

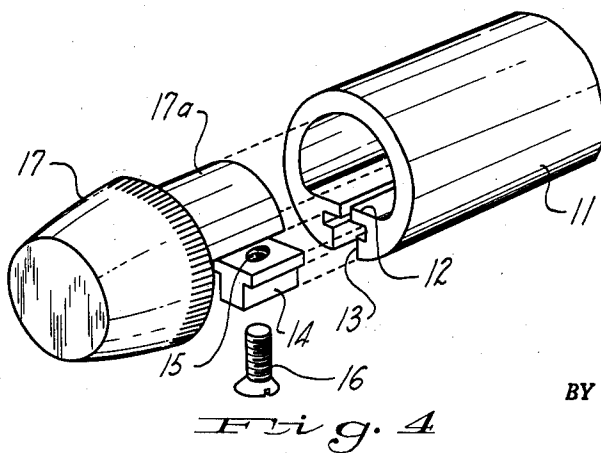
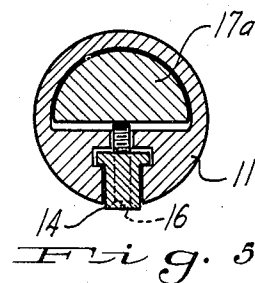
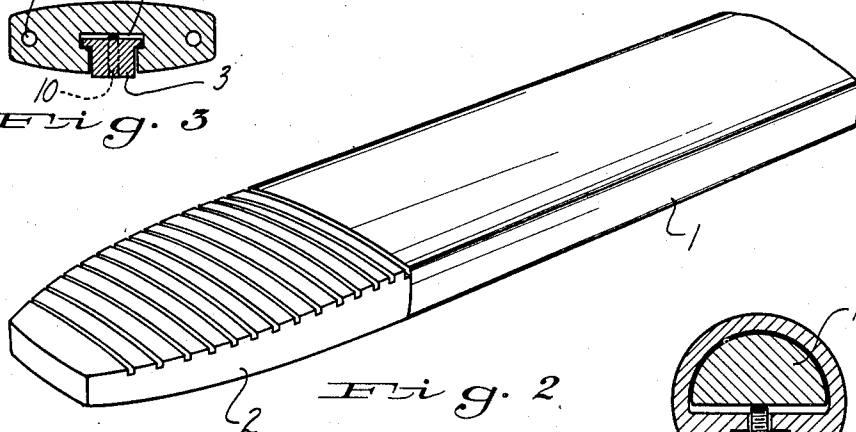
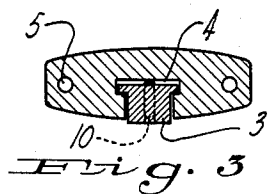
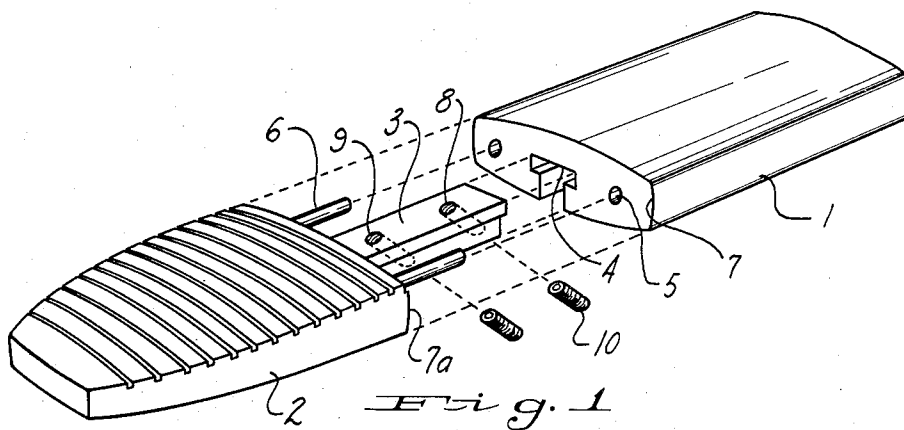
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L. BLUM
TERMINAL, CORNER AND SPLICE CONNECTORS FOR
ORNAMENTAL RAIL STRUCTURES

2,873,095

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2 Sheets-Sheet 1



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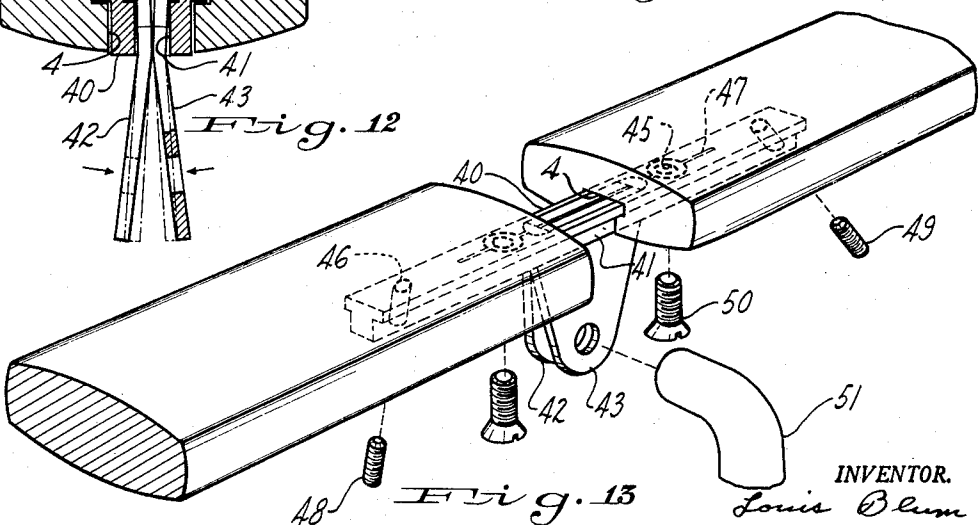
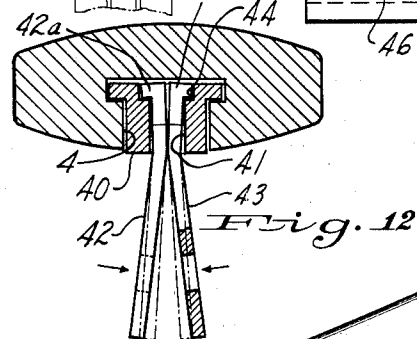
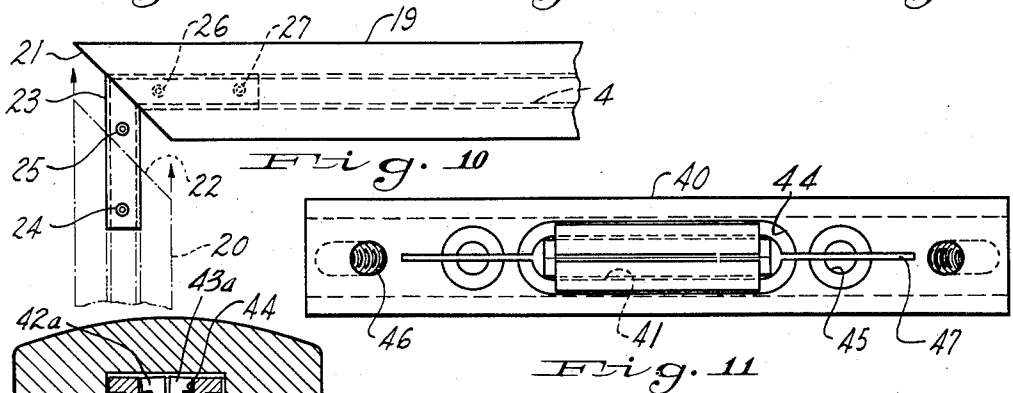
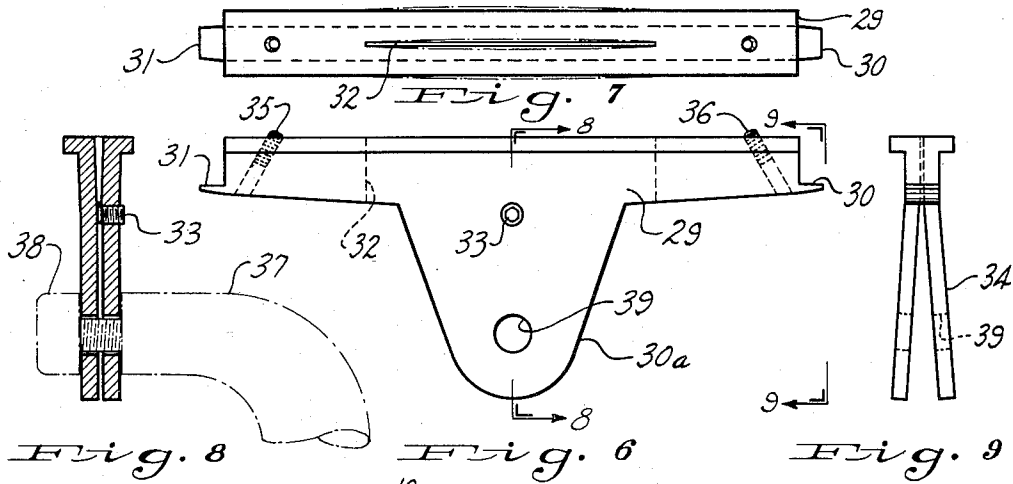
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2 Sheets-Sheet 2



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TERMINAL, CORNER AND SPLICE CONNECTORS FOR ORNAMENTAL RAIL STRUCTURES

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4 Claims. (Cl. 256—65)

This invention relates to new and useful improvements in terminal, corner, and splice connectors for use on ornamental rail structures, and it is among the objects thereof to provide simple and efficient connector means for joining flat, round and other shaped terminals to the end of hand rails and to splice such rails and corners with the fastening and splicing means that do not show after the parts have been assembled.

It is still a further object of the invention to provide simple and efficient means for fastening balusters or rail posts to rails by such splice connectors.

It is still a further object of the invention to provide a simple means for splicing the rail sections, rail terminals, corner terminals and the like by the use of attaching means which operate to move and bias the fastened members into abutting engagement.

These and other objects of the invention will become more apparent from a consideration of the accompanying drawings constituting a part hereof in which like reference characters designate like parts, and in which:

Figure 1 is an isometric exploded view of a rail and ornamental end terminal with splicing and fastening means embodying the principles of this invention;

Figure 2, a view in perspective of the assembled rail and terminal;

Figure 3, a cross-sectional view taken through the rail and fastening means;

Figure 4, an exploded view of a rail having a round terminal and the fastening means therefor;

Figure 5, a view in cross section of the assembled round rail and terminal of Figure 4;

Figure 6, a side elevation of a splice plate used for joining rail ends and for mounting balustrades or rail posts in the manner shown in Figure 13;

Figure 7, a top plan view of the plate shown in Figure 6;

Figure 8, a cross-sectional view taken along the line 8—8 of Figure 6;

Figure 9, an end elevation taken along the line 9—9 of Figure 6;

Figure 10, a top plan view of a rail corner and splicing member for joining the corner with a portion of the joined rail diagrammatically illustrated;

Figure 11, a top plan view of a splicing member and a pair of balustrade-rail-mounting brackets;

Figure 12, a cross section transversely of the center of Figure 11 by including the rail of a balustrade; and,

Figure 13 is an exploded view of a rail splice as effected by the connector shown in Figure 11 of the drawing.

In reference to Figures 1 to 3 of the drawing, the numeral 1 designates the end of an ornamental hand rail and 2, a rail terminal. The terminal 2 is provided with a T-shaped body portion 3 adapted to cooperate with the T slot 4 of the rail 1. The T-shaped body portion 3 may be integrally formed with or securely fastened to the terminal 2. The terminal is provided with drilled holes 5 for receiving pins 6 which are in alignment with and fit the drilled holes 5 in the rail 1. The T-shaped

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body portion 3 is provided with tapped holes 8 and 9 which are at an angle, as shown, for receiving grub screws 10.

When the terminal 2 is assembled with its T-shaped body portion 3 projected into the T slot 4 and the pins 6 in the openings 5, the screws 10 are threaded into openings 8 and 9 and are drawn up by means of a wrench or screwdriver, (not shown), the ends of the screws having slots or recesses for receiving the bit of a screwdriver or an Allen wrench, by means of which they are drawn tight in their threaded bores and when they come through the top face of the T-shaped body portion 3, they will engage the upper wall of the T slot 4 of the rail and effect a displacement action of the terminal 2 in the direction to produce clamping pressure on abutting faces 7 and 7a of the rail 1 and terminal 2 to hold them securely in their assembled position, as shown in Figure 2.

In the form of rail terminal shown in Figures 4 and 5, a round or tubular rail 11 having a split wall 12 is provided with a T slot 13 for receiving a T-shaped key 14, the latter being provided with a threaded hole 15 for receiving a setscrew 16. The rail terminal 17 is provided with a segment-shaped tongue or projection 17a integrally formed with the terminal and fitted into the tubular chamber of the cylindrical rail 11 in the manner shown in Figure 5 of the drawing. When the parts are assembled, as shown in Figure 5, the screw 16 is drawn up to effect displacement of the key 14 with its flange resting upon the shoulder of the split wall 12, as shown in Figure 5, and with the end of setscrew 16 engaging the segment-shaped tongue 17a of the terminal 17 and securely locking the same.

In the matter of joining corners, as shown in Figure 10, rail portions 19 and 20 are mitered at 21 and 22 and are provided with T slots 4 for receiving T-shaped angles 23. The angles have threaded screw holes 24 and 25 and 26 and 27, which screw holes are on a slant or angle in the manner of the holes 8 and 9 of Figure 1, the holes 24 and 25 being disposed at an angle to force the rail portion 20 upward, as viewed in the drawing, and the screw holes 26 and 27 being slanted at an angle like the screw holes 8 and 9 in Figure 1 to force the rail portion 19 to the left, as viewed in the drawing. In this manner, the mitered ends 21 and 22 of the rails are forced into abutting engagement under pressure.

A splicing member and mounting bracket is shown in Figures 6, 7, 8 and 9, and consists of a one-piece T-shaped member 29 having projecting ends 30 and 31, the member 29 being provided with a depending ear-shaped member 30a split by a saw cut, as shown at 32, the saw cut extending all the way down the ear 30a. By means of a setscrew 33, split portions of the ear 30a may be spread to form legs 34 of Figure 9.

The member 29 may be attached to the ends of rails (not shown) by inserting the T-shaped ends into T slots of the rails and may be secured thereto by means of screws 35 and 36, which are disposed at opposite angles to cause the spliced rail members to be biased towards each other in abutting engagement.

A curved end 37 of a baluster may be fastened to the legs 34 of the bracket by means of a threaded cap screw 38 extending through openings 39 of the legs 34 in the manner shown in Figure 8.

Still another form of splicing and mounting bracket is shown in Figures 11, 12 and 13.

It consists of a T-shaped bar 40 having a slot 41 for receiving L-shaped members, the legs 42 and 43 of which extend through the slots 41 and the L-shaped ends 42a and 43a of which rest in a recessed portion 44 of the bar 40.

The bar 40 is provided with countersunk screw holes

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45 and screw holes 46, the latter being slanted, as shown in Figure 13. Also, the bar 40 is preferably slit, as shown at 47, by means of a cutting saw to allow spreading of the T bar.

When assembled in the manner shown in Figure 13, screws 48 and 49 are drawn up in the threaded openings 46 to cause the rail ends to draw together, as hereinbefore explained. The fillister-headed setscrews 50 are then extended through the countersunk holes 45 and expand the slitted portion of the rails. A baluster 51 may be attached to the L-shaped members 42 and 43 in a manner similar to that shown in Figure 8 of the drawing.

It is evident from the description of Figures 6, 11 and 13 of the drawing, that the splice bars may be split to yieldingly engage the T-slots in the rail portions and increase the clamping action of the connector to produce a very secure splice with the abutting ends of the rails in clamping engagement.

Although several embodiments of the invention have been herein illustrated and described, it will be evident to those skilled in the art that various modifications may be made in the details of construction without departing from the principles herein set forth.

I claim:

1. In an ornamental rail structure, two rail pieces having their ends abutting and having slots therebeneath with the walls of the slots in alignment and a splice bar of the shape of said slots disposed in said slots, said splice bar having threaded holes disposed at converging angles and screws in said holes for engaging the bottom surface of the slots of the rails to assert a converging force in the direction of their abutting ends.

2. In an ornamental rail structure, two rail pieces having their ends abutting and having slots therebeneath, a splice bar disposed in said slots having screw holes disposed at converging angles, screws in said holes for engaging walls of the slots of said rails to draw the ends

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of said rails into abutting relation, said splice bars being slit longitudinally at the center, and means for expanding the slit portion after it is assembled in the slots of the joined rails.

3. In an ornamental rail structure, two rail pieces having their ends abutting and having slots therebeneath, a splice bar disposed in said slots having screw holes disposed at converging angles, screws in said holes for engaging walls of the slots of said rails to draw the ends of said rails into abutting relation, said splice bars having depending ears constituting brackets for mounting the rails, and said bars being slit longitudinally at the center, and means for expanding the slit portion after it is assembled in the slots of the joined rails.

4. In an ornamental rail structure, two rail pieces having their ends abutting and having T-slots therebeneath, the walls of the slots being in alignment, a T-shaped splice bar disposed in said slots and having a recessed slot extending longitudinally therein, slits extending from the ends of said recessed slot in opposite directions, a pair of flat L-shaped members disposed back to back in said slot with their shorter flanges lying in the recesses of the slot of said splice bar and their long legs depending and flaring outwardly, and means for drawing said legs together to thereby spread the top flanges into clamping engagement with the walls of the recessed slot of said splice bar.

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