

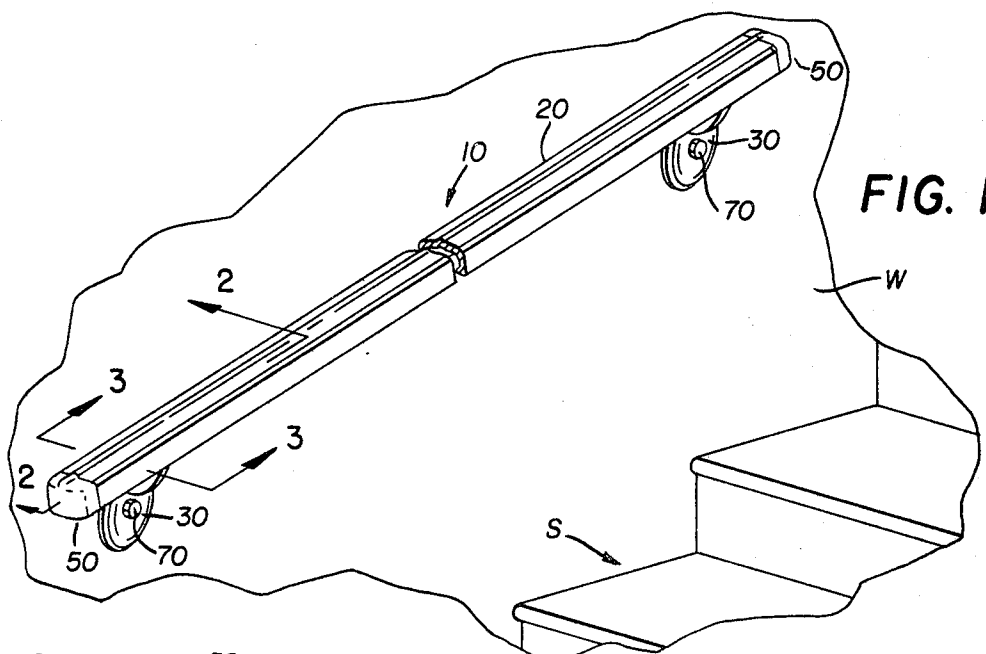
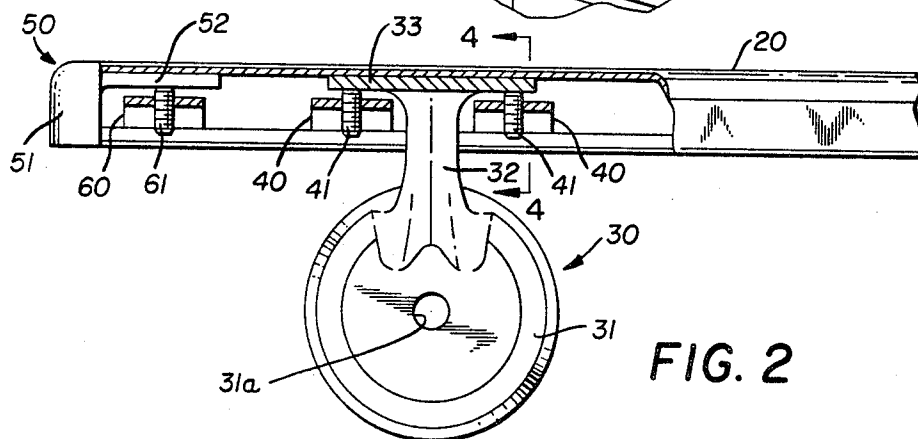
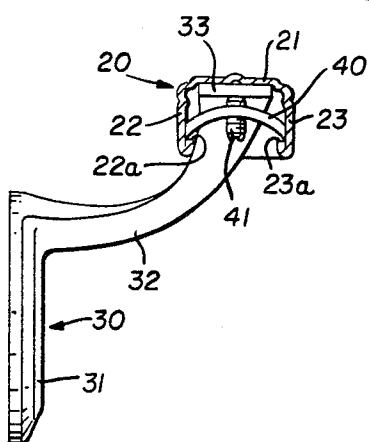
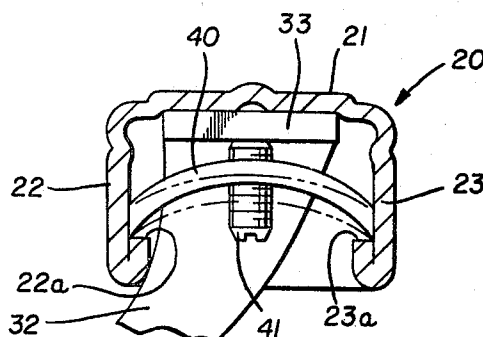
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HANDRAIL MOUNTING MEANS

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HANDRAIL MOUNTING MEANS

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4 Claims

ABSTRACT OF THE DISCLOSURE

A mounting bracket for securing a U-shaped handrail to a supporting wall. One end of the mounting bracket is secured to the wall and the other end is disposed between the legs of the handrail. A pair of arcuate mounting elements are seated on flanges on the inside of the rail beneath the end of the brackets and extend from one leg to the other. A set screw is then inserted through the mounting elements with one end bearing against the end of the bracket and then tightened to deform the mounting elements and lock the handrail to the mounting bracket. End closures are secured similarly for aesthetic purposes.

RELATED APPLICATIONS

A somewhat similar mounting arrangement for connecting a railing to a newel post is disclosed in applicant's copending application, Ser. No. 500,466 filed Oct. 11, 1965, now Patent No. 3,343,811, as a continuation-in-part of Ser. No. 438,588 filed Mar. 10, 1965, now abandoned, with the present application differing in the disclosure of a different mounting element for locating a rail with respect to a wall surface rather than a floor surface as is the case in the copending application.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to the art of handrails adapted to be associated with stairways and in particular relates to an improved mounting means for quickly and easily installing the rail on a wall.

DESCRIPTION OF THE PRIOR ART

Handrails which are mounted on walls adjacent stairs are of course old and well known in the art. In the past however mounting has been of a more or less permanent nature and involved mounting brackets which were usually either integral with the railing member or permanently attached thereto as by welding. With such structures it is generally necessary to have the railing member and the bracket constructed of a predetermined length to correspond with the run of the stairs.

Also the known prior art devices lack the desired aesthetic aspects due to the manner of securing the mounting member to the rail itself since the point of juncture is visible and detracts from the over-all appearance of the assembly.

SUMMARY OF THE INVENTION

It has been found that an improved rail assembly can be obtained by providing a basically U-shaped cap or rail element having a contoured outer surface and also

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providing a mounting bracket one end of which can be mounted or secured to the supporting wall while the other end is quickly and releasably attached to the cap member out of sight between the legs thereof.

The means of attachment of the mounting bracket to the cap member involves the utilization of an expansion member which is adapted to fit between the legs of the cap and then be expanded into place so as to securely attach the mounting bracket to the cap member.

It has also been found that by utilization of such structure any number of mounting members may be used since the same can be placed at any point along the length of the cap. In this fashion the railing can be sold in any desired lengths and can be cut off as required to fit any set of stairs.

It has further been found that the aesthetic properties of the railing assembly can be improved by utilizing an end cap member which has an exterior contour that corresponds to the exterior contour of the railing and further is secured thereto by an expansion member that fits between the legs of the rail and then is expanded so as to securely lock the end piece to the railing.

Accordingly, production of an improved handrail of the type described becomes the principal object of this invention with other objects thereof becoming apparent upon a reading of the following brief specification considered and interpreted in view of the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWING

Of the drawings:

FIGURE 1 is a perspective view of the improved handrail showing the same mounted adjacent a stairway and being broken in the middle to indicate indeterminate length.

FIGURE 2 is a sectional view taken along the lines 2-2 of FIGURE 1.

FIGURE 3 is a sectional view taken along the lines 3-3 of FIGURE 1.

FIGURE 4 is a sectional view taken along the lines 4-4 of FIGURE 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Considering first FIGURE 1 it will be seen that the over-all railing assembly 10 includes a rail or cap member 20, mounting brackets 30, 30 which secure the rail to the wall surface W adjacent steps S and end pieces 50, 50 which close off the open ends of the rail 20 to give the product a finished appearance.

Turning first then to a detailed discussion of the rail 20 and particularly to FIGURES 1, 3 and 4 it will be seen that the rail is essentially U-shaped in cross section with a contoured outer surface. The top portion 21 of the rail connects depending leg members 22, 23 which terminate in return flanges 22a and 23a (see FIGURE 3). These flanges 22a and 23a provide a shelf or surface upon which expansion means 40 rests as will be described more fully below.

Referring next then to FIGURE 2 it will be seen that the mounting bracket 30 consists of a mounting plate 31 which is shown having a circular planar configuration but which, of course, could have any configuration de-

sired. This plate 31 has a central aperture 31a and is adapted to have one side placed against the supporting wall surface and then be secured thereto by any suitable securing means such as the bolt 70.

Mounting bracket 30 also has a roughly L-shaped connecting member 32 which projects from plate 31 at substantially a right angle and then is bent at right angles so as to be parallel to the plate 31. The member 32 then terminates in a cross bar 33 which projects transversely to the longitudinal axis of member 32, and has its longitudinal axis parallel to wall W and which is also of a size sufficient to permit it to be received between the legs 22, 23 of cap 20 with the top or base portion 21 of the cap resting on cross bar 33. In this way when cap 20 is laid on cross bar 33 it will be in parallel relationship to wall W.

Expansion means 40 are also provided with, in the normal instance, two such members being utilized in conjunction with each mounting bracket 30. The expansion member 40 is generally arcuate in cross section and is adapted to be received between the legs 22, 23 of cap 20 (see FIGURES 3 and 4) and rests on flanges 22a, 23a. A set screw 41 is associated with each expansion member 40 and the expansion member has a through threaded bore for reception of the set screw 41. In this fashion when the set screw is threaded through the opening so that one end thereof bears against cross bar 33 further threading of the screw will deform or bend expansion member 40 from the full line position to the chain-dotted line position shown in FIGURE 4. This action also serves to force cross bar 33 against the inner surface of top piece 21 of the rail 20 and in this fashion the mounting bracket 30 is securely attached to the rail 20.

Turning next then to the end piece 50 it will be noted that this piece consists primarily of a solid head 51 which has an external contour that substantially conforms to the contour of the cap 20. Projecting from head 51 is a connecting arm 52 so that the planar configuration of the end piece is generally T-shaped. This leg 52 is also of sufficient size to be received between the legs 22 and 23 of the cap 20. Also associated with the end piece 50 is an expansion member 60 which is identical with expansion members 40, 40 above referred to and also rests on flanges 22a, 23a of rail 20. Similarly, the set screw 61 is threaded through the expansion member and then tightened thereby deforming member 60 and locking the end piece to the railing.

In use or operation of the improved handrail the rail or cap 20 is first cut to the desired length. A suitable number of mounting brackets 30, 30 are then secured to the wall surface and the cap is placed on the cross bars 33 of the mounting brackets. Expansion members 40, 40 are then inserted between the legs of the cap cover 20 and tightened into place by screws 41, 41 thereby securely attaching the cover 20 to the mounting brackets.

End pieces 50, 50 are then secured to the ends of the cover 20 and locked into place by utilizing screw 61 and expansion means 60.

Once the handrail has been assembled it will be seen that a rigid, dependable railing structure will be provided. Furthermore, due to the particular means for securing the handrail to the mounting brackets improved aesthetic properties are present since there are no visible attachment means to detract from the over-all appearance of the assembly with all connections being hidden from view between legs 22 and 23 of rail 20.

It will also be seen how installation is facilitated since once mounting brackets 30, 30 have been secured to wall W the rail 20 can be placed thereon and slid back and forth until properly positioned and the locked in place.

While a full and completely description of the invention has been made in accordance with the dictates of the Patent Statutes, it should be understood that modifi-

cations thereof can be resorted to without departing from the scope of the appended claims.

What is claimed is:

1. A mounting device for use in mounting a handrail of generally U-shaped cross section on a supporting surface comprising:

(A) a mounting plate adapted to be secured to said supporting surface;

(B) a connecting leg

(1) having one end connected to said mounting plate

(2) with its opposed end projecting from said mounting plate and terminating in an elongate cross bar that is adapted to be received between the legs of said rail;

(C) a pair of expansion members

(1) adapted to be received between the legs of said rail below said cross bar; and

(D) expansion means adapted to bear against said cross bar and expand said expansion members against said legs

(1) whereby said cross bar is held in place with respect to said rail and said mounting device is secured to said rail.

2. An end piece assembly for use with a handrail of generally U-shaped cross section comprising:

(A) an end piece having

(1) a base member with substantially the same outer configuration as said rail

(2) and a projecting leg member adapted to be received between the legs of said rail;

(B) an expansion member

(1) adapted to be received between the legs of said rail below said leg member; and

(C) expansion means adapted to bear against said leg and expand said expansion member against the legs of said rail

(1) whereby said end piece is secured to said rail.

3. A handrail assembly for mounting on a support surface of the character described, comprising:

(A) an elongate rail of generally U-shaped cross section;

(B) mounting means

(1) having one end adapted to be releasably secured to said support surface and

(2) with its opposed end projecting normally to said support surface and being adapted to be releasably secured between the legs of said rail

(a) whereby said rail may be disposed in substantial parallelism to said support surface;

(C) a mounting plate adapted to be secured to said support surface;

(D) a connecting leg

(1) having one end connected to said mounting plate

(2) with its opposed end projecting substantially normally from said mounting plate and terminating in an elongate cross bar that has its longitudinal axis disposed in substantial parallelism to said mounting plate and that is adapted to be received between the legs of said rail;

(E) a pair of expansion members

(1) adapted to be received between the legs of said rail below said cross bar; and

(F) expansion means adapted to bear against said cross bar and expand said expansion members against said legs

(1) whereby said cross bar is held in place with respect to said rail and said mounting device is secured to said rail.

4. The device of claim 3 further characterized by the presence of:

(A) a removable end piece assembly having an exterior configuration substantially corresponding to the exterior configuration of said rail;

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(B) means for releasably securing said end piece between the legs of said rail;

(C) said end piece assembly including

(1) an end piece having

- (a) a base member with substantially the same outer configuration as said rail, 5
 (b) and a projecting leg member adapted to be received between the legs of said rail,

(2) an expansion member

- (a) adapted to be received between the legs of said rail below said member, and 10

(3) expansion means adapted to bear against said leg and expand said expansion member against the legs of said rail

- (a) whereby said end piece is secured to said rail. 15

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