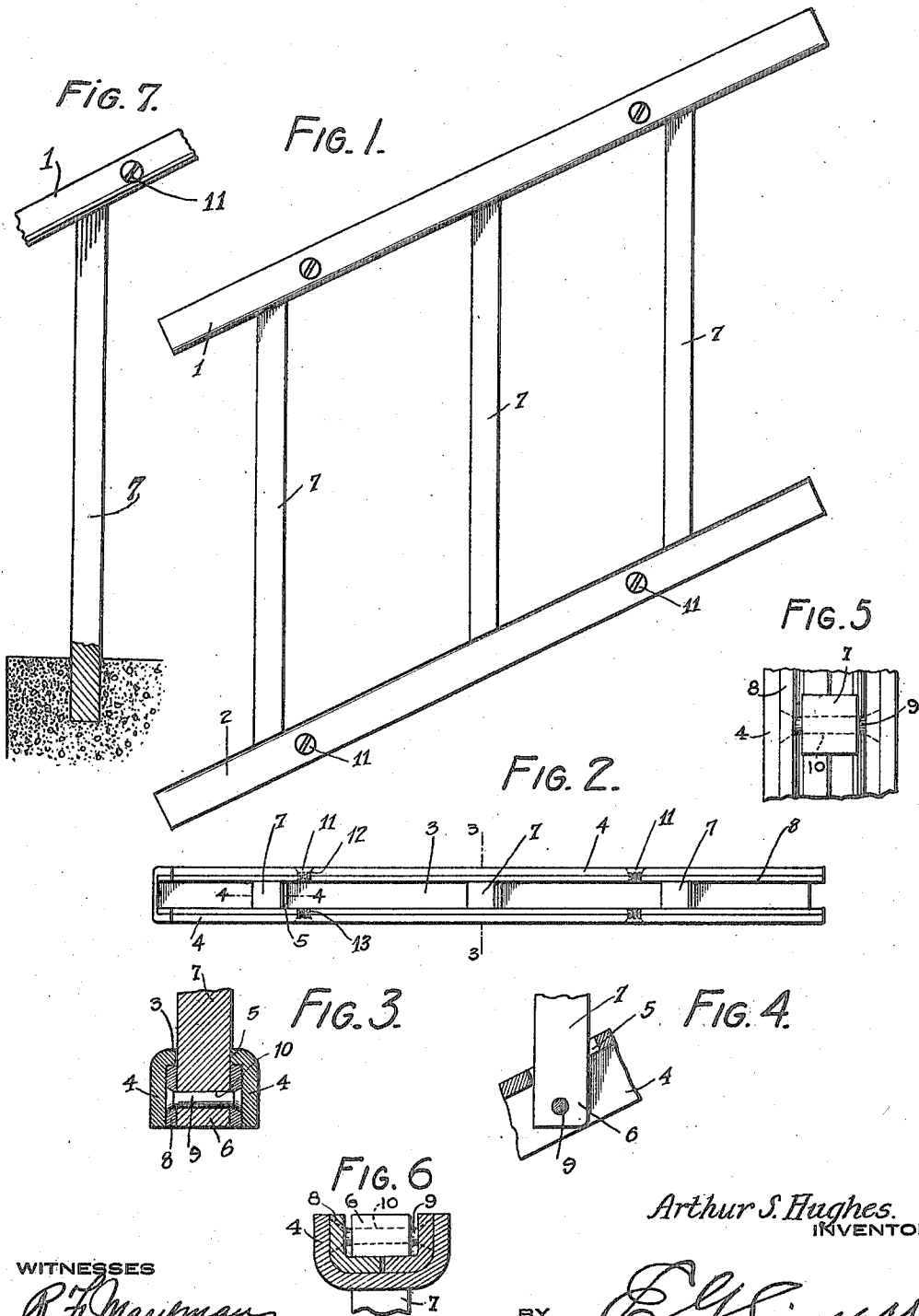


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BALUSTER RAILING CONSTRUCTION.
APPLICATION FILED MAY 26, 1921.

1,416,957.

Patented May 23, 1922.



WITNESSES

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BALUSTER-RAILING CONSTRUCTION.

1,416,957.

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To all whom it may concern:

Be it known that I, ARTHUR S. HUGHES, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented a new and useful Baluster-Railing Construction, of which the following is a specification.

This invention relates to improvements in frame construction and is more particularly directed to a baluster railing construction for stairways.

In order to construct a railing which comprises vertically spaced bars secured to upper and lower rails, it has been necessary heretofore to miter the end of the baluster bars so that these ends would conform to the rake or angle of the stair stringer. It was then necessary to drill and tap each end of the bar and furthermore to internally thread the drilled opening. Screws passing through the spaced openings in the rails and engaging with the threads of the threaded opening in the ends of the baluster bars formed a weak and unreliable way of securing the baluster bars to the rails. It was necessary also to saw or mill the ends of the bars in order to neatly fit them to the rails.

An object of the invention is to provide a new and improved means for fastening the baluster bars to the rails.

Another object of the invention is to provide a new and improved fastening means for the baluster bars which permits of a vertical adjustment of the bars.

Another object of the invention is to provide a new and improved reinforced means for securing the baluster bars to the rails.

A still further object of the invention is to provide a new and improved fastening means whereby openings punched in the web of the rails are adapted to admit the ends of the baluster bars, the said ends being secured to parallel metal strips which are in turn secured to the flanges of the rails.

The invention further contemplates a new and improved means of securing the ends of the baluster bars by which fewer parts and less work is required to construct a railing, since the bars may be sheared off instead of being milled or sawed.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding,

however, that the invention is not confined to any strict conformity with the showing in the drawing; but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Fig. 1 is side elevation of a section of the baluster railing.

Fig. 2 is a plan view of the upper or lower rail showing the baluster bars secured to the same.

Fig. 3 is a transverse section of the rail along the line 3—3 of Fig. 2, showing my improved means of fastening the bars to the rails.

Fig. 4 is a section taken along the line 4—4 of Fig. 2, showing a baluster bar passing through an opening in the web of the rail.

Fig. 5 is a plan view and Fig. 6 is a sectional view showing a modified form of the invention.

Fig. 7 is an elevation showing a further modification of the invention.

In the drawings, 1 and 2 designate respectively upper and lower U-shaped rails. Each rail comprises a web 3 and depending flanges 4 having squared openings 5 punched in the web at spaced intervals. The opposite ends 6 of the bars 7 are adapted to be inserted through the openings 5 in the webs 3 of the superposed rails 1 and 2. Spaced parallel strips 8 are secured to the opposite ends 6 of the baluster bars 7 by means of rivets 9 passing through the perforations 10 in the ends of the baluster bar 7, and the spaced strips 8 are secured to the side flanges of the rails 1 and 2 by means of screws 11 passing through the countersunk perforations 12 in the side flanges 4 of the rails 1 and 2 and screwed into a threaded opening 13 in the spaced strips 8. Instead of screws, the spaced strips 8 may be secured to the flanges of the rails by means of spot welding.

In constructing the baluster railing, the required number of baluster bars 7 are inserted through the perforations 5 of the webs 3 of the top and bottom rails, and the binding strips or spaced strips 8 are applied to the ends of the bars. When the rake of the railing is adjusted to the bevel desired, then the binding strips are firmly secured to the top and bottom rails by the rivets 9. The rails are then pushed out-

wardly and away from each other until they are seated on the binding strips 8, when the screws 11 are inserted in the proper openings and driven home to firmly secure the binding strips or spaced bars 8 to the rails.

It will be seen that a baluster railing is provided which permits of an adjustment to accommodate the railing to the bevel or rake of any stair stringer. By inserting the ends of the baluster bars through the squared openings in the webs of the rails, the full surface of the ends of the baluster bars will coact with the top and bottom rails, and not only will prevent the baluster bars from loosening but will prevent them from turning. It will obviously be seen that by this construction strength and rigidity is secured.

The baluster bars 7 are cut in proper lengths and perforated at their ends; the rails are cut in proper lengths; square openings are punched at spaced intervals in the webs of the rails; and the binding strips 8 are cut in proper lengths. All these members may be stored for future use or may be tied in bundles for shipping. By reason of the simple construction, it will be seen that the railing may be readily assembled from these parts.

The upstanding flanges of the top rail are adapted to be closed by a mounting or finishing generally used for this purpose, as by semi-circular strips of wood in order to present a finished surface.

It will be understood that in some constructions it may be advisable to have only one U-shaped rail and that one placed at the top, the ends of the vertical bars being secured at the bottom in a cement or other foundation, as shown in Fig. 7 thus dispensing with the lower rail, and I wish the following claims to have this interpretation.

In Figs. 5 and 6, there is shown a modified form in which the straight strips 8 are replaced by angle strips, the parts being secured together in precisely the same way as in the other form.

What is claimed is:—

1. In a baluster railing construction, the combination of a plurality of spaced rails placed in superposed relation and provided with a plurality of spaced openings, a plurality of spaced parallel vertical bars, the ends of each bar passing through oppositely disposed openings in the rails, parallel strips secured on opposite sides of the bars, and means for securing the strips to the sides of the rails.

2. In a baluster railing construction, the combination of a plurality of spaced parallel U-shaped rails placed in superposed relation and provided with a plurality of spaced openings, a plurality of spaced parallel vertical bars, the ends of each bar passing through the openings in the rails, parallel strips secured to the ends of the bars, and

means for securing the strips to the inner sides of the flanges of the rails.

3. In a baluster railing construction, the combination of a plurality of spaced parallel U-shaped rails placed in superposed relation and provided with a plurality of spaced openings, a plurality of spaced parallel strips located within the rails, a plurality of spaced parallel vertical bars, the ends of each bar passing between and adjustably secured to the strips, and means for securing said strips to the rails.

4. In a baluster railing construction, the combination of a plurality of spaced parallel flanged rails provided with a plurality of spaced openings, a plurality of spaced bars, the ends of each bar passing through openings in the rails, spaced parallel strips secured to the opposed faces of the bars, and means for securing the strips to the flanges of the rails.

5. In a baluster railing construction, the combination of spaced rails comprising a web and flanges extending therefrom, the open flanged portions of said rails being disposed in opposite directions, a plurality of openings formed in the webs of each rail, and spaced bars having their opposite ends inserted in the opposed openings in the flanged rails, and means secured to the ends of the spaced bars, said means being located within the flanged rails and secured to the flanged portions of said rails.

6. In a baluster railing construction, the combination of spaced rails comprising webs and flanges extending therefrom, a plurality of openings formed in the webs, the openings of one web being in alinement with the openings in the other web, bars having their opposite ends inserted in the aligned openings in the webs, and means for securing the ends of the bars to the rails, said means comprising parallel strips arranged within the rails and riveted to the ends of the bars, and means for securing the strips to the flanges of the rails.

7. The combination of a U-shaped rail provided with a plurality of spaced openings, a plurality of spaced bars, the ends of which are passed through said openings, parallel strips arranged within the U-shaped rail on each side of said bars and secured to the ends of said bars, and means for securing the strip to the sides of the U-shaped rail.

8. The combination of a U-shaped rail provided with a plurality of spaced openings, a plurality of spaced bars, the ends of which are passed through said openings, parallel strips of angular form arranged within the U-shaped rail and secured to the ends of said bars, and means for securing the strips to the sides of the U-shaped rail.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

ARTHUR SHERIDAN HUGHES. 130