

Oct. 13, 1953

P. C. LINDMAN

2,655,345

ORNAMENTAL IRONWORK STRUCTURE

Filed April 22, 1948

2 Sheets-Sheet 1

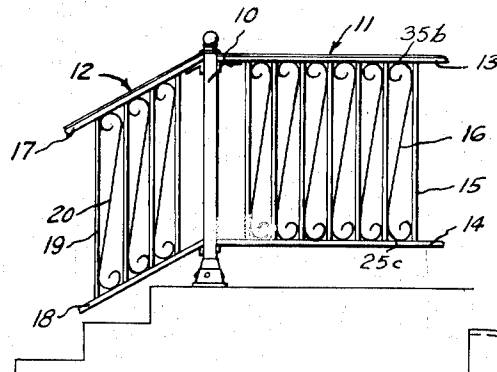


Fig. 1

Fig. 5

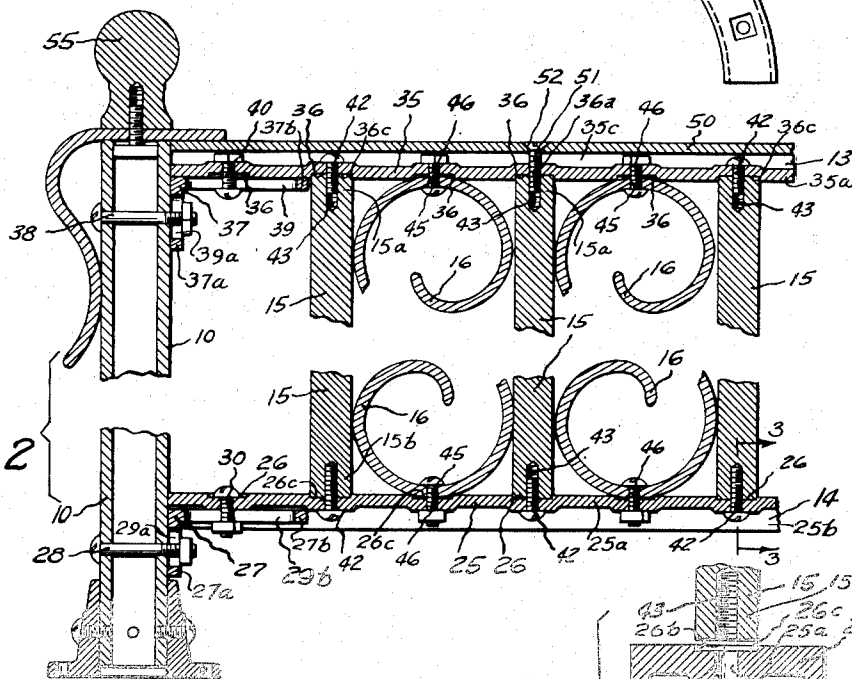


Fig. 2

Fig. 3

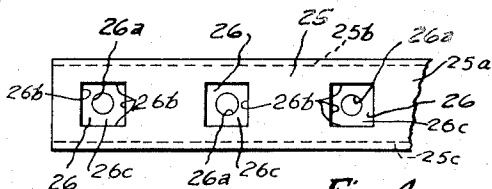
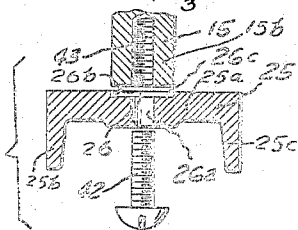


Fig. 4

PHILIP C. LINDMAN
INVENTOR.

BY

Escheringer Ackley

ATTORNEY

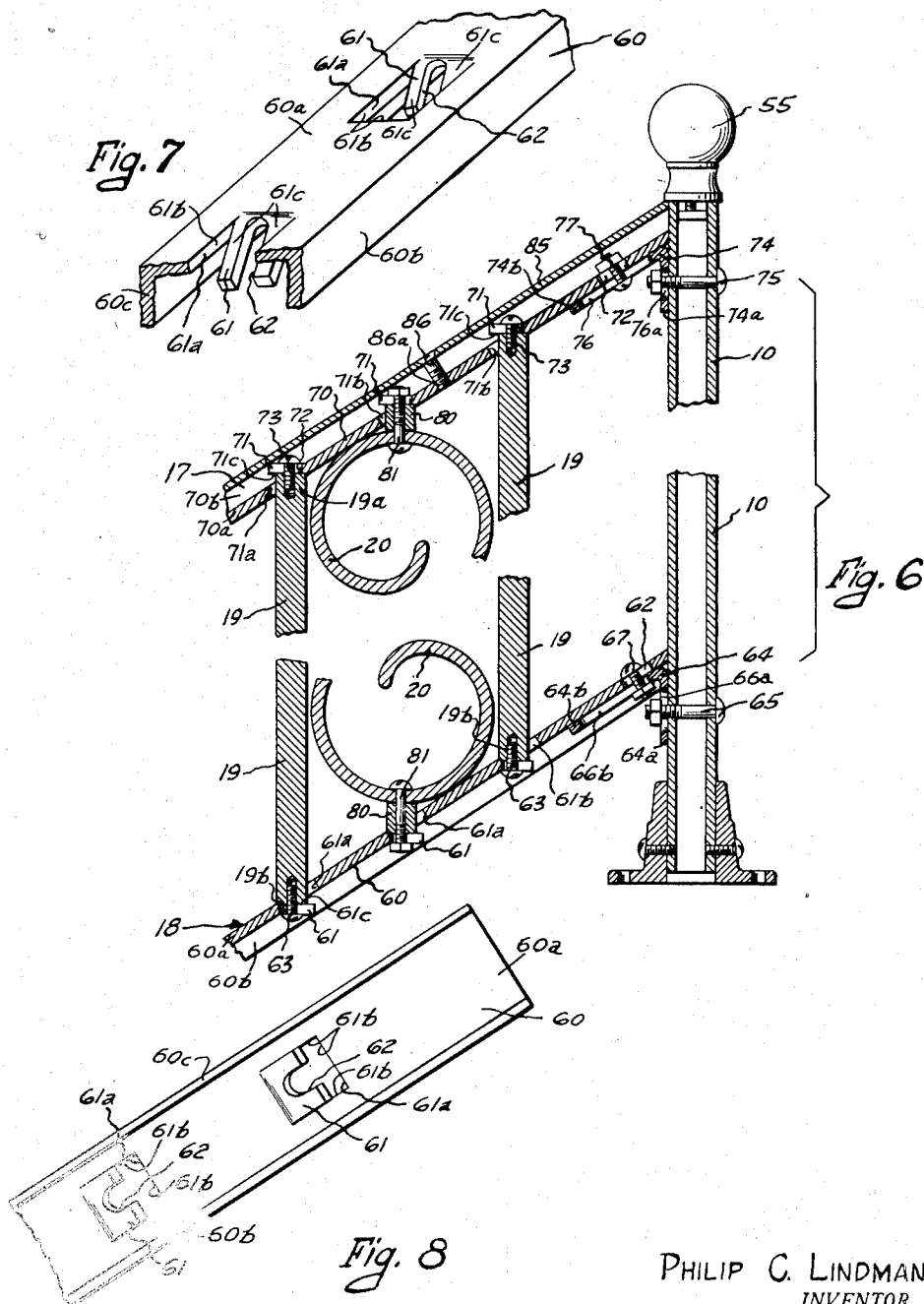
Oct. 13, 1953

P. C. LINDMAN
ORNAMENTAL IRONWORK STRUCTURE

2,655,345

Filed April 22, 1948

2 Sheets-Sheet 2



PHILIP C. LINDMAN
INVENTOR.

BY *Forchheimer & Ackley*

ATTORNEY

UNITED STATES PATENT OFFICE

2,655,345

ORNAMENTAL IRONWORK STRUCTURE

Philip C. Lindman, Dallas County, Tex.

Application April 22, 1948, Serial No. 22,543

11 Claims. (Cl. 256—22)

1

This invention relates to new and useful improvements in ornamental ironwork structures, such as porch and balcony railings, stair railings, fences, gates, trellises, and other ornamental ironwork.

It is one object of the invention to provide ornamental ironwork structures which are so constructed and arranged that all the elements necessary for the erection of the desired structure may be produced in a factory on a quantity basis and transported to the place of installation in a knock-down or disassembled condition and then assembled and erected, at the place of installation, to fit the porch or other structure upon which the ironwork is installed and in an arrangement to suit the desires of the user.

Another object of the invention is to provide an ornamental ironwork structure of the character described which is so constructed and arranged that the pickets, cross members, balusters, scrolls, or other ornamental elements may be interchanged in any desired relationship to suit the desires of the user; such construction also permitting replacement of damaged elements after the original erection of the ironwork structure without requiring removal and returning the entire structure to the factory for such replacement or alteration.

An important object of the invention is to provide, in an ornamental ironwork structure of the character described, upper and lower rail members having spaced non-circular or eccentric upset portions or indentations formed therein for receiving the ends of the pickets, balusters, scroll work, or other ornamental elements, said cross members or other elements having end portions non-circular or eccentric in cross section whereby said elements are positively held in position and are prevented from turning about their longitudinal axis, said indentations also providing for an improved appearance by covering the ends of the pickets or balusters.

A further object of the invention is to provide an ornamental ironwork structure of the character described which includes means for connecting the horizontal railings to the newel posts, walls or other supporting members, and which connecting means is so constructed and arranged that the ironwork structure may be erected with a proper fit regardless of slight errors or variations in measurements.

Still another object of the invention is to provide ornamental ironwork of the character described which may be assembled and erected by unskilled workmen, and wherein additions to or alterations of the ornamental elements may be effected in the installation after the original erection.

Another important object of the invention is to provide an ornamental ironwork structure which is particularly arranged and adapted to

2

be installed as an inclined railing, such as a railing for stairs, ramps and the like, and wherein the upper and lower rails of the structure are so constructed and arranged that the angle of inclination of the complete structure may be adjusted to fit the angle or rake of the ramp or stairway as the structure is installed, whereby the same type of rail may be utilized to fit substantially any inclined installation.

Additional objects and advantages of the invention will readily be apparent from the reading of the following description of a device constructed in accordance with the invention, and reference to the accompanying drawings therein:

Figure 1 is a schematic side elevation of an ornamental ironwork structure constructed in accordance with the invention and illustrating the same as a porch and stair railing,

Figure 2 is an enlarged, longitudinal, vertical central sectional view of a portion of an ironwork railing constructed in accordance with the invention,

Figure 3 is an exploded transverse vertical sectional view taken on the line 3—3 of Figure 2, through the lower end of one of the cross members and the lower rail,

Figure 4 is a top plan view of the lower horizontal rail,

Figure 5 is a view of the under side of a curved rail section,

Figure 6 is a vertical central longitudinal sectional view of a section of inclined ironwork structure,

Figure 7 is an enlarged fragmentary isometric view of a portion of a lower rail of the inclined structure, and

Figure 8 is an underside plan view of the lower rail.

In the drawings, Figure 1, the numeral 10 designates a newel post positioned at the top of a rise of stairs and supporting a horizontal railing section 11 and an inclined railing section 12 of ornamental ironwork. The horizontal railing section includes an upper rail 13 and a lower rail 14 having secured therebetween cross members such as vertical pickets 15 and scrolls or ornamental elements 16. The inclined railing section 12 includes an upper rail 17 and a lower rail 18 between which are mounted cross members in the form of vertical pickets or balusters 19 and ornamental members or scrolls 20. The vertical pickets 15 and the pickets or balusters 19 of the inclined railing section are identical, as are the ornamental members 16 and 20, whereby such members are interchangeable between the various horizontal and inclined sections of the ironwork structure. Furthermore, the ornamental members may take other shapes than the scroll form illustrated, and the vertical

pickets or balusters may be formed of twisted bars, turned bars, or the like.

The details of structure and the manner in which the various elements of the horizontal railing section are assembled is clearly illustrated in Figure 2 of the drawings, wherein it will be seen that the lower railing 14 consists of an inverted channel member 25 having a web portion 25a and sides or flanges 25b and 25c, said web portion having a plurality of uniformly spaced eccentric or non-circular, preferably square or rectangular, upset portions in the form of indentations, displaced portions or depressions 26 formed in its upper surface. Each of the displaced or upset portions forming the indentations 26 provides in the indentations side walls 26b substantially normal to the web and an abutment surface portion 26c integral with the web and displaced inwardly of the depression or opening and inwardly of the surface of the web remote from the flanges or sides of the channel. A screw hole or opening 26a is formed in the center of each upset portion or indentation and extends entirely through the horizontal web portion of the channel 25 (see Figures 3 and 4). The lower rail channel 25 is secured at each end to a newel post 10 or other supporting member (not shown) by means of an angle bracket 27 which has one slotted arm 27a secured by means of a bolt 28 extending through the slot 29a in said arm 27a to the newel post or other support. The other arm 27b of the bracket is provided with an elongate longitudinal slot 29b through which a bolt 30 may be inserted to extend through the one of the central screw holes 26a nearest the end of the channel to securely affix the rail channel to the newel post. The length of the slot 29b in the angle bracket 27 is preferably substantially equal to or slightly greater than the distance between the bolt holes 26a in the lower rail member, whereby variations in length of the rail and the position of the bolt hole 26a through which the bolt 30 extends may be compensated for in such a manner that the bolt will extend through the slot 29b in the bracket to permit the rail channel 25 to be secured to the newel post. The slot in the arm of the angle which is secured to the newel post provides for vertical adjustment of the angle member.

The upper rail 13 of the horizontal railing section includes a channel member 35 which has a web portion 35a and sides or flanges 35b and 35c and is identical in all respects to the lower rail channel 25, but which is positioned upright with the flanges of the channel extending upwardly. Uniformly spaced eccentric or non-circular, preferably square or rectangular upset portions or indentations 36 are formed in the underside of the web 35a of the upper channel 35, and a screw hole 36a is formed centrally of each indentation. Each of the displaced or upset portions forming the indentations 36 provides in the indentations side walls 36b substantially normal to the web and an abutment surface portion 36c integral with the web and displaced inwardly of the depression or opening and inwardly of the surface of the web remote from the flanges or sides of the channel. The upper rail channel is secured to the newel post 10 by means of an angular bracket member 37 which has one slotted arm 37a secured to the newel post by means of a bolt 38 extending through the slot 39a in said arm in the same manner as the lower bracket 27. The upper bracket 37 likewise is provided with

an elongate longitudinal slot 39b in its other arm 37b, and a bolt 40 extends through the slot 39b and through the one of the openings 36a in the upper rail channel 35 nearest its end, whereby the said upper rail channel is secured to the newel post. The slot 39b in the upper bracket 37 is likewise preferably of a length at least equal to the distance between the bolt holes 36a in the upper rail channel, whereby variations in length or in the position of the bolt hole may be compensated for.

It will be seen, therefore, that both the upper and the lower rail channel members 35 and 25 may be accurately fitted against the newel post 10 by cutting said channel members to the exact length required for the particular installation. Furthermore, the provision of the elongate slots 39b and 29b in the upper and lower angle brackets assures that the bolts 30 and 40 will fit into the slots regardless of the position of the end bolt holes in the rail channels.

Cross-pieces or cross members, such as the vertical pickets 15, extend between the upper rail channel 35 and the lower rail channel 25 and have their ends 15a and 15b, respectively, positioned in the indentations 36 in the upper channel and the indentations 26 in the lower channel, as clearly shown in Figure 2. Screws 42 extend through the screw holes in the channels and are threaded into axial threaded openings 43 formed in each end of the pickets 15, whereby the pickets are securely held in place between the channel members with their ends abutting the abutment surface portions 26c and 36c and the sides adjacent the ends engaging the side walls 26b and 36b, respectively, in the displaced portions forming the indentations in the webs of the channel members. Manifestly, the cross members or pickets may be of any desired shape or configuration between their ends to give the desired ornamental appearance. However, it is preferable that the ends of the pickets be square or rectangular in configuration to substantially fit the indentations or depressions formed in the rail members. The ends of the pickets are covered by the side walls of the depressions or indentations in the rail members, whereby a pleasing appearance is obtained when the pickets are secured therebetween.

Ornamental cross members of any desired configuration may also be secured between the upper and lower rail channels, but for the sake of simplicity only the scroll members 16 are illustrated. The scroll members are formed of flat strip metal and have bolt holes 45 formed axially of their extreme ends, whereby bolts 46 may be inserted through said bolt holes and will extend through the screw openings 36a and 26a of the upper and lower rail channels respectively, so that the scroll members may be secured at each end between said upper and lower rail channel members. The width of the strip material from which the scroll members are formed is substantially equal to the width of the indentations formed in the rail channel, whereby the extreme curved end portions of each scroll will fit into said indentations or depressions with the sides engaging the side walls 26b and 36b, respectively, in the manner illustrated in Figure 2 so that the scroll members will be positively held against turning about their longitudinal axis, or about the bolts 46, and will remain in the position illustrated and will be positively held in the plane of the vertical pickets 15.

Obviously, cross-pieces or ornamental members

of other configurations than that of a scroll may be positioned between the upper and lower rail channels and secured therebetween in the same manner as the scroll members. Furthermore, the ornamental members will be held against rotation about their longitudinal axis by the engagement of the ends of the ornamental members in the non-circular indentations formed in the rail channels.

A flat cover plate 50, of a width equal to or slightly greater than the width of the upper channel member 35, rests upon the extreme upper ends of the flanges 35b and 35c of the channel member and is held in place thereon by screws 51 which extend through openings 52 formed in said cover member and downwardly through the bolt openings 36a in the channel member and are threaded into the axial threaded openings 43 of the pickets 15. The cover plate 50 need only be secured at considerably spaced intervals to the upper rail channel, hence the openings 52 may be provided at intervals of six or eight times the intervals of the bolt holes 36a in the channel members. However, if desired, the bolt holes 52 in the cover member may be provided in identical space relationship to the bolt holes 36a of the upper channel member. Furthermore, instead of the screws 51, an ornamental decoration, such as the decoration 55 on the upper end of the newel post, may be provided with a depending screw or bolt which will extend through the screw holes 52 in the cover member and may be threaded into the openings 43 in the pickets 15 to provide a decorative or ornamental substitute for the screws 51.

Manifestly, any desired combination or arrangement of pickets and scrolls, or other ornamental cross members, may be secured between the upper and lower rail channels to meet the desires of the user of the ornamental ironwork structure, and it is within the scope of this invention to provide for such a combination or arrangement of the pickets and ornamental members, so long as the ends of such members or pickets are arranged to engage in the indentations formed in the rail channels and be secured therein by means of the screws or bolts in the manner already described. The indentations and the bolt openings in each of the rail channels are preferably spaced at intervals of about two inches, and it is desirable that picket members 15 be installed and secured in each alternate indentation in the channel members. The scrolls or other ornamental members may therefore be secured in the intermediate indentations between each of the pickets. However, the pickets may be inserted and secured in each of the indentations, or they may be more widely spaced and other ornamental members installed and secured in the intervening or intermediate indentations in order to secure the desired ornamental effect.

The scroll members 16 or other ornamental members are so constructed and arranged that their overall length is equivalent to the overall length of the pickets 15, and the length of each of the pickets is substantially identical, whereby the pickets and the scroll members or other ornamental members are interchangeable. Furthermore, the width of the scroll members or other ornamental members is not greater than the distance between alternate pickets, or multiples of such distance, whereby the scroll members or other ornamental members will fit between the pickets and may be secured in the indentations formed in the channel members.

Since the entire railing structure may be assembled by means of a screw driver and a wrench, it is obvious that an unskilled workman may correctly erect and install the ornamental ironwork structure, and that any desired ornamental effect may be obtained by utilizing pickets or scrolls or other ornamental members of any desired shape and arrangement.

The cover member 50 obscures the bolts, nuts and screw heads in the upper channel 35 and presents a smooth, attractive, comfortable hand grip for the upper surface of the upper rail 13.

It is important to note that the channel members 35 and 25 are identical in configuration and may be formed in great quantities by mass production methods. Also, the scroll members and pickets are likewise of uniform interchangeable dimensions and may also be formed in great quantities by mass production methods. Due to the fact that the complete structure may be disassembled into integral elements, the complete ornamental iron framework structure may be packed into a smaller container than would be necessary if it were shipped in an erected condition such as is necessary when the structure is welded or otherwise fabricated. This permits shipping with less danger of damage to the structure, and also provides for more economical packaging and shipping of the structure.

Since the various ornamental elements of the ironwork structure may be removed by unscrewing the screws or disconnecting the bolts or screws holding the members in place between the rail channels, it will also be seen that at any time after the structure has been initially erected the ornamental effect may be altered or added to by the user by simply adding or inserting different ornamental members or changing the arrangement of such members in the structure to obtain the desired effect. Also, should one or more of the pickets or ornamental members become damaged, it may readily be replaced in each section of the structure at its place of use without the necessity of tearing down the complete structure and returning it to the factory for repair.

Manifestly, the upper and lower rail channels may be formed in short arcuate sections, such as that illustrated in Figure 5 of the drawings, to provide for curved or angular sections in the ironwork structure. Other than being arcuate in form, the curved channel is identical in structure to the straight rail channels.

The details of structure and the manner of assembling of the elements of the inclined railing section 12 are illustrated in Figures 6 through 8 inclusive, wherein the lower rail 18 is formed by an inverted channel member 60 having a web portion 60a and sides or flanges 60b and 60c with its flanges extending downwardly. A plurality of uniformly spaced displaced or upset portions in the form of longitudinally extending tongue or lug members 61 are formed in the transverse web portion 60a of the channel member by cutting through the web or base portion of the channel member on three sides of the tongue member and bending said tongue member inwardly into the channel along the uncut side of such tongue member at an angle of about thirty degrees, or any other desired suitable angle. Elongate longitudinally extending holes or notches 62 are formed in each of the tongue members, extending inwardly from the free end of the tongue toward the uncut rear side of said tongue, as clearly shown in Figures 7 and 8, for receiving screws 63 by means of which the vertical pickets

or balusters 19 or the scrolls 20 or other ornamental cross members may be secured to said rail channel, as will hereinafter be more fully explained. The displaced portions or openings forming the openings 61a at the tongue members 61 provide side walls 61b substantially normal to the web and an abutment surface portion 61c on the surface of the tongue integral with the web and disposed inwardly of the opening and inwardly of the surface of the web remote from the flanges or sides of the channel.

The lower rail channel is connected at each end to a newel post 10 by means of an angle bracket member 64 which has one slotted arm 64a positively secured to said newel post by a bolt 65 extending through the newel post and the slot opening 66a in said arm of the bracket member. The other arm 64b of the bracket has formed therein an elongate longitudinally extending slot 66b through which a bolt 67 may be inserted to extend through one of the holes or notches 62 formed in the web portion of the lower rail channel 60 for securely affixing said lower rail channel to the newel post. The tongue member in which such notch is formed is flattened into the plane of the web prior to connection to the angle. The length of the slot 66b is preferably at least equal to the space between adjacent notches in the rail channel tongues.

The upper inclined rail 17 of the inclined railing sections includes an upper rail channel 70 which has a web portion 70a and sides or flanges 70b and 70c and is identical in all respects to the lower rail channel 60, having uniformly spaced displaced or upset portions 70a in the form of longitudinally extending tongue or lug members 71 formed in the transverse web portion of said channel by cutting through the web portion of the channel on three sides of the tongue member and bending the tongue member inwardly into the channel along the uncut sides of such tongue member at the desired angle. The displaced portions or openings forming the openings 71a at the tongue members 71 provide side walls 71b substantially normal to the web and an abutment surface portion 71c on the surface of the tongue integral with the web and disposed inwardly of the opening and inwardly of the surface of the web remote from the flanges or sides of the channel. The upper rail channel, however, is positioned upright so that the flanges are directed upwardly. Elongate longitudinally extending holes or notches 72 are formed in each tongue member 71 of the upper rail channel and are adapted to receive screws 73 which extend through the notches and into the threaded axial openings in the picket members or balusters 19 for securely holding said picket members or balusters in place between the upper and lower rail channels.

It will be seen that the upper and lower end portions 19a and 19b, respectively of the pickets or balusters extend into the openings formed in the transverse web portion of the upper and lower channel members and abut against the abutment surface portions 61c and 71c of the bent tongue members, whereby engagement of the square or rectangular pickets or baluster members with the sides 61b and 71b, respectively, of the openings prevents the pickets or balusters from turning about their longitudinal axis. Furthermore, the sides of the opening and the flanges of the rail hide or conceal the ends of the pickets or baluster members whereby a pleasing appearance is obtained.

Scroll members 20 or other ornamental members may be secured between the upper and lower rail channels in the manner illustrated in Figure 6, a rectangular spacer member 80 being inserted between the extreme ends of the scroll members and the inclined tongues 71, whereby the scroll members abut against the substantially horizontal lower ends of the spacer members and are secured by bolts 81 extending through the holes in the extreme ends of the scroll members, through the spacer members and through the notches 72 in the tongue members.

The upper rail channel 70 is secured to the newel post by means of an angle bracket 74 which has one slotted arm 74a affixed to the newel post by a bolt 75 extending through said post and the slot opening 76a in said arm of the bracket member, the other arm 74b of the bracket being provided with an elongate longitudinally extending slot 76b which is adapted to receive a bolt 77 which extends through said slot and through the one of the tongue member notches 72 in the transverse web portion of the upper rail channel nearest the end of the channel, whereby said rail channel is secured in place to the newel post. The tongue member is flattened into the plane of the channel web prior to making each connection.

A cover member or plate 85 having a width substantially equal to or slightly greater than the width of the upper channel member 70 rests upon the extreme upper ends of the side flanges 70b and 70c of the channel member and is secured in place thereon by means of screws 86 which extend through openings formed in said cover member and spaced from each other the same distance as the holes 52 of the cover plate 50 already described for the non-inclined rail. The screws are threaded into holes 86a tapped in the web of the upper inclined channel at points spaced to correspond to the spacing of the holes in the cover plates. Thus, the same cover plate may be used for both the inclined and non-inclined rails. The spacing of the openings formed in the cover member may be in a desired multiple of the spacing between tongue members, whereby each cover member may be secured in place on the upper channel at the desired number of points necessary to properly secure the cover against displacement.

In use, the pickets and scroll members are all connected between the upper rail channel 70 and the lower rail channel 60, and the rail channels are secured at one end to one of the newel posts on the inclined stair or ramp. If the angle of the assembly is not correct for fitting the angle or rake of the stairs, the upper rail channel may be pressed downwardly or lifted upwardly to the correct position. The angle bracket members 64 and 74 and the tongue members 61 and 71 are bendable, and the notches in the tongue members allow the screws or bolts extending there-through to move, to permit such adjustment, so that the angle or rake of the stair railing may be changed as desired to fit any stair or ramp. When the correct angle of the inclined railing section has been obtained by such adjustment, the other ends of the rail channels are secured by means of slotted obtuse angle brackets (not shown) to the lower newel post in the same manner as the upper ends are secured by means of the acute angle brackets to the upper newel post.

Obviously, the selection and arrangement of the pickets or balusters and the ornamental scrolls or other ornamental cross members se-

cured between the upper and lower rail channels may be varied to suit the desires of the user. The changes or alterations in the arrangement may be made in the same manner as the alterations were made in the horizontal section of the railing.

It is important to note that upset portions forming the openings 71a and 61a in the upper and lower rail channel members are sufficiently long and spaced sufficiently far apart to permit a considerable variation in the angle of the railing and yet to be adequate to receive and accommodate the ends of the picket members and the spacer members for the ornamental members or scrolls. Furthermore, the sides of the openings will prevent rotation of the picket or baluster members and the scroll members about their longitudinal axis.

It is particularly important to note that the entire inclined rail section may be assembled and one end connected to the newel post at the upper end of the stairs, or at the lower end of the stairs if desired, whereupon the angle at which the inclined railing section extends may be varied by pressing upwardly or downwardly upon the loose end of the railing section to bring the loose end to the desired position. The flexing of the tongue members about their uncut edge, the flexing of the angle brackets, and the provision of the notches in the tongue members and slots in the angle brackets, permit such adjustment in angle of the assembled inclined railing section. The elongate slots 66b and 76b in the angle brackets also permit a variation in position in the bolts 67 and 77 extending through the slots or notches formed in the tongue members, whereby it is assured that the rail channels may be positively connected to the newel posts.

It will be seen that the displaced or upset portions providing the indentations 26 form spaced displaced portions or openings in the web portion of the rail channel members providing in the indentations side walls 26b substantially normal to the web and an abutment surface portion 26c integral with the web and disposed inwardly of the opening and inwardly of the surface of the web remote from the flanges or sides of the channel. Likewise, such displaced portions or openings forming displaced portions or openings 61a at the tongue members 61 provide side walls 61b substantially normal to the web and an abutment surface portion 61c on the surface of the tongue integral with the web and disposed inwardly of the opening and inwardly of the surface of the web remote from the flanges or sides of the channel. The ends of the cross members thus abut the abutment surface portions 26c or 61c and the sides 26b and 61b, respectively, of the openings formed by the indentation or the tongue member opening. Since the upset portions providing the tongue members and indentations formed in the upper and lower rail channel members are eccentric or non-circular, it is manifest that the non-circular or eccentric cross-sectional ends of the pickets, balusters, scrolls and other ornamental cross members engaging in such indentations are positively held against rotation about their longitudinal axis, whereby the ornamental arrangement is preserved. Furthermore, the engagement of the ends of the pickets, scrolls, etc., abutment with the upset portions forming in such non-circular indentations and the engagement of the sides of the pickets, scrolls, etc., with the side walls of the upset portions or indentations provides for a rigid

substantial ironwork structure, of smooth, pleasing appearance.

The foregoing description of the invention is explanatory only, and changes in the details of the constructions illustrated may be made by those skilled in the art, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. An ironwork structure including, a first rail member having spaced upset portions in the form of eccentric indentations formed in one surface thereof, a second rail member spaced from said first rail member and having spaced upset portions in the form of eccentric indentations formed in one surface, the surfaces of said rail members having the indentations therein being positioned to face each other, baluster cross members each having an eccentric end portion at each end, said cross members extending between said rail members and each having one end portion disposed in one of the indentations in one rail member and its other end portion disposed in one of the indentations in the other rail member, releasable connecting means extending through the rail member into the ends of the cross members for securely detachably connecting the ends of the cross members to said rail members and positively detachably holding said end portions in abutting engagement in said indentations, ornamental members of an overall length substantially equal to the length of said cross members and extending between said rail members, and connecting means extending through the rail members and engageable with the ends of said ornamental members for securely detachably connecting the ends of said ornamental members to said rail members, each ornamental member having one end portion in abutting engagement in one of the eccentric indentations in one of the spaced rail members and its other end portion in abutting engagement in one of the eccentric indentations in the other rail member, the engagement of said end portions of the ornamental members in said indentations holding said ornamental members against rotation about their longitudinal axis.

2. An ornamental ironwork structure of the character set forth in claim 1, wherein the ends of the spaced elongate rail members are detachably and adjustably secured to supporting means, the means for connecting each of said rail members to said supporting means including a bracket member having an elongate slot formed therein for receiving a bolt extending through a rail member and through said slot whereby the position of the bolt with respect to the bracket member may vary throughout the length of the slot in the bracket to compensate variations in the position of such bolt with respect to the end of the rail member.

3. An ironwork structure including, spaced elongate rail members each having a plurality of uniformly spaced eccentric upset portions formed therein facing toward the other rail member, said upset portions being in the form of tongue members connected at one end with said rail member at one end of the slot and bendable along the line of juncture, cross piece members having eccentric ends, said cross members extending between said rail members and each having one end disposed in one of the upset portions in one rail member and securely detachably connected in abutting engagement to the tongue

member at such upset portion, said cross piece members each having its other end disposed in one of the upset portions in the other rail member and securely detachably connected in abutting engagement to the tongue member at such upset portion.

4. In an ironwork structure having spaced rail members and connecting cross piece members releasably connected with said rail members, means on the rail members for positioning the cross piece members with respect to said rail members and including, a rail member in the form of a channel section having sides with a web portion joining the sides, said web portion having spaced upset portions formed therein in the form of longitudinally extending tongue members each connected at one end with the web of the channel member, said tongue members being otherwise free of connection with the channel member and bendable along the line of juncture with the web of the channel member, each tongue member having an elongate longitudinal hole formed therein.

5. As a new article of manufacture, a rail member for an ornamental ironwork structure, which rail member comprises an elongate channel having sides with a web portion joining the sides, said web portion having a plurality of spaced upset portions formed therein in the form of eccentric indentations formed in the surface of the web portion of the channel facing away from the sides of said channel, said channel having an opening smaller than the indentation extending through the web portion in each indentation.

6. As a new article of manufacture, a rail member for an ornamental ironwork structure, which rail member comprises an elongate channel having sides with a web portion joining the sides, said web portion having a plurality of spaced upset portions formed therein in the form of eccentric longitudinally extending tongue members integral with the web portion of the channel and projecting at an angle therefrom between the sides of the channel, each tongue member having an elongate longitudinal hole therein, said tongue members being bendable along the line of juncture of said tongue members with the web portion of the channel.

7. In an ironwork structure having spaced rail members and connecting cross piece members releasably connected with said rail members, means on the rail members for positioning the cross piece members with respect to said rail members and including, a rail member element having a body portion, said body portion having spaced upset portions therein in the form of longitudinally extending tongue members each connected at one end with the rail member, said tongue members being otherwise free of connection with the rail member and bendable along the line of juncture with the rail member, each tongue member having an elongate longitudinal opening formed therein, cross members each having one end disposed in one of the upset portions abutting the tongue member, and means extending through each of said longitudinal openings for detachably securing each of said tongue members to the end of an associated cross member.

8. An ironwork structure including, a pair of elongate rail members, each of said rail members being in the form of a channel having a web and a pair of parallel side flanges, said web being provided with a plurality of longitudinally spaced

upset portions, and a tongue member at each upset portion integral with said web and projecting at an angle therefrom between the side flanges of the channel, said rail members being disposed in spaced parallel relation with the webs of the channels nearest each other; and a plurality of cross piece members extending between the webs and having eccentric end portions of substantially the same cross-sectional configuration as said openings, opposite ends of each cross piece member being disposed in corresponding openings of the webs and abutting the tongue members at the openings; and means detachably securing the tongue members to the ends of the cross piece members.

9. An ornamental ironwork structure including: a first channel section having sides with a web portion joining the sides, a second channel section having sides with a web portion joining the sides, said second channel member being disposed parallel to said first channel member with their web portions nearest each other; cross members joining the web portions of the channel sections, said cross members having ends of eccentric configuration; spaced upset portions in the web portions of the channel sections, said upset portions forming spaced openings defined by portions of the web providing side walls substantially normal to the web and an abutment surface portion integral with the web and disposed inwardly of the opening and inwardly of the surface of the web remote from the sides of the channel and being of a shape conforming substantially to the eccentric configuration of the ends of the cross members; said cross member ends abutting the abutment surface portion of the openings and engaging corresponding side walls defining said openings; each of said upset portions being provided with an aperture in the abutment surface portion; and securing means extending through said apertures into securing engagement with the ends of the cross members, the space between the sides of each channel member providing access to the securing means for securing the cross members in place to said channel members with the ends of said cross members engaged in the openings and held against rotation in said openings, and the sides of the channel member laterally concealing the securing means.

10. An ornamental ironwork structure of the character set forth in claim 9, wherein the upset portions in the web portions in the channel sections are in the form of eccentric indentations in said web portion.

11. An ornamental ironwork structure of the character set forth in claim 9, wherein the upset portions in the web portions in the channel sections are in the form of flexible tongue members.

PHILIP C. LINDMAN.

References Cited in the file of this patent UNITED STATES PATENTS

Number	Name	Date
320,692	Ready	June 23, 1885
523,898	Knox	July 31, 1894
1,575,208	Jacobs	Mar. 2, 1926
1,757,686	Rosenbaum	May 6, 1930
1,772,159	Roth	Aug. 5, 1930
1,791,680	Miller	Feb. 10, 1931
1,796,175	Winston	Mar. 10, 1931

FOREIGN PATENTS

Number	Country	Date
100,807	Australia	Apr. 14, 1937