May 12, 1959 T. E. BASTIS 2,885,808

DISPLAY SIGN

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FIG. 1.

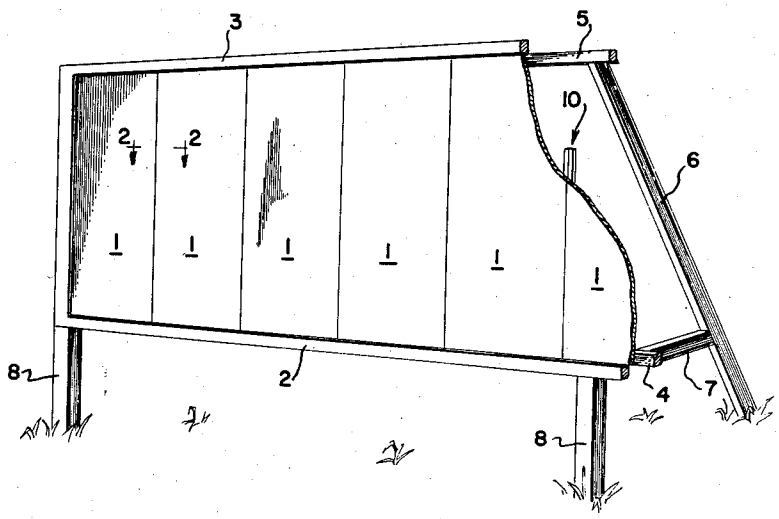
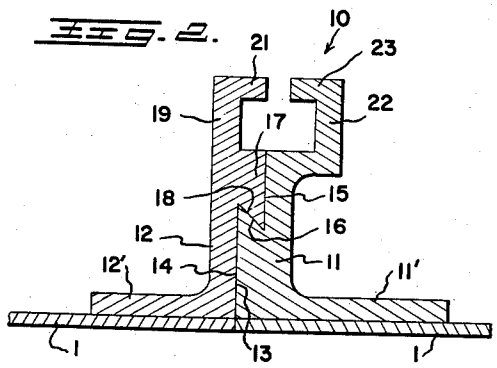


FIG. 2.



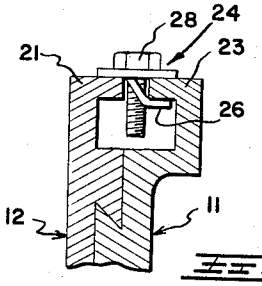


FIG. 4.

FIG. 3.

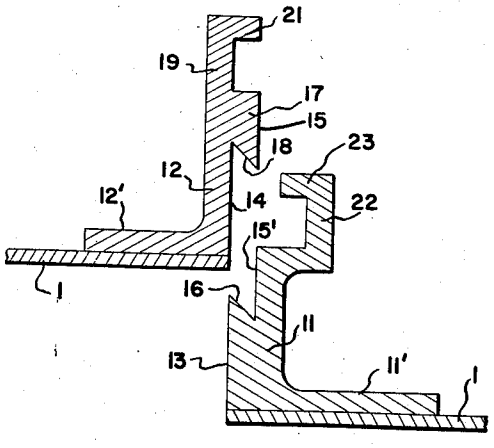
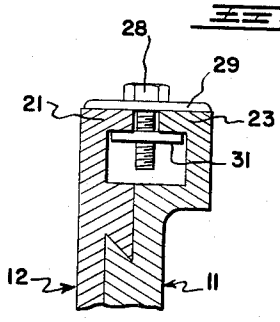


FIG. 5.



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DISPLAY SIGN

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5 Claims. (Cl. 40—125)

This invention relates to display signs. In particular the invention is concerned with display signs of the billboard type and with a novel framing member which may be advantageously used in such signs in the production of a display surface which is disposed in a single, generally vertical plane and free of unsightly joints.

In recent times considerable development in the type of display sign known as billboards have been made. The more recent developments contemplate the use of a plurality of vertical panels positioned in edge-to-edge relationship on a supporting framework to form the display surface. Numerous advantages flow from this arrangement as will be hereinafter pointed out. For example, the portable nature of such panels permits continued rotation of various ads from place to place and sign to sign in a minimum of time and with considerable ease and a minimum of skilled manpower.

In particular, one of the primary advantages in the use of a plurality of panels is that these panels may be refinished at a location, such as a shop or the like, and removed and replaced at will. In addition, by the use of properly treated panels much higher quality art and color reproduction can be obtained, with half tones and colors being more exact than were heretofore possible.

This latter method can be contrasted to past practices wherein it was necessary to renovate the signs "on location" accompanied by the necessity of carrying tremendous quantities of equipment, paint and refinishing material to the location of the sign. The resultant display produced by such "on location" renovation and finishing was not of the quality artwise as is now possible under the more recent practices as outlined above. Additionally, considerable savings are effected in that, when panels are removed, they may be immediately replaced. This decrease in "down time," of course, results in greater per diem profits, since a panel type sign may be continually exhibited with no lost days for renovation or changing of exhibit or subject matter.

In these more recently developed structures the panels are generally formed by bending the marginal edges at right angles to the general vertical extent of the individual panels. Thus these marginal edges define flanges which when placed in abutting relation are readily receptive of fastening members by which the panels are drawn into closely abutting relation with respect to one another.

One of the principal difficulties which has arisen by reason of the use of removable panels with flanged edges has been that during the painting or treating operation the paint and the like material tends to run over the edges of the panels. This undesired runover is caused by the fact that though the flanges are disposed at 90° with respect to the display surface the angle between the surface of the flanges and the display surface is not sharply defined. Since such panels as used in the prior art are generally formed by bending the flange about a strengthening member such as a steel framing bar, it will be appreciated that a small radius is defined at the edge of

the panels. Thus, it is apparent that as the panels are painted the material paint, lacquer, etc. will tend to run around this radius and downward along the flange where, unless removed, it will tend to accumulate.

It may be seen then that eventually an accumulation of paint builds up on these marginal flanges such that it becomes impossible to draw the flanges into closely abutting relation. As a result of this accumulation and further as a result of the fact that the edges of the panels were not sharply defined, it is apparent that vertical lines of demarcation between adjacent panels are unavoidable and these lines of demarcation detract considerably from the attractiveness of the display surface.

In a highly competitive business it is obvious that the elimination of any detracting features whether caused by the manner in which the panels may be made or by the accumulation of undesired material on abutting flanges is of prime importance.

Accordingly, an object of the invention is to provide a locking means for coplanar abutting panels whereby the panels may be drawn into closely abutting relationship.

Still another object of the invention is to provide an inexpensive yet effective marginal panel framing element which when used in conjunction with a complementarily shaped element will serve to lock and secure a plurality of coplanar panels into a substantially smooth uninterrupted display surface.

Still a further object of the invention is to provide a panel framing member which when used will tend to obviate the difficulties resulting from the accumulation of undesired material along the edge of panels.

Still another object of the invention is in the provision of a plurality of panel framing members which while interlocking the panels in closely abutting relationship permits ready removal thereof as may be desired.

These and other objects of the present invention are accomplished by providing a mating extruding member having properly configured complementary shaped surfaces including interlocking parts. These mating parts include inclined or angular surfaces which when moved relative to one another produce a wedging action and draw the panels into closely abutting relationship. Suitable means may be attached to the interlocking parts to fix the same in interlocked relation. The extruded elements may be applied to the marginal edges of adjacent panels by spot welding, riveting or the like, it being understood that one part will be complementary to the other and because of the wedging action obtained, the panels will be forced into closely abutting relationship such that the previously mentioned detracting features or appearance will be obviated.

Considering now the detailed description which now follows in conjunction with the attached drawings, it may be seen that

Figure 1 is a perspective view of a display device incorporating individually removable panels and the features of the instant invention,

Figure 2 is a sectional view taken through two adjacent panels along the line 2—2 of Figure 1,

Figure 3 is a view similar to Figure 2 but showing the manner in which one panel may be removed,

Figure 4 is a partial sectional view of extruded elements incorporating the features of the instant invention and showing one type of clip member which may be used to retain a fastening element in position,

Figure 5 is a view similar to Figure 4 and showing another variation in the clip structure.

Referring now to Figure 1, it may be seen that there is disclosed a billboard construction including a supporting framework. The supporting framework is formed by a lower member 2 supported on vertical posts 8. Upper member 3 disposed in parallel relation with respect to

the lower member 2 may constitute a top framing for a plurality of vertically disposed abutting panel members 1. These members 1 may be held against suitable backing elements 4 and 5 in any known manner. The entire structure is supported by a plurality of diagonal members 6 which extend from the ground surface upwardly and into engagement with the upper support member 3.

It is readily apparent from the drawings that each of the panels is generally rectangular in shape and is preferably comprised of a suitable non-corrosive yet paint or color receptive material. The individual panels 1 are generally disposed in such a manner that their longest extent parallels a vertical axis. It is readily apparent also that a vertical joint is formed of necessity between adjacent panels at their abutted and joined marginal edges. It will also be apparent that entry or inadvertent accumulation of material along the edges of adjacent panels could cause the separation of the panels one from the other and thus cause the undesired lines of demarcation extending from top to bottom of the joints between adjacent panels.

To obviate this undesired result, an interlocking joint assembly 10 is positioned at the marginal edges of the panels and is disposed on the rearward surface thereof such as not to interfere with the continuous plane of the display surface. The joint assembly 10, as may be seen in enlarged Figure 2, is comprised of a pair of elongated extruded sections 11 and 12. The extruded sections are disposed at the marginal edges of each abutting panel. They are in alignment with the vertical edges as seen in Figure 2 and are connected therewith in any desired manner such as spot welding, flush riveting or the like whereby the continuity of the surface is maintained.

Basically, the sections are of a generally right angular cross-sectional configuration including legs 11' and 12', respectively, and legs 13' and 14', respectively. The elongated angle-sectioned extrusions are so arranged on adjacent panels that one leg of one extrusion is positioned in a face-to-face parallel abutting relation with the leg of the other extrusion while right angular legs 11' and 12' of both extrusions are disposed in such a manner as to be in coplanar relationship one with respect to the other in the same vertical plane as that of the rear surfaces of adjacent panels 1. The angle section 12 includes a planar surface 14. The surface 14 is interrupted by angularly positioned surface 18 disposed at an acute angle with respect to planar surface 14. The angularly disposed surface 18 defines in part a tongue 17 having a planar surface 15 parallel to but offset outwardly from the plane of previously described surface 14. The plane surface 15 of tongue 17 is continued outwardly from the plane of the panels and terminates in a channel-shaped dog 19 having a flange 21 parallel to the plane or normally exposed face of panel 1.

The angle shaped extrusion 11 includes a surface 13 perpendicular to the plane or normally exposed face of the panels 1 and this surface 13 is interrupted by an inwardly extending angularly disposed surface 16 disposed at the same acute angle with respect to surface 13 as is the surface 18 with respect to the surface 14. The surface 16 is positioned at the same acute angle with a surface 15' which it will be noted is offset inwardly of and is parallel with respect to the planar surface 13. In other words, surface 15' is disposed away from surface 13 on extrusion 11. Thus, the surfaces 13 and 15' define a modified groove in extrusion 11 which is complementary in shape to the projecting tongue 17 carried by the extrusion 12. The outermost end of the extrusion 11 terminates in a generally channel shaped dog 22 including a flange 23 parallel to the plane of panels 1. This channel shaped dog 22 in conjunction with the dog 19 on extruded shape 12 defines a generally box-like receptacle. It will, of course, be evident that the described surfaces extend throughout the entire length of each of the parallel back-to-back surfaces of adjacent extruded elements 11 and 12.

Considering, now, Figure 3, it may be seen that when the panels 1 are positioned with respect to one another those panels provided with extruded shape 11 may be moved rearwardly toward the next adjacent panel which would be fixed to the supporting structure and is provided with extruded shape 12. As the inclined surfaces 18 and 16 contact one another a wedging action is effected whereby these surfaces will force the mating surfaces 13 and 14 into firmly abutting relation. Since the surfaces 13 and 14 are in alignment with the marginal edges of the abutting panels 1 it may be seen that as the respective extrusions are drawn together, the abutting marginal edges of the respective panels will also be drawn together.

Having so positioned respective abutting panels 1 with respect to each other, suitable means is provided whereby the extruded members may be locked. Such means are clearly shown in Figures 4 and 5.

In Figure 4 a clip member 24 comprising a generally flat surface and a suitable aperture is passed over a suitably threaded bolt 28. The clip 24 is provided with a diagonally extending tongue 26 which fits between the opposed oppositely facing edges of the flanges 21 and 23. The tongue 26 passes between the flanges and bears against the inner surface of the flange 23. The bolt 28 when passed through the aperture in the flat portion of clip 24 is then in threaded engagement with the diagonally extending tongue 26 and it will be seen as the bolt is tightened a pressure is put on flange 21 and an opposite pressure is created on the flange 23. The effect of this is to draw the two extruded members 11 and 12 in opposite directions and thus to force the inclined surfaces into firmly interlocked wedging relationship.

A similar arrangement is shown in Figure 5 with the exception that the fastening medium consists of a flat washer 29 and a member 31 which may be of such a shape as to be passed into the generally rectangular area surrounded the respective dogs 19 and 22. Thus, as the bolt is threaded into engagement with the member 31 this element and washer 29 will cause the extruded elements 11 and 12 to be clamped in firmly interengaged relationship.

It will also be appreciated that regardless of the type of fastening medium used, when the adjacent panels, as shown in Figures 2 and 3, are moved into abutting relation the edge defined by the intersection of surfaces 13 and 16 as well as the panel 1 and surface 14 will tend to scrape each other and remove or shear the accumulated material such as paint or the like as they are moved with respect to one another. This combined with the wedging action that occurs between parts insures the positioning of adjacent panels 1 in closely abutting relation.

While the shape of the extruded members as shown in Figures 1, 2, etc. is such that the member 12 is formed with the rear face of the tongue 17, and surface 14 in the same plane, it will be appreciated that a reasonable modification in the shape of both of the extruded members may be accomplished so long as the wedging interlock is effective and the relation between flanges 23 and 21 is maintained to permit passage of a bolt or other fastening member between the oppositely directing end faces. It will be appreciated further that while the extruded members are shown in Figure 1 as extending vertically substantially the entire vertical height opposite the panels, end portions thereof may be removed to permit a rearwardly facing contact between the panel members 1 and backing members 4 and 5 as a symbol such that the panels may be fixed to support members 4 and 5. Also it is within the contemplation of the invention that a plurality of relatively short extruded sections may be applied to various points along the marginal edges of the panels, though it is preferable

that the framing member should extend substantially the entire length of the panel by reason of the additional support which may be gained from the latter arrangement, the extruded sections serving also to reinforce the edges of the respective panels against deflection.

While the extrusion elements of the instant invention are shown in the particular environment wherein the display panels would be disposed with the interlocked edges in a vertical plane it would be appreciated that the use of a framing member may also be of advantage in signs wherein the panels would be disposed with their longest extent paralleling a horizontal axis. An example of such sign would be the road direction signs which are becoming more and more apparent on the nation's highways. Such signs are usually comprised of rectangular panels disposed in such a manner that their greatest longitudinal extent parallels a horizontal axis. It will be appreciated that the use of locking and framing members such as described in the instant specification would be of considerable advantage in that the difficulties mentioned are obviated and in particular in view of the fact that from time to time such signs may be changed. By the use of the framing extrusions the changes may be made with considerable ease and facility.

While all of the principles of the instant invention have been shown in a particular embodiment, it will be appreciated that reasonable variation in the features thereof may be within the spirit and scope of the following claims.

What is claimed is:

1. In a display sign a supporting framework, a plurality of panels carried by said framework in generally coplanar relation with respect to each other, each of said panels having means on the respective abutting marginal edges thereof and in alignment with said edges for drawing said panels into firm abutting edge-to-edge relation when said edges are moved laterally with respect to one another, said means comprising a locking section on the one edge of one panel provided with a tongue member having a surface projecting at an angle towards the plane of the normally exposed face of the panel with which it is associated, a complementary locking section on the opposing edge of the adjacent panel, said last-mentioned locking section being provided with a recess which is adapted to receive the said tongue member, said recess also being partially defined by an angularly disposed surface positioned complementary to the angularly disposed surface of the tongue member and projecting away from the plane of the normally exposed face of the panel with which it is associated, both of said angularly disposed surfaces meeting in wedging relation and acting to wedge the panels into closely abutting relationship when the panels and locking sections are moved laterally of each other whereby the joint formed between adjacent panels and the locking sections thereof is substantially indistinguishable.

2. A display sign as defined in claim 1 wherein said complementary locking sections are disposed in a vertical plane and wherein said complementary angularly disposed surfaces are also arranegd in a vertical plane.

3. In a display sign including at least a pair of panels disposed in edge-to-edge coplanar abutting relationship the improvement comprising a locking section positioned along the marginal edge of one of said panels, a complementary shaped locking section positioned along the opposing marginal edge of the other panel of said pair of panels, said locking sections being of a generally right angular cross-sectional configuration, one of said sections including a longitudinally extending tongue, said tongue projecting at an angle to the normally exposed face of the panel with which it is associated, the other of said locking sections including a longitudinally extending recess for receiving the said tongue, said recess also extending at an angle to the exposed face of the panel with which it is associated, said tongue and recess each including cooperative angularly disposed surfaces which project at the same angle with respect to the normally exposed faces of each of said panels, said surfaces contacting one another when said locking sections and panels are moved laterally of one another to produce a wedging action between the said sections whereby the respective marginal edges of the panels with which the said sections are associated will be drawn into closely abutting relationship and means for holding said cooperating surfaces in wedging relationship with respect to each other at the end of the lateral movement of the sections and panels.

4. A display sign as defined in claim 3 wherein each of said sections includes a flanged dog and means in engagement with said flanged dogs for holding said sections and in turn said panels in close abutting relationship with respect to each other.

5. In a locking device for producing a wedging interlocked relationship between adjacent planar members provided with normally exposed faces, a first locking section and a second locking section adapted to cooperate with said first-mentioned section, said first-mentioned section including offset parallel planar surfaces and an outwardly projecting angulated portion interconnecting the offset parallel planar surfaces, said angulated portion being disposed at an acute angle with respect to said offset parallel surfaces, said second-mentioned locking section including similar offset parallel planar surfaces interconnected by an inwardly projecting and similarly angulated portion, all of said surfaces being disposed at an angle to the normally exposed faces of said adjacent planar members, the angular portions on each of said sections acting to draw said sections and in turn said planar members toward each other when one of said sections is laterally moved relative to the other section such that the offset surfaces on adjacent sections are drawn into abutting relationship and means for holding said sections and in turn said planar members in a fixed locked position with respect to each other.

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