



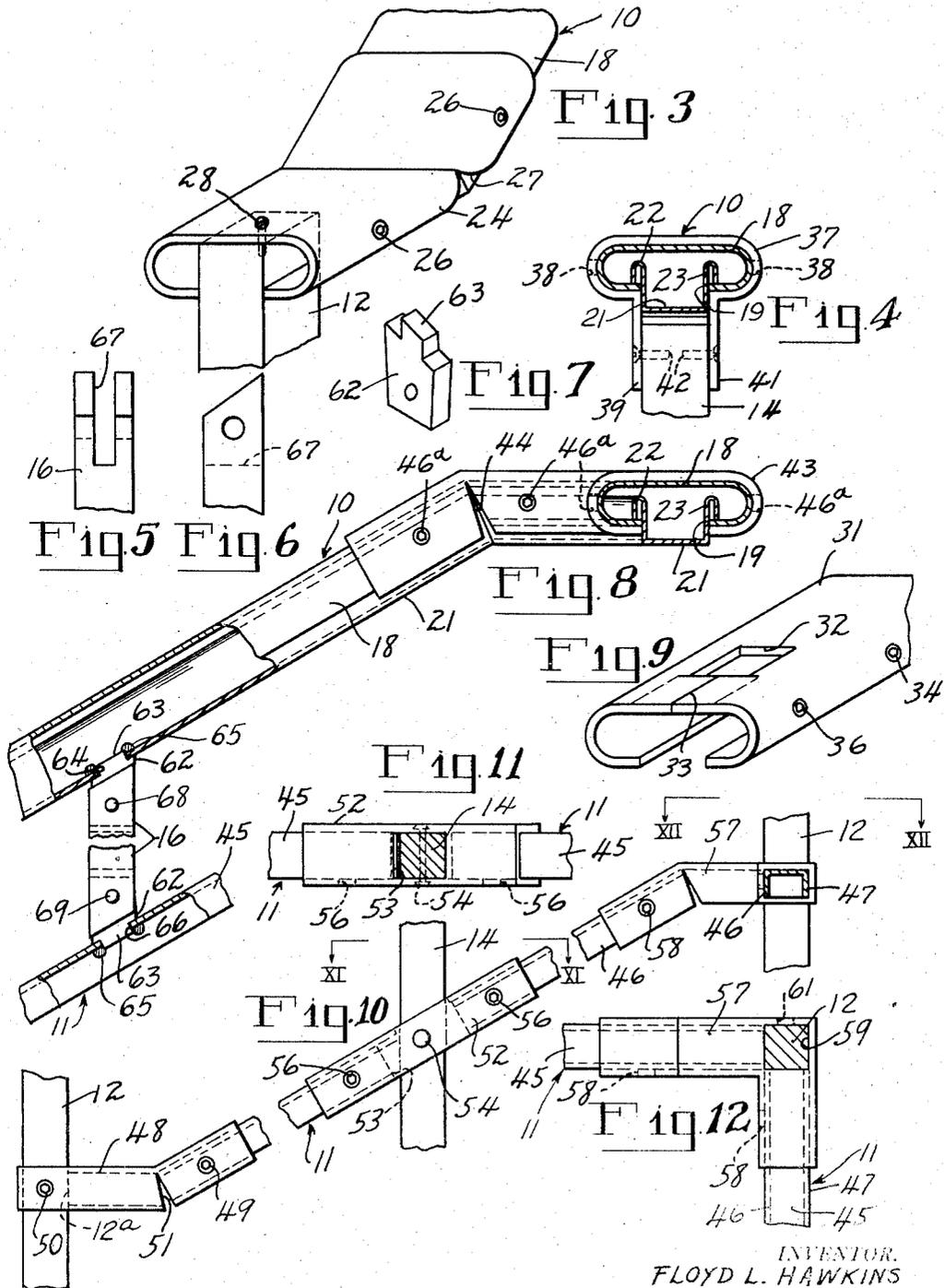
Aug. 7, 1951

F. L. HAWKINS  
METAL BALUSTRADE

2,563,529

Filed April 13, 1946

2 Sheets-Sheet 2



INVENTOR.  
FLOYD L. HAWKINS

BY *Henry L. Jennings*  
ATTORNEY

# UNITED STATES PATENT OFFICE

2,563,529

## METAL BALUSTRADE

Floyd L. Hawkins, Birmingham, Ala.

Application April 13, 1946, Serial No. 661,984

7 Claims. (Cl. 256—21)

1

This invention relates to an ornamental metal balustrade and has for an object the provision of an article of the character designated which may be cut and fitted on the job from standard pre-fabricated members by semiskilled labor and which when erected will have the appearance of a balustrade which has been cut and made for the particular location.

A further object of my invention is to provide an ornamental balustrade which shall be constructed from rails and connecting elements which may be readily put together and secured with bolts and set screws, the rails being cut on the job to fit the particular location.

As is well known in the art to which my invention relates, metal balustrades are usually fabricated to order in shops and transported to the place of installation and erected. This necessitates a workman first going to the place where the balustrade is to be installed and taking careful measurements. He then returns to his shop and the balustrade is fabricated and carried to the place where it is to be erected. This requires very careful, skillful workmanship, and considerable time. These difficulties are avoided by means of my invention in which the rails of the balustrade are shaped and made of indeterminate lengths whereby they may be cut and fitted for length on the job. The rails include improved means for joining them to the pickets or balusters, and the pickets are especially designed for coupling to the rails. Posts are provided for the terminals and at intermediate points, and connectors are employed which may be readily attached to the rails.

Apparatus embodying features of my invention is illustrated in the accompanying drawings, forming a part of this application, in which

Fig. 1 is an elevational view of a balustrade made according to my invention;

Fig. 2 is a plan view thereof;

Fig. 3 is a perspective view showing the connection of an end fitting to a post;

Fig. 4 is a detail sectional view, taken along line IV—IV of Fig. 1 and showing the intermediate support for the upper rail;

Figs. 5 and 6 are fragmentary detail views showing the upper end of one of the pickets or balusters;

Fig. 7 is a perspective view of one of the lugs employed for connecting the pickets to the rails;

Fig. 8 is a detail sectional view taken along line VIII—VIII of Fig. 2 showing the upper rail with a right angle, or corner connector, at one end, the picket at the corner being omitted;

2

Fig. 9 is a perspective view of an end post connector used where the post extends through the connector;

Fig. 10 is a sectional elevation showing the lower rail and its end and intermediate connections, the view being taken along line X—X of Fig. 2;

Fig. 11 is a detail sectional view taken along line XI—XI of Fig. 10 and showing an intermediate connection between a post and the lower rail; and

Fig. 12 is a detail sectional view taken along line XII—XII of Fig. 10 showing a corner, or right angle connector for the lower rail.

Referring now to the drawings for a better understanding of my invention, my improved balustrade embodies an upper, or hand rail 10, a lower rail 11, posts 12, 13 and 14, for supporting the rails, and a plurality of pickets 16 connecting the rails. Posts such as 12 are connected to the base, or stair 17 and to the upper and lower rails, stopping at the upper rails. Posts such as 14 are employed for intermediate support and are connected to the foundation or stair and to both upper and lower rails in a manner to be described later. The upper rail 10 as may be seen in Figs. 3 and 4, comprises two pieces, namely an outer sleeve or channel 18 which is elliptical in cross section, and open along its lower side as shown at 19. An inner channel 21 having beaded sides 22 and 23, telescopes within the outer sleeve 18, the beaded sides engaging the sides of the opening 19. The ends of the upper rail 10 are secured to the posts, such as 12, by an end sleeve fitting 24 which is shaped to fit snugly about the elliptical portion of the hand rail and which is secured thereto by means of hollow head set screws 26. The sides of the fitting 24 are notched out midway the ends as shown at 27 so that they may be bent to accommodate the particular angle of the stairway to which the balustrade is being applied. It is contemplated that after the balustrade has been erected, the notches will be filled with a suitable cement and painted over so as not to be noticeable. The channel 21 is cut away and does not extend through the sleeve fitting 24 adjacent the post 12 whereby the post 12 enters between the sides of the fitting, rests adjacent the under side thereof, and may be secured thereto by means of a set screw 28, having its head countersunk into the top of the fitting, and being threaded into the end of the post.

Where the supporting posts, such as 13, extend upwardly through the balustrade, an end sleeve fitting 31, shown in detail in Fig. 9 may be employed. The fitting 31 is shaped like the fitting

3

24, to fit snugly about the elliptical channel portion 18 of the upper rail and is provided with an opening 32 through which the post 13 extends. The upper portion of the fitting is split at 33 whereby the sides may be turned up with a suitable tool for the post 13 to be slid laterally into the opening 32 and then turned down to secure the post after it has been put in place. The fitting 31 is secured to the hand rail by means of a hollow head set screw 34 and to the posts by means of a similar screw 36.

Where it becomes necessary to support the rails intermediate their ends, I employ a post such as 14 which is connected to the upper rail 10 by means of an intermediate connector 37 which is shaped to fit about the upper rail 10 and is secured thereto by means of hollow head set screws 38. The connector 37 is provided with depending lugs 39 and 41 which secure the fitting to the upper end of the post 14 by means of flathead screws 42 passing through the lugs 39 and 41 and into the post. Where the upper rails are turned at right angles, as shown in the plan view, Fig. 2, I employ a right angle, or corner fitting 43. The fitting 43 is similar to the fitting 24 in that the ends fit about the elliptical portion of the top rail, but the ends are at right angles to each other as may be seen in Figs. 2 and 8. Also, one end of the fitting 43 may be notched out as shown at 44 to provide for bending it downwardly to connect to the rail 10. The fitting is secured to the rail by means of hollow head set screws 46a.

The lower rail 11 is formed from a channel 45 with its side flanges 46 and 47 turned down. It is connected to the end posts 12 by means of a sleeve connector 48 which fits over the rail and is secured thereto by means of a hollow head set screw 49. The connector is notched out intermediate its ends as shown at 51 to provide for bending. The post 12 passes through an opening 12a in the end of the sleeve connector 48 and is secured thereto by means of a hollow head set screw 50. Where the balustrade is provided with an intermediate support, as by a post 14, the lower rail 11 is cut and a sleeve connector 52 is employed into which the ends of the rail 11 fit. The post 14 passes through an opening 53 in the connector 52 and is secured thereto by means of a flat head rivet 54 which passes through the connector and the post. The connector is secured to the ends of the rail 11 by means of hollow head set screws 56.

Where the lower rail of the balustrade is turned at right angles, a corner connector such as 57 is employed for the lower rail in which the ends are turned at right angles to each other and are secured to the rails 11 by means of a hollow head set screw 58. An opening 59 is provided in the corner of the connector 57 through which the post 12 extends. The connector is secured to the post by means of a hollow head set screw 61.

The pickets 16 which connect the sloping section of the upper rail 10 to the sloping section of the lower rail 11 are secured thereto by means of lugs 62 both at the top and the bottom, which lugs are provided with cleats 63 which extend upwardly through openings 64 in the web of the channel 21 and downwardly through openings 66 in the web of the lower rail 11, the cleats being welded as indicated at 65 to the top and bottom channels 21 and 45. Both ends of the picket 16 are split as shown at 67 in Figs. 5 and 6 to fit over the lugs 62. Rivets 68 and 69 pass through the upper and lower ends of the pickets respec-

4

tively to secure them to the lugs. It will thus be apparent that the use of the lugs 62 permits the use of pre-beveled pickets within a wide range of slopes for the upper and lower rails. Since the lugs are pivoted to the pickets by the rivets 68 and 69 they form a flexible connection, thereby eliminating the necessity of having to bevel the upper and lower ends of the pickets to the exact slope of the upper and lower rails for the particular installation.

Where the upper and lower rails are horizontal, the lugs 62 are preferably not used, the pickets being square cut on the ends and secured to the upper and lower rails in any suitable manner.

In Figs. 1 and 2 of the drawings, it will be seen that the newel posts of my improved balustrade are formed by a plurality of pickets 71 which are joined at their upper and lower ends to rail sections 72 and 73. The upper rail section is formed similarly to the outer elliptical channel 18 of the upper hand rail. The lower rail section 73 is formed of a piece of channel iron, similar to the channel 45, and the picket 71 passes upwardly through an opening 73a in the base of the channel forming the lower section 73 and into the opening 19 defined by the lower intumed ends of the channel section 72.

From the foregoing description, it will be seen that my improved balustrade may be fitted and erected on the job by providing rail sections 10 and 11 of indeterminate length and the necessary fittings described hereinbefore for connecting the rail sections and the pickets. I have thus provided an ornamental metal balustrade which is simple of design, easy of manufacture and erection, and by means of which the expense of such a balustrade may be greatly reduced.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What I claim is:

1. In a metal balustrade, a lower rail, an upper rail comprising an inner inverted channel member, an outer cover telescoping over the channel member, picket securing lugs carried by the inverted channel member on the side facing the lower rail, and picket securing means carried by the lower rail.

2. In a metal balustrade, a lower rail, an upper rail comprising an inverted channel member, an outer cover telescoping over the channel member, picket securing lugs carried by the inverted channel member on the side facing the lower rail, picket securing means carried by the lower rail, and a sleeve fitting over and secured to said outer cover.

3. In a metal balustrade, a lower rail comprising a channel member, an upper rail comprising an outer member elliptical in cross section with an opening along its side facing the lower rail, a channel member fitting in the opening and secured to the elliptical member, there being vertically aligned openings in the channel members of the upper and lower rails, and opposed picket lugs carried by the channel members of the upper and lower rails and having portions projecting into the openings in the channel members of the upper and lower rails.

4. In a metal balustrade, a lower rail comprising a channel member, an upper rail comprising

5

an outer member elliptical in cross section with an opening along its side facing the lower rail, a channel member fitting in the opening and having lateral flanges with beads engaging the sides of the opening, and opposed picket lugs carried by the channel members of the upper and lower rails, said lugs carried by the upper channel member being disposed in substantial alignment with the longitudinal center line of the opening in the elliptical member.

5. In a metal balustrade, a lower rail comprising a channel member, an upper rail comprising an outer member elliptical in cross section with an opening along its side facing the lower rail, a channel member fitting in the opening and having lateral flanges with beads engaging the sides of the opening, opposed picket lugs carried by the channel members of the upper and lower rails, and sleeve members fitting over the ends of the rails and having post receiving openings therein.

6. A balustrade as defined in claim 5 in which the sides of the sleeve members are notched out to permit bending.

7. In a metal balustrade, a lower rail comprising a channel member, an upper rail comprising an outer member elliptical in cross section with an opening along its side facing the lower rail, a

6

channel member fitting in the opening and secured thereto, and opposed lugs carried by the channel members and having a transverse opening therein, the pickets being pivotally connected to the lugs and having their ends cut to the approximate angle of the rails.

FLOYD L. HAWKINS.

## REFERENCES CITED

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

## UNITED STATES PATENTS

Number	Name	Date
112,887	Bent	Mar. 21, 1871
210,526	Hanson	Dec. 3, 1878
293,673	Rogers	Feb. 19, 1884
367,974	Hanson	Aug. 9, 1887
1,376,150	Miller	Apr. 26, 1921
1,541,571	Hughes	June 9, 1925
1,791,680	Miller	Feb. 10, 1931
2,159,651	Ewing	Mar. 14, 1939

## FOREIGN PATENTS

Number	Country	Date
45,118	Netherlands	Feb. 15, 1939