(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 442 684 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
04.08.2004 Bulletin 2004/32

(51) Int Cl.[7]: **A47F 5/08**

(21) Application number: **04250108.0**

(22) Date of filing: **12.01.2004**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(30) Priority: **31.01.2003 GB 0302233**

(71) Applicant: **Walker Bros. (Elland) Ltd.**
Elland, West Yorkshire HX5 9JP (GB)

(72) Inventors:
- **Hunter, Allan Gilchrist**
  Thirsk North Yorkshire YO7 3QZ (GB)
- **Greaves, Robert David**
  Huddersfield West Yorkshire HD8 9AU (GB)

(74) Representative: **Parkinson, Neil Scott et al**
Marks & Clerk,
83-85 Mosley Street,
Sussex House
Manchester M2 3LG (GB)

(54) Wall display system panel

(57) A panel for incorporation in a slat way system assembled from a series of panels in edge-to-edge engagement. Each panel defines at least one horizontally extending slot (8,14) for receiving an article to be supported by the wall system. Each slot comprises a lower portion (1) which extends rearwardly from an opening (2) on one side of the panel and an upper portion (3) which extends upwards from the lower portion behind a downwardly extending portion (4) of the panel. The panel is extruded such that the downwardly extending portion (4) of the panel forms part of a closed box section including a front wall (17) extending upwards from an upper edge of the opening, a lower wall (18) extending rearwardly from a lower edge of the front wall, and a rear wall (20) extending upwardly from a rear edge of the lower wall. The box section can be of rectangular or L-shaped configuration.

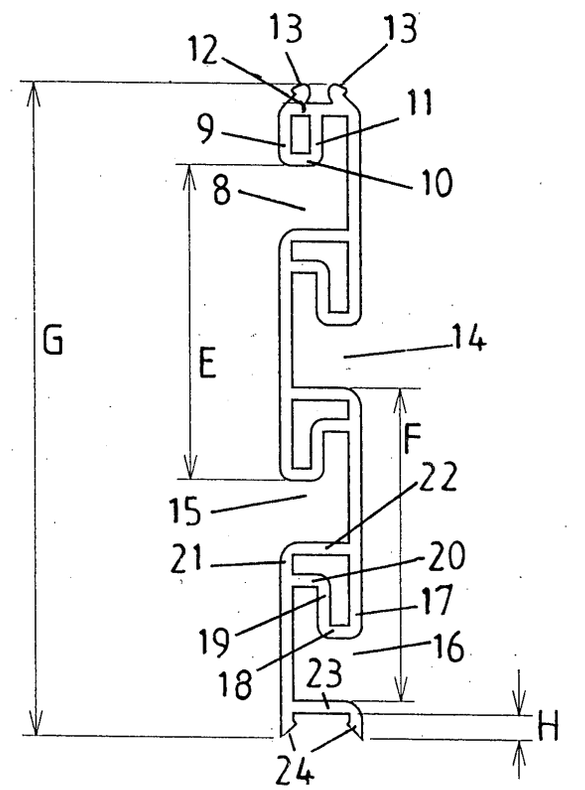

FIG. 2

EP 1 442 684 A1

Description

[0001] The present invention relates to a panel for incorporation in a wall system assembled from a series of panels in edge-to-edge engagement and defining at least one horizontally extending slot for receiving an article to be supported by the wall system. Such wall systems are generally referred to as slatwall systems and are widely used for product display and storage, product supports being hooked into the slots so as to project from the wall system.

[0002] The traditional approach to the manufacture of slatwall systems was to cut t-section slots into fibre board using rotating routers. The result is a slot the lower edge of which extends downwards so as to define a crevice in which contaminants may accumulate. The fibre board was produced in large sheets which were cut down to the appropriate size on site, resulting in much wastage of material. Furthermore the fibre board was not waterproof and therefore could not be used in exposed situations. Finally the fibreboard was not particularly robust and could easily be damaged by for example applying undue force to an article hooked into one of the slots. Damage to one slot would require the disposal of the entire panel.

[0003] US patent 4805783 describes a slat wall display system which comprises an outer frame that receives a series of panels in edge-to-edge engagement. Each of the panels is extruded and has upper and lower edges which when interengaged define slots. Thus the spacing between adjacent slots is a function of the width of individual panels with each slot being defined at its upper edge by one panel and at its lower edge by a lower panel. Slots are defined on both sides of the assembly so that a double-sided display structure can be readily formed. The modular nature of the structure makes it possible to deliver components for a display in a compact form with each of the panels being light in weight and relatively small for storage and handling. However relying upon two interengaged panels to between them define a slot demands very high quality and high strength extrusions if the necessary close control of slot dimensions is to be achieved. Furthermore, given that articles supported in the slots apply leverage to the components, high strength extrusions are required to resist the applied forces. Such high precision and high strength extrusions are difficult to manufacture other than in metal, for example aluminium, and therefore cheap materials such as UPVC plastics cannot readily be used.

[0004] Further attempts have been made to provide improved slat wall systems. For example US patent 5941026 describes a systems formed from extruded PVC. The described system includes separate panels which can be interengaged edge-to-edge with slots being formed either between adjacent panels or within the body of individual panels. The structure is manufactured however such that the upper edge of each slot is defined by a downwardly projecting member which has to be relatively thick to provide the necessary dimensional stability and strength. Such a structure cannot be readily extruded using simple extrusion processes which can readily produce relatively thin walls (for example 2mm or less) but cannot readily produce thicker wall structures.

[0005] It is an object of the present invention to provide an improved wall system panel.

[0006] According to the present invention there is provided a panel for incorporation in a wall system assembled from a series of panels in edge-to-edge engagement and defining at least one horizontally extending slot for receiving an article to be supported by the wall system, the panel defining at least one slot comprising a lower portion which extends rearwardly from an opening on one side of the panel and an upper portion which extends upwardly from the lower portion behind a downwardly extending portion of the panel, wherein the panel is extruded and the downwardly extending portion of the panel forms part of a closed box section including a front wall extending upwards from an upper edge of the opening, a lower wall extended rearwardly from a lower edge of the front wall, and a rear wall extending upwardly from a rear edge of the lower wall.

[0007] The panel may be readily extruded from a plastics material such as UPVC. Given that the upper edge of the slot is defined by a box section, a relatively thin walled extrusion which can be manufactured very economically can be used and yet still provide the necessary strength.

[0008] The panel may be formed with at least one slot on each side so that the panel may be used in a double-sided display. The number of slots on one side of the panel may be different from the number of slots on the other side to provide additional flexibility in terms of slot spacing in the final assembly. Where two or more slots are provided on at least one side of the panel, the positioning and spacing between the slots may be such that when two panels are in edge-to-edge engagement the spacing between adjacent slots in different panels is the same as the spacing between adjacent slots in the same panel.

[0009] The closed box section may be of rectangular configuration, an upper wall extending between the front and rear walls to form a fourth side of the box, the upper wall being part of a wall extending between opposed front and rear faces of the panel. Alternatively the closed box section could be for example of L-shaped configuration, a first further wall extended rearwardly from an upper edge of the rear wall, a second further wall defining a face of the panel on the opposite side of the panel to the slot and extending upwardly from the rear edge of the first wall, and a third further wall extending between opposed front and rear faces of the panel from the second wall to the front wall.

[0010] The panel may have upper and lower edges which define mating configurations such that the upper

edge of one panel can be snap-engaged with the lower edge of an adjacent panel. The upper edge may define hooks that are dimensioned to mate with and be received within lips defined by the lower edge. Such a configuration is preferred as it reduces the risk of contaminants becoming trapped between adjacent panels. The slot opening may be defined between the downwardly extending portion of the panel and a slot wall which extends between front and rear faces of the panel, the slot wall being substantially horizontal in use which reduces the risk of contaminants being trapped in the slot.

[0011] Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 illustrates a slot defined in a panel in accordance with the present invention;
Figure 2 illustrates the cross section of a panel in accordance with the present invention which defines slots on both sides of the panel;
Figure 3 illustrates two of the panels shown in Figure 2 when assembled edge to edge;
Figure 4 shows a support bracket mounted on the panels of Figure 3;
Figure 5 shows a further panel in accordance with the present invention having two slots on one side of the panel and one slot on the other;
Figure 6 illustrates two of the panels shown in Figure 5 in edge to edge engagement such that the spacing between slots on one side is twice that of the spacing of slots on the other;
Figure 7 illustrates a further embodiment of the present invention which provides slots on only one side of the panel;
Figure 8 shows two of the panels illustrated in Figure 7 in edge to edge engagement;
Figure 9 shows a further embodiment of the invention providing slots on both sides of the panel;
Figure 10 shows two of the panels of Figure 9 in edge to edge engagement;
Figure 11 is a side view of a fixing strip for use with panels as shown in Figure 10;
Figure 12 is a front view of the fixing strip of Figure 11;
Figure 13 shows the fixing strip of Figures 11 and 12 when engaged with panels of the type shown in Figure 10;
Figure 14 shows the cross section of a simple blanking panel; and
Figure 15 shows a blanking panel incorporating a slot to enable the panel to be mounted on a fixing strip of the type shown in Figures 11 and 12.

Referring to Figure 1, this shows a section of a panel in accordance with the present invention. The panel defines a slot of generally L-shaped cross section including a lower portion 1 extending rearwardly from an opening 2 defined on one side of the panel and an upper portion 3 which extends upwards from the lower portion of the slot behind a downwardly extending portion 4 of the panel. The panel is extruded from a plastics material so as to define walls of uniform thickness. The downwardly extending portion 4 of the panel which forms the upper edge of the opening 2 includes a front wall 5 extending upwards from the upper edge of the opening 2, a lower wall 6 extending rearwardly from the lower edge of the front wall 5, and a rear wall 7 extending upwardly from a read edge of the lower wall 6. Although not shown in Figure 1, the walls 5, 6 and 7 form part of a closed box section the strength of which is sufficient to resist leverage applied to the rear face of the rear wall 7 by an article (not shown) mounted in the slot.

[0012] In one embodiment of the invention, the opening 2 may have a dimension A of for example 10mm, the upper portion of the slot 3 may have a depth B of for example 4mm, the combined height C of the upper and lower portions of the slot may be for example 18mm, and the wall thickness D of the extruded plastic could be for example 2mm. With such dimensions, a robust structure can be readily manufactured from readily available plastics materials.

[0013] Referring to Figure 2 this illustrates one practical embodiment of the present invention having a slot formation as illustrated in Figure 1. The panel shown in cross section in Figure 2 is double sided in the sense that open slots are defined on both sides of the panel. An upper most slot 8 has an upper edge defined by a box section defined by a front wall 9, a lower wall 10, a rear wall 11 and an upper wall 12. The box section is thus of rectangular cross section. The upper wall 12 extends across the full depth of the panel and supports a pair of hook-shaped projections 13 which are used to interengage the panel with an adjacent panel as shown in Figure 3. Each of the other three slots 14, 15 and 16 has an upper edge defined by a box section which is L-shaped rather than rectangular. Each of these box sections is defined by a front wall 17, a lower wall 18, a rear wall 19, a rearwardly extending first further wall 20, a second further wall 21 which forms part of an outer wall of the other side of the panel, and an upper wall 22 which forms the lower edge of an adjacent slot. The lowermost slot 16 has a lower edge defined by a wall 23 from which hook-like lips extend which are configured to mate with hooks 13 of an adjacent panel as illustrated in Figure 3.

[0014] The dimensions E and F may be for example 50mm so as to provide a double sided panel with a 50mm pitch between adjacent slots on each side of the panel. The dimension G may be 104mm and the dimension H may be 4mm such that each panel contributes to 100mm of an assembly of panels fitted together as shown in Figure 3.

[0015] Figure 4 shows a support bracket 25 mounted on a panel of the type shown in Figures 2 and 3. The support bracket defines an upwardly extending hook member 26 which can be inserted into a panel slot by initially positioning the bracket so that it extends up-

wards and away from the panel, pushing the hook into the slot so that the hook engages behind the downwardly extending projection of the slot, and then rotating the bracket 25 to the position shown in Figure 4.

[0016] It will of course be appreciated that any article other than a support bracket such as that shown in Figure 4 could be supported on a panel providing it had an appropriately shaped hook positioned at its rear edge for engagement in a panel slot.

[0017] The panel illustrated in Figures 2 to 4 is double sided with equally spaced slots on both sides. In the embodiment illustrated in Figures 5 and 6, each panel has one slot 27 on one side and two slots 28 and 29 on the other side. If the dimension I is 50mm, and the dimension J is 104mm, when two panels are interengaged as shown in Figure 6 the result is a panel having slots spaced at 100mm intervals on one side and slots spaced at 50mm intervals on the other side.

[0018] Referring to Figures 7 and 8, this shows a single sided panel with each panel defining four slots. If the dimension K is 104mm then the dimension L may be 25mm.

[0019] Referring to Figures 9 and 10, these figures show a double sided panel with a single slot on each of its sides.

[0020] In all of the illustrated panels, the upper edge of each slot is defined by a box section which may be square in cross section (see for example slot 8 in Figure 2), L shaped (see slot 16, Figure 2), or of elongated L section (see for example the box section above slot 28 in Figure 5 as compared with the box section above slot 27 in Figure 5). These box sections give the upper edge of the slot sufficient strength to resist the leverage applied by an inserted article, for example the support bracket 25 of Figure 4. The box section structure ensures that despite the use of relatively weak thin-walled plastics extrusions to form the panels substantial loads can be supported without significant deformation of the panels.

[0021] The panels may be supported in any appropriate manner. For example, slots on one side of the panel can be engaged with appropriate hooks. A fixing strip incorporating such hooks is illustrated in Figures 11 and 12 and the use of the fixing strip of Figures 11 and 12 is illustrated in Figure 13.

[0022] Referring to Figures 11 and 12, the fixing strip comprises a back plate 30 from which regularly spaced hooks extend, each hook comprising a horizontally extending limb 31 and a vertically extending limb 32. The hooks may be formed by pressing out sections of a steel strip. The steel strip may be secured by for example screws (not shown) to a wall and panels may be then mounted on the strips as shown in Figure 13.

[0023] Using a fixing strip as illustrated in Figures 11 to 13 means that only one side of the double sided panel is accessible. In some circumstances it will be desirable to mount the panels in some sort of frame so that both sides of the panel are accessible and can be used to support articles. For example, panels could be arranged in a frame made up of a bottom section upon which a lower most panel would be positioned, spaced apart vertical side sections defining vertical slots into which the ends of a series of panels could be slid one at a time, and a top section which could be positioned so as to engage the upper edge of the uppermost panel to complete the assembly. Such panel support systems are well known (see for example US 54805783 referred to above) and will not therefore be described in detail herein.

[0024] It may be desirable to provide blanking panels to vary the spacing between adjacent slots. Such a blanking panel is illustrated in Figure 14. It may also be desirable to provide a blanking panel defining a slot to enable that panel to engage a fixing strip such as that illustrated in Figures 11 and 12. Such a blanking panel is shown in Figure 15. Of course the panel of Figure 15 could be used as a single sided single slot panel by arranging it so that the single slot is accessible to receive an article.

Claims

1. A panel for incorporation in a wall system assembled from a series of panels in edge-to-edge engagement and defining at least one horizontally extending slot for receiving an article to be supported by the wall system, the panel defining at least one slot comprising a lower portion which extends rearwardly from an opening on one side of the panel and an upper portion which extends upwardly from the lower portion behind a downwardly extending portion of the panel, wherein the panel is extruded and the downwardly extending portion of the panel forms part of a closed box section including a front wall extending upwards from an upper edge of the opening, a lower wall extended rearwardly from a lower edge of the front wall, and a rear wall extending upwardly from a rear edge of the lower wall.

2. A panel according to claim 1, wherein at least one slot is provided on each side of the panel.

3. A panel according to claim 2, wherein the number of slots on one side of the panel is different from the number of slots on the other side of the panel.

4. A panel according to any preceding claim, wherein a plurality of slots are provided on at least one side of the panel, the positioning and spacing between the slots being such that when two panels are in edge-to-edge engagement the spacing between adjacent slots in different panels is the same as the spacing between adjacent slots in the same panel.

5. A panel according to any preceding claim, wherein

the closed box section is defined by the front, lower and rear walls and an upper wall extending between the front and rear walls to define a box section of rectangular configuration, the upper wall being part of a wall extending between opposed front and rear faces of the panel.

6. A panel according to any one of claims 1 to 4, wherein the closed box section is defined by the front, lower and rear walls and three further walls to define a box section of L-shaped configuration, the three further walls consisting of a first wall extending rearwardly from an upper edge of the rear wall, a second wall which defines a face of the panel on the opposite side of the panel to the slot and extends upwardly from the rear edge of the first wall, and a third wall which extends between opposed front and rear faces of the panel from the second wall to the front wall.

7. A panel according to any preceding claim, wherein the panel has upper and lower edges which define mating configurations such that the upper edge of one panel can be snap-engaged with the lower edge of an adjacent panel.

8. A panel according to claim 7, wherein the upper edge defines hooks that are dimensioned to mate with and be received within lips defined by the lower edge.

9. A panel according to any preceding claim, wherein the or each slot opening is defined between the downwardly extending portion of the panel and a slot wall which extends between front and rear faces of the panel, the slatwall being substantially horizontal in use.

10. A panel substantially as hereinbefore described with reference to Figure 1, Figures 2 and 3, Figure 4, Figures 5 and 6, Figures 7 and 8, Figures 9 and 10, Figures 11, 12 and 13, Figure 14 or Figure 15 of the accompanying drawings.

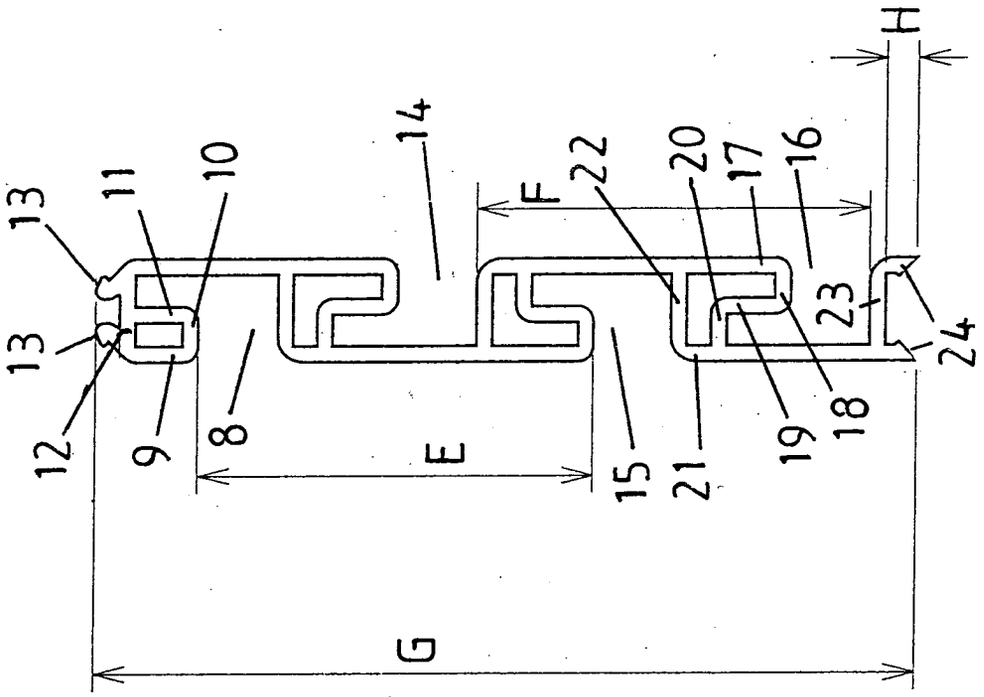

FIG.2

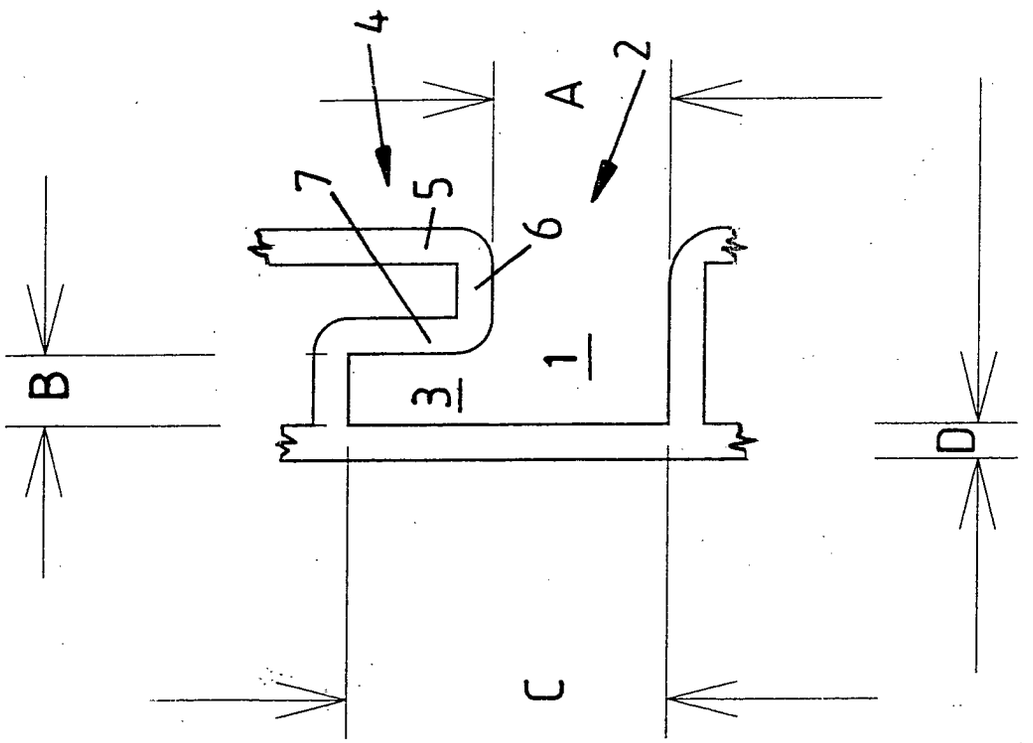

FIG.1

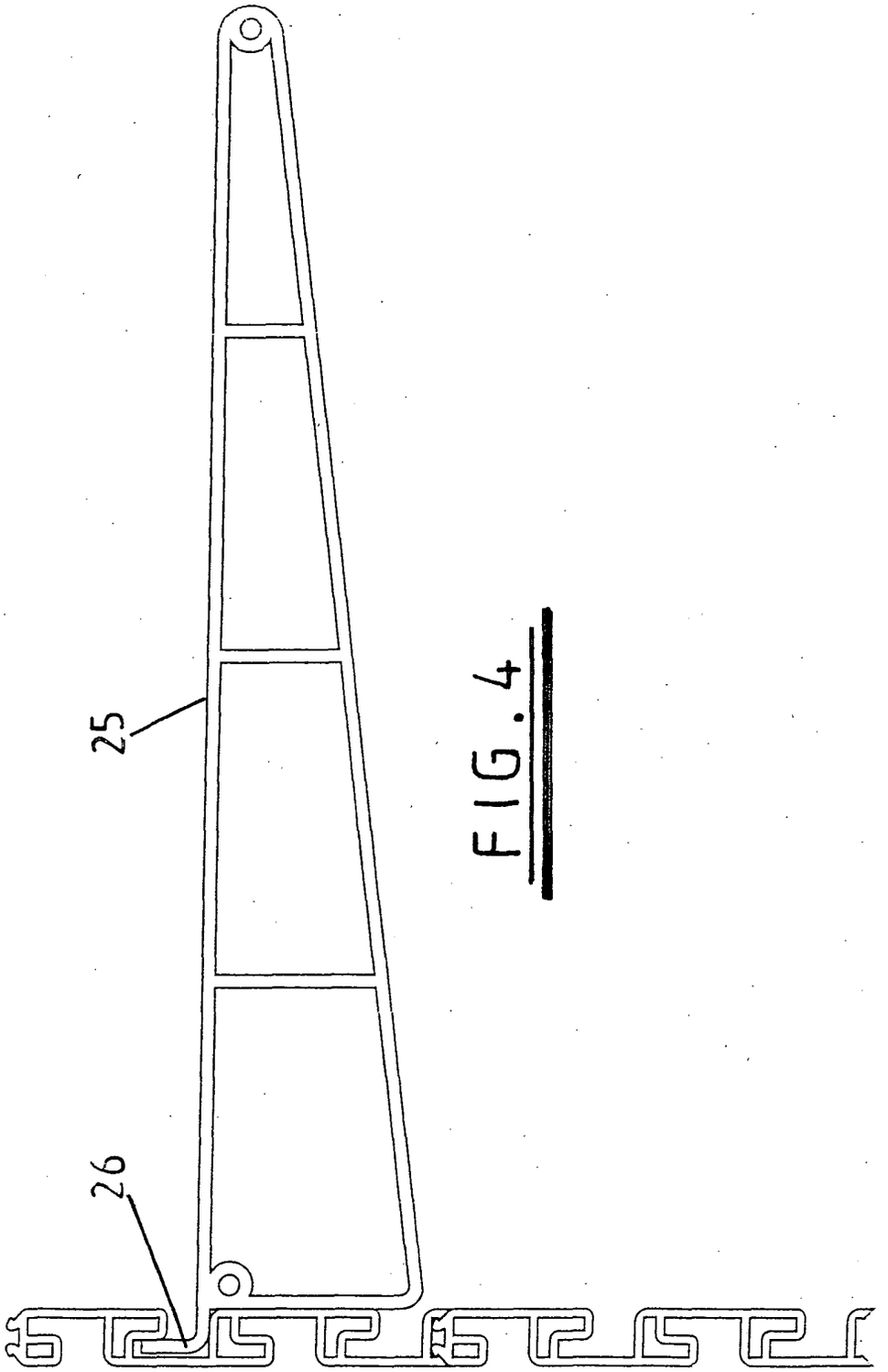

FIG. 4

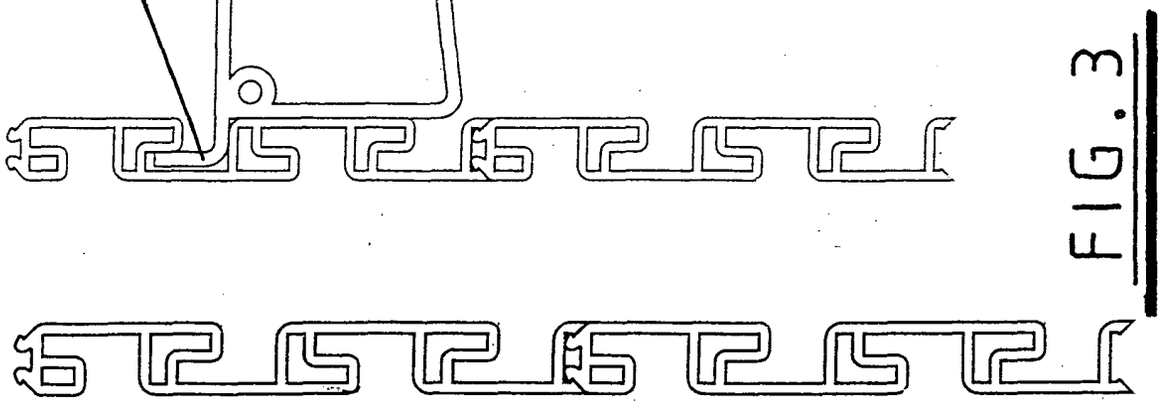

FIG. 3

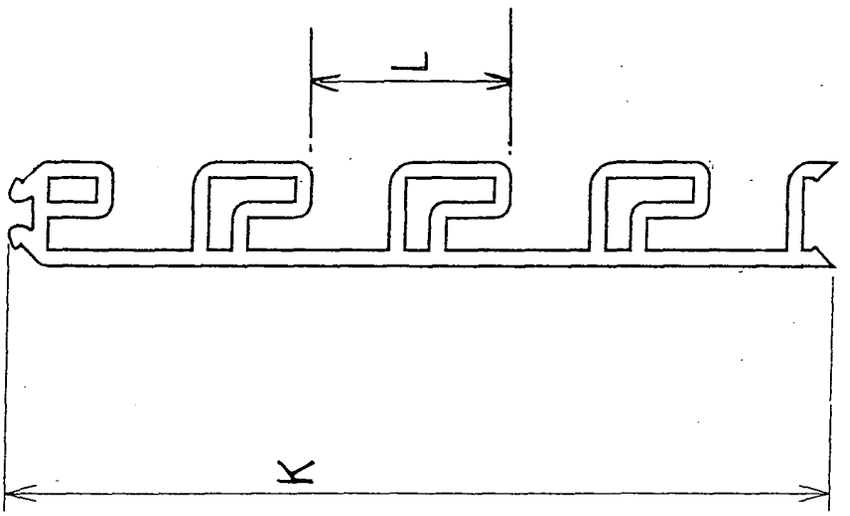

FIG.7

FIG.6

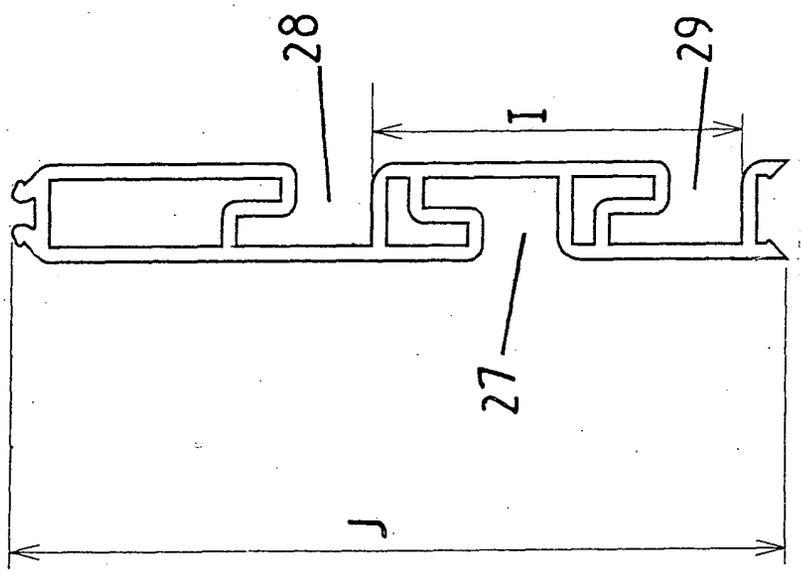

FIG.5

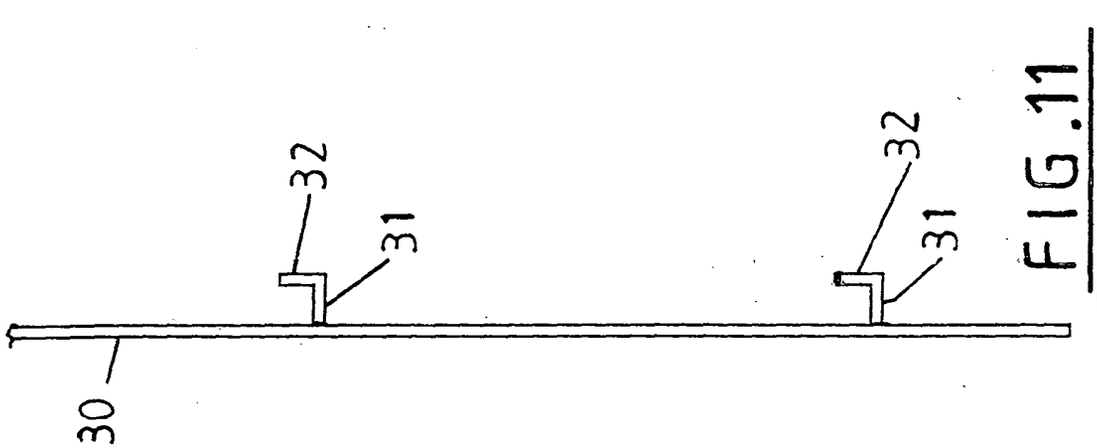

FIG.11

FIG.10

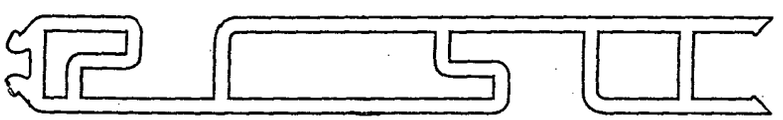

FIG.9

FIG.8

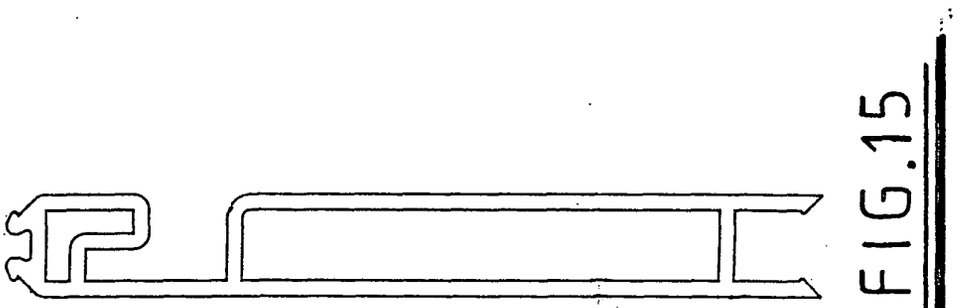

FIG.15

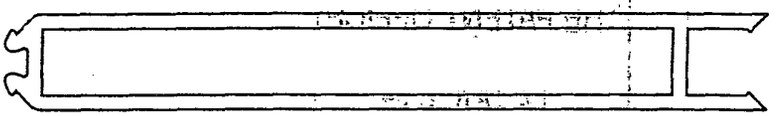

FIG.14

FIG.13

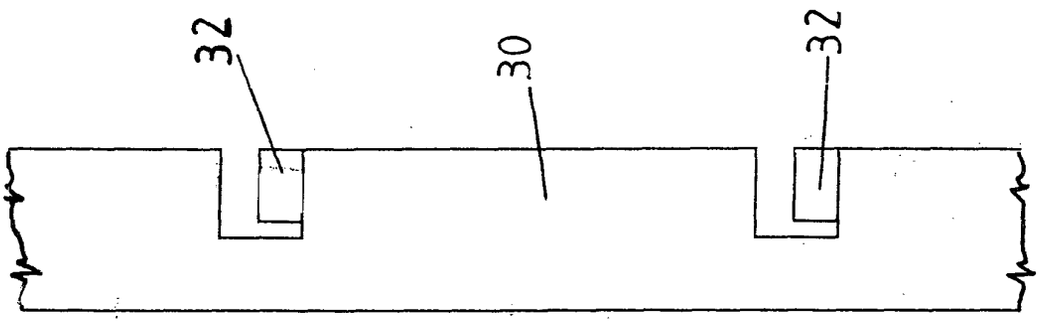

FIG.12

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 25 0108

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.7)
X Y	WO 93/00846 A (SAMUELSONS INREDNINGAR AB) 21 January 1993 (1993-01-21) * abstract; figures *	1,10 2,3,7,8	A47F5/08
Y	FR 2 602 964 A (GUILPAIN JEAN PAUL) 26 February 1988 (1988-02-26) * figures *	2,7,8	
Y	US 5 014 902 A (HEIMENDINGER BERNARD) 14 May 1991 (1991-05-14) * figure 7 *	3	
A	DE 38 03 829 A (ALFER ALU FERTIGBAU) 17 August 1989 (1989-08-17) * figures *	1,7,10	
A	DE 89 00 660 U (ALLGEMEINE HANDELGESELLSCHAFT MBH & CO KG) 11 May 1989 (1989-05-11) * figures *	1,7,10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7) A47F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	8 April 2004	Pineau, A

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 04 25 0108

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

08-04-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9300846 A	21-01-1993	SE 501570 C2	13-03-1995
		AU 2290992 A	11-02-1993
		SE 9102033 A	02-01-1993
		WO 9300846 A1	21-01-1993
FR 2602964 A	26-02-1988	FR 2602964 A1	26-02-1988
US 5014902 A	14-05-1991	FR 2634637 A1	02-02-1990
		AT 106209 T	15-06-1994
		DE 68915634 D1	07-07-1994
		DE 68915634 T2	10-11-1994
		DE 353149 T1	06-09-1990
		EP 0353149 A1	31-01-1990
		ES 2014393 T3	01-09-1994
		GR 90300156 T1	27-09-1991
DE 3803829 A	17-08-1989	DE 3837280 A1	10-05-1990
		DE 3803829 A1	17-08-1989
DE 8900660 U	11-05-1989	DE 8900660 U1	11-05-1989

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82