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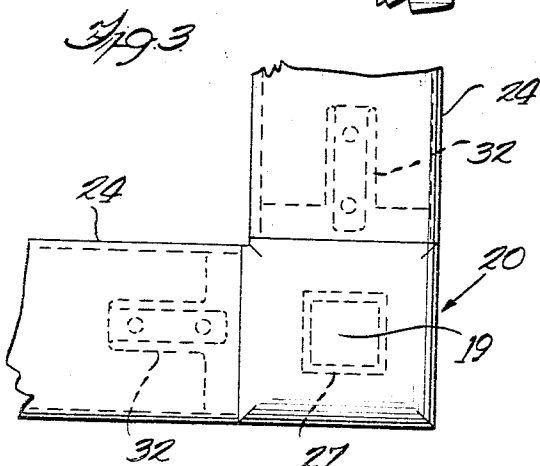
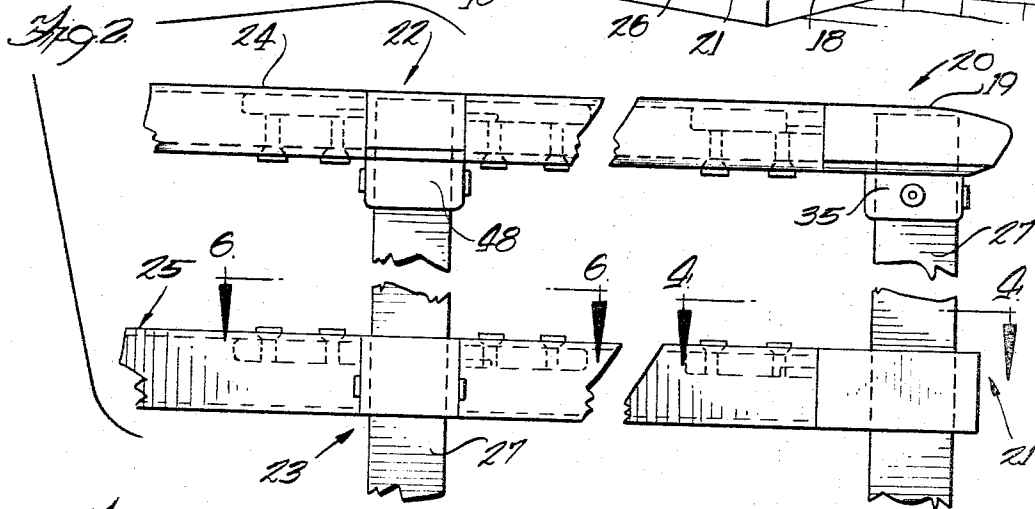
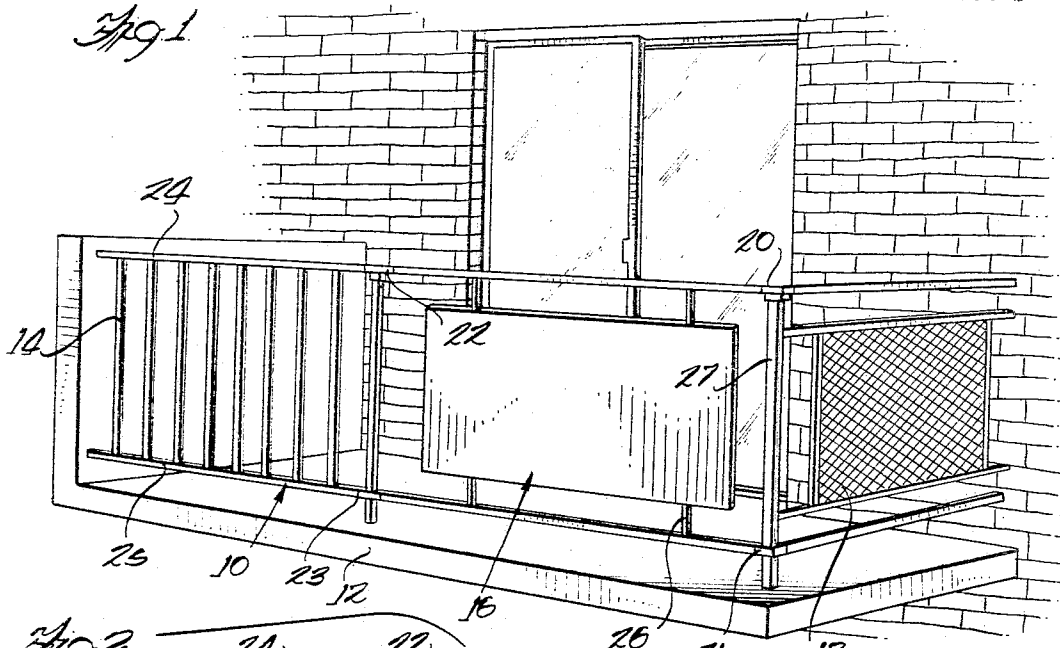
L. GENAUER ET AL

3,333,823

COMPONENTS FOR CONSTRUCTING SIGNS, RAILINGS AND THE LIKE

Filed June 7, 1965

4 Sheets-Sheet 1



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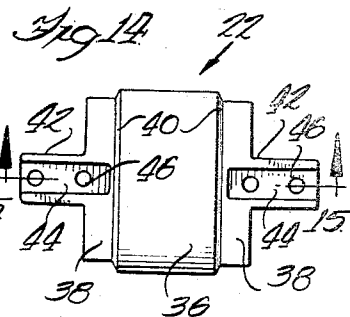
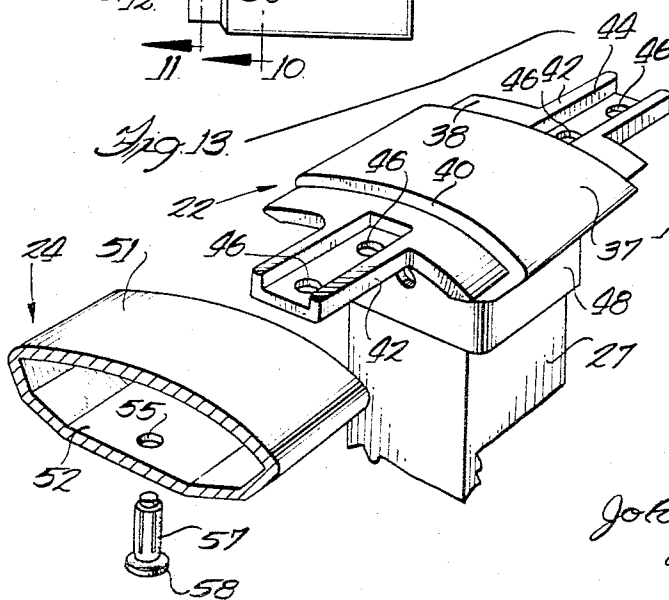
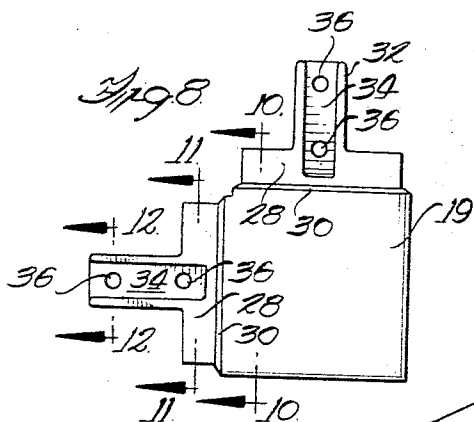
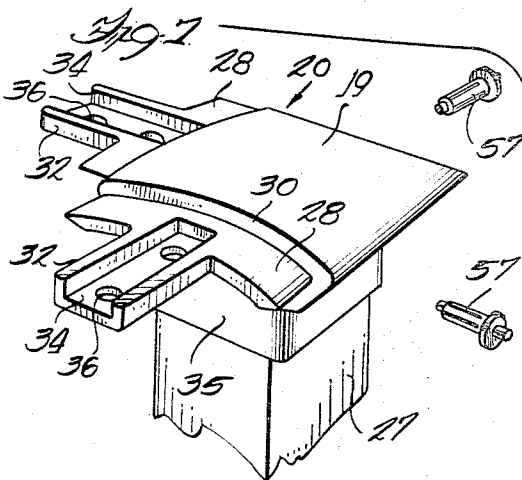
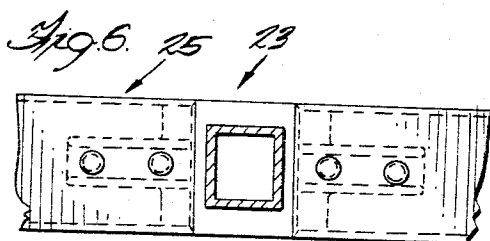
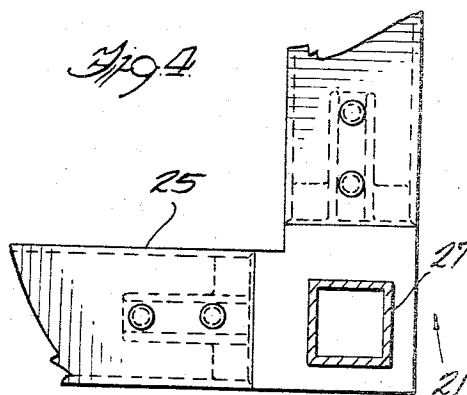
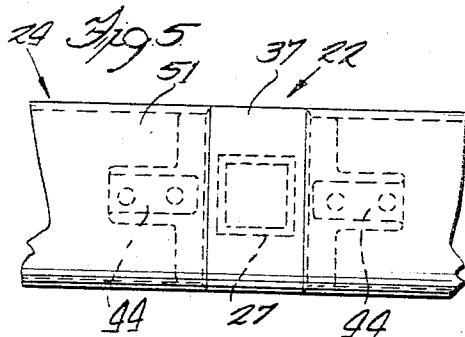
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4 Sheets-Sheet 2



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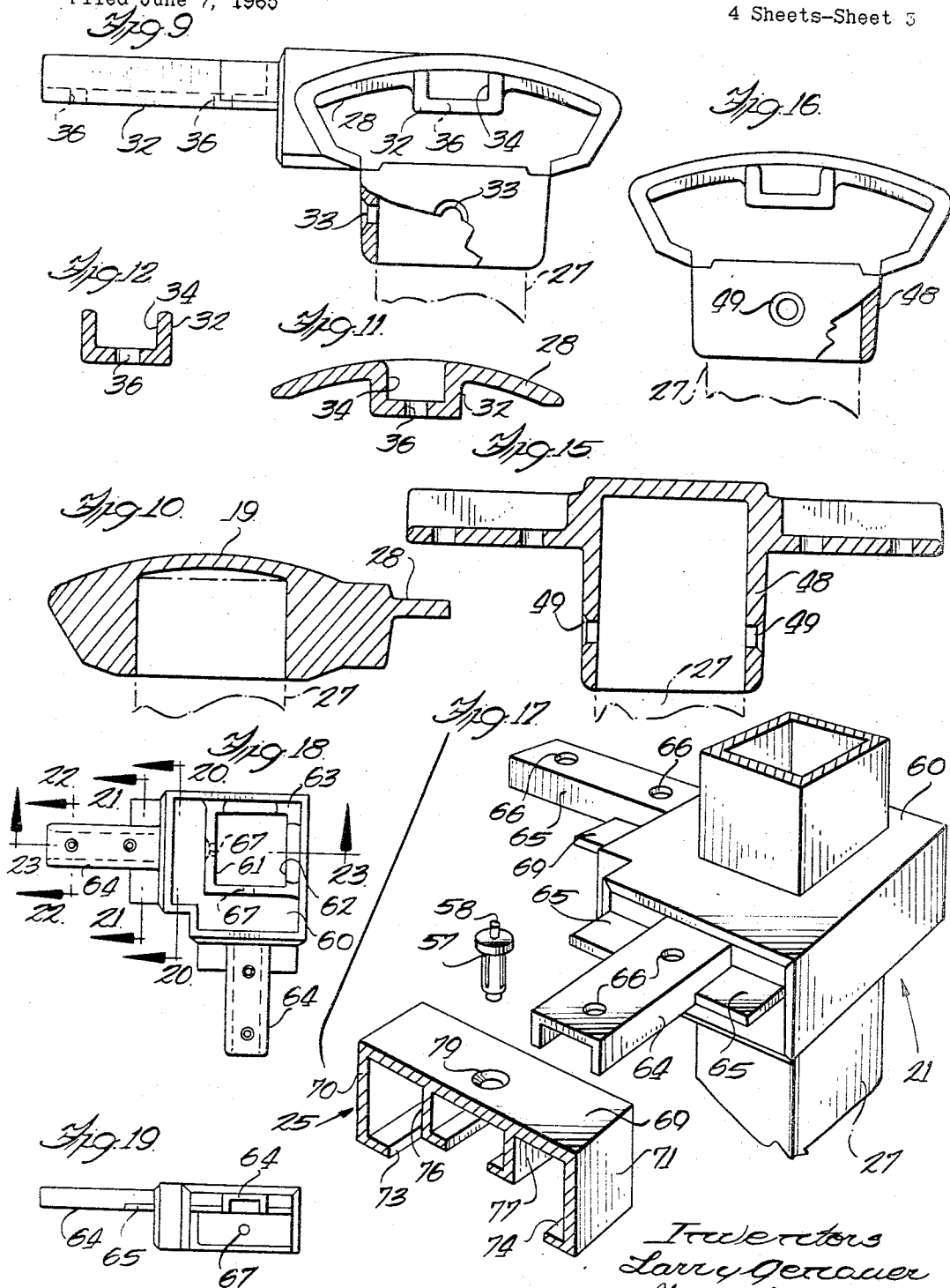
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COMPONENTS FOR CONSTRUCTING SIGNS, RAILINGS AND THE LIKE

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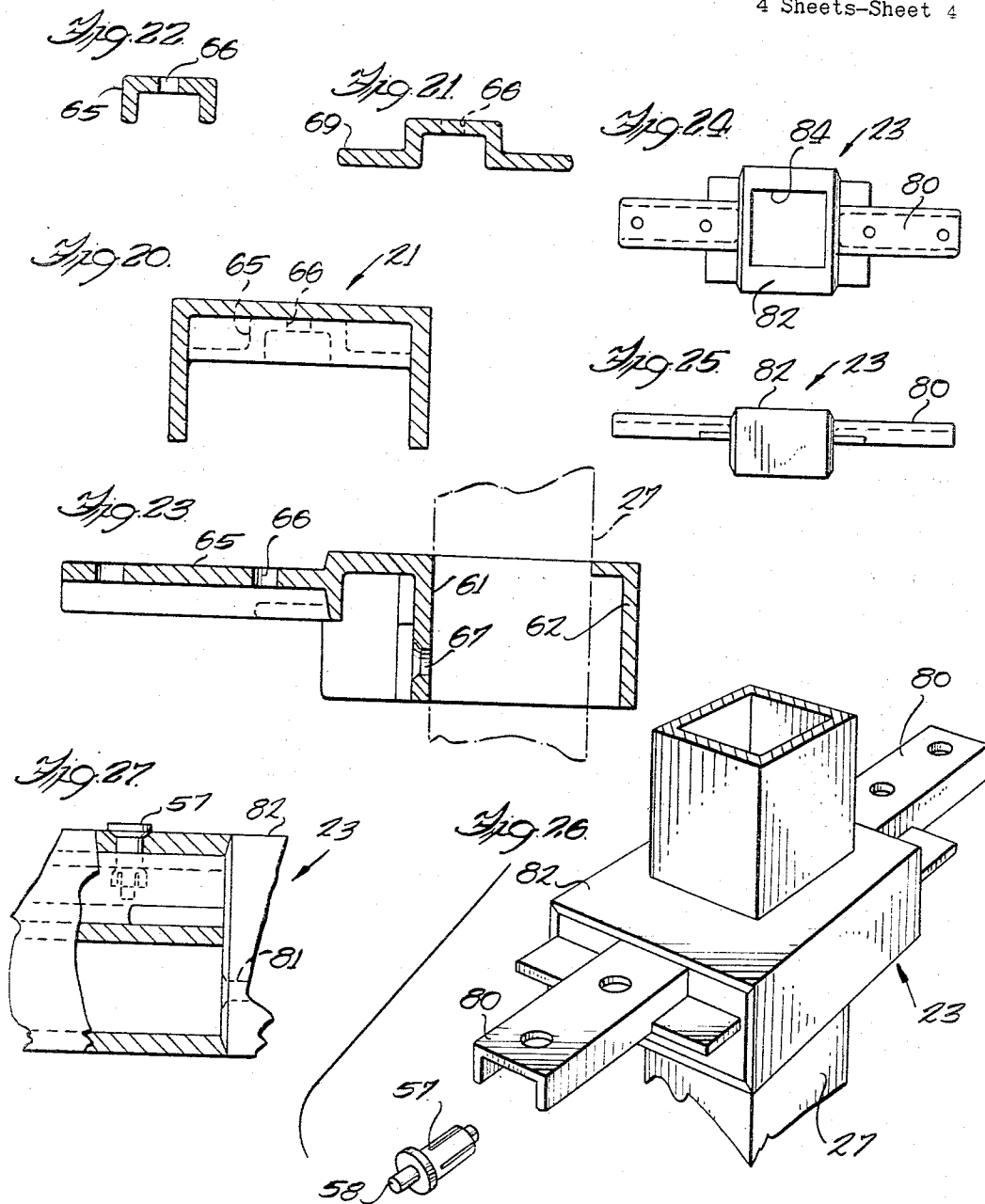
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4 Sheets-Sheet 4



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3,333,823

COMPONENTS FOR CONSTRUCTING SIGNS, RAILINGS AND THE LIKE

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6 Claims. (Cl. 256—65)

This invention relates to prefabricated components which may be easily and quickly assembled to form signs, railings, and the like.

The illustrated embodiment of the invention describes the application of the prefabricated components in forming railings, however, it will be apparent that other articles such as signs and the like can be likewise easily and quickly assembled.

The prefabricated components of the present invention are of aluminum and while aluminum is excellent for the contemplated usages, the components, by the same token, have the disadvantage of being more costly to fabricate than similar components of other types of material such as cast iron. Initially then, the prefabricated aluminum components are more costly to install.

In order to render prefabricated aluminum components competitive with those formed of different types of less costly material, the prefabricated aluminum components must be constructed in a fashion such that they can be more easily manufactured and in such a manner that they can be easily and more quickly assembled so that labor costs which contribute a substantial portion to the total cost of constructing a railing, or the like, are substantially reduced.

Accordingly, it is an object of the present invention to provide new and improved prefabricated components for constructing signs, railings and the like. In this respect, it is contemplated that the components be fabricated of aluminum.

It is a further object of the invention to provide new and improved prefabricated components which can be easily and quickly assembled, with fewer tools and with less effort than heretofore generally required.

It is a still further object of the present invention to provide new and improved prefabricated components for constructing signs, railings and the like which are durable, strong and attractive in appearance.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the several steps and the relation of one or more of such steps with respect to each of the others and the apparatus embodying features of construction, combination of elements and arrangement of parts which are adapted to effect such steps, all as exemplified in the following detailed disclosure, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIGURE 1 is a view illustrating a railing constructed with the components of the present invention;

FIGURE 2 is a side, partially broken view illustrating the corner connectors and the coupling connectors of the present invention;

FIGURE 3 is a top plan view of a top corner connector;

FIGURE 4 is a sectional view taken along lines 4—4 of FIG. 2;

FIGURE 5 is a top plan view of a coupling connector; FIGURE 6 is a sectional view taken along lines 6—6 of FIG. 2;

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FIGURE 7 is a perspective view of a top corner connector;

FIGURE 8 is a top plan view of a top corner connector;

FIGURE 9 is a side view of a top corner connector, partially broken to illustrate how it is connected to a post;

FIGURE 10 is a sectional view taken along lines 10—10 of FIG. 8;

FIGURE 11 is a sectional view taken along lines 11—11 of FIG. 8;

FIGURE 12 is a sectional view taken along lines 12—12 of FIG. 8;

FIGURE 13 is a perspective view of a top coupling connector and a section of a top railing;

FIGURE 14 is a top plan view of a top coupling connector;

FIGURE 15 is a sectional view taken along lines 15—15 of FIG. 14;

FIGURE 16 is a side view of a top coupling connector, partially broken to illustrate how it is connected to a post;

FIGURE 17 is a perspective view of a lower corner connector and a section of the lower railing;

FIGURE 18 is a bottom plan view of a lower corner connector;

FIGURE 19 is a side elevation view of a lower corner connector;

FIGURE 20 is a sectional view taken along lines 20—20 of FIG. 18;

FIGURE 21 is a sectional view taken along lines 21—21 of FIG. 18;

FIGURE 22 is a sectional view taken along lines 22—22 of FIG. 18;

FIGURE 23 is a sectional view taken along lines 23—23 of FIG. 18;

FIGURE 24 is a top plan view of a lower coupling connector;

FIGURE 25 is a side plan view of a lower coupling connector;

FIGURE 26 is a perspective view illustrating how the lower coupling connector is assembled on a post; and

FIGURE 27 is a view illustrating how the edges of the connectors and the railings are chamfered to provide a flush joint.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings, in FIG. 1 there is shown a railing, generally indicated by the reference numeral 10, constructed about a patio 12 of a high rise apartment building or the like (partially shown). The railing 10 is generally completely constructed using pickets, such as the pickets 14, however, a floating panel 16 and a weave privacy panel 18 are shown to illustrate other different types of constructions which may be used. Of course, as will be apparent from the description which follows, many other types of constructions may also be used, to blend with any decor. The components of the railing 10, described fully hereinafter, are fabricated of aluminum and, if so desired, can be satin or gold anodized or provided with an acrylic finish so that they are highly resistant to hard wear and do not crack, chip or craze. Furthermore, the railings when finished in the described manner are highly resistant to extreme heat, cold, salt water, high pressure wind and storm. The prefabricated components of the railing 10 are constructed with a slim line styling and the rivets, bolts and the like used for assembly are generally concealed so that the railing 10 presents an attractive appearance.

The railing 10 is constructed using only four basic aluminum castings, namely: a top railing corner member 20, a lower railing corner member 21, a top railing connecting member 22 and a lower railing connecting

member 23. The top railing 24, the lower railing 25, the pickets 14, the panel support posts 26 and the corner posts 27 are all aluminum extrusions, and the panels can be expanded aluminum mesh, fiber glass or laminated glass. Assembly of the components is preferably by means of counter-sunk drive rivets, such as the drive rivets 57 shown in FIG. 7.

Referring first to FIG. 13 wherein a portion of a top railing 24 can be best seen, it may be noted that the top railing 24 is a hollow extrusion, the top surface 51 of which is convex shaped and the bottom of which has a flat surface 52 which is progressively angled upwardly to join the top surface 51 so that a slim line appearance is presented. Counter-sunk rivet holes 55 are formed in the flat surface 52 of the railings 24, which holes are correspondingly positioned so that counter-sunk drive rivets, such as the rivet 57, can be passed through them and the rivet holes formed in the top railing corner members 20 and the top railing connecting members 22, described more fully hereinafter, to fixedly secure them to one another.

The top railing corner member 20, as can be best seen in FIGS. 7, 8 and 9, has a generally square-shaped central portion 19 which has a convexed curvature corresponding to that of the top railing 24 and which tapers towards its outer most corner. Projecting outwardly at 90° angles to one another from the center portion 19 are two identically shaped flanges 28 which are recessed to form abutting shoulders 30 and which have a convex upper surface corresponding to that of the central portion 19 and the top railing 24, as best seen in FIG. 9. The flanges 28 each have a small rectangular shaped extension 32 which projects outwardly and which is formed centrally thereof. A rectangular shaped recess 34 is formed in each of the extensions 32, and two rivet receiving holes 36 are formed in each recess, so as to match with the rivet holes 55 formed in the top railing 24. The shoulders 30 formed on the central portion 27 are slightly tapered so that a smooth, flush joint can be provided with the top railing 24.

Below the square shaped central portion 19 is a hollow post connector portion 35, the interior of which substantially corresponds in size to the end of an extruded corner post 27 so that the top railing corner member 20 fits tightly over its end. Counter-sunk rivet holes 33 are formed in the depending walls of the connector portion 35, which holes match with similar holes formed in the corner posts 27, for securing the top railing corner members 20 to a corner post.

The top railing connecting members 22 have a rectangular shaped central portion 37 and two flanges 38 which likewise have a convex curvature corresponding to the top railings 24. The flanges 38 are formed on opposite sides of the central portion 37, 180° spaced from one another, and are recessed so as to form shoulders 40 corresponding to the shoulders 30 on the top railing corner members 20. The flanges 38 also each have a small rectangular shaped extension 42 formed centrally thereof, with rectangular shaped recesses 44 formed therein. A pair of rivet receiving holes 46 are formed in each of the extensions 42, and the shoulders 40 are tapered, as on the top railing corner member 20. Depending downwardly beneath the central portion 37 and centrally thereof is a hollow post connector portion 48, the interior of which substantially corresponds in size to the end of a post so that the latter is tightly received therein. Counter-sunk rivet holes 49 are formed in the depending walls of the post connector portion 48, which holes match with similar holes formed in its associated supporting post, for securing the top railing connecting member 22 to the post.

In FIG. 17, a portion of a lower railing 25 is shown and it can be seen that the lower railing comprises an aluminum extrusion having a flat top surface 69 with depending side walls 70 and 71, the ends of which are bent inwardly to face one another and parallel to the flat top

surface 69. Below the flat top surface 69 and centrally positioned between the side walls 70 and 71 are two downwardly depending L-shaped rails 76 and 77 which extend the length of the lower railing. These L-shaped rails 76 and 77 are adapted to slidably receive rectangular shaped extensions 64 and 80 formed on the lower railing corner members 21 and the lower railing connecting members 23, in a manner described more fully hereinafter, to secure the lower railing to these members. Counter-sunk rivet holes 79 are formed in the flat top surface 69 of the lower railings 25 and are positioned so that drive rivets can be passed through them and the correspondingly positioned rivet holes formed in the lower railing corner members 21 and connecting members 23.

The lower railing corner members 21, as can be best seen in FIGS. 17-22, have a central portion 60 which is substantially square, but is extended along two sides which are 90° to one another. A square shaped post hole 62 is formed in the central portions 60, equal distance from its other two edges, which post holes substantially correspond in size to the supporting posts so that the lower railing corner members 21 can be passed over the posts and adjustably positioned thereon. As can be best seen in FIG. 18 which is a bottom view of a lower railing connecting member 21, a wall 61 is formed on the under side of the top surface 60, which depends downward and is adapted to enclose and support, in conjunction with a corner forming inset 63, a post passed through the post hole 62. The center portions 60 are flat surfaced and have side walls which correspond to the lower railings 25 so that smooth flush joints are made. A U-shaped rectangular extension 64 is centrally formed and extends from each of the lengthened sides of the central portion 60 and are spaced from the top surface thereof a distance corresponding to the thickness of the top wall of the lower railings 25. Rivet receiving holes 66 are formed in each of the extensions 64, and are positioned to correspond with the rivet holes 79 formed in the lower railings 25 so that drive rivets can be passed through them to secure the lower railings to the corner members 21. Support members 65 are formed parallel to the central portion 60 and extending from the lower edges of the depending walls of the extensions 64. These support members 65 engage the depending walls 70 and 71 of the lower railings 25, and function to restrain the lower railings from being twisted so that a smooth flush joint is provided. The mating edges of the central portion 60 and the lower railings are also preferably beveled to a small degree, to assist in aligning the joints.

Counter-sunk rivet holes 67 are formed in the depending wall 61 of the central portion 60 so that the holes are substantially concealed. Correspondingly positioned rivet holes are formed in the supporting posts, so that the lower railing corner members 21 can be fixedly secured to the posts.

The lower railing connecting members 23, as can be best seen in FIG. 26, are constructed having the same configuration as the lower railing corner members 21, except for the fact that the U-shaped rectangular extensions 80 thereof extend from the flat surfaced central portion 82, at a 180° angle to one another, rather than at a 90° angle. The lower railing connecting members 23 have post receiving holes 84 formed in the central portions 82, and corner forming insets similar to the corner forming inset 63 are formed in each of four corners to securely support the connecting members 23 about the post. The lower railing connecting members 23 are secured to the posts by means of rivets passed through rivet holes 81 formed in the depending walls of the central portion 82 below the extensions 80 and correspondingly positioned rivet holes formed in the supporting posts.

With the above described components, a railing can be prefabricated and shipped unassembled to a job site where it can be easily and quickly assembled, or it can be partially assembled and shipped. In either case, it is gen-

erally found that a railing can be assembled much more rapidly with the components of the present invention than in the case of similar components presently available. Also, it may be observed that the aluminum castings 20-23 are of relatively simple configurations so that they are easily and inexpensively manufactured. The same is generally true with respect to the upper and lower railings and the supporting posts, since they are all relatively simple extrusions.

More specifically, to assemble a railing, the upper railing sections and the lower railing sections are cut to the desired length, using a saw or the like, and the rivet holes formed therein. The rivet holes can be preformed at this time since the corresponding rivet holes in the castings 20-24 are formed in established predetermined positions. The vertical support posts can also be cut to the desired length, and the rivet holes formed therein.

At the installation site, the components can be assembled in whatever fashion is found the most expedient. For example, the vertical supporting posts 27 can be first fixedly secured to the patio 12, or whatever the supporting surface may be, and the lower railing corner members 21 and the lower railing connecting members 23 affixed to one section of lower railing. The latter step is accomplished by inserting drive rivets 57 through the aligned rivet holes formed in the respective members, and by striking the pins 58 thereof with a hammer to spread their ends, thereby locking the members together, as illustrated in FIG. 2. This section of lower railing is then assembled on the supporting posts 27, by passing the supporting posts through the post receiving apertures 62 and 84 formed in the members 21 and 23, respectively. When positioned so that the rivet holes formed in each of the respective members are aligned, they are securely fixed to one another by passing drive rivets 57 through the rivet holes and hitting the pins 58 with a hammer. The other sections of the lower railing are next assembled and securely fixed to the members 21 and 23, in substantially the same manner.

The upper railing is likewise pre-assembled and then affixed to the top of the supporting posts 27, by slipping the ends of the supporting posts into the post connecting portions 35 and 48 on the members 20 and 22, respectively. Drive rivets 57 are then passed through the rivet holes formed in each and the pins 58 thereof hit with a hammer, to secure them together, as shown in FIG. 2.

The ends of the upper and lower railings can be secured to the building wall and the dividing wall in any suitable fashion. One simple expedient is to use an L-shaped bracket which is secured to the end of the railing and to the wall.

The pickets 14 can be secured between the upper and lower railings, as by welding or by pre-forming corresponding shaped apertures in the railing in predetermined spaced positions and assembling the pickets therein before the upper railing is secured. The panel 16 can be fixed between the upper and lower railings and the weaved privacy screen 18 fixed to the supporting post 27 and to the wall, in substantially the same manner as described above.

As indicated above, drive rivets, such as the drive rivets 57 which are spread to fixedly secure them within a rivet hole by hitting their pins 58, are preferably used to provide a rapid means of assembly, however, it is apparent that fasteners of other types, such as threaded screws can be used if desired.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction, without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific fea-

tures of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Now that the invention has been described, what is claimed as new and desired to be secured by Letters Patent is:

1. A railing structure comprising, in combination: a support post; fastening means; a pair of hollow top railings; a top railing connecting member connecting said pair of top railings to the top of said support post to form a continuous railing, said top railing connecting member comprising a central portion having a hollow member integrally formed therewith on the underside thereof, said hollow member having an interior which is slightly larger in size than the cross-section of said support post, the top of said support post being received therein and said hollow member and said support post having apertures formed therein and correspondingly positioned to receive fastening means for securing said top railing connecting member to the top of said support post; flange portions extending outwardly at an angle of 180° to one another from said central portion and being recessed to form shoulders against which the end edges of respective ones of said pair of top railings abut, said pair of top railings and said central portion being correspondingly shaped, said flange portions being inserted within said hollow top railings and forming support surfaces upon which said top railings seat to form and maintain flush joints between said top railings and said central portions when the edges of said top railings are abutted against said shoulders; a smaller rectangular-shaped securing tab extending centrally from each of said flange portions, said securing tabs and said pair of top railings having apertures formed therein for receiving said fastening means for fixedly securing said top railings to said top railing connecting member, said apertures in said pair of top railings being formed in the underside thereof so that said fastening means are substantially hidden.

2. The railing structure of claim 1 further including a pair of substantially U-shaped lower railings, a lower railing connecting member for connecting said pair of lower railings together to form a continuous railing, said lower railing connecting member comprising a central portion having an aperture centrally formed therein is slightly larger in size than the cross-section of said support post, said support post being extended through said aperture and said lower railing connecting member and said support post having correspondingly positioned apertures therein for receiving said fastening means for fixedly securing said lower railing connecting member to said support post; substantially U-shaped flange portions extending outwardly at an angle of 180° to one another from said central portion and having the legs thereof disposed to project downwardly, said flange portions being recessed to form a shoulder against which the end edges of respective ones of said pair of lower railings abut, said pair of lower railings and said central portion being correspondingly shaped and said flange portions forming support surfaces upon which said lower railings seat to form and maintain flush joints between said lower railing and said central portion when the end edges of said lower railings are abutted against said shoulders; a pair of L-shaped members integrally formed interiorly of each of said pair of lower railings having legs disposed so as to slidably receive said flange portions therein, a pair of outwardly extending wing members adapted to engage the side walls of said lower railings to assist in maintaining alignment between said lower railings and said central portion, and apertures correspondingly positioned in said flange portions and said lower railings for receiving said fastening means for fixedly securing said lower railings to said lower railing member.

3. The railing structure of claim 2 wherein said pair of top railings and said pair of lower railings are extruded and are of aluminum.

4. A railing structure comprising, in combination: a support post; fastening means; a pair of hollow top railings; a top railing corner member connecting said pair of top railings to the top of said support post to form a continuous railing, said top railing corner member comprising a central portion having a hollow member integrally formed therewith on the underside thereof, said hollow member having an interior which is slightly larger in size than the cross-section of said support post, the top of said support post being received therein and said hollow member and said support post having apertures formed therein and correspondingly positioned to receive fastening means for securing said top railing corner member to the top of said support post; flange portions extending outwardly at an angle of 90° to one another from said central portion and being recessed to form shoulders against which the end edges of respective ones of said pair of top railings abut, said pair of top railings and said central portion being correspondingly shaped, said flange portions being inserted within said hollow top railings and forming support surfaces upon which said top railings seat to form and maintain flush joints between said top railings and said central portion when the end edges of said top railings are abutted against said shoulders; a smaller rectangular-shaped securing tab extending centrally from each of said flange portions, said securing tabs and said pair of top railings having apertures formed therein for receiving said fastening means for fixedly securing said top railings to said top railing corner member, said apertures in said pair of top railings being formed in the underside thereof so that said fastening means are substantially hidden.

5. The railing structure of claim 1 further including a pair of substantially U-shaped lower railings, a lower railing corner member for connecting said pair of lower railings together to form a continuous railing, said lower railing corner member comprising a central portion having an aperture centrally formed therein is slightly larger in size than the cross-section of said support post, said support post being extended through said apertures and said lower railing corner member and said support post having correspondingly positioned apertures therein for receiving said fastening means for fixedly securing said lower railing corner member to said support post; sub-

stantially U-shaped flange portions extending outwardly at an angle of 90° to one another from said central portion and having the legs thereof disposed to project downwardly, said flange portions being recessed to form a shoulder against which the end edges of respective ones of said pair of lower railings abut, said pair of lower railings and said central portion being correspondingly shaped and said flange portions forming support surfaces upon which said lower railings seat to form and maintain flush joints between said lower railing and said central portion when the end edges of said lower railings are abutted against said shoulders; a pair of L-shaped members integrally formed interiorly of each of said pair of lower railings having legs disposed so as to slidably receive said flange portions therein, a pair of outwardly extending wing members adapted to engage the side walls of said lower railings to assist in maintaining alignment between said lower railings and said central portion, and apertures correspondingly positioned in said flange portions and said lower railings for receiving said fastening means for fixedly securing said lower railings to said lower railing corner member.

6. The railing structure of claim 5 wherein said pair of top railings and said pair of lower railings are extruded and are of aluminum.

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