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FRAME STRUCTURE

Milton Roseman, Baltimore, Md., assignor to Lok-Tite Industries, Inc., Baltimore, Md., a corporation of Maryland

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This invention relates to a frame particularly well suited for the construction of advertising signs, but also applicable to a wide variety of uses involving the supporting of panels. The invention relates to certain improvements over the disclosure of application Serial No. 12,602, and which on February 7, 1961, issued as Patent No. 2,970,397, filed March 3, 1960, of which this application is a continuation-in-part.

Prior to the invention disclosed in the earlier application referred to, it has been necessary to stock a large number of sizes of extrusions to accommodate various thicknesses of sign faces and panels, or in the alternative, it has been necessary to construct each frame to suit the thickness of the sign face or panel used in a particular installation.

It is among the objects of the present invention to provide a frame having interconnected opposed peripheral elements, each of the elements comprising a channel member having a web, an outer flange extending from the surface of the web, a plurality of pairs of anchoring flanges extending from the surface, and an adjustable inner flange comprising a pair of flexible resilient legs having proximate ends secured together by a common web and free ends engaging the anchoring flanges.

It is also an object of this invention to provide a frame molding comprising a first member having a web and an outer flange extending from a surface of the web, a plurality of anchoring flanges extending from the surface defining a plurality of pairs of convergent bearing surfaces, and an adjustable inner flange comprising a pair of flexible resilient legs having proximate ends secured together by a common web and free ends engageable with the pairs of bearing surfaces selectively to adapt the molding to panels of different thicknesses.

The inner flange preferably has a cross section symmetrical with respect to an axis perpendicular to the web and its legs are preferably identical. The legs are preferably provided with intermediate external enlargements for engagement with a panel and the free ends of the legs preferably contain notches complementing the anchoring flanges. The anchoring flanges and the free ends of the legs preferably have complementary inclined surfaces.

By virtue of the improved structure, variations in panel thicknesses are readily compensated, assembly and disassembly can be effected easily and rapidly, and the adjustable flange can be oriented in either of its possible positions, eliminating the possibility of error in assembly.

A more complete understanding of the invention will follow from a description of the accompanying drawings wherein:

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, depicting the channel member only;

Fig. 3 is a fragmentary perspective view depicting the adjustable inner flange on a further enlarged scale;

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Fig. 4 is a fragmentary sectional elevation on a different scale depicting the flanges in one relative spacing;

Fig. 5 is a fragmentary sectional elevation similar to that of Fig. 4 showing another relative arrangement of the flanges; and

Fig. 6 is a fragmentary sectional elevation similar to those of Figs. 4 and 5 showing a further relative arrangement of the flanges to accommodate a thicker panel.

The sign 10 depicted in Fig. 1 comprises a transparent or translucent panel 12 mounted in a frame composed of channel members 14 mitered at their ends in a manner which is conventional in the art.

As depicted in Figs. 2, 4, 5, and 6, each channel member 14 comprises a web 16 having an upper surface 18 and a lower surface 20. Each channel member 14 terminates in outer flanges 22 extending from the upper surface of the web 16 and as shown, these flanges are integral with the web. Also projecting from the upper surface 18 of the web 16, there are a plurality of pairs of anchoring flanges 24, 24; 26, 26; and 28, 28; the flanges constituting a pair being similarly designated. As will be evident from Figs. 2, 4, 5 and 6, the flanges constituting each pair are mutually inclined, diverging towards the upper surface 18 of the web 16.

It will be noted that the anchoring flanges of each pair most proximate to the outer flanges 22 are provided with chamfered corners 30 to facilitate the introduction and removal of an adjustable inner flange 32 depicted in Figs. 3, 4, 5 and 6. The inner flange comprises a pair of flexible resilient legs 34 having proximate ends secured together by a common web 36, defining a substantially U-shaped cross section, with free ends containing notches 38 defining inclined bearing surfaces 40 and 42 complementing the surfaces provided by the anchoring flanges 24, 26 and 28. Each of these legs is provided with an intermediate external enlargement 44 providing bearing surfaces for panels of the various thicknesses depicted in Figs. 4, 5 and 6 as panels 46, 48 and 50 respectively. Because of the flexible and resilient nature of the adjustable inner flange 32, it can be snapped into position with respect to the several pairs of flanges and removed therefrom by flexing the legs relative to one another. Moreover, this flexibility permits the legs to yield at a sufficient distance from the web of the channel member to accommodate readily the variations in thickness of panels having variations from conventional standard thicknesses, thus maintaining the panels in firm abutment with the outer and inner flanges without undesirable play.

The free ends of the legs 34, as shown in Fig. 3 are provided with arcuate leading edges 52 which will cooperate with the chamfers 30 of the anchoring flanges in the assembly and disassembly operations. The distance between the legs 34 of the adjustable inner flange 32 is initially somewhat greater than the spacing between the anchoring flanges constituting a pair, rendering it necessary to flex the legs to introduce them between the pairs of anchoring flanges to assure snug engagement at all times. It will be evident from the showing of Fig. 2 that the channel construction adapts itself to double faced signs or comparable panels of other types. The intermediate flanges 54 serve to reinforce the structure and may be used for the attachment of various accessories conventionally employed in the illumination of signs.

As will be evident, the configurations of the members make it possible to extrude them in any lengths desired, contributing to the relatively low cost and excellent finish characterizing this mode of forming.

In Fig. 4 the adjustable flange 32 assumes its most proximate position with respect to the outer flange 22 to support the relatively thin sign face of a panel 46 and

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the legs 34 are in this case introduced between the pair of anchoring flanges 24, 24.

In Fig. 5 the adjustable flange 32 assumes its intermediate position wherein the legs 34 are received between a pair of anchoring flanges 26, 26 to support a sign face or panel 48 of intermediate thickness.

In Fig. 6 the adjustable flange 32 has been adjusted to its remote position relative to the outer flange 22, the legs 34 occupying a position between the remote pair of anchoring flanges 28, 28, to accommodate a relatively thick sign face or panel 50.

Inasmuch as the adjustable inner flange is symmetrical with respect to an axis perpendicular to its web 36, it will be clear that the adjustable flange can be inserted in either of two possible positions indiscriminately, simplifying assembly and reducing the element of error to a minimum.

Whereas only one specific form of the invention has been described with reference to the accompanying drawings, those variations suggested thereover to those skilled in the art are contemplated by 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, a plurality of pairs of anchoring flanges extending from said surface, and an adjustable inner flange having a substantially symmetrical cross section comprising a pair of flexible resilient legs having proximate ends secured together by a common web and free ends engaging said anchoring flanges.

2. A panel frame according to claim 1 wherein said inner flange has a cross section symmetrical with respect to an axis perpendicular to said web.

3. A panel frame according to claim 1 wherein said legs are identical.

4. A panel frame according to claim 1 wherein said legs are provided with intermediate external enlargements for engagement with a panel.

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5. A panel frame according to claim 1 wherein the free ends of said legs contain notches complementing said anchoring flanges.

6. A panel frame according to claim 1 wherein said anchoring flanges and the free ends of said legs have complementary inclined surfaces.

7. A frame molding comprising a first member having a web and an outer flange extending from a surface of said web, a plurality of anchoring flanges extending from said surface defining a plurality of pairs of convergent bearing surfaces, and an adjustable inner flange having a substantially symmetrical cross section comprising a pair of flexible resilient legs having proximate ends secured together by a common web and free ends engageable with said pairs of bearing surfaces selectively to adapt said molding to panels of different thicknesses.

8. A frame molding according to claim 7 wherein said inner flange has a cross section symmetrical with respect to an axis perpendicular to said web.

9. A frame molding according to claim 7 wherein said legs are identical.

10. A frame molding according to claim 7 wherein said legs are provided with intermediate external enlargements for engagement with a panel.

11. A frame molding according to claim 7 wherein the free ends of said legs contain notches complementing said anchoring flanges.

12. A frame molding according to claim 7 wherein said anchoring flanges and the free ends of said legs have complementary inclined surfaces.

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