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(54) **Sign framing**

Umrahmung für eine Anzeigetafel

Encadrement pour un panneau d'affichage

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## Description

This invention relates to the framing of signs, for example using extruded aluminum frame members.

Display panels, especially those bearing indicia as advertisements, frequently benefit from being framed. Not only does a frame confer aesthetic benefits, it also provides a considerable degree of mechanical stability, and can allow a point or points for attachment of the framed display panel to a suitable support. A known frame for such an application necessitates manual folding of a metallic flange of a frame member over the edge of the display panel. This is a time-consuming operation, and one that tends to lead to unsightly mechanical damage to the display panel or its frame in the hands of an unskilled or impatient worker.

US 4727183 discloses a modular framing system for a display panel having side and corner peripheral frame members that join end-to-end and have a channel to receive the panel. The frame members are held together by threaded connectors.

DE-U-8802578 discloses a picture frame in which framing strips running along each side of a picture are held together by corner pieces that interact with channels in the strips. The picture is then hung using cord stretched between holes in the corner pieces.

According to one aspect of the present invention there is provided a framing system for framing a display panel, comprising side and corner peripheral frame members and connecting means for joining the frame members end-to-end, each frame member comprising a channel to receive an edge of a display panel and one or more connecting channels with inturned lips, the connecting means fitting and being securable within said connecting channels of adjacent frame members so as to bridge the two frame members when placed in end-to-end abutment, some at least of the side frame members, but preferably not the corner frame members, being also provided with mounting channels with inturned lips opening rearwardly with respect to the panel. The mounting channels could also constitute the connecting channels, but preferably separate connecting channels are provided adjacent the panel-receiving channels.

The framing system may also include a strengthening frame member, which may be attached to the rear of the display panel with or without additional attachment to the peripheral frame members. This strengthening member may also be shaped so as to provide a further said mounting channel. Conveniently, the strengthening frame member has the same cross-section as the corner or side frame members but without the panel-receiving channel. The strengthening member may be joined to a peripheral frame member by a connecting means secured in connecting channels of the strengthening and peripheral frame members.

The connecting means between frame members may comprise a bar which slides lengthways into the aligned connecting channels of mutually abutting pe-

ripheral frame members and can be secured therein by any convenient means such as adhesive, crimping of the channels, or both. Alternatively, the connecting means may comprise nuts and bolts, the bolt heads or nuts being capable of fitting slidably but non-rotatably in the connecting channels and whose shanks project through the mouths of the channels for securing a connecting plate which bridges the adjacent frame members. This latter type of connecting means could also be used to join the strengthening member to the adjacent frame member, the connecting plate being an angle-bracket.

According to another aspect of the present invention there is provided a sign comprising a sign panel framed by a framing system as described above. The sign panel may conveniently be secured within the panel-receiving channels of the peripheral frame members by adhesive. The strengthening frame member may also be conveniently secured to the reverse face of the sign by adhesive. The sign may be mounted to a suitable support such as one or more mounting posts by conventional mounting devices which locate within the mounting channels of the frame members. Such mounting devices are well known in the art, and may be for example, as described in patents GB1416734, GB1511145 and GB1533412.

According to a further aspect of the present invention there is provided a frame member for a sign, comprising an extrusion for attachment to a panel and having one or more connecting channels with inturned lips, and either or both of:

- (a) A panel-receiving channel to one side of the connecting channel or channels, and
- (b) A mounting channel with inturned lips on the other side of the connecting channel or channels (being the other side from that of the panel-receiving channel, if present), and opening away from the panel.

In order that the invention may be more clearly understood, one embodiment will now be described with reference to the accompanying drawings in which:

Figs. 1 and 2 show a cross sectional view of the corner and side frame members;

Fig. 3 shows a perceptive view of the inside of a frame in the region of abutment between a corner frame member and a side frame member, showing these two members in the act of being connected by a connecting means;

Fig. 4 show a cross sectional view of an optional strengthening member; and

Fig. 5 shows a perceptive view in the region of abutment between a side frame member and the strengthening member, illustrating one method of optionally connecting said members.

Referring to Fig. 1; the corner frame member 10 is an aluminum extrusion having a channel to receive the edge of the sign panel (see Fig. 5), and two connecting channels 18, each of which is restricted by inturned lips 20. Beyond the connecting channels the frame member is provided with an extension 21 having an inturned lip 23.

The side frame member 12 shown in Fig. 2 is similar, except that beyond the connecting channels 18 it has a mounting channel 22 restricted by inturned lips 24 and opening in the direction away from the connecting channels. The outer side wall of the mounting channel 22 matches the extension 21 of the corner frame member shown in Fig 1.

A typical frame produced using this system will consist of side frame members 12 on the four sides of the panel, four corner members 10, and normally eight connecting means 14. In situations where additional rigidity in the frame is required up to sixteen connecting means 14 may be used.

Referring now to Fig. 3; in use, the channels 16 of side frame members 12 are slide over the edges of the sign panel 40 (see Fig. 5). Each side frame member 12 will be abutted at both of its ends by a corner member 10, similarly slid onto the panel, and connected to the adjacent side frame members by connecting means 14. In Fig. 3, the connecting means is a bar which is slidable lengthways along the connecting channels 18 of the adjacent corner and side frame members so as to bridge the joint. Once connection has been effected in this manner, the connection is made permanent by, for example, adhesive or by crimping the inturned lips 20 of the channel onto the connecting bar. The connecting bar may be profiled, for example, by a series of shallow recesses, to receive such crimping.

In the case of larger signs where additional mechanical strength is required, the sign panel may be strengthened by having one or more strengthening members 32 secured to its reverse face. A preferred form of such optional strengthening member is shown in Fig 4. The strengthening member is similar in cross-section to either of those depicted in Figs 1 and 2, but lacks the panel-receiving channel 16, and instead has a flange 26 for attachment to the rear of the panel. The flange 26 corresponds to one wall of the panel-receiving channel 16, but also has a shallow recess 27 to receive adhesive by which it is secured to the sign panel. As depicted in Fig. 4, the strengthening member may include a mounting channel 22 to provide additional mounting positions for attaching the frame to a suitable support.

The attachment of the strengthening member on the reverse side of the panel will itself often confer sufficient additional rigidity to the framed panel, but further strengthening may be achieved by attaching the ends of the strengthening member to the adjacent peripheral members, usually the side frame members 12. One method of achieving this is shown in Fig. 5.

Referring therefore to Fig 5, the connection is provided by an L-shaped bracket 28 which fits in the angle between strengthening member 32 and a side frame member 12 over the mouths of the connecting channels 18. The L-shaped bracket contains holes through which may be passed bolts 30, the heads of which are non-rotatable within channels 18 and are held captive by the inturned lips 20 and the channels 18. The bracket is then secured in position by nuts.

This method of securing the joint between the strengthening member and side frame members may be also be used in place of the bars 14 to join side and corner frame members, the connecting plate in that case being planer rather than L-shaped. Alternatively, in the same manner, connections between frame members may be made between their mounting channels 22, using a connecting plate and nuts and bolts.

The cross-section shown in Fig. 1 is preferred for the corner frame members in that extrusions of this shape may be more easily worked and bent through 90° than would be the case if they were provided with mounting channels 22. It is of course not normally required to attach the corner frame members to a support. Also, by not having mounting channels 22 on the corner frame members, the mounting device for the sign can be slid lengthwise in the open ends of the mounting channels of the frame members 12. The side frame members 12 may also have this section at the vertical sides of the frame, since it is normally the top and bottom horizontal frame members 12 that are used for mounting the sign.

### Claims

1. A framing system for framing a display panel (40), comprising side (12) and corner (10) peripheral frame members and connecting means (14) for joining the frame members (10, 12) end-to-end, each frame member (10, 12) comprising a channel (16) to receive an edge of a display panel characterised in that each frame member (10,12) also comprises one or more connecting channels (18) with inturned lips (20), the connecting means (14) fitting and being securable within said connecting channels (18) of adjacent frame members (10, 12) so as to bridge two frame members when placed in end-to-end abutment, some at least of the side frame members being provided with mounting channels (22) with inturned lips (24) opening rearwardly with respect to the panel.
2. A framing system according to claim 1 wherein the corner frame members are not provided with said mounting channels.
3. A framing system according to claim 1 or claim 2 wherein the connecting channels (18) are provided adjacent the panel-receiving (16) channels and

open in the same direction as for the panel-receiving channels (16).

4. A framing system according to claim 1 wherein the mounting channels (22) also constitute the connecting channels.
5. A framing system according to any one of the preceding claims in which the connecting means (14) comprise a bar slidable lengthwise along aligned connecting channels (18) of mutually abutting peripheral frame members and securable therein.
6. A framing system according to claim 5 wherein the bar is secured or securable by adhesive, or crimping of the channels, or both.
7. A framing system according to claim 6 wherein the bar is profiled to receive said crimping.
8. A framing system according to any one of claims 1 to 7 further comprising a strengthening frame member (32) attachable to the rear of the display panel.
9. A framing system according to claim 8 wherein said strengthening frame member (32) is shaped so as to provide a further said mounting channel (22).
10. A framing system according to claim 8 or claim 9 wherein said strengthening frame member (32) has substantially the same cross-section as the corner (10) or side (12) frame members but without the panel-receiving channel (16).
11. A framing system according to any one of claims 8 to 10 wherein the strengthening frame member is attachable to peripheral frame members by connecting means (28,30) secured in connecting channels (18) of the strengthening and peripheral frame members.
12. A framing system according to any one of the preceding claims wherein some at least of the connecting means comprise nuts and bolts (30), the bolt heads or nuts being capable of fitting slidably but non-rotatably in the connecting channels (18) and whose shanks are projectable through the mouths of the channels, for securing a connecting plate which bridges adjacent frame members in use.
13. A sign comprising a sign panel (40) framed by a framing system according to any one of the preceding claims.
14. A frame member for a sign comprising an extrusion for attachment to a panel (40), the frame member having one or more connecting channels (18) with inturned lips (20), a channel (16) to receive an edge

of the panel (40) to one side of the connecting channel or channels (18), and a mounting channel (22) with inturned lips (24) to the other side of the connecting channel or channels (18) and opening away from the panel (40).

#### Patentansprüche

1. Umrahmungssystem zur Umrahmung einer Anzeigetafel (40), umfassend periphere seiten-(12) und Eckrahmenelemente bzw. -glieder (10) und Verbindungsmittel (14) zum Verbinden der Rahmenelemente (10, 12) an ihren Enden, wobei jedes Rahmenelement (10, 12) einen Kanal (16) umfaßt, um eine Kante einer Anzeigetafel aufzunehmen, dadurch gekennzeichnet, daß jedes Rahmenelement (10, 12) weiters einen oder mehrere Verbindungskanäle (18) mit nach innen gekehrten Rändern (20) umfaßt, wobei die Verbindungsmittel (14) in die Verbindungskanäle (18) benachbarter Rahmenelemente (10, 12) passen und darin befestigbar sind, um zwei Rahmenelemente zu überbrücken, wenn ihre Enden aneinanderliegen, wobei zumindest einige der Seitenrahmenelemente mit Montagekanälen (22) mit nach innen gekehrten Rändern (24) versehen sind, die sich in bezug auf die Anzeigetafel nach hinten öffnen.
2. Umrahmungssystem nach Anspruch 1, worin die Eckrahmenelemente nicht mit den Montagekanälen versehen sind.
3. Umrahmungssystem nach Anspruch 1 oder 2, worin die Verbindungskanäle (18) neben den tafelaufnehmenden Kanälen (16) angeordnet sind und sich in gleiche Richtung wie die tafelaufnehmenden Kanäle (16) öffnen.
4. Umrahmungssystem nach Anspruch 1, worin die Montagekanäle (22) auch die Verbindungskanäle bilden.
5. Umrahmungssystem nach einem der vorhergehenden Ansprüche, worin die Verbindungsmittel (14) einen Stab umfassen, der längsseitig entlang ausgerichteter Verbindungsrillen (18) von aneinanderliegenden peripheren Rahmenelementen gleitbar und darin befestigbar ist.
6. Umrahmungssystem nach Anspruch 5, worin der Stab durch Klebstoff oder Zusammenpressen der Kanäle bzw. durch beides befestigt bzw. befestigbar ist.
7. Umrahmungssystem nach Anspruch 6, worin die Stange ein Profil aufweist, um die Einbuchtungen aufzunehmen.

8. Umrahmungssystem nach einem der Ansprüche 1 bis 7, weiters umfassend ein an der Hinterseite der Anzeigetafel anbringbares verstärkendes Rahmenelement (32).
9. Umrahmungssystem nach Anspruch 8, worin das verstärkende Rahmenelement (32) so geformt ist, daß es einen weiteren Montagekanal (22) bildet.
10. Umrahmungssystem nach Anspruch 8 oder 9, worin das verstärkende Rahmenelement (32) im wesentlichen den gleichen Querschnitt wie die Eck- (10) oder Seitenrahmenelemente (12), jedoch keinen tafelaufnehmenden Kanal (16) aufweist.
11. Umrahmungssystem nach einem der Ansprüche 8 bis 10, worin das verstärkende Rahmenelement an den peripheren Rahmenelementen durch Verbindungsmittel (28, 30), die in Verbindungskanälen (18) der verstärkenden und peripheren Rahmenelemente befestigt sind, angebracht werden können.
12. Umrahmungssystem nach einem der vorhergehenden Ansprüche, worin zumindest einige der Verbindungsmittel Muttern und Bolzen (30) umfassen, wobei die Bolzenköpfe oder Muttern gleitbar, aber nicht drehbar in die Verbindungskanäle (18) passen und ihre Schäfte durch die Öffnungen der Kanäle hinausragen können, um eine Verbindungsplatte zu befestigen, die bei der Verwendung benachbarte Rahmenelemente überbrückt.
13. Anzeige bzw. Zeichen mit einer Anzeigetafel (40), die durch ein Umrahmungssystem nach einem der vorhergehenden Ansprüche umrahmt ist.
14. Rahmenelement bzw. -glied für eine Anzeige bzw. ein Zeichen, umfassend ein Strangpreßprofil bzw. einen Strangpreßteil zur Befestigung an einer Tafel (40), wobei das Rahmenelement einen oder mehrere Verbindungskanäle (18) mit nach innen gekehrten Rändern (20), einen Kanal (16) zur Aufnahme einer Kante der Tafel (40) an einer Seite des Verbindungskanals bzw. der Verbindungskanäle (18) und einen sich von der Tafel (40) weg öffnenden Montagekanal (22) mit nach innen gekehrten Rändern (24) zur anderen Seite des Verbindungskanals bzw. der Verbindungskanäle (18) besitzt.
- (16) pour recevoir un bord d'un panneau d'affichage, caractérisé en ce que chaque organe de cadre (10, 12) comprend également une ou plusieurs gorges de connexion (18) avec des lèvres (20) retournées vers l'intérieur, les moyens de connexion (14) s'adaptant et pouvant être fixés dans lesdites gorges de connexion (18) d'organes adjacents de cadre (10, 12) afin de relier deux organes de cadre placés en aboutement bout à bout, au moins certains des organes de cadre latéraux étant pourvus de gorges de montage (22) avec des lèvres (24) tournées vers l'intérieur ouvrant vers l'arrière par rapport au panneau.
2. Système d'encadrement selon la revendication 1 où les organes de cadre des coins ne sont pas pourvus desdites gorges de montage.
3. Système d'encadrement selon la revendication 1 ou la revendication 2 où les gorges de connexion (18) sont prévues adjacentes aux gorges de réception des panneaux (16) et elles ouvrent dans la même direction que les gorges de réception de panneaux (16).
4. Système d'encadrement selon la revendication 1 où les gorges de montage (22) constituent également les gorges de connexion.
5. Système d'encadrement selon l'une quelconque des revendications précédentes dans lequel les moyens de connexion (14) comprennent une barre longitudinalement coulissante le long de gorges alignées (18) de connexion d'organes périphériques de cadre mutuellement en aboutement et peuvent y être fixés.
6. Système d'encadrement selon la revendication 5 où la barre est fixée ou peut être fixée par un adhésif, ou bien en sertissant les gorges, ou les deux.
7. Système d'encadrement selon la revendication 6 où la barre est profilée pour recevoir ledit sertissage.
8. Système d'encadrement selon l'une quelconque des revendications 1 à 7 comprenant de plus un organe de cadre de renforcement (32) pouvant être attaché à l'arrière du panneau d'affichage.
9. Système d'encadrement selon la revendication 8 où ledit organe de cadre de renforcement (32) est configuré afin de produire une autre gorge de montage (22).
10. Système d'encadrement selon la revendication 8 ou la revendication 9 où ledit organe de cadre de renforcement (32) a sensiblement la même section transversale que les organes de cadre des coins

## Revendications

1. Système d'encadrement pour l'encadrement d'un panneau d'affichage (40), comprenant des organes périphériques latéraux (12) et de coins (10) de cadre et des moyens de connexion (14) pour joindre les organes de cadre (10, 12) bout-à-bout, chaque organe de cadre (10, 12) comprenant une gorge

(10) ou latéraux (12) mais sans la gorge de réception du panneau (16).

11. Système d'encadrement selon l'une quelconque des revendications 8 à 10 où l'organe de cadre de renforcement peut être attaché aux organes périphériques de cadre par des moyens de connexion (28, 30) fixés dans les gorges de connexion (18) des organes de cadre de renforcement et périphériques. 5  
10
12. Système d'encadrement selon l'une quelconque des revendications précédentes où au moins une partie des moyens de connexion comprend des écrous et des boulons (30), les têtes de boulon ou les écrous étant capables de s'adapter en coulissant et de façon non rotative dans les gorges de connexion (18) et dont les tiges peuvent dépasser à travers les embouchures des gorges, pour fixer une plaque de connexion qui relie des organes adjacents de cadre en utilisation. 15  
20
13. Affichage comprenant un panneau d'affichage (40) encadré par un système d'encadrement selon l'une quelconque des revendications précédentes. 25
14. Organe d'encadrement pour un affichage comprenant une extrusion à attacher à un panneau (40), l'organe d'encadrement ayant une ou plusieurs gorges de connexion (18) avec des lèvres (20) retournées vers l'intérieur, une gorge (16) pour recevoir un bord du panneau (40) d'un côté de la gorge ou des gorges de connexion (18) et une gorge de montage (22) avec des lèvres (24) retournées vers l'intérieur de l'autre côté de la gorge ou des gorges de connexion (18) et ouvrant au loin du panneau (40). 30  
35

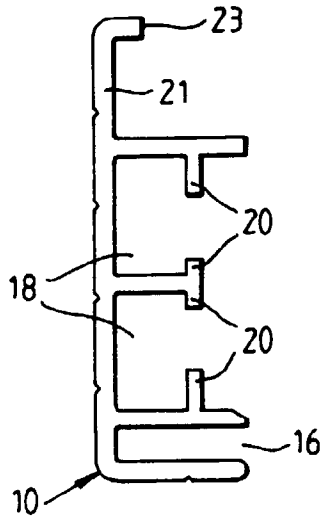
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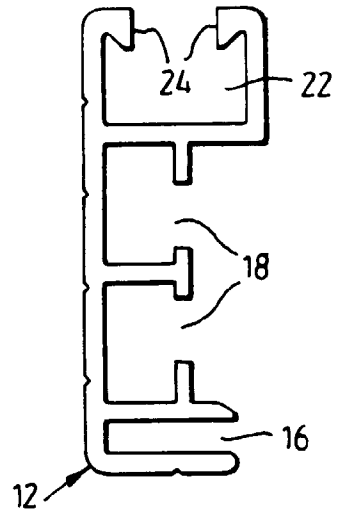
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*Fig 1*



*Fig.2*



*Fig.3*

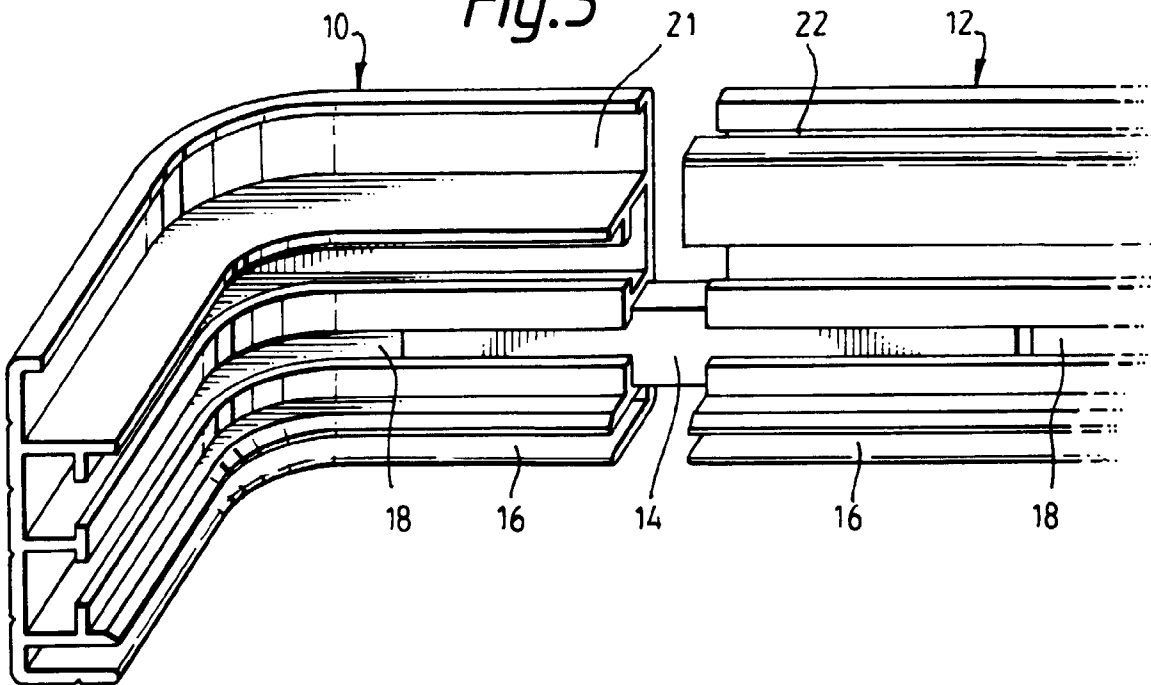


Fig. 4

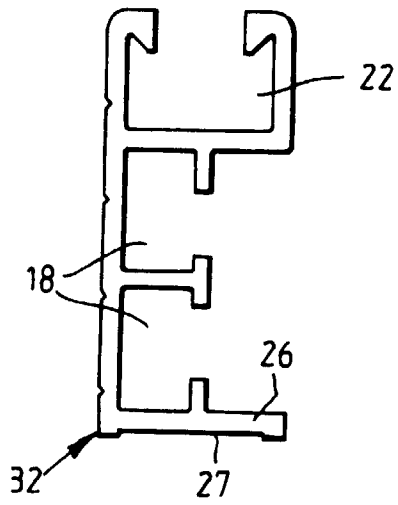


Fig. 5

