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STRUCTURE FOR DETACHABLY MOUNTING PANELS

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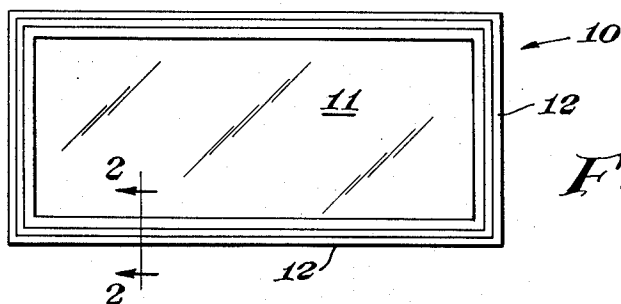


Fig. 1

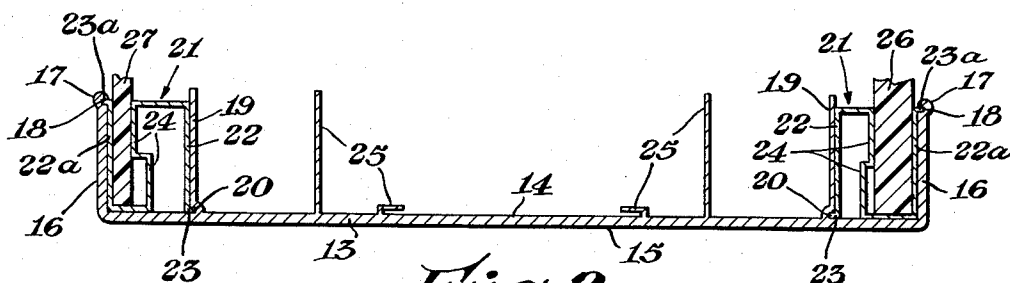


Fig. 2

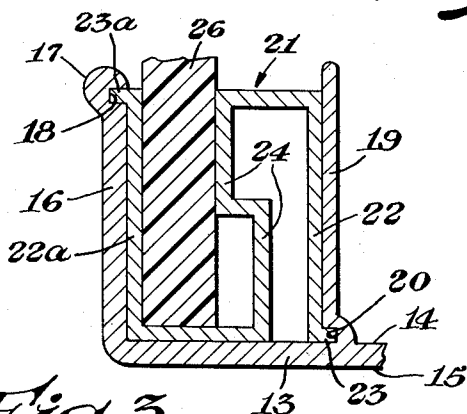


Fig. 3

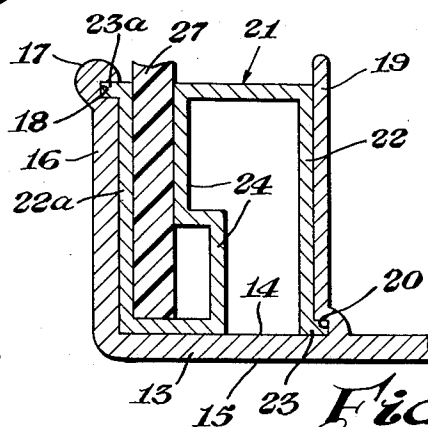


Fig. 4

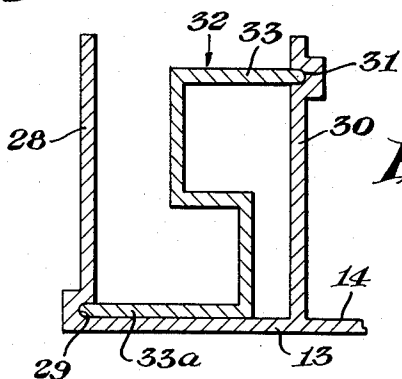


Fig. 5

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6 Claims. (Cl. 40—156)

This invention relates to a structure for detachably and securely supporting panels to be exhibited and in particular is concerned with a frame suited for the construction of advertising signs.

Sign faces and panels of other types vary in thickness. Heretofore, it has been necessary to stock a large number of sizes of extrusions to accommodate the various thicknesses, or alternatively, custom build each frame to suit the thickness of the sign face or panel required by a particular installation.

It is a principal object of the present invention to provide an improved frame which can accommodate sign faces of various thicknesses.

It is another object of the present invention to provide a frame from which a given sign panel can be removed and reinserted without affecting the panel holding members.

These and other objects and advantages will become apparent from the detailed description presented hereinafter when read in conjunction with the accompanying figures.

In general the frame of the present invention comprises a channel member having a web, at least one outer flange extending from the surface of the web, an intermediate flange extending from the web surface and a substantially S-shaped invertible inner member, hereinafter called an adapter or retainer, the arms of which mate with and are anchored by slots in the fixed flanges of the web. The outer flange and intermediate flange preferably are integral with the web. The ends of the arms of the S-shaped member preferably resiliently engage the fixed flanges by means of the slots therein thereby preventing relative movement of the assembled parts. When positioned with respect to the fixed flanges the S-shaped adapter is under sufficient stress to assure proper association of the parts.

One embodiment of the frame of the present invention is shown in the drawings.

In the drawing:

FIG. 1 is a front elevation of a sign incorporating the present invention;

FIG. 2 is a sectional elevation taken along line 2—2 of FIG. 1 on an enlarged scale;

FIG. 3 is a fragmentary sectional elevation on a further enlarged scale depicting one embodiment of an S-shaped adapter in one relative spacing;

FIG. 4 is a fragmentary sectional elevation similar to that of FIG. 3 showing another relative arrangement of the S-shaped member;

FIG. 5 is a fragmentary sectional elevation similar to those of FIGS. 3 and 4 showing another embodiment of the S-shaped adapter and a modification of the fixed flanges which secure the S-shaped retainer.

The sign 10 shown in FIGURE 1 comprises a transparent or translucent panel 11 mounted in a frame composed of channel members 12 mitered at their ends in a manner which is conventional in the art thereby to provide a frame having interconnected opposed peripheral elements.

As depicted in FIGURES 2, 3 and 4 each channel member 12 comprises a web 13 having an upper surface

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14 and a lower surface 15. The channel member 12 terminates in outer flanges 16 extending from the upper surface 14 of the web 13 and integral with the web. The upper end of each flange 16 is an enlarged rounded edge 17 which contains on its inner side a continuous slot 18 extending over the entire length of the flange 16. Also, projecting from the upper surface 14 of the web 13 are intermediate flanges 19 each having a continuous slot 20 at the junction of the base of the flange 19 and the top surface 14 of the web 13.

A removable substantially S-shaped, invertible inner adapter 21 also is provided. The arms 22—22a of this member 21 end in projections 23—23a extending outwardly at an angle from the plane defined by the arms 22—22a. In the depicted embodiment these projections 23—23a are 90° to the plane of the arms. The projections 23—23a are designed to slidably engage the slots 18 and 20. The distance between the projections 23—23a, i.e. the overall width of the adapter 21 is slightly greater than the spacing between the slots of each pair of outer flanges 16 and intermediate flanges 19 so that it is necessary to flex the arms 22—22a of the S-shaped member 21 slightly inwardly as it is introduced between a pair of the fixed flanges 16 and 19. In this way, because of the resilience of the S-shaped member 21, it will always maintain a snug engagement with the anchor flanges 16 and 19 provided on the web 13.

This adapter 21, as shown in the figures, advantageously as fabricated has the shape of an unbalanced "right-angled S"; that is, the arms 22—22a on opposite sides of the integral intermediate web 24 of the S-shaped adapter are at different predetermined distances away from the web 24.

As is evident from FIGURE 2, the channel construction adapts itself to double faced signs or comparable panels of other types. The intermediate flanges 25 are provided for reinforcement and for the attachment of accessories frequently used in the illumination of signs.

In FIGURE 3 the S-shaped retainer 21 is positioned to accommodate a sign face or panel 26 of intermediate thickness.

In FIGURE 4, the S-shaped member 21 has been inverted 180° from the position shown in FIGURE 3 and supports a relatively thin sign face or panel 27. The channel construction shown in FIGURE 2 also depicts the two positions of the S-shaped member 21 and shows a moderately thick and thin panel 26 and 27 respectively positioned in the frame.

In the embodiment shown in FIGURE 5, the integral outer flange 28 extending upwardly from the top 14 of web 13 is designed to have a slot 29 at its bottom and the integral intermediate flange 30 has a slot 31 near its top. The S-shaped removable adapted 32 has its arms 33—33a extended so as to fit snugly with a small amount of stress into the slots 29 and 31 of the flanges 28 and 30 respectively. In this embodiment, the adapter 32 also can be inverted to accommodate panels of different predetermined thicknesses.

In both pictured embodiments, the S-shaped members can be removed, and the paired outer-intermediate flanges on the web themselves used to snugly hold and secure a relatively thick sign face or panel.

The materials of construction to be employed are those that possess the desired strength and will give the desired degree of resiliency and flexibility to achieve the results described. Preferably, readily formable plastics and metals will be used. Extrudable magnesium alloys and aluminum alloys are very satisfactory materials for forming the web and its integral flanges as well as the removable adjustable S-shaped members.

It is apparent that an arrangement of this type is suit-

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able for use in the construction of windows or frames for supporting a wide variety of panels where the thicknesses are such as to require multiple adjustments.

Further, it is clear that a sign utilizing the instant frame can be supported by a pedestal, fastened to a wall, held by support posts, hung by cables or wires, mounted onto a rotatable support or otherwise positioned as known to one skilled in the art.

Various modifications can be made in the instant invention without departing from the spirit or scope thereof for it is understood that I limit myself only as defined in the appended claims.

I claim:

1. A frame having interconnected opposed peripheral elements, each of said elements comprising a channel member having a web, an outer flange extending from a surface of said web, an intermediate flange extending from said surface, each of said flanges having a slot therein, and a removable substantially S-shaped invertible member, the arms of said S-shaped member being engageable with the slots in said outer and intermediate flanges of said web of the channel member and each of the arms on opposite sides of the integral intermediate web of said S-shaped member being at a different predetermined distance away from said intermediate web of said S-shaped member thereby to provide for accommodation of a panel of a corresponding predetermined thickness between said integral intermediate web of said S-shaped member and a given arm of said member thereby adapting said frame to panels of different thicknesses.

2. A frame as defined in claim 1 wherein the outer flange and intermediate flange are integral with the web.

3. A frame as defined in claim 1 wherein the slot in the outer flange is located on the inner face of this flange near its top and the slot in the intermediate flange is located at the base of the intermediate flange and faces the slot in said outer flange.

4. A frame as defined in claim 1 wherein the slot in

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the outer flange is located at the base of the inside face of the outer flange and the slot in the intermediate flange is located near the top of said flange and faces the slot in said outer flange.

5. A frame having interconnected opposed peripheral elements, each of said elements comprising a first member having a web and an outer flange and intermediate flange integral to and extending from a surface of said web, said outer flange having a continuous slot near its top extending along the entire length of the inner face of said flange and said intermediate flange having a continuous slot near its bottom extending along the entire length of the face of said flange and facing the slot in said outer flange, a removable substantially unbalanced, right-angled S-shaped invertible adapter, each of the arms on opposite sides of the integral intermediate web of said S-shaped adapter being at a different predetermined distance away from said intermediate web thereby to provide for accommodation of a panel of a corresponding thickness between said integral intermediate web of said S-shaped adapter and a given arm of said adapter, the ends of the arms of said S-shaped adapter fitting snugly into the slots of said inner and outer flanges of said web of the frame element in either of two orientations thereby adapting said frame to panels of different thicknesses.

6. A frame as defined in claim 5 wherein the S-shaped adapter is provided with projections extending outwardly at an angle from the plane of said arms and said projections slidably engage the slots in said outer and intermediate flanges of said web.

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