Dec. 27, 1966 N. J. HALIP 3,294,430

DISPLAY BOARD ASSEMBLY AND PARTS THEREOF

Filed March 30, 1964

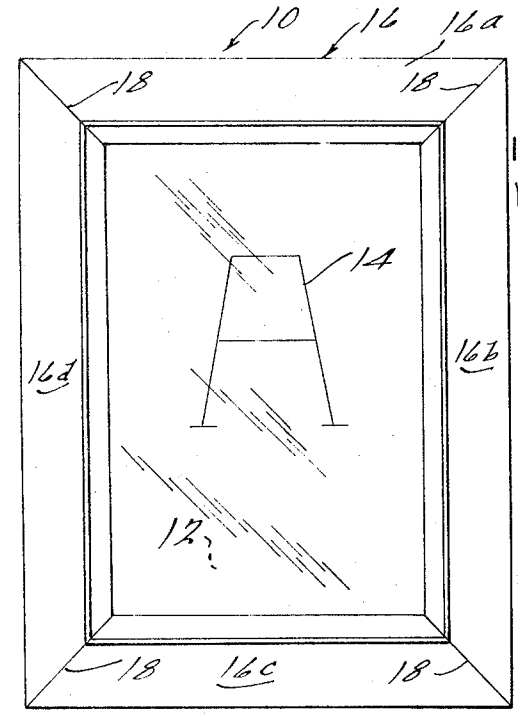


FIG. 1.

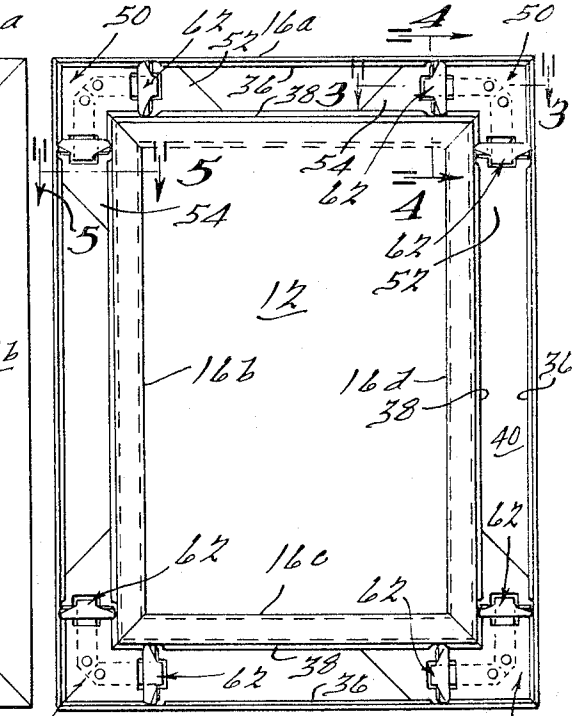


FIG. 2.

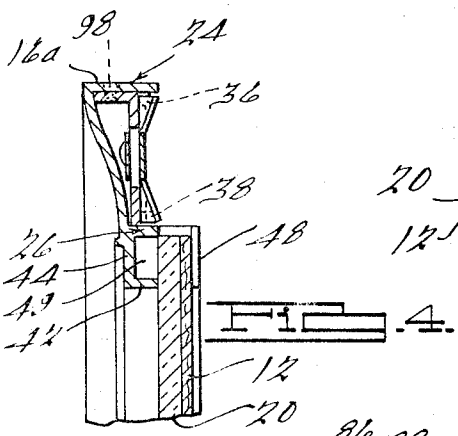


FIG. 4.

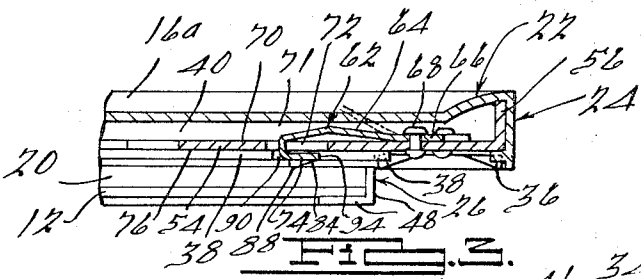


FIG. 3.

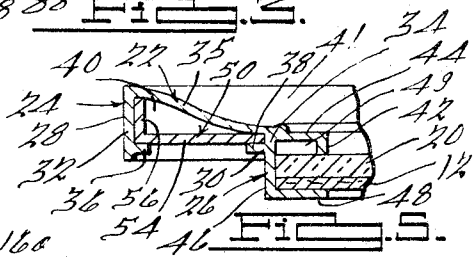


FIG. 5.

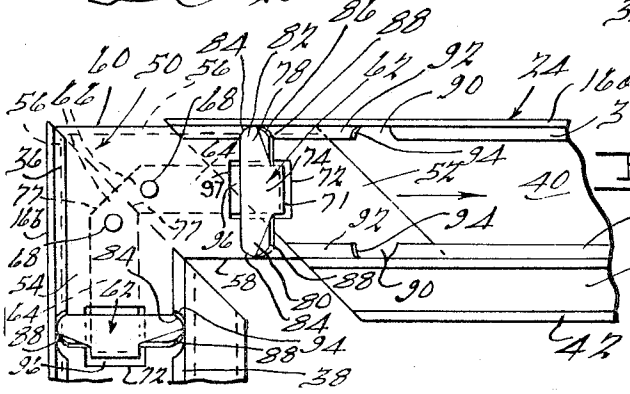


FIG. 6.

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DISPLAY BOARD ASSEMBLY AND PARTS THEREOF

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This invention relates to display boards and the like generally comprising a framed panel for exhibiting merchandise or advertising.

The use of framed units for displaying advertising media and articles of merchandise has become an important tool in the field of advertising and sales. With increases in shipping costs it becomes prohibitive in many instances to ship complete units in assembled form or to maintain complete frames of many different sizes. Although there has been previous attempts to resolve the problem by breakdown assemblies these have customarily required the assembling of many parts and the use of special board material and have not produced framing assemblies of the picture variety with clean cut and realistic lines.

My invention is concerned with this problem and aims to provide a relatively light weight structural assembly or framing for particular use in connection with commercially available board or panel material and any other material of sheet form capable of carrying advertising media or merchandise, to form a sturdy, compact and inexpensive display unit. My framing may be easily and quickly assembled or disassembled, may be shipped in disassembled condition in packages of minimum size and weight and free of many loose pieces. It may be stored in a minimum of space and the framing members may be utilized interchangeably in any number of combinations with local panel material to produce units of different size and shape. When assembled my framing unit produces a frame of good appearance, free of surface attachments and which has every appearance of a custom built frame.

Accordingly it is an object of my invention to provide a relatively light weight framing composed of mitered framing members which may be easily and quickly assembled or disassembled and which in combination with commercially available panel material will form a sturdy compact and inexpensive display unit.

Another object of my invention is to provide a novel corner construction for use in an assembly of the type set forth in the preceding object, comprising corner members interfitting with the adjacent ends of mitered pairs of framing members or side rails to form a sturdy composite frame about the periphery of a display panel or other advertising media and having means for immobilizing the corner members relative to the framing members.

A further object of my invention is to provide a new and improved corner construction for a framing assembly comprising a corner coupling member or element having leg portions interfitting and releasably interlocking with adjacent mitered framing members of the assembly whereby the framing may be readily and easily assembled and disassembled.

A specific object is to provide a framing assembly including a corner coupling member for connecting adjacent mitered framing members and locking means operable between the coupling member and the framing members for immobilizing the latter and producing a tight joint at the miter.

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Another specific object is to provide a display panel framing including releasably locked mitered corners and means for applying a constant load on the miter to inhibit separation thereof.

A further specific object is to provide a framing for a display unit comprising extruded framing members forming mitered corners with each other, each framing member including a frontal wall and a pair of spaced apart lateral walls including generally L-shaped portions, the legs of which connect with the frontal wall and the bases of which are in a substantially common plane facing said frontal wall and extend toward each other without meeting so as to define an open cavity or slideway with said frontal wall, a corner coupling member having angular extending wings or legs slideable in and interfitting with the slideways of pairs of adjacent framing members and substantially abutting said L-shaped portions of said lateral walls, a recess in at least the base of one of said L portions of a lateral wall at a position spaced from the joint between said framing members, and a metallic locking member secured to one of said wings and including a lug portion for releasably engaging with the base portion of said L portion in said recess to effect an interlock between this one wing and the framing member.

Another specific object is to provide a framing as in the preceding object wherein each of said lateral walls has a recess in its base portion thereof and said locking member includes a pair of lugs engaged with said base portions in said recesses.

A still further specific object is to provide a framing as in the two preceding objects wherein there is a third lateral wall on each framing member connecting with an extension of said frontal wall and spaced inwardly of the framing from the innermost of said first mentioned pair of lateral walls and wherein the latter innermost wall of certain members includes an L-shaped extension which with said third lateral wall forms a slideway for receiving the display panelling of the display unit.

Another specific object is to provide a framing as in the three preceding objects wherein said wings of the corner coupling member is generally flat and has opposite faces and wherein said locking member is an elongated element having one end thereof secured to the face of said wing in juxtaposition to said frontal wall so as to lay intermediate said frontal wall and wing and extend in the lengthwise direction of the framing member away from the joint between adjacent framing members and has its opposite end extend through a recess in said wing and connect by a reverse bend with a head portion thereof laying in juxtaposition to the other face of said wing and extending in the direction of said joint, and wherein said head portion includes said lugs for engaging in said recesses of said lateral walls and wherein said head portion is resiliently biased toward said wing.

Other objects and advantages of my invention will be apparent from the following description of a preferred form of the novel display panel framing of my invention illustrated in the drawing wherein:

FIGURE 1 is a front elevational view of a display

board and framing therefore embodying features of my invention;

FIGURE 2 is a rear elevational view of the assembly of FIGURE 1 showing the novel framing and interlocking corner coupling construction of my invention;

FIGURE 3 is an enlarged sectional elevation taken at 3—3 of FIGURE 2, showing the locking element carried by the corner coupling member for interlocking with a framing member;

FIGURE 4 is an enlarged sectional elevation taken at 4—4 of FIGURE 2, showing a framing member in section with one leg of a corner coupling member in the slideway thereof and showing the locking lugs of the locking element carried by the corner coupling member engaged in locking recesses of the framing member and showing the slideway for receiving display material such as a display panel and cover glass for the panel;

FIGURE 5 is a further sectional elevation taken at 5—5 of FIGURE 2, showing the slideways for receiving the corner coupling member and display material respectively; and

FIGURE 6 is an exploded plan view of a corner of the novel framing of my invention showing one leg of the corner coupling member interlocked with a framing member and the other leg partially assembled in the open slideway of another framing member and showing the manner in which the locking element carried by the coupling member effects an interlock with locking abutments provided by edge portions of recesses of the framing members.

Referring now to the various figures of the drawing wherein similar numerals designate similar parts of the structure, FIGURE 1 discloses a typical display panel assembly generally referred to by the numeral **10**. The panel assembly preferably comprises a panel board **12**, of generally rectangular form for carrying display or advertising media **14**, and a rectangular framing **16**, comprising the framing members **16***a*, **16***b*, **16***c*, and **16***d* disposed around the periphery of the panel board **12** with the adjacent ends of the framing members mitered to form closed joints **18**. The panel board **12** is preferably of a stiff fiber board and the like provided with a separate or integral transparent cover or window **20** of plastic or glass.

Each of the framing members of the framing **16** comprises as seen in FIGURES 2, 4, and 5 for example, a frontal wall **22** generally designated by this numeral, and a pair of spaced apart generally parallel lateral walls generally designated by the numerals **24, 26** which walls include generally L-shaped portions **28, 30** respectively, the legs **32, 34** of which connect with the portion **35** of the frontal wall **22** and the bases **36, 38** of which are in a substantially common plane and constitute narrow wall portions or rails generally paralleling the frontal wall **22** and extending toward each other without meeting so as to define an open cavity or slideway **40** with the frontal wall portion **35**. As seen the leg **32** is much longer than the leg **34** above the bases or rails **36, 38** such that the frontal walls **22** of the members taken together provide a concave face **41** on the framing **16** and the cavities **40** taper in depth between the lateral walls **24** and **26**.

As further seen in FIGURES 3 and 4 there is a third lateral wall **42** on each framing member generally paralleling the lateral walls **24, 26** and spaced inwardly of the frame therefrom and connecting with an extension **44** of the frontal wall **22** to make an L shape therewith. The lateral walls **26** of the framing members **16***b*, **16***c*, and **16***d* have a further generally L-shaped portion **46** the base **48** of which forms a wing or shelf paralleling the extension **44** to provide with the lateral wall **42** a slideway or cavity **49** to guide and receive the display panel **12** and its cover glass **20** or other form of display material. This portion **46** is preferably omitted on the member **16***a* as seen in FIGURE 4 with the lateral wall **26** terminating in a plane with the ends of the walls **24** and **42** to enable insertion of the display material after assembly of the framing. It will be understood however that all framing members may include the feature **46** in which case the framing members are assembled around the display material.

It will be evident that the framing members **16***a*, **16***b*, **16***c*, and **16***d* may be readily made of metal, such as aluminum by known extrusion processes or may be extruded or molded in a relatively rigid plastic such as polyvinyl chloride.

Coupling the adjacent ends of pairs of adjacent framing members, as seen for example in FIGURE 2, for instance the framing members **16***a* and **16***b* in the exploded view in FIGURE 6, by sliding engagement in the slideways **40** to form the mitered joint **18** between these members is a generally V-shaped corner coupling member or element generally designated by the numeral **50**, preferably of metal but which may also be of a rigid plastic composition such as linear polypropylene. The member **50** comprises a pair of substantially flat coplanar wings or legs **52, 54** at an angle to each other, here 90 degrees, generally corresponding to the angle to be made by the adjacent mitered framing members. Each wing or leg includes an upstanding edge portion or lip **56** at the outer edges of the wings corresponding to those forming the peak or outer corner of the member **50**, the lips **56** being of a height to slideably fit the large end of the cavity **40** adjacent the lateral wall **24**. The outer ends of the wings **52, 54** are oblique to the framing members and substantially parallel the joints **18** so as to enable simultaneous entry of the side edges **58, 60** of the legs **52, 54** into the slideway **40**, as best seen in FIGURE 6.

In order to immobilize the coupling member **50** and framing members it connects, suitable locking means are provided operable between the coupling member **50** and mating framing members. Thus as seen in FIGURES 2, 3, 4 and 6, I preferably provide on each leg or wing **52, 54** of each corner coupling member **50** a locking element generally designated by the numeral **62** and which as seen in FIGURES 2 and 6 is of generally T shape. These locking elements **62** are preferably made of spring metal and preferably comprise an elongated leg portion **64** secured adjacent its end **66** as by a rivet **68** to the under side or face **70** of the wings **52, 54** of the corner coupling member **50** as seen in FIGURES 2, 3, 4 and 6, which is the face of the member **50** in juxtaposition to the frontal wall **22** and adjacent to the intersection of the wings **52, 54** corresponding to the joint **18** between framing members. From this position of securement the leg portion **64** of the locking element extends in the slideway **40** longitudinally of the wing to which it is attached to a point short of the end of the latter where it is bent with a loop or reverse bend **71** and passes through an opening or recess **72** preferably of rectangular shape in the wing of the corner coupling member (see FIGURE 3) to connect with the head portion **74** of the locking element which is in juxtaposition to the opposite face **76** of the coupling member. The leg **64** of the locking element is preferably formed as seen in FIGURE 3 with an inverted V shape and with sufficient preset relative to end portion **66**, as shown in phantom to effect a strong spring bias of the head portion **74** against the corner coupling member **50** when riveted thereto. Moreover, its ends **66** as seen in FIGURE 6, are pointed whereby the adjacent edges of pairs of locking elements abut on the miter joint line **18** to prevent shifting of the locking elements in assembling the corners of the framing. As seen in FIGURE 6, for example, the head portion **74** extends across and straddles the recess **72** providing lateral or opposite locking lugs **78, 80** connecting with the stem or leg **64** of the locking element and is of a length to also overlay the rails **36** and **38** of the framing member formed by the L-shaped portions of the lateral walls **24, 26** as seen in FIGURE 5.

The head portion **74** is preferably of rectangular shape and the corners **82** of the opposite lugs **78, 80** nearest the

end 66 of the locking element or stated otherwise, nearest the joint 18, are preferably somewhat rounded to form locking abutments 84 while the corners 86 remote from the end 66 are preferably turned upwardly away from the plane of the head portion to form camming ledges or wings 88 to facilitate assembly of the coupling member and framing member.

In order to effect locking engagement between the locking elements 62 of the corner coupling member 50 and the framing members the rails 36, 38 of the framing members forming part of the slideway 40 are provided with recesses 90 of greater width than the lugs 78, 80 for receiving these lugs when the framing members are assembled over the corner coupling member 50 and moved forwardly on the wings 52, 54 thereof to effect the closed mitered joint 18 between the adjacent framing members. The portions 92 of the rails 36, 38 at the forward ends of the recesses 90 are preferably shaped complementary to the corners 82 of the lugs 78, 80 to provide matching abutments 94 to engage with the locking abutments 84 of the lugs 78, 80 under the substantial spring bias imposed upon the latter as described above by the preset in the leg portion 64 of the locking element 62. Engagement occurs when the framing member is in assembled position to effect a tight mitered joint 18. In the latter connection it will be observed that the abutments 94 on the rails 36, 38 are preferably slightly chamfered as seen in FIGURES 3 and 6 such that the abutments 84 of the lugs 78, 80 cam thereon under the spring load imposed upon them whereby the spring loading is directed towards the mitered joint to inhibit any tendency of distortion of the framing members in effecting the miter and to cause the locking engagement obtained to increase in tightness. The lugs 78, 80 therefore not only act as locking detents to locate and lock the framing members relative to the corner coupling member but also preferably provide a preloaded mitered corner that is always under tension.

FIGURE 6 shows one framing member 16*b* in locked position and the second, 16*a* partially assembled. It will be noted that in assembling the framing member 16*a* over the corner wing 52 it is necessary to cam the locking element 62 up to permit the rail portions 36, 38 to slide under the locking lugs 78, 80. It is in this operation that the camming wings 88 on the lugs 78, 80 function as ramps to facilitate assembly against the heavy pressure imposed by the spring bias on the locking element. It is preferred that this spring bias be substantial such that a tool is required to release the lugs 78, 80 from the locked position seen in FIGURES 2, 3 and 6 in the recesses 90. To facilitate release of the lugs from the recesses 90 of the rails 36, 38 the opening 72 in the corner wings 52, 54 extends past the forward end of the head portion 74 of the locking element 62 to provide as at 96 a narrow opening or gap to permit a screw driver tip or other blade to be readily inserted under the head 74 and using the edge 97 of the opening 72 as a fulcrum lift the head and its locking lugs 78, 80 clear of the rails 36, 38 to enable disassembly. This feature may also be used effectively during assembly of the members. Should the lugs 78, 80 be a few thousandths of an inch short of alignment with the recesses 90 of the rails a screw driver tip may be used in a manner similar to that described above to urge the lugs 78, 80 into position to snap into engagement in the recesses 90.

Although the locking element 62 is shown with a pair of locking lugs 78, 80 it will be understood that locking may also be obtained by the use of only one of these lugs. However the use of two locking lugs is preferred as one lug would, where the preloading action described above is provided, impart a tightening effect on one part, for instance the heel of the miter joint 18 and tend to open the other end of the joint. By employing two locking lugs this tendency is completely avoided. It will also be understood that the bias of the lugs 78, 80 may be supplemented by or entirely provided by a secondary spring member (not shown) acting between the corner coupling member 50 and the locking element 62, preferably between the face 70 of the coupling member 50 and the juxtaposed face of the leg portion 64 of the locking element 62.

In assembling the frame where each of the framing members is of like section and no opening is provided as in FIGURE 4 for inserting the advertising media after assembly, the corner coupling members 50 will first be assembled to the member 16*c*, then the members 16*b* and 16*d* connected in place. The advertising media is then positioned and the framing member 16*a* to which the other corner members 50 have been attached is then fitted into position to complete the assembly. Where the framing member 16*a* is constructed as best seen in FIGURES 4 and 6, to facilitate insertion of the advertising media after assembly of the framing, the framing members 16*a*, 16*b*, 16*c*, and 16*d* may be assembled in any order.

In some instances, for example to reduce cost, it may be desirable to provide locking elements 62 on only certain corner coupling members 50 or only on one leg of the corner coupling member 50. My invention readily accommodates such a procedure since the leg of the corner coupling member 50 which is not provided with a locking element may be rendered immobile in the slideway 40 by cementing the same in position with a suitable air or heat hardening cement composition for example an epoxide cement, to the rail portions 36, 38 of the slideway 40 or by suitable mechanical means such as a screw or pin 98 between the member 50 and the framing member to which it is assembled. Such a screw 98 is shown in phantom in FIGURE 4.

From the foregoing description of my invention it will be apparent that I have provided a novel and sturdy framing assembly suitable for the requirements of the advertising and display business and the like that includes a unique locked corner coupling construction well adapted for these purposes and that may be easily and rapidly assembled or disassembled. It will be understood that the principles and features described above and illustrated in the drawing may be applied by those skilled in the art to arrangements other than those shown. For example, the invention may be applied to framing of other shapes than the rectangular form shown; to a construction wherein the locking abutments 94 on the framing members are not formed by the edge of a recess but rather by a raised portion on the framing member over which the locking lugs 78, 80 may cam and ride in assembly; and to a construction wherein the locking elements secured to the corner coupling member 50 has lugs which are carried by spring fingers biased away from each other in the plane of the corner assembly to engage the lugs thereof with the abutments 94 on the framing members.

Accordingly, all modifications, changes and equivalent constructions coming within the spirit and intent of my invention and within the purview of the appended claims are contemplated.

I claim:

1. A corner coupling member for display panel framing comprising a pair of intersecting leg portions, a recess in each leg portion and a resilient locking element of generally T shape secured to each of said legs on one face thereof, said locking elements each comprising a head portion forming the head of said T and a tongue portion forming the leg of said T and by which said elements are secured to said leg portions said tongues extending with a reverse bend through said recesses and terminating in said head portions adjacent the opposite faces of said legs.

2. In a display panel framing, adjacent framing members forming mitered joints with each other, said members each having a frontal wall portion, a pair of spaced apart side wall portions and having other wall portions generally paralleling and spaced from said frontal wall

portion and connecting with said side wall portions defining a slideway therewith, a coupling member coupling said joint forming framing members, said coupling member having a pair of intersecting leg portions slidably engaged respectively in the said slideways respectively of the adjacent framing members which it couples, means immobilizing said leg portions in said slideways for inhibiting separation of said framing members at said joint, said means comprising as to at least one of said leg portions a pair of locking abutments on the said paralleling wall portion of the slideway of the said member in which this leg portion is engaged and a releasable locking element carried by this one leg portion in locking relationship with said abutment, said releasable locking element being of generally T shape and comprising a head portion comprising a pair of lateral locking lugs and a tongue portion forming the leg of the T, said tongue portion being secured to the face of said one leg portion of the coupling member in juxtaposition to said frontal wall portion of the framing member with which said one leg portion is engaged and extending with a reverse bend through a recess in said one leg portion and terminating in the head portion of said T adjacent the opposite face of said one leg portion, and said locking abutments being in juxtaposition to the lateral locking lugs of said head portion and said head portion of said locking element being resiliently biased toward said frontal wall portion whereby to position the locking lugs of said head portion in said locking relationship with said locking abutments when said framing members forming said mitered joint are in joint forming position.

3. A display panel framing, as claimed in claim 2, wherein the locking abutments are formed by edge portions of slots in the said paralleling wall portion of the framing member and wherein the portions of said locking lugs remote from the joint between said framing members are turned outwardly away from said paralleling wall portions and at an angle to the plane of said head portion of said locking element whereby to provide a cam face to engage the longitudinal ends of said wall portion when effecting engagement of the framing member and coupling member.

4. A display panel framing, as claimed in claim 2, wherein said paralleling wall portions of the framing member are relatively narrow rails serving to guide and retain the leg portion of the coupling member in the slideway and to provide guides over which the locking lugs of the locking element may slide preceding engagement of such lugs with the locking abutments.

5. A display panel framing as claimed in claim 2 wherein there is a space between the end of said head portion furthest from said bend and the edge of said recess adjacent said end into which a tool may be inserted for facilitating engagement and disengagement of said locking lugs with said locking abutments.

6. In a display panel framing, adjacent framing members forming mitered joints with each oher, said members each having a frontal wall portion, a pair of spaced apart side wall portions and having other rail like wall portions generally paralleling and spaced from said frontal wall portion and connecting with said side wall portions defining a slideway therewith, a coupling member coupling said joint forming framing members, said coupling member having a pair of intersecting leg portions slidably engaged respectively in the said slideways respectively of the adjacent framing members which it couples, means substantially immobilizing said leg portions in said slideways, said means comprising as to at least one of said leg portions a T shaped element carried by this leg portion and having lateral ears resiliently biased to engage with said rail-like wall portions during assembly of said coupling and framing members and so arranged relative to said rail-like wall portions when said adjacent framing members are in said joint forming relationship whereby to substantially inhibit separation of said framing members at said joint.

7. A display panel framing as claimed in claim 6 wherein at least one of said lateral ears is engaged with an abutment provided by one of said rail-like wall portions.

8. A display panel framing as claimed in claim 6 wherein at least one of said lateral ears is engaged in a recess in one of said rail-like wall portions and in locking relationship with an edge portion of said recess.

9. A display panel framing as claimed in claim 6 wherein said lateral ears are in locking relationship with abutments provided by said rail-like wall portions.

10. A display panel framing as claimed in claim 9 wherein said side walls extend beyond the faces of said rail-like wall portions so as to straddle the outer ends of said lateral ears.

11. In a display panel framing, adjacent framing members forming mitered joints with each other, said members each having a frontal wall portion, a pair of spaced apart side wall portions and having other rail-like wall portions generally paralleling and spaced from said frontal wall portion and connecting with said side wall portions defining a slideway therewith, a coupling member coupling said joint forming framing members, said coupling member having a pair of intersecting leg portions slidably engaged respectively in the said slideways respectively of the adjacent framing members which it couples, means substantially immobilizing said leg portions in said slideways, said means comprising as to at least one of said leg portions a spring-like element carried by this leg portion having a stem portion in face to face relationship with this leg portion and having a lateral ear resiliently engageable at least during assembly of said coupling and framing members with a face of a rail-like wall portion exteriorly of said slideway whereby to resiliently receive this rail-like wall portion between said ear and an edge portion of this leg portion and said ear being so arranged relative to said rail-like wall portion when said adjacent framing members are in joint forming relationship whereby to substantially inhibit separation of said framing members at said joint.

12. A display panel framing, as claimed in claim 11, wherein certain of said framing members include other wall portions providing a guideway for receiving material to be displayed in said framing.

13. A display panel framing, as claimed in claim 11, wherein the slideway of the framing member is deeper at the outer edge of the framing member than at the inner edge thereof and wherein the coupling member leg portions have a thickness substantially the depth of the slideway at the inner edge portion and have a marginal lip substantially normal to the plane of the leg portion which is of a depth substantially the depth of the slideway at the outer edge of the framing member.

14. In a display panel framing, adjacent framing members forming mitered joints with each other, said members each having a frontal wall portion and a pair of spaced apart lateral walls including rail-like portions facing said frontal wall and extending toward each other without meeting, defining an open slideway with said frontal wall portion, a coupling member coupling said joint forming framing members, said coupling member having a pair of intersecting leg portions slidably engaged respectively in the said slideways respectively of the adjacent framing members which it couples, means substantially immobilizing said leg portions in said slideways, said means comprising as to at least one of said leg portions a locking abutment provided by an edge portion of a slot in one of said lateral walls of the slideway in which this one leg portion is engaged and a spring-like element carried by this leg portion having a stem portion in face to face relationship with this one leg portion and having a lateral ear resiliently engageable at least during assembly of said

coupling and framing members with a face of the rail-like portion of the lateral wall having said slot, exteriorly of said slideway, whereby to resiliently receive this rail-like portion between said ear and an edge portion of this leg portion, and said ear being so arranged relative to said rail-like wall portion when said adjacent framing members are in joint forming relationship as to be engaged with said locking abutment to prevent separation of said framing members at said joint.

15. A display panel framing as claimed in claim 14 wherein the edge portion of said slot has a cam face for engaging said locking portion of said locking element and which will tend to draw said framing members into a tight joint under the resilient bias imposed on said locking portion.

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