

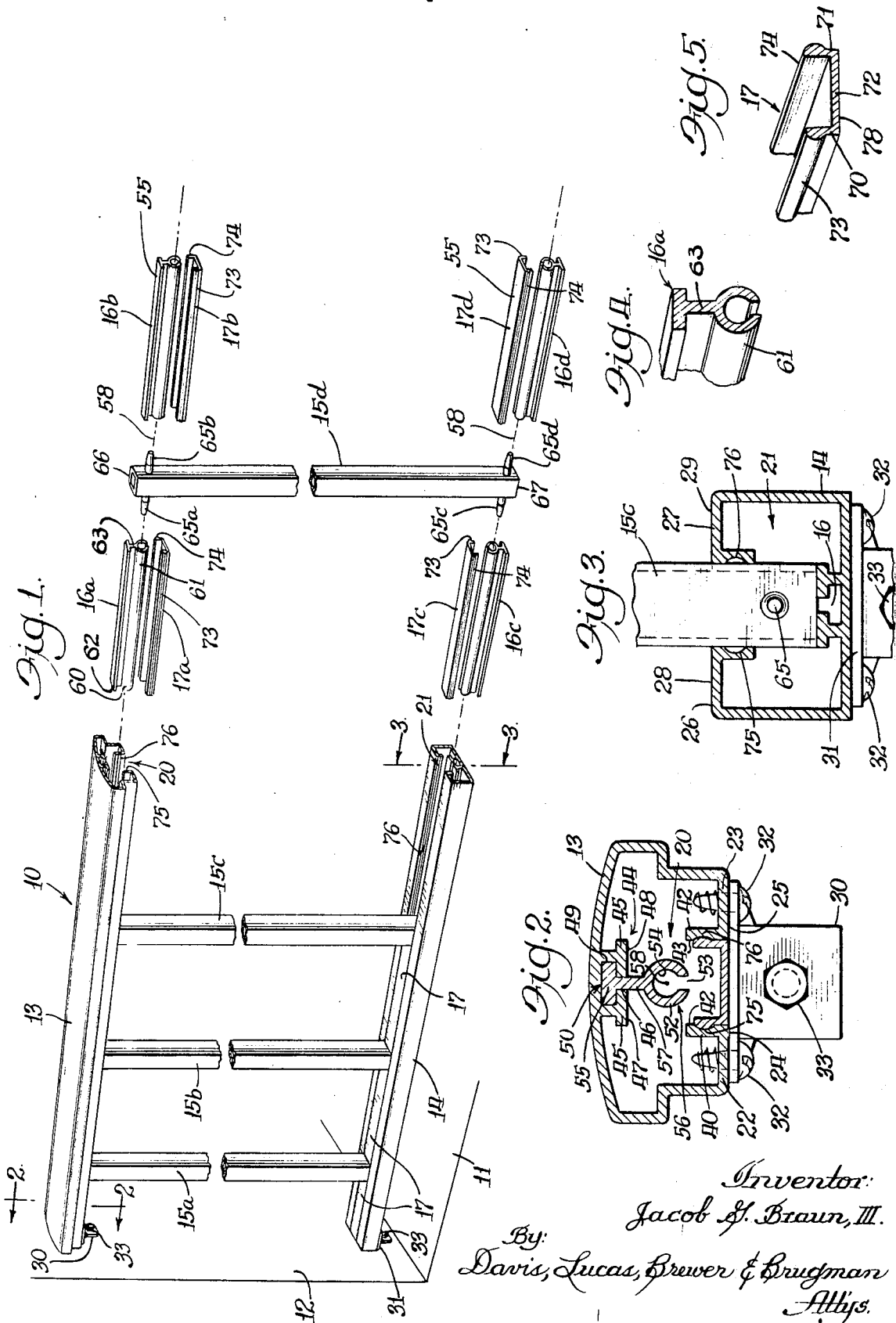
Aug. 4, 1970

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3,522,933

RAILING FORMED OF INTERLOCKING COMPONENTS

Filed April 23, 1969



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3,522,933
**RAILING FORMED OF INTERLOCKING
COMPONENTS**

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Filed Apr. 23, 1969, Ser. No. 818,694

Int. Cl. E04h 17/16

U.S. Cl. 256—22

6 Claims

ABSTRACT OF THE DISCLOSURE

A railing structure assembled of co-operable interlocking rails, balusters and baluster connectors. The rails are provided with channels having recessed keyways extending the length of the rails to receive an end portion of the balusters and the baluster connectors. The balusters are provided at their end portions with concentric oppositely extending pins, and the baluster connectors are provided with end socket portions adapted to co-operably receive and hold the pins. The baluster connectors include key-
portions by which they are engaged for sliding movement within the keyways along the rails and are disposed in pairs with respect to each baluster, there being one at each side of such baluster to rigidly interconnect and interlock the baluster with the rail, and to determine spacing between adjacent balusters.

BACKGROUND OF THE INVENTION

This invention relates generally to the field of railings and is particularly directed to an ornamental railing which is readily assembled of co-operable interlocking railing components.

Railings of ornamental character, especially those constructed of metal, are widely used for architectural purposes. In general, such railings are fabricated by joining metal rails balusters, and suitable ornamental filigree in welding or brazing operations. Such fabrication is generally performed in iron-work shops, after which the railings are transported to the construction site for final installation by attachment to suitable supporting structures such as, for example, walls and posts. Further, the railing components are generally not manufactured by the iron-work shop, but are purchased from mill-type suppliers of architectural metal shapes in standard lengths, shapes and sizes. Such railings consequently require the services of skilled fabricators employing costly fabrication machinery, and, after fabrication, are cumbersome to transport and ship.

It will thus be readily appreciated that such conventional railings are not suitable for fabrication and use by non-skilled persons. For example, the large class of potential purchasers comprising the "do-it-yourself" home owner is substantially precluded from the market for ornamental railings for their personal use. A further disadvantage of such conventional railings is the high cost of their fabrication; the shortage of skilled fabricators; and the cost of transporting fully-fabricated railing assemblies to the installation site.

SUMMARY OF THE INVENTION

This invention overcomes the disadvantages of the conventional railings described hereinabove by providing a railing which is readily assembled at the actual site of installation by the simple joinder of associated railing components which are co-operably interlocked in manual assembly to provide a rigid, attractive and economical railing structure.

Briefly, the railing of this invention includes rail components each of which is provided with a channel extending the length of the rail, which channels have grooved

keyways in their root portions to slidably receive co-operable baluster connectors. The baluster connectors have a socket at each end to receive pins fixed to the end portion of associated balusters. A pair of such pins are provided adjacent each end of the balusters and are arranged to extend concentrically in opposite directions therefrom. A baluster is positioned with an end portion within the channel of a rail and between a pair of spaced apart baluster connectors. One baluster connector is then engaged with the pin at one side of the baluster, and the other baluster connector is engaged in a like manner with the pin at the other side of the baluster. As thus interconnected, the baluster is rigidly held in position in the rail. Successive balusters are then interconnected in a like manner with the rail by engagement of their respective pins with successive baluster connectors. The open portion of the channels in the rails is covered by plug members which are slipped into the openings to provide a flush surface over the extent of the rail in which the channel is formed.

Advantageously, the railings of this invention are compactly arranged in easily handled unit packages for shipment directly to the installation site. In addition, the simplicity of assembly benefits both the skilled installer and the "do-it-yourself" home owner. For example, the skilled installer avoids the use of welding equipment and fabricating jigs, both of which must be used in a fabricating shop separate from the installation site, and with the sole use of a mallet quickly assembles the railing at the installation site upon any relatively flat surface available there. As for the average home owner, there is now available a metallic ornamental railing, which may be purchased in component form at a conventional market, from which it is inexpensively shipped and delivered to his home, and is easily assembled by him using only a mallet to drive the interlocking baluster connectors into firm engagement with the associated pins of the balusters.

It is, therefore, an object of my present invention to provide a railing structure assembled of co-operable interlocking rails, balusters and baluster connectors.

A further object of my present invention is to provide a railing structure which is assembled of interlocking rails, balusters and baluster connectors; which rails, balusters and connectors are readily formed by conventional machinery used by suppliers of architectural metal shapes.

It is another object of my present invention to provide a railing structure employing interlocking rails, balusters and baluster connectors which are readily manufactured by suppliers of architectural metal shapes in economical production runs, and which are stocked in units for gathering, compact packaging, and economical shipment to fulfill customers orders.

Another object of this invention is to provide a railing structure assembled of co-operable interlocking rails, balusters and baluster connectors, the rails being provided with channels having tracks arranged to slidably receive baluster connectors, which connectors are provided with socket portions at their opposite ends formed to receive associated concentric oppositely extending pins provided adjacent the ends of the balusters to firmly seat the baluster against the track and to restrain the baluster from movement with respect to the rail.

These and further objects and advantages will be more fully appreciated from the following description and related drawings in which:

FIG. 1 is an isometric view of the railing of my invention, and in which a portion of the railing comprising one baluster and its associated baluster connector and plug members are illustrated in an exploded part view;

FIG. 2 is a lateral cross-sectional view of the hand rail of FIG. 1 taken along the section line 2—2 thereon and looking in the direction of the arrows thereof;

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FIG. 3 is a lateral cross-section of the bottom rail of FIG. 1 taken along the section lines 3—3 thereon and looking in the direction of the arrows thereof;

FIG. 4 is a fragmented isometric view of one end portion of one baluster connector of the exploded portion of FIG. 1; and

FIG. 5 is a fragmented isometric view of one of the plug members illustrated in the exploded portion of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The most comprehensive illustration of the presently preferred embodiment of the railing of my invention is shown in FIG. 1, wherein the railing, designated generally by the numeral 10, is illustratively shown in a partially assembled condition with its constituent interlocking elements shown in an exploded part view. Illustratively, the railing 10 is shown in FIG. 1 installed in a vertically oriented position adjacent the outer edge of a platform 11, and is attached at the left-hand end thereof to a wall 12 which determines the corresponding extent of the platform 11. The railing 10 would typically be supported at its other end by attachment to another wall, or to a conventional support post, neither of which forms a part of this invention and consequently are not shown in the drawings. It will be observed in FIG. 1 that the railing 10 comprises generally an elongated hand rail 13, a companion bottom rail 14, a plurality of like balusters 15a, 15b, 15c and 15d, a correlative plurality of spacer-socket members 16 and a like plurality of associated plug members 17. These constituent elements of the railing 10 are typically formed of an architecturally suitable material, such as, for example, steel, aluminum, bronze and other metal alloys, and plastics.

Referring for illustration to FIG. 1, the hand rail 13 and the bottom rail 14 are of equal length, and are provided with like channels 20 and 21 formed respectively in, and extending the length of, the underportion of hand rail 13 and the upper portion of bottom rail 14. The channels 20 and 21 serve the identical function in the hand rail 13 and the bottom rail 14, i.e., to receive spacer-socket members 16 and the corresponding outer end portions of the balusters 15 to interconnect the balusters 15 with the hand rail 13 and the bottom rail 14. Inasmuch as the channel 20 of the hand rail 13 and the channel 21 and bottom rail 14 are identical structurally and functionally, only channel 20 will be described hereinafter in detail. In other respects the hand rail 13 and the bottom rail 14 differ in their external configuration; such configuration being dictated principally by function and appearance criteria.

As shown at the left-hand end of the view of the railing 10 of FIG. 1, the hand rail 13 and the bottom rail 14 are attached to the wall 12 by angle brackets 30 and 31, respectively, which are disposed under the rails to shelter them from view. The brackets 30 and 31 are fastened to their corresponding rails 13 and 14 by conventional fastening means, such as the sheet metal screws 32, and to the wall 12 by insert shields and associated bolts 33, all of which are well-known in this art. As indicated hereinbefore, the railing 10 will typically be attached and supported at its other end by similar fastening means.

Referring particularly now to FIG. 2 and FIG. 3, it will be observed that the hand rail 13 and the bottom rail 14 are generally tubular in form, and that the tubular walls of the rails define the interior and exterior surfaces thereof. However, it will be understood from the ensuing detailed description of the channels 20 and 21, that the rails 13 and 14 may have numerous different structural forms which embody the structure and function of the channels 20 and 21, but which are particularly suited to the material of which the rails are formed and the manufacturing process employed. The channel 20 is arranged centrally of the hand rail 13 and divides the underside

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thereof into two parallel laterally spaced underportions 22 and 23 having coplanar underfaces 24 and 25, respectively. The like channel 21 of bottom rail 14, as shown in FIG. 3, similarly divides the upper portion of bottom rail 14 into two parallel laterally spaced upper portions 26 and 27, having coplanar upper faces 28 and 29. Specifically, channel 20 is formed by a pair of laterally spaced inwardly turned flange walls 40 and 41, having substantially planar parallel facing side wall surfaces 42 and 43 respectively and a root portion 44 disposed interiorly of the hand rail 13 and centrally between the side wall surfaces 42 and 43. The side wall surfaces 42 and 43 are spaced apart a distance slightly greater than the width of the balusters 15 to receive the associated end portions thereof in an intimate slip-fit manner, and thereby brace the balusters 15 laterally in the rails 13 and 14. The channels 20 and 21 are formed to extend continuously the entire length of the rails 13 and 14 and with both ends thereof open. However, one end of each of the rails 13 and 14 of this embodiment is provided with a conforming end cap completely enclosing the end of the rail to establish a block to facilitate assembly of the railing 10. As viewed in FIG. 1, the caps (not shown) are disposed at the left-hand end of the railing 10 and are attached to the rails as by welding or brazing. The right-hand end of the rails 13 and 14 is open to receive the spacer-socket members 16, as will be more fully described hereinafter.

The root portion 44 of channel 20 is illustrated most clearly in FIG. 2, where it is shown in right cross-section. As shown there, root portion 44 includes a step portion 45 which is divided by a central slot 46 into two laterally spaced portions having coplanar outer faces 47 and 48. The coplanar outer faces 47 and 48 are parallel to the under-faces 24 and 25 of rail 13, and provide a uniform bearing surface against which the associated terminal end surface of the balusters 15 are seated upon assembly therewith. Preferably, the step portion 45 has a width at least equal to the lateral width of the balusters 15 to obtain full bearing therebetween. The central slot 46 communicates with an interior keyway 49, and which combine to provide a longitudinally extending open track 50 having a T cross-sectional configuration. Track 50 provides a continuous slideway arranged to co-operably receive the spacer-socket members 16.

In the assembly of the railing 10 the spacer-socket members 16 serve to removably interconnect the balusters 15 with the rails 13 and 14, and to space the balusters therealong. For the purpose of simplicity of description, the spacer-socket members 16 of this embodiment are equal in length to provide uniform spacing of the balusters 15 along the rails 13 and 14. However, it will be appreciated that while corresponding upper and lower pairs of the spacer-socket members 16 are necessarily of equal length, successive pairs may be of unequal length to provide random or unequal spacing of the balusters 15. Inasmuch as the spacer-socket members 16 of this embodiment are alike both structurally and functionally, only those spacer-socket members associated directly with baluster 15d and denoted as 16a, 16b, 16c, and 16d in the exploded portion of FIG. 1, will be particularly referred to in this description. Further, only spacer-socket member 16a, as typical of all of the spacer-socket members 16, will be described structurally in detail, utilizing numerals which will be referred to as common in each of the other spacer-socket members 16.

The spacer-socket member 16a includes an elongated key portion 55 and a co-extensive tubular portion 56 which are interjoined longitudinally by an integral web portion 57. As shown at FIG. 2, the spacer-socket member 16a is dimensioned to lie entirely within the channel 20 of the rail 13, and is thus completely concealed when assembled therewith. The elongated key portion 55 and a portion of the web 57 adjacent thereto define a T lateral cross-section which conforms dimensionally with the as-

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sociated track 50. Preferably, the key portion 55 and the associated track 50 are formed to provide a snug fit therebetween so that a light force is required to move the spacer-socket member 16a longitudinally along the rail 13. As thus constructed, the spacer-socket member 16a will remain where positioned and will not become disengaged with the rail 13 during the normal movement thereof during assembly. The longitudinal axis 58 of the tubular portion 56 is parallel to the central axis of the key portion 55 so that when the spacer-socket member 16a is assembled with the rail 13 the axis 58 is also parallel to the co-planar outer faces 47 and 48 of the step portion 45. Referring now to FIG. 1, it will be observed that each of the opposite end portions 60 and 61 of the tubular portion 56 of the socket member 16a is arranged to receive a corresponding pin of adjacent balusters 15c and 15d. To provide gripping engagement of the pins 65, the diameter of the inner cylindrical wall 54 of the end portions 60 and 61 is slightly less than the outside diameter of the pins, and the wall of the tubular portion 52 is slit, as indicated by numeral 53 along the longitudinal extent thereof opposite the web 57 to permit limited forced separation of the tubular halves thereof. Thus, when a pin is pressed into a corresponding end portion 60 or 61, the wall halves are forced apart to accept the pin which is consequently gripped therebetween.

The end faces 62 and 63 of the socket member 16a corresponding with the opposite end portions 60 and 61, respectively, are shaped to conform with the configuration of the side wall of the baluster 15c or 15d associated therewith. Since, in this embodiment, the balusters 15 have a square cross-section, the end portions 62 and 63 define a plane normal to the longitudinal axis 58 of the spacer-socket member 16a. Consistent with this arrangement, it will be appreciated that spacer-socket members used with, for example, round balusters, would be formed with semi-cylindrical opposite end surfaces to intimately and bearingly receive the corresponding wall surfaces of such round balusters. As thus constructed, a baluster 15 sandwiched between a pair of opposing spacer-socket members 16 is buttressed firmly against movement along the rail 13 and is also restrained against angular movement with respect thereto.

Each of the like balusters 15 is provided with a pair of coaxially arranged, oppositely extending, pins adjacent each end thereof. Typically, baluster 15d, shown in the exploded view of FIG. 1, has a pair of coaxially arranged cylindrical pins 65a and 65b, adjacent the upper end 66 thereof, and a like pair of cylindrical pins 65c and 65d adjacent the bottom end 67 thereof. The outer end portion of the shank of each of the pins 65a, 65b, 65c and 65d is tapered to facilitate the engagement of the pins 65 in the corresponding sockets 60 and 61 of the spacer-socket members 16. The pins 65a, 65b, 65c and 65d of baluster 15d extend at right angles therefrom and are preferably spaced from the corresponding upper and lower end surfaces 66 and 67 of balusters 15d a distance slightly greater than the distance between the socket portion 56 of the spacer-socket members 16 and the co-planar outer faces 47 and 48 of the step portion 45 when assembled with rail 13. As thus arranged, the outer end surface 66 of the baluster 15d is driven into pressure engagement with the co-planar outer faces 47 and 48 of the step portion 45 of rail 13 to firmly seat the outer end surface 66 thereagainst when the baluster 15d is assembled between a pair of opposed spacer-socket members 16a and 16b. It will be readily appreciated that firmly seating the end of each baluster against the step portions of the rails 13 and 14 contributes to the rigidity of the railing 10. Quite obviously, while the pins 65 have a circular cross-sectional shape in this embodiment of my invention, the pins may also suitably be formed with polygonal or irregular shapes and the sockets 60 and 61 shaped to conform therewith.

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Referring again to FIG. 1, it will be observed that a plurality of plug members 17, equal in number to the number of spacer-socket members 16, are provided to cover the open portions of the channels 20 and 21 defined in the rails 13 and 14, respectively, and adjacent and between the assembled balusters 15a, 15b, 15c, and 15d. The open space between successive balusters 15 is determined by the length of the respective pair of spacer-socket members 16 therebetween. Consequently, to cover the full extent of the openings in the channels 20 and 21, the plug members are formed to the same length as the spacer-socket members 16 which determine the extent of particular channel openings. Thus in this embodiment of my invention, wherein all of the spacer-socket members 16 are of equal length, the plug members 17 are equal in length to the spacer-socket members 16 and to one another. However, in railings utilizing unequal spacing of balusters, the plug members 17 are formed to various lengths corresponding to the various lengths of the spacer-socket members used, and are preferably stocked in pairs with a pair of spacer-socket members of the same length. This is exemplified in the exploded portion of FIG. 1 where it will be observed that the four plug members shown there, 17a, 17b, 17c, and 17d, correspond and are associated with the respective spacer-socket members 16a, 16b, 16c, and 16d. Referring now to FIGS. 2 and 5, the plug 17a will be described in detail as typical of all of the plug members 17. As illustrated in the fragmented view of the plug member 17a, shown at FIG. 5, the plug member 17a is a channel member having a pair of laterally spaced upstanding flanges 70 and 71, which are integrally interjoined by a web member 72. The lateral spacing of the flanges 70 and 71 is slightly less than the corresponding opening between the inwardly turned flanges 40 and 41 of the channels 20 and 21, the space between which the plug 17a is intended to cover. Each of the flange members 70 and 71 is provided with like longitudinally extending beads 73 and 74 respectively. The inwardly turned flanges 40 and 41 of the channels 20 and 21 are provided with conforming grooves 75 and 76 respectively, to receive the beads 73 and 74 respectively, therein. The grooves 75 and 76 are spaced from the co-planar faces 24 and 25 of railing 13, and the corresponding co-planar faces 28 and 29 of the railing 14, a distance substantially the same as the spacing of the beads 73 and 74 from the planar outer face 78 of the plug member 17a. As thus arranged, the plug 17a, when engaged in the opening of a channel and with the beads 73 and 74 thereof in the corresponding grooves 75 and 76, the outer face 78 of the plug member 17a is flush with the corresponding co-planar surfaces 24 and 25 of the rail 13. The plug member 17a is preferably formed of the same material as the other elements of the railing 10. Recognizing, however, that the flanges 70 and 71 must yield springably to be pressed into the channel and that not all such materials have the same degree of elasticity, it will be appreciated that the plug member 17a must be formed compatibly within the limitation of the elasticity of the particular material used.

ASSEMBLY OF THE RAILING

The railing 10 is preferably assembled on a flat-topped work table, but any relatively flat, hard surface, such as a concrete floor, will also suffice. The hand rail 13 and the bottom rail 14 are first placed on the assembly surface and arranged with their capped ends (left-hand end as viewed at FIG. 1) at one common end, and with the open ends of their respective channels 20 and 21 adjacent to one another. A first pair of spacer-socket members 16 are then inserted into the channels 20 and 21, respectively. This is accomplished by engaging the key portions 55 of the spacer-socket members slidably within the associated tracks 50 of the corresponding channels 20 and 21. This first pair of spacer-socket members 16 are moved with hand force along the corresponding tracks 50 and

into abutment with the caps (not shown) at the capped ends of the rails 13 and 14, respectively. The partially assembled rails 13 and 14 are then moved apart into spaced parallel positions with the respective channels 20 and 21 in cross facing relation. Baluster 15a is then brought into engagement at one end thereof with the channel 20 adjacent the exposed end of the first spacer-socket member 16 and with its outer end 66 bearing against the step portion 45 of the channel 20. The baluster 15a is then moved toward the first spacer-socket member 16 to engage the corresponding pin 65 thereof partially into the socket portion 61 of the first spacer-socket member 16 installed in the rail 14. Inasmuch as full-pin-socket engagement preferably requires a force greater than that derived by hand engagement, the pin 65 is not fully engaged in the socket 61 in this operation. The opposite end of the baluster 15a is then inserted into the channel 21 of the bottom rail 14 and its corresponding pin 65 is engaged in a like manner with the socket portion 61 of the first spacer-socket member 16 installed in rail 14.

A second pair of spacer-socket members 16 is then inserted into the channels 20 and 21 respectively, and are brought into hand engagement with the associated opposite pins 65 of the baluster 15a. In this condition, the baluster 15a is sandwiched at its top and its bottom between the first and second spacer-socket members 16 and with its corresponding pins partially engaged in the respective socket portions thereof. The pins 65 are brought into full engagement with their associated socket portions by striking the outer open end of the second spacer-socket members 16 with a mallet having a head and striking portion conformed to fit within the channels 20 and 21. The second spacer-socket members are thus driven toward the corresponding first spacer-socket members and to a condition in which the end faces thereof adjacent the balusters 15a are brought into abutment therewith. As described hereinbefore, the relative spacing from the co-planar faces 47 and 48 of the step portion 45 and the pins 65 from the respective end surfaces 66 and 67 of the baluster 15a, is arranged to forcibly seat the respective end surfaces 66 and 67 of the baluster 15a against the associated co-planar surfaces 47 and 48 of the step portion 45. Such seating serves to provide rigidity of mounting of the baluster 15a with respect to the rails 13 and 14. Contributing further toward rigidity is the retention of the opposed pins 65 by the spaced sandwiching baluster connectors at opposite sides of the baluster 15a. Further augmenting rigidity of the assembly, the opposed first and second spaced-socket members 16, being in abutting-bearing engagement with the opposite side surface of the baluster 15a serve to buttress the baluster 15a with respect to the rail 13 and to the rail 14.

The second baluster 15b is then moved into place by sliding it with its opposite end portions engaged in the channels 20 and 21, in a substantially parallel relationship with the first assembled baluster 15a and through the open end of the channels 20 and 21. The upper and lower pins 65 of baluster 15b are then partially engaged in the open socket portions 61 of the second assembled spacer-socket members 16. A third pair of spacer-socket members 16 are then inserted with their key portions 55 in the corresponding tracks 50 of the respective channels 20 and 21. The third spacer-socket members 16 are brought into partial engagement with their associated upper and lower pins 65 of the baluster 15b by hand engagement. The outer end portions of the third assembled spaced-socket members 16 are then driven toward the baluster 15a and to a position whereat the opposite end surfaces of the second and third assembled spacer-socket members are in abutting relationship against the corresponding side surfaces of the baluster 15b. Successive balusters 15c and 15d are then assembled with the rails 13 and 14 in the same manner as that employed in the mounting of baluster 15b. The length of the rails 13 and 14 is such that upon

assembly of baluster 15d with its associated fifth pair of spacer-socket members, noted in the exploded portion of the view of FIG. 1 as spacer-socket members 16b and 16d, the outer end surface of the spacer-socket members 16b and 16d co-terminate with the open end of the rails 13 and 14. As described hereinbefore, when the spacer-socket members are driven to full engagement with the pins 65, the end surfaces 66 and 67 are correspondingly forced into tight bearing engagement against the co-planar faces 47 and 48 of the step portions 45 of the respective rails 13 and 14. As thus assembled, the balusters 15 are mounted rigidly with respect to angular movement relative to the rails 13 and 14, and, in addition, the balusters 15 and the associated baluster connectors 16 are firmly constrained from movement along the track portions 50 and with respect to the rails 13 and 14. Thus, the outermost spacer-socket members 16b and 16d, in addition to being held in place by the engagement of their respective socket portions 60 with the outermost pins 65b and 65d of the baluster 15d are further restrained from dislodgement by the resultant friction between their key portion 45 and the track 50. Consequently, there is no need for restraining means at the open end of the rails 13 and 14 to hold the assembled components in place for shipment and installation.

Finally, to complete the assembly of the railing 10, a plug member 17a is inserted into each opening in the channels 20 and 21 between and adjacent the assembled balusters 15a, 15b, 15c and 15d. It will, of course, be recognized that the plug members 17 may, alternatively, be assembled concurrently with the respective spacer-socket member 16 that they cover. In this method of assembly, a plug member 17 is slipped into sliding engagement with the rails 13 and 14 immediately following the assembly of its corresponding spacer-socket member 16, and in the same manner as the spacer-socket member. As thus assembled, the interlocking cooperable components of the railing 10 provide a rigid railing structure having a substantially continuous and smooth railing surface over the entire extent of the hand rails 13 and the bottom rail 14 respectively, thereof.

Having thus described the presently preferred embodiment of my invention, I claim:

1. A railing structure assembled of associated mechanically interlocked cooperable components including at least one elongated rail, at least one baluster, and connecting means interposed between said rail and said baluster, said rail being provided with an elongated channel open at one end thereof and defined therein by a pair of laterally spaced channel walls and a central grooved track; said baluster having one end portion dimensioned to be received between said channel walls and with the terminal end thereof seated against said track, and said connecting means comprising a pair of pins extending outwardly, respectively, from opposite sides of said one end portion of said baluster, and socket members each including a key portion formed for sliding engagement within said grooved track, and a socket portion adapted to accept and grip said pins, one said socket member being provided at each of said opposite sides of a baluster received in said channel to engage respective pins of said pair of pins to rigidly interconnect said baluster and said rail.

2. The invention set forth in claim 1, wherein said spaced channel walls are planar and are arranged in parallel relationship to receive said one end of said baluster in intimate slip-fit engagement therebetween, and thereby to restrain said baluster from movement transversely with respect to said rail.

3. The invention of claim 1, in which the terminal end of said one end portion of said baluster is at a right angle with respect to the longitudinal axis of said baluster, and said central grooved track includes a step portion configured to receive said terminal end in bearing relationship to provide rigidity between the assembly of a said baluster

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and said rail and to restrain said assembled baluster and said associated connecting means from movement along said track and with respect to said rail.

4. The invention set forth in claim 2, wherein the terminal end of said one end portion of said baluster is at a right angle with respect to the longitudinal axis of said baluster, and said central grooved track includes a step portion configured to receive said terminal end in bearing relationship to provide rigidity between the assembly of a said baluster and said rail and to restrain said assembled baluster and said associated connecting means from movement along said track and with respect to said rail.

5. The invention set forth in claim 1, wherein there is further provided plug members to cover the open portion of the channel overlying the said connecting means adjacent assembled balusters, said rail and said plug members being provided with cooperable mating detent means

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to retain said plug members in an assembled position flush with the outer surface of the rail adjacent said channel.

6. The invention as set forth in claim 5, wherein said plug members are integrated with and part of said connecting means.

References Cited

UNITED STATES PATENTS

2,654,579	10/1953	Cremens	256—21
2,771,276	11/1956	Constance et al.	256—22
2,808,233	10/1957	Spescha	256—22

FOREIGN PATENTS

964,048 7/1964 Great Britain.

DENNIS L. TAYLOR, Primary Examiner

U.S. Cl. X.R.

256—65