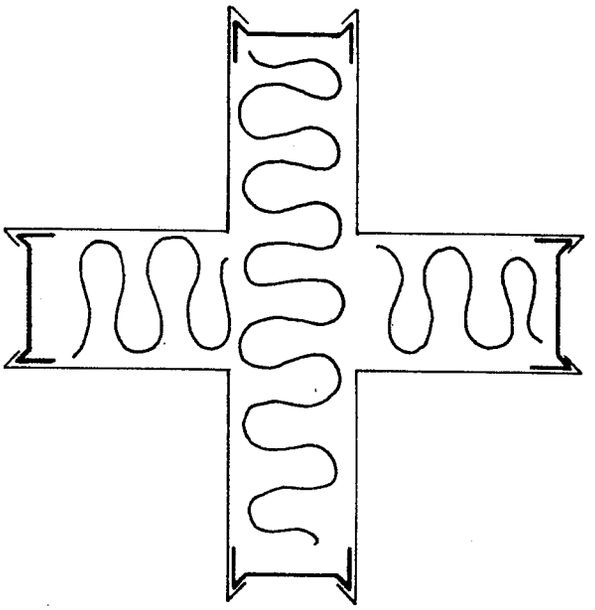

FIG 4d

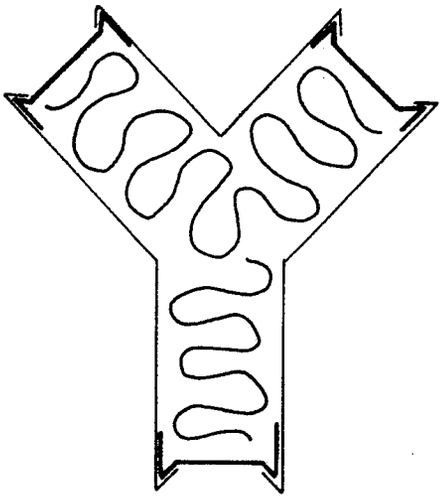

FIG 4e

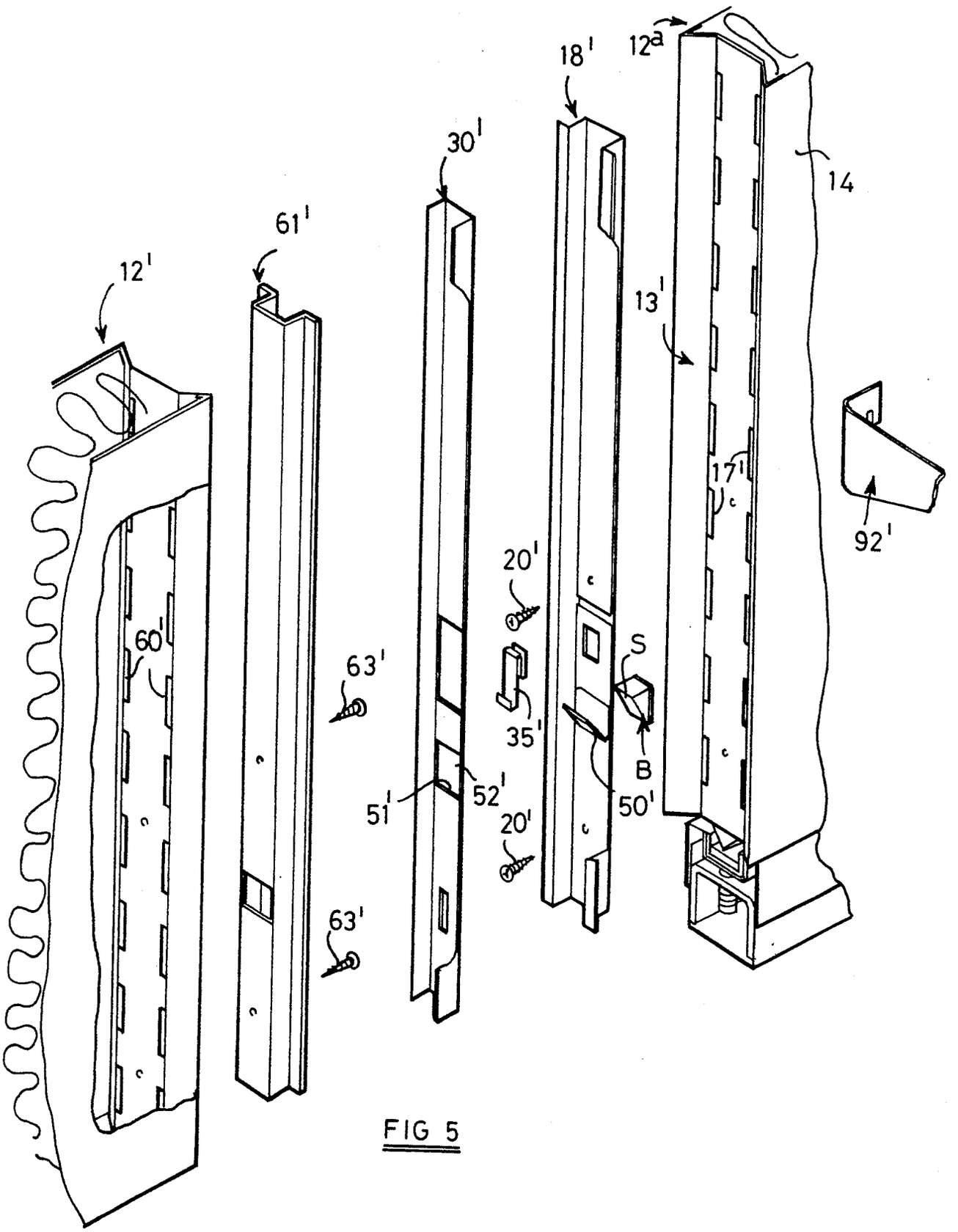

FIG 5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 30 3373

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	DE-A-3 016 613 (HOWALDTSWERKE) * Page 8, line 1 - page 10, line 17; drawings *	1-2	E 04 B 2/74
A	---	3,7,11	
A	US-A-3 327 440 (WATKINS) * Column 2, line 68 - column 5, line 42; drawings *	1,2	
A	--- EP-A-0 133 269 (TANDEM GROUP INC.) * Page 7, line 19 - page 9, line 32; drawings *	1,2	
	-----		TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			E 04 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22-07-1988	LAUE F.M.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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L : document cited for other reasons

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