Aug. 8, 1950 J. C. BALDWIN 2,517,959

GUARD RAIL

Filed Nov. 12, 1948

FIG. 1.

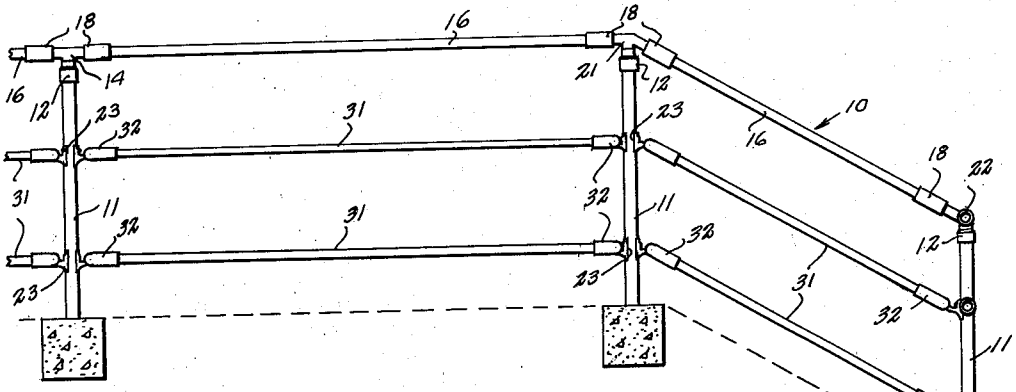


FIG. 2.

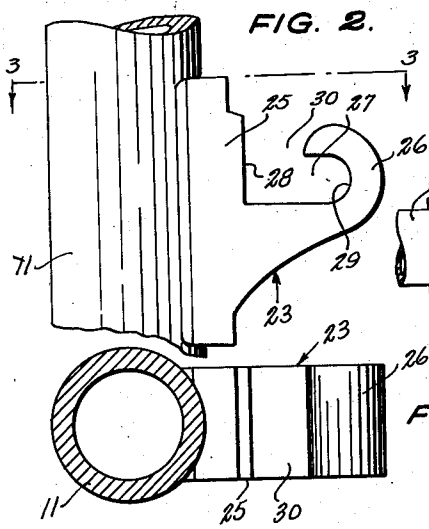


FIG. 3.

FIG. 4.

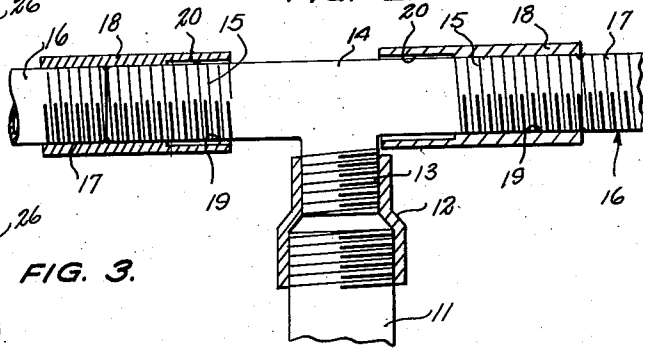


FIG. 5.

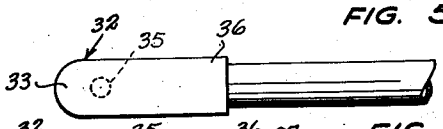


FIG. 6.

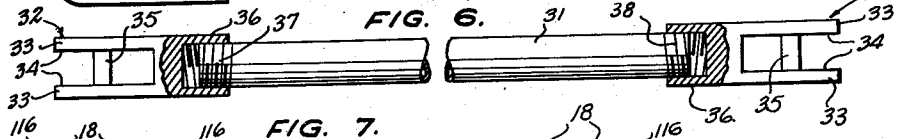
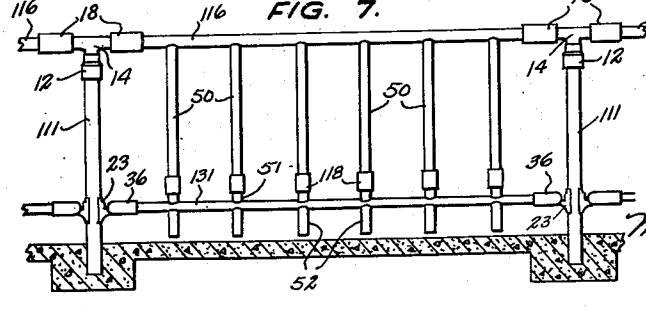


FIG. 7.



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GUARD RAIL

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7 Claims. (Cl. 256—21)

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My invention relates to hand railings, guard railings, fences, balustrades, and the like, and more particularly to demountable devices of this type which are adapted to be readily assembled and set in place for use.

With the foregoing in view, an object of my invention is to provide an improved device of the class described.

A further object is to provide an improved device of the class described which includes means for readily detachably connecting a rail to a pair of posts.

A further object is to provide novel connections between the top rail and the posts and novel connections between the lower rail and the posts.

A further object is to provide an improved device of the class described which includes an improved baluster or picket for connecting a top and a lower rail.

A further object is to provide an improved device of the class described, including upper and lower rails, and which comprises an improved baluster or picket together with novel means for connecting the same between the upper and lower rails.

A further object is to provide an improved baluster or picket comprising a pair of sections, and/or an improved rail comprising a pair of sections, and novel means for connecting the sections together.

Other objects and advantages reside in the particular structure of the invention, combination and arrangement of the several parts thereof, and will be readily understood by those skilled in the art upon reference to the attached drawing in connection with the following specification, wherein the invention is shown, described and claimed.

In the drawings:

Figure 1 is an elevational view of one form of guard rail according to the invention;

Figure 2 is an enlarged fragmentary elevation showing a detail;

Figure 3 is a horizontal sectional view taken substantially on the plane of the line 3—3 of Figure 2;

Figure 4 is a longitudinal vertical sectional view on an enlarged scale and showing a detail of the top rail connection;

Figure 5 is an enlarged elevational view of one of the lowermost rails;

Figure 6 is a plan view of the rail of Figure 5, parts being broken away and shown in longitudinal section;

Figure 7 is a fragmentary elevational view showing a modified form of guard railing.

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Referring specifically to the drawing, wherein like reference characters have been used throughout the several views to designate like parts, and referring first to the form of invention of Figures 1 to 6, inclusive, 10 designates generally a guard railing according to the invention which includes a plurality of spaced vertical posts 11 of any suitable cross-section mounted in any suitable manner in or on any suitable surface. The upper ends of the posts have adapter collars 12 secured thereto for mounting the leg 13 of a T-coupling 14. The runner of the T-coupling 14 has externally-threaded free ends 15, the threads of which are similar. Top rails 16 extend between the free ends of the runners of the T-couplings in aligned end-to-end relation. The top rails 16 have externally-threaded free ends 17. As clearly shown in Figure 4, the threaded ends 15 for the runner of the T-coupling 14 are substantially twice as long as the threaded portion 17 on the free end of each rail 16. As shown, the threads are right-hand threads, but, of course, could be left-hand threads if desired. As clearly seen in Figure 4, the sleeves 18 are at least as long as the combined lengths of the threads 15 and 17 of the adjacent ends of the top rail 16 and the runner of the T-coupling 14. Likewise, it should be noted that the bore of sleeve 18 is internally threaded for a major portion of its length, as indicated at 19. In the embodiment shown, the length of the threaded bore 19 is substantially two-thirds the length of the combined length of the threads 17 and 15 when the ends of the top rail and the runner are abutting. Obviously, if the free ends of the rail and runner are slightly separated, the relation of length of the threaded bore 19 will be increased as necessary. The remainder of the length of the bore of the sleeve 18 is formed to provide an enlarged, unthreaded counterbore 20 which is slidable not only relative to the threaded ends 15 of the couplings 14, but also relative to the unthreaded portion of such couplings. To connect a top rail 16 in place, when the opposed ends of the runners of adjacent T-couplings 14 are aligned, the sleeve 18 is applied to one threaded end 15 of a runner and threaded thereon until the threaded end of the sleeve is flush with the free end of the runner, as clearly shown at the right in Figure 4. Thereafter, an end of the rail 16 is brought into abutment with the corresponding end of the runner of the T-coupling 14 and the sleeve threaded onto the threads 17 of the runner to provide a firm threaded coupling. The back threading of the sleeve 18 on the runner is permitted beyond the inner ends of the threads 15 by the counter-

bore 20 of the sleeve. At the same time, and as clearly shown at the left in Figure 4, when the sleeve is threaded onto the threads 18 of the rail 16, the counterbore 20 overlies and conceals the inner ends of the threads 15. Without such counterbores 20, the threads 15 would of necessity have to be of much greater length and a portion thereof would be exposed when the sleeves were threaded onto the threads 17 of the rails.

As clearly shown at the right in Figure 1, where the adjacent ends of the T-couplings are aligned on inclined planes, special T-couplings 21 and 22 are provided. Thus, the adjacent or right-hand runner of the T-coupling 21 is downwardly inclined at a proper angle of inclination to be aligned with the upwardly-inclined adjacent runner of the T-coupling 22. Likewise, when the railing must turn a corner, the T-coupling 22 may be provided with a runner or runners directed at a proper horizontal angle to the remaining runner or arm.

The structure so far described may be used alone as a hand rail without additional lower rails. However, if used as a guard railing, I prefer to have one or more lower rails, now to be described.

Referring now to Figures 2 and 3, it is noted that each post 11 has secured thereto a plurality of vertically-spaced bosses 23 in downwardly-spaced relation to the upper ends of the posts. Each boss 23 is secured to its post 11 in any suitable or well known manner. Each boss 23 is provided with opposite side surfaces 25, Figure 3, which in the instance shown are flat, parallel surfaces. A hook 26 which is upwardly directed is secured to the front face of each boss 23 and is provided with a laterally-elongated hook cavity. Thus, the cavity 27 includes a vertical rear surface 28 comprising the forward face of the boss 23 and a forward cavity 29 below the bill of the hook. Entrance to the cavity 27 is provided by an upper slot 30 for an eye now to be described.

Where the invention is applied to a fence, either a rail fence or a picket fence, where projections above the top rail are desired, bosses 23 and hooks 26 may be substituted for the couplings aforesaid and rails now to be described may be substituted for the rails 16. In such instance ornamental knobs or spikes may be added to the tops of the posts 11.

As best seen in Figures 5 and 6, the eyes are secured to opposite ends of lower rails 31. Each eye 32 comprises a pair of laterally-spaced side plates 33 including inner surfaces 34 complementary to the surfaces 25 of the bosses 23 and slidably received thereagainst. Each side plate 33 is connected by a cross-piece 35 inwardly of the free ends of the side plates or ears 33. Each eye 32 has the opposite end thereof formed to provide a socket 36 which is internally threaded for threadedly engaging the threaded free ends 37 and 38 of the lower rails 31. In this connection, it should be noted that the internal threads of the sockets 36 are complementary to the threaded ends 37 and 38 and that the threads 37 are right-hand threads, while the threads 38 are left-hand threads. Thus, each rail 31 functions as a turnbuckle in a well known manner. To apply lower rail 31 between adjacent posts 11, the sockets 36 of the eyes 32 are connected to the opposite ends of the rail by partially threading the same thereon. One cross-piece 35 is now seated in one hook 26 against the rear surface 28. The cross-piece 35 on the opposite eye 32 is now applied to the hook 26 on the opposite post 11. To properly

apply it, it may be necessary to lengthen or shorten the distance between the adjacent eyes by turning the rail 31 relative to such eyes. With both cross-pieces 35 seated in the opposed hooks 26, the rail 31 is twisted in a direction to cause the eyes 32 to move toward each other, whereby to seat the cross-piece 35 in the hook recesses 29, whereby the rail is tensioned into position between the posts 11. A reversal of this performance loosens the lower rail 31 and permits it to be separated from the adjacent posts 11. Relative rotation is prevented by ears 33.

Referring now to Figure 7, the structure there disclosed conforms in certain features to that of the preferred form of the invention, in that it includes a pair of spaced posts 111 having T-couplings 14 secured to the upper ends thereof. Top rails 116 are secured between the T-couplings 14 in the manner previously described by the sleeves 18. In like manner, a lower rail 131 is secured between the posts 111 by hooks formed on the bosses 23 thereof. However, in this form of the invention, the top rail 116 is provided with a plurality of depending balusters 59, the upper ends of which are secured to the top rail 116 in any suitable manner. Likewise, the lower rail 131 is provided with a plurality of radially-extending studs 51 which are of a length to clear the surface of the ground when the lower rail is rotated to tighten the connection between the sockets 36 in a manner previously described. The studs 51 and balusters 59 are so disposed as to substantially abut in end-to-end aligned relation when the lower rail 131 is rotated so as to dispose the studs 51 vertically. Such adjacent ends of the studs and balusters are externally threaded with like threads and are connected together by sleeves 118 corresponding to the sleeves 18 previously described. That is to say, one of the free ends of each pair of adjacent studs and balusters is provided with a longer series of threads than the other, whereby the sleeve may be retracted to lie flush with the end of the element. Likewise, the sleeves 118 are provided with enlarged, unthreaded counterbores corresponding to the counterbores 20 of the first-described sleeves 18 and functioning for the same purpose. Thus, when the sleeves are advanced to engage the opposite element, the unthreaded counterbore will overlie the threads of the element associated therewith to conceal such threads. Obviously, with the sleeves 118 secured in place, both the top rail 116 and the bottom rail 131 are secured against rotation and against accidental displacement. If desired, the bottom rail 131 may be provided with depending studs 52 of a length to just clear the surface of the ground, but these studs may be omitted, if desired.

As previously mentioned, the Figure 7 form of the invention may be modified by the substitution of rails 131 and hooks 26 for the top rail 116 and couplings 14. Also, instead of balusters 59, pickets of similar structure may be substituted to include upper ends projecting above the top rail. Likewise, ornamental upward projections may be added to the tops of the posts 111.

While I have shown and described what are now considered to be the preferred embodiments of the invention, it is to be understood that the same is susceptible of other forms and expressions. Consequently, I do not limit myself to the precise structures shown and described hereinabove except as hereinafter claimed.

I claim:

1. A guard railing, comprising a pair of spaced

vertical posts of tubular configuration, said posts including upper ends formed with longitudinally-aligned cylindrical cross-pieces, said cross-pieces including free ends formed with external right-hand screw-threads, a top rail of cylindrical configuration including free ends formed with external right-hand screw-threads, a pair of sleeves for connecting said free ends of said rail to said free ends of said cross-pieces, each sleeve being formed with internal right-hand screw-threads for a major portion of the length adapted to threadedly engage said threads of said rail and cross-pieces, each sleeve being formed with an enlarged unthreaded counterbore for the remainder of its length, a hook on each post in downwardly-spaced relation to said cross-pieces, said hooks being opposed and horizontally aligned, an eye engageable with each hook, each eye including a threaded free end, one of said last-named free ends being formed with left-hand screw-threads, the other of said last-named free ends being formed with right-hand screw-threads, a bottom rail of cylindrical configuration, and said bottom rail including free ends formed with screw-threads complementary to those of said eyes and threadedly engageable therewith.

2. A guard railing, comprising a pair of spaced vertical posts of tubular configuration, said posts including upper ends formed with longitudinally-aligned cylindrical cross-pieces, said cross-pieces including free ends formed with external right-hand screw-threads, a top rail of cylindrical configuration including free ends formed with external right-hand screw-threads, a pair of sleeves for connecting said free ends of said rail to said free ends of said cross-pieces, each sleeve being formed with internal right-hand screw-threads for a major portion of the length adapted to threadedly engage said threads of said rail and cross-pieces, each sleeve being formed with an enlarged unthreaded counterbore for the remainder of its length, a hook on each post in downwardly-spaced relation to said cross-pieces, said hooks being opposed and horizontally aligned, an eye engageable with each hook, each eye including a threaded free end, one of said last-named free ends being formed with left-hand screw-threads, the other of said last-named free ends being formed with right-hand screw-threads, a bottom rail of cylindrical configuration, said bottom rail including free ends formed with screw-threads complementary to those of said eyes and threadedly engageable therewith, said bottom rail being formed with at least one radially-directed cylindrical stud, said stud including a free end formed with external right-hand screw-threads, said top rail being formed with at least one downwardly-directed cylindrical baluster adapted to be aligned with said stud, said baluster including a free end formed with external right-hand screw-threads, a sleeve for connecting said free ends of said stud and baluster together, said last-named sleeve being formed with internal screw-threads for a major portion of its length, such threads being complementary to said threads of said baluster and stud, and said last-named sleeve being formed with an enlarged unthreaded counterbore for the remainder of its length.

3. In a guard railing, the combination with a pair of spaced posts, top and bottom rails connecting said posts, and at least one of said rails being rotatable for connection with said posts, of a vertical baluster fixed to one rail, a vertical stud fixed to the other rail, said stud and baluster

being adapted to be aligned in end-to-end relation, said study and baluster each including a free end formed with similar external screw-threads, a sleeve for threadedly coupling said free ends of said stud and baluster together whereby to prevent rotation of said rotatable rail, said sleeve being formed with internal screw-threads for a major portion of its length, said threads of said sleeve being complementary to said threads of said stud and baluster, and said sleeve being formed with an enlarged unthreaded counterbore for the remainder of its length.

4. In a guard railing, a pair of spaced posts, a top rail carried by said posts, a hook on each post in downwardly-spaced relation to said top rail, said hooks being opposed and horizontally aligned, an eye engageable with each hook, each eye including a threaded free end, one of said free ends being formed with left-hand screw-threads, the other of said free ends being formed with right-hand screw-threads, a bottom rail of cylindrical configuration, said bottom rail including free ends formed with screw-threads complementary to those of said eyes and threadedly engageable therewith, said bottom rail being formed with at least one radially-directed cylindrical stud, said stud including a free end formed with external right-hand screw-threads, said top rail being formed with at least one downwardly-directed cylindrical baluster adapted to be aligned with said stud, said baluster including a free end formed with external right-hand screw-threads, a sleeve connecting said free ends of said stud and baluster together, said last-named sleeve being formed with internal screw-threads for a major portion of its length, such threads being complementary to said threads of said baluster and stud, and said last-named sleeve being formed with an enlarged unthreaded counterbore for the remainder of its length.

5. In a guard railing, a pair of spaced posts, a top rail carried by said posts, a hook on each post in downwardly-spaced relation to said top rail, said hooks being opposed and horizontally aligned, an eye engageable with each hook, each eye including a threaded free end, one of said last-named free ends being formed with left-hand screw-threads, the other of said last-named free ends being formed with right-hand screw-threads, a bottom rail of cylindrical configuration, and said bottom rail including free ends formed with screw-threads complementary to those of said eyes and threadedly engageable therewith.

6. In a guard railing, a pair of spaced posts, a top rail carried by said posts, a hook on each post in downwardly-spaced relation to said top rail, said hooks being opposed and horizontally aligned, an eye engageable with each hook, each eye including a threaded free end, one of said last-named free ends being formed with left-hand screw-threads, the other of said last-named free ends being formed with right-hand screw-threads, a bottom rail of cylindrical configuration, said bottom rail including free ends formed with screw-threads complementary to those of said eyes and threadedly engageable therewith, each hook including a pair of opposite side surfaces, each eye including spaced ears formed with inner surfaces complementary to said side surfaces of said hooks and slidably engageable therewith, said ears including free ends, and each eye including a cross-piece spanning said ears inwardly of said free ends, and said cross-pieces being engageable with said hooks.

7. In a demountable barrier, a pair of spaced posts, a rail connecting said posts, a hook on each post, said hooks being opposed and horizontally aligned, an eye engageable with each hook, each eye including a threaded free end, one of said last-named free ends being formed with left-hand screw-threads, the other of said last-named free ends being formed with right-hand screw-threads, said rail including cylindrical free ends formed with screw-threads complementary to those of said eyes and threadedly engageable therewith.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
564,591	Clune et al.	July 28, 1896
650,627	Anderson	May 29, 1900
1,423,235	McArthur	July 18, 1922
1,860,615	Kahn	May 31, 1932
2,117,798	Gascoigne et al.	May 17, 1938
2,384,338	Rasso	Sept. 4, 1945