

July 12, 1960

A. H. MAGNESS
BALUSTRADE

2,944,797

Filed Dec. 1, 1958

2 Sheets-Sheet 1

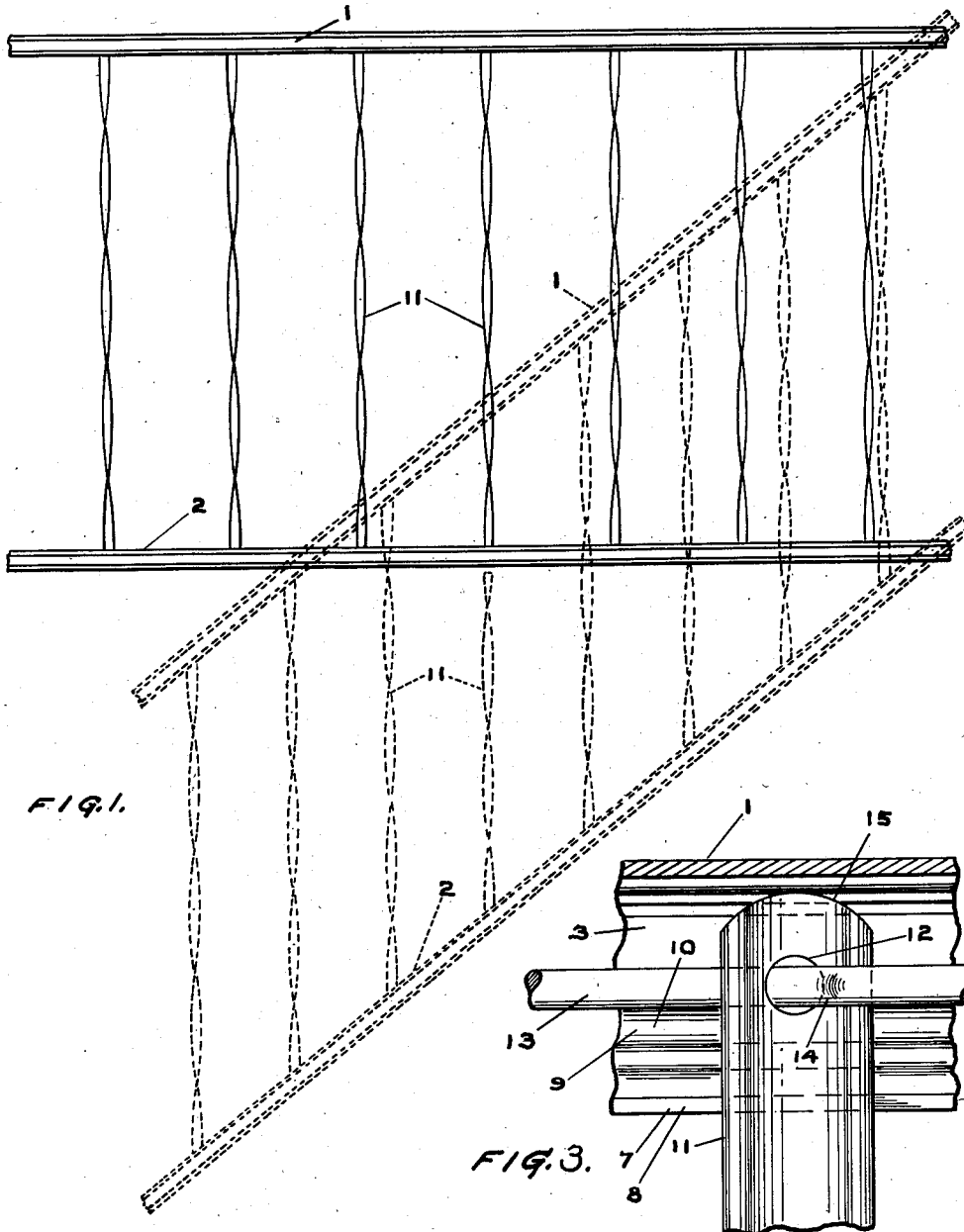


FIG. 3.

INVENTOR

Albert H. Magness

BY *Thomas W. Clark*

ATTORNEY

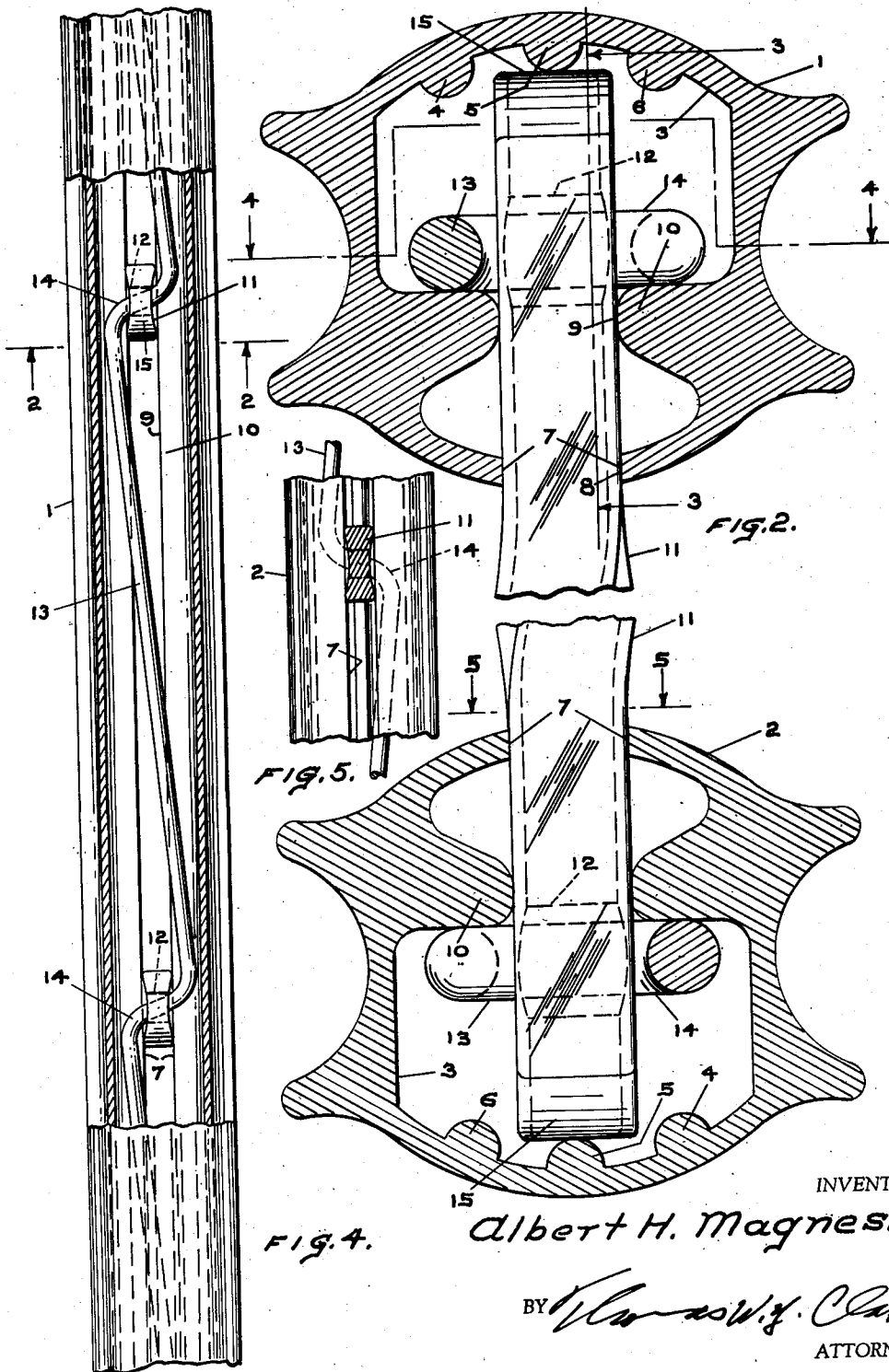
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BALUSTRADE

Albert H. Magness, Belair, Md., assignor to Standard Equipment, Incorporated, Belair, Md., a corporation of Maryland

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6 Claims. (Cl. 256—21)

This invention relates to a hand rail or balustrade which is adjustable for any inclination that steps may take.

It is frequently the custom to make the connecting link between the balustrade rail and the baluster up special to conform to any required inclination of the rail as determined by the inclination of the steps for which the rail is to be used. It is the object of the present invention to provide a standard rail with standard balusters which may be supplied in any desired lengths, or cut on the job to the required length to assemble them at the time of their installation so that the balusters have a uniform length and the rail has substantially any required inclination. The rail at its ends may be connected with up-rights or posts by conventional fittings already available. Another object of the invention is to provide uniform upper and lower rails between which the balusters are placed. Another object of the invention is to provide means to lock the rail and baluster together and to prevent any relative movement between them and to provide a firm bearing of the rail upon the balusters so that they will furnish a firm support. Since these balustrades can be assembled at the time of their erection they can be transported in a knocked down condition and require much less space for their transportation.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings forming a part hereof and in which:

Figure 1 is a balustrade shown in elevation made in accordance with this invention, showing in dotted lines the same balustrade swung to an inclined position.

Figure 2 is a cross-sectional view on an enlarged scale through the rail of Figure 1 on line 2—2 of Figure 4, showing the center of the balusters broken away.

Figure 3 is a sectional view through the rail on line 3—3 of Figure 2 on an enlarged scale.

Figure 4 is a top plan view on a reduced scale of the rail with the top section broken away on line 4—4 of Figure 2.

Figure 5 is a sectional view on a reduced scale on line 5—5 of Figure 2.

In the drawings similar numerals refer to similar parts throughout the several views.

The hand rail 1 of the balustrade is preferably tubular and made of metal and can be either cast or extruded and in cross-section as clearly shown in Figure 2. The same rail may be inverted as at 2 to form the bottom rail of the balustrade. The rail 1 has a large inner opening 3 with strengthening ribs 4, 5, and 6 projecting therein from the upper inner face of the rail. The lower portion of the rail has a slot 7 therein which in the form shown has spaced bearing faces 8 and 9 on each side of the slot with an open portion between to lessen the requirement for metal in the rail. The lower section 10 of the inner opening 3 of the tubular rail 1 forms flanges or shoulders projecting towards each other and within the slot 7 slide rectangularly cross-sectioned balusters 11 which snugly fit between the projections 8 and 9 forming

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bearing surfaces of the slot 7, spaced lengthwise of the balusters.

The balusters 11 extend between the rails 1 and 2 and spaced from their extremities are circular openings 12 extending cross-wise of the balusters. A rod 13 has zig-zag bends therein with certain of the bends spaced along the length of the rod extending substantially normal to the general extent or axis of the rod as shown at 14. On these normal bends the balusters are threaded through their openings 12 and then the rod is slid through the opening 3 of tubular rail 1 with the bends 14 extending transversely of the rail and rested on the shoulders or flanges 10. The balusters themselves slide snugly within the slot 7 in the rail. By this construction the rod spaces the balusters along the rail by the distances between the normal bends in the rod and holds them locked securely within the rail by the bearing of the rod on the shoulders 10. The extreme ends of the balusters are formed on the same radius 15 as the openings 12 and this radius on the end of the balusters is preferably always in contact with the central rib 5 of the rail to form bearing surfaces of the rail on the balusters to securely support the rail.

By this construction it will be apparent that the rail may be supported horizontally on the balusters as shown in solid lines in Figure 1 or it may be sloped at an angle as shown in dotted lines in this same figure. In either position the rail will be supported by the balusters as it pivots around the ends 15 and as the balusters pivot around the normal bends or portions 14 of the rod 13. The plurality of bearing surfaces 8 and 9 on each side of the baluster prevent the rail from rocking around the ends of the balusters normal to the rail.

It will be apparent that the space between surfaces 8 and 9 on each side of the rail could be closed to present straight slotted walls to the balusters if desired and that other modifications in the shape and construction of the parts could be made without departing from the invention as set forth in the following claims.

What is claimed as new and is desired to be secured by Letters Patent is:

1. A tubular rail having a longitudinal slot along one side thereof, a plurality of balusters each having one end fitted into said slot and having an opening therein the axis of which extends cross-wise of the axis of the rail, a rod within the rail having spaced zig-zag bends therein, certain of said bends extending cross-wise of the rod, the balusters being engaged on the cross-wise bends of the rod through the said openings to anchor the ends of the balusters securely in the rail, the balusters projecting from the rail slot, a plurality of balusters being anchored by the rod.

2. A tubular rail having a longitudinal slot along one side thereof presenting opposed flanges, a rod with spaced zig-zag bends therein, certain of said bends extending cross-wise of the rod over the flanges within the tubular rail, a plurality of balusters each having one end fitted into said rail slot and having a transverse opening therein engaged on the said cross-wise bends of the rod to secure the balusters in the rail, a plurality of balusters being secured by the rod.

3. In a balustrade, a tubular rail having a longitudinal slot along one side thereof presenting spaced opposed flanges, a baluster having a transverse opening adjacent one end thereof, said end fitting securely in the rail slot, and a rod with spaced zig-zag bends therein, within the tubular rail, certain of said bends of the rod extending substantially normal to the rail axis cross-wise of the rail and flanges and engaging the balusters through said openings on the said cross-wise bends to retain said ends of the balusters within the rail slot and space them therealong a plurality of balusters being retained by the rod.

4. The balustrade of claim 3, in which the rail slot

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flanges have faces contacting the balusters at a plurality of points lengthwise of the balusters to prevent rotation of the rail relative thereto around the axis of the rail.

5. In a balustrade, a tubular rail having a longitudinally extending slot along one side thereof and presenting inner shoulders on the slot sides, a plurality of balusters each having an opening transverse thereof adjacent and spaced from one end and a rod with spaced zig-zag bends therein fitting within the rail, certain of said bends of the rod extending cross-wise of and substantially normal to the rail and slot and resting on said shoulders, said balusters being engaged through said openings on the cross-wise bends of the rod and securely pivotally held in the rail and spaced therealong by the rod, a plurality of balusters being held by the rod, the spacing of the openings, from the ends of the balusters with the rod therethrough holding the balusters adjacent the top of the tubular rail to limit relative movement between the rail and balusters.

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6. A tubular rail having a longitudinal slot along one side thereof, a plurality of balusters each having one end slidable in said slot and having an opening therein, the axis of which extends cross-wise of the axis of the rail, a rod with spaced zig-zag bends therein slidably fitted into the tubular rail with certain of said bends extending substantially normal to and across and beyond the slot sides and having thereon balusters mounted through said openings on the said bends of the rod extending across the slot with the balusters projecting from the rail slot and being securely locked therein by the said rod cross-wise bends projecting beyond the sides of the slot in the rail, a plurality of balusters being locked by the rod.

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