

Sept. 27, 1966

L. BLUM ETAL

3,274,744

MOUNTING FOR HANDRAILING

Filed Dec. 13, 1963

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FIG. 1 - 10

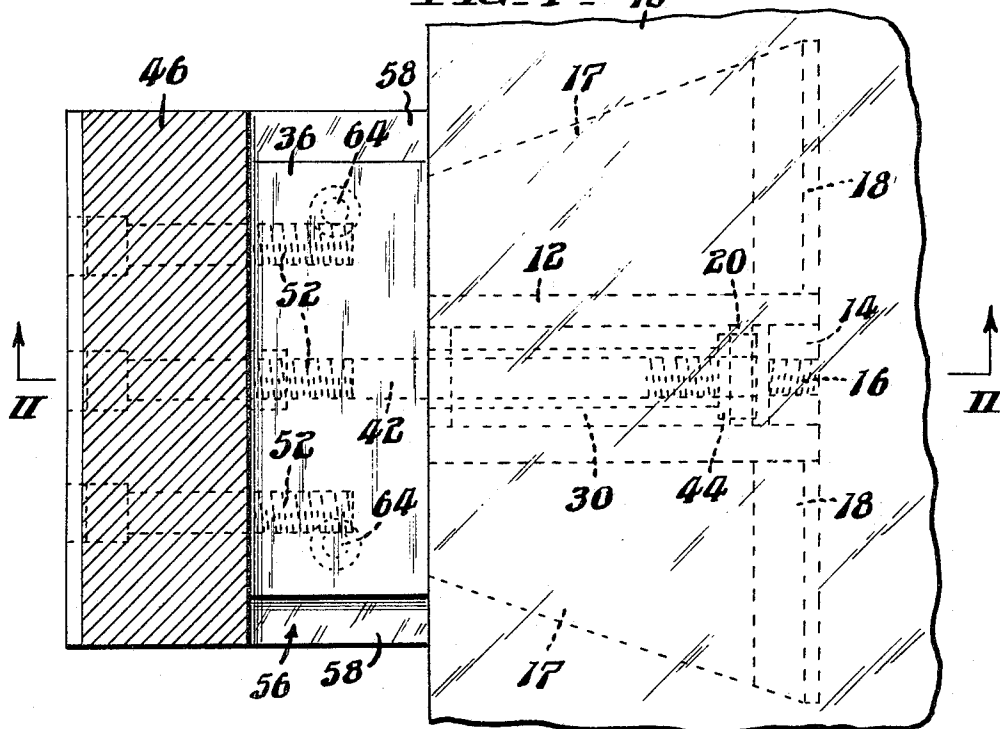
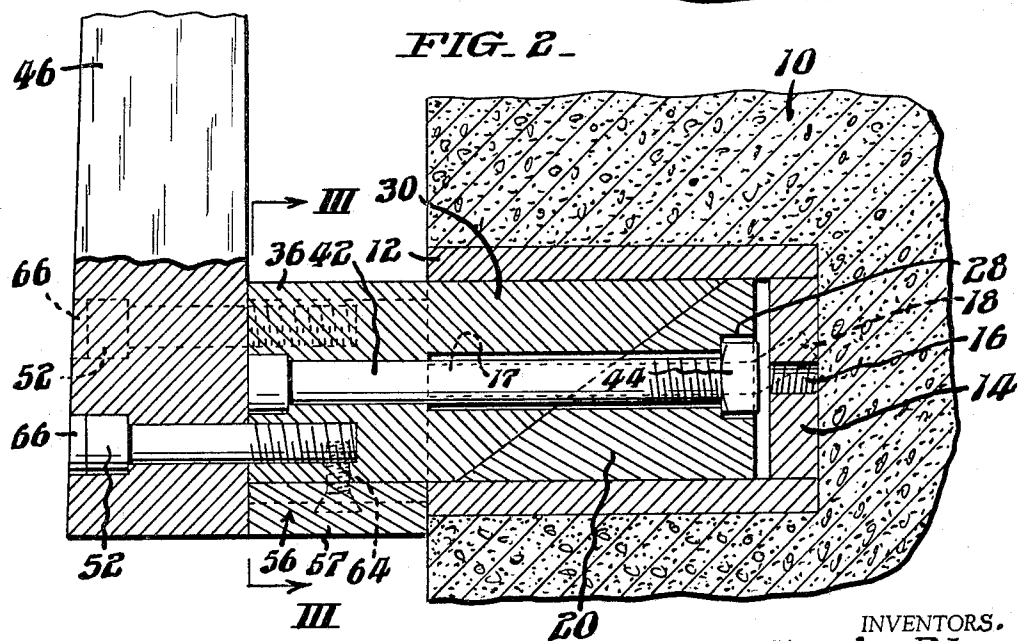


FIG. 2.



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FIG. 3.

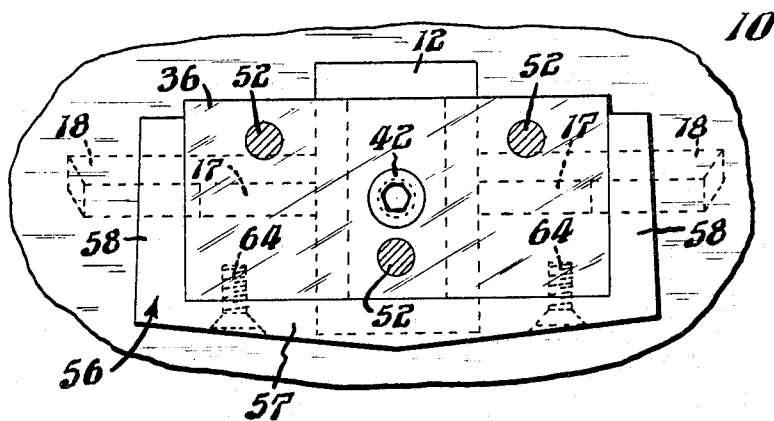
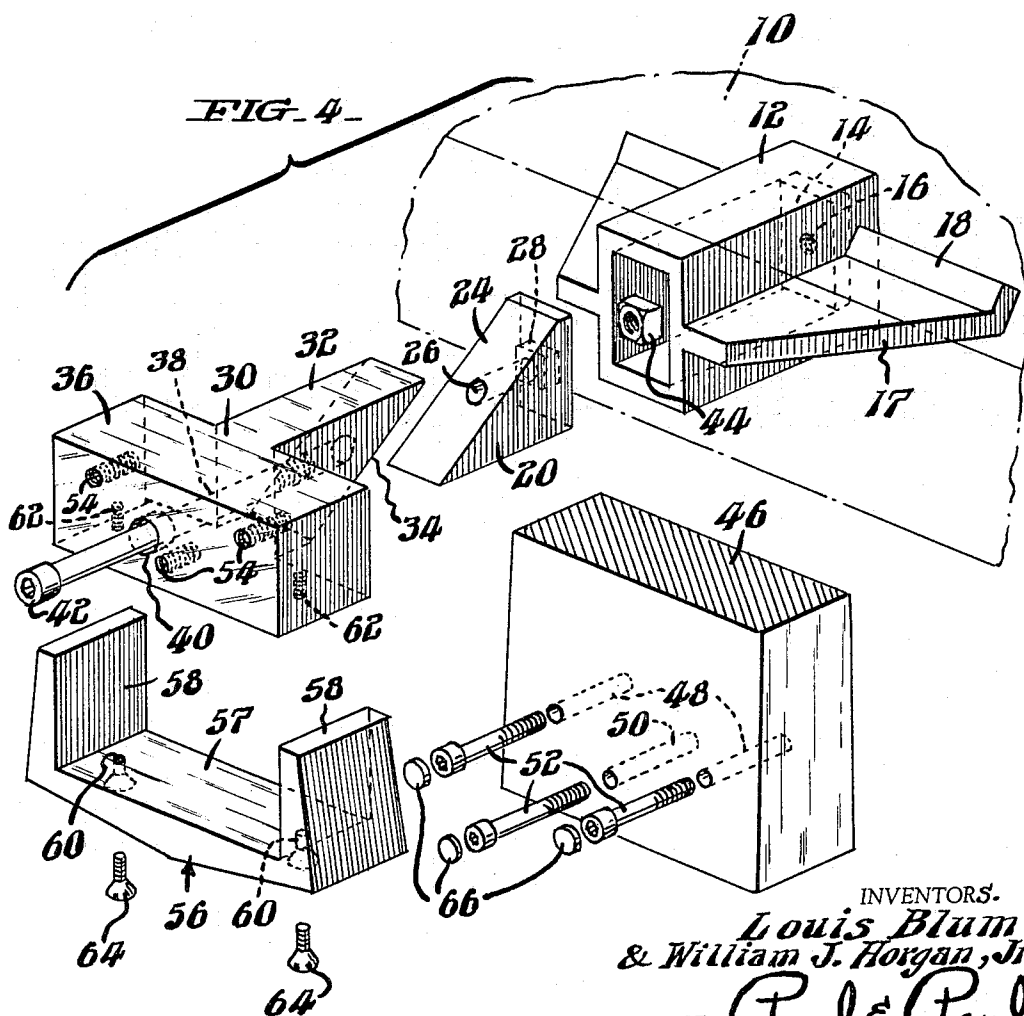


FIG. 4



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FIG. 5

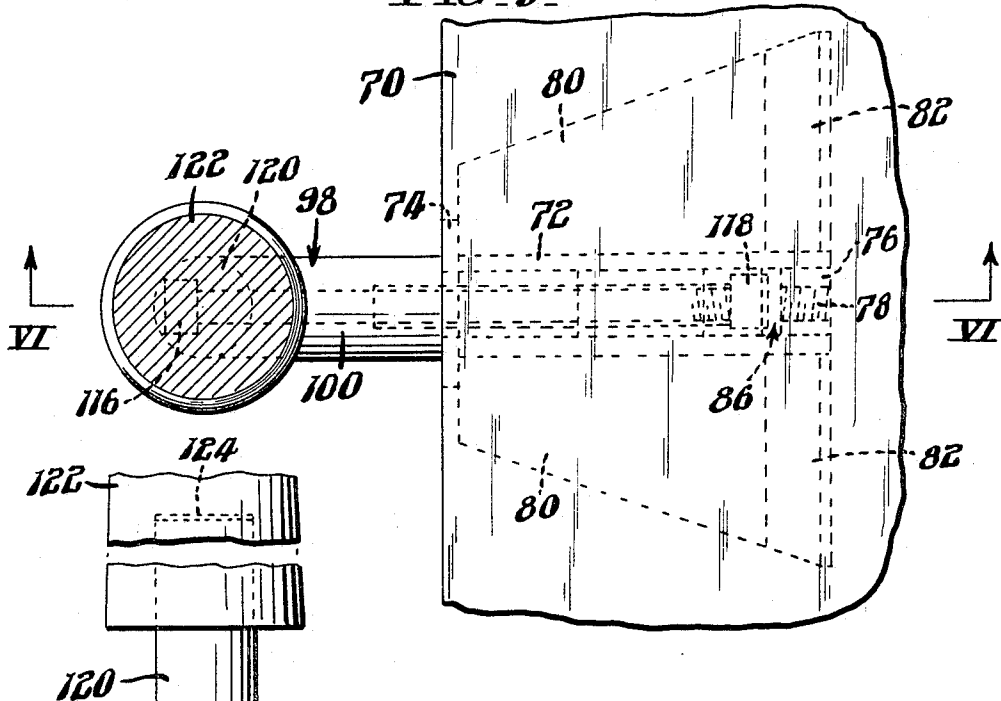
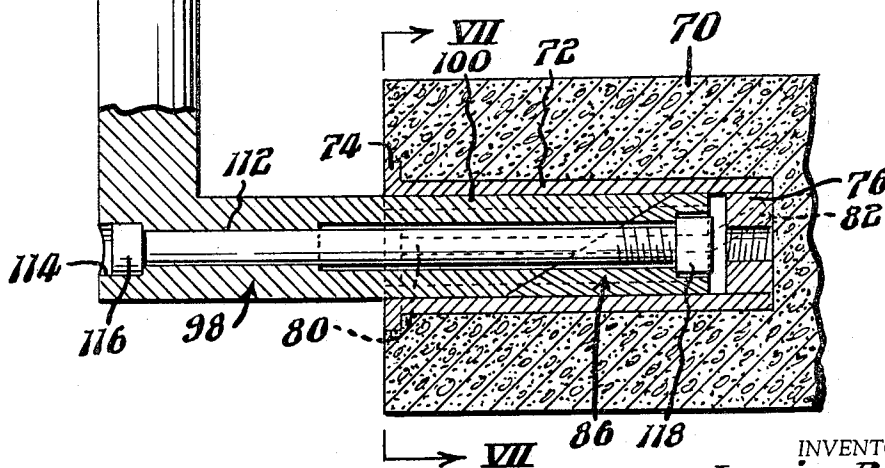


FIG. 6



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FIG. 7.

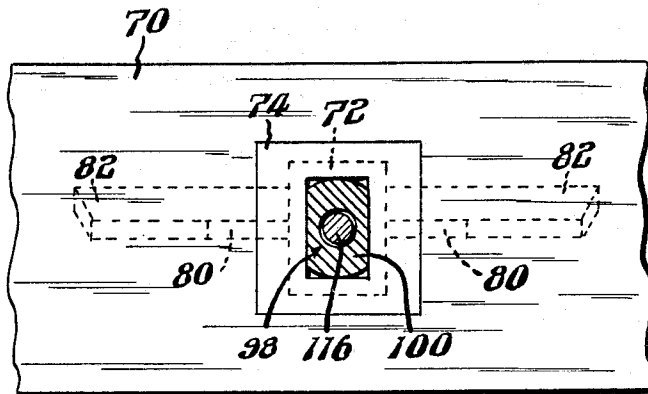
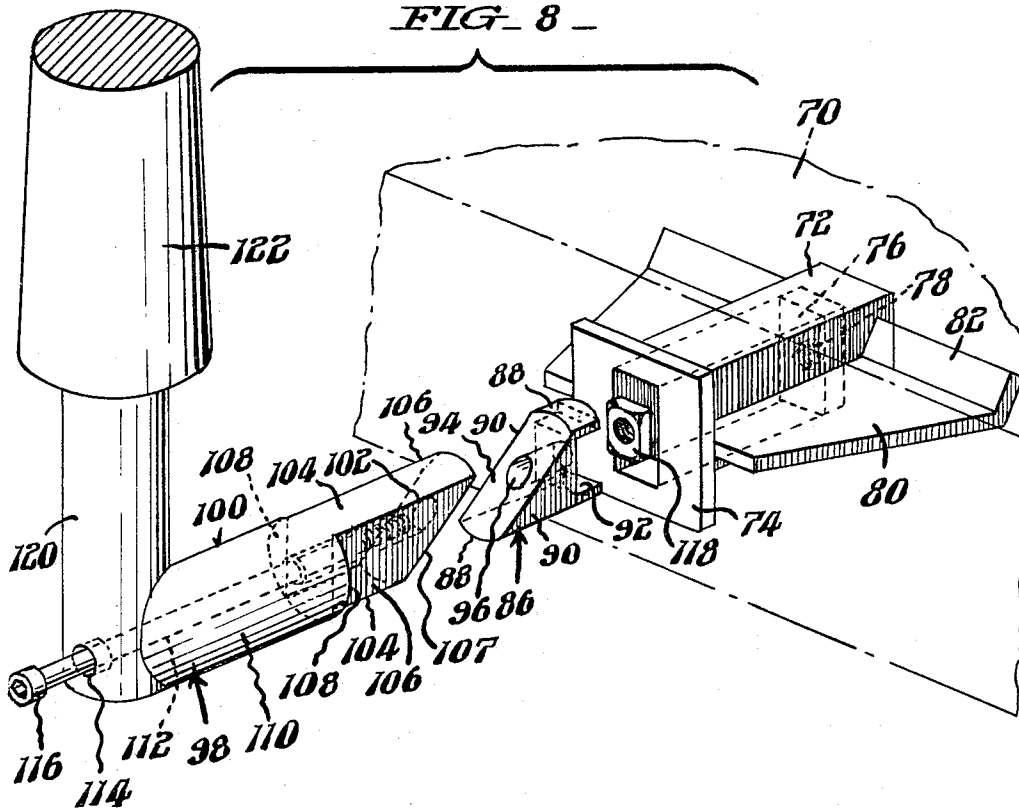


FIG. 8.



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FIG. 9

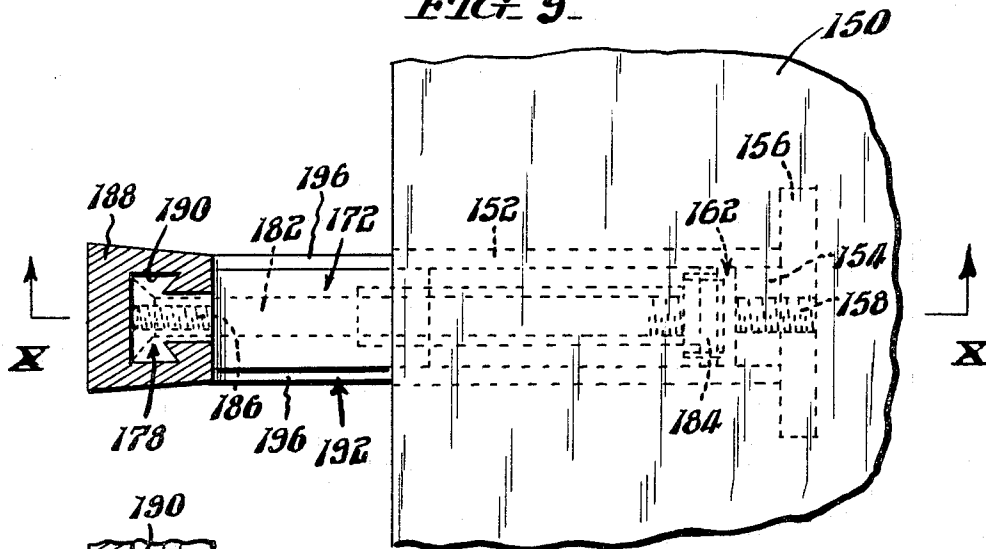
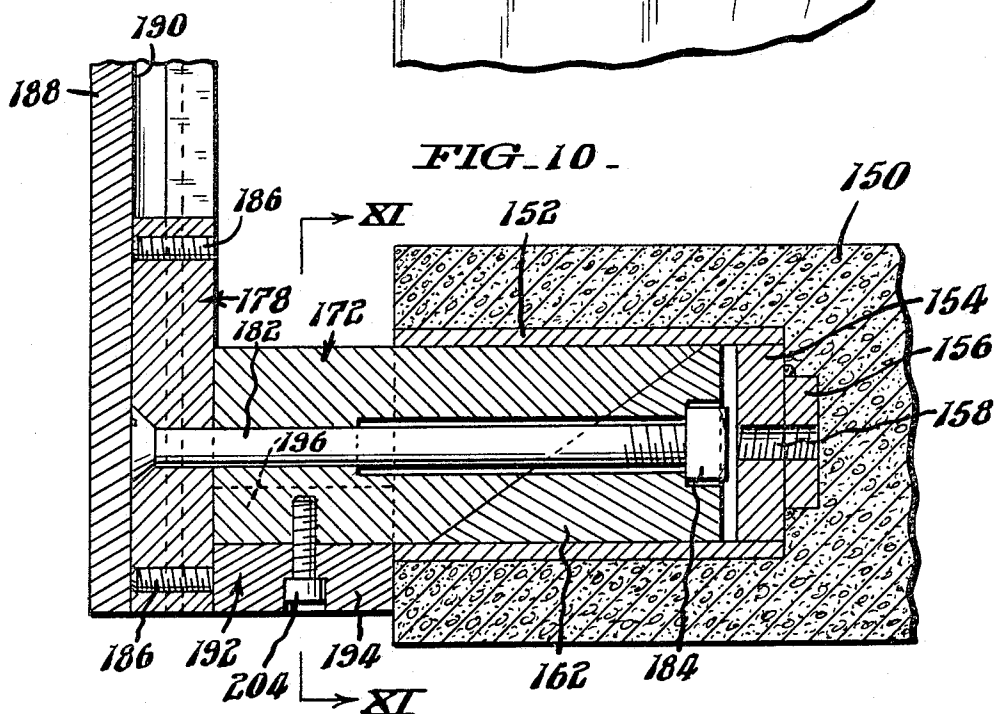


FIG. 10



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FIG. 11.

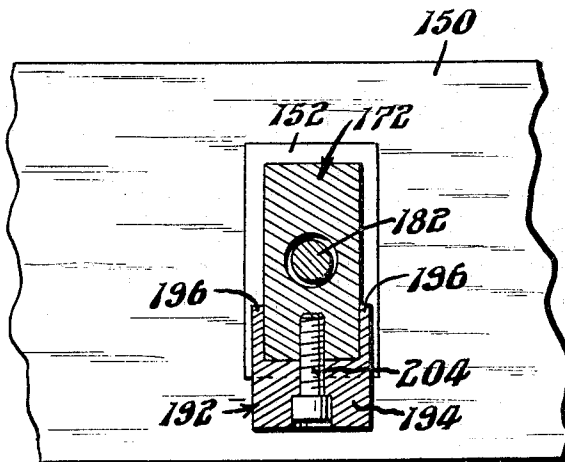
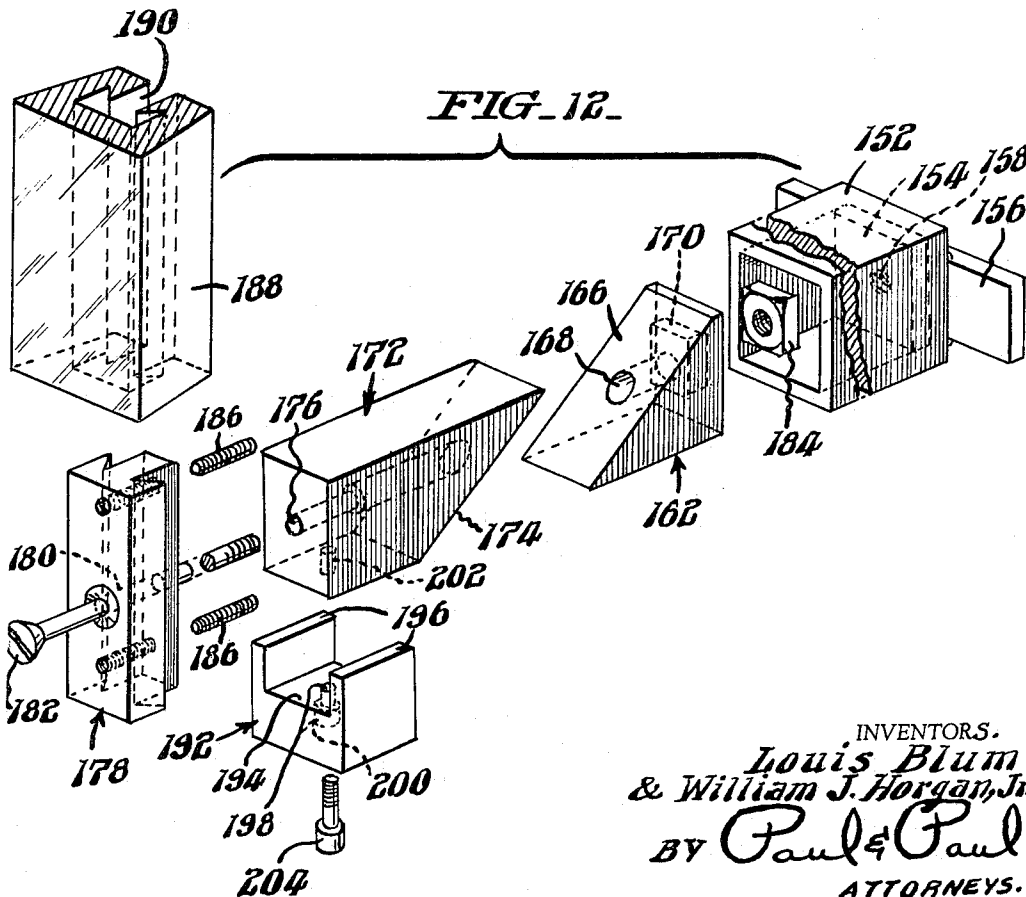


FIG. 12.



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3,274,744

MOUNTING FOR HANDRAILING

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6 Claims. (Cl. 52-704)

This invention relates generally to handrailings and particularly to mountings for anchoring the posts of handrailings to the open ends of masonry stair treads.

It is common to provide open stairways constructed of masonry with handrailings of ornamental iron or other metal upon each open side thereof, and normally the construction is such that the posts of the handrailing may be anchored to the open ends of the stair treads without difficulty. In recent years, however, the use of stair treads of pre-cast concrete has become quite common, and since such stair treads are relatively thin, the problem of providing adequate means for securing the posts of the handrails thereto can be a difficult one. Accordingly, an important object of the present invention is to provide novel means for mounting the posts of ornamental handrails to pre-cast concrete stair treads.

Another object of the invention is to provide such mounting means which are insertable into the open ends of the stair treads and adjustable relative to the stair treads for alignment with the handrailing.

Other objects of the invention will become apparent when the following specification is read with reference to the accompanying drawings, in which:

FIG. 1 is a horizontal section at the base of a handrailing post, showing the latter secured to the open end of a pre-cast concrete stair tread;

FIG. 2 is a vertical section on line II—II of FIG. 1;

FIG. 3 is a vertical section on line III—III of FIG. 2;

FIG. 4 is an exploded perspective view of the mounting shown in FIGS. 1 to 3;

FIG. 5 is a horizontal section at the base of another type of handrailing post, showing the latter secured by another form of the mounting means to the open end of a pre-cast concrete stair tread;

FIG. 6 is a vertical section one line VI—VI of FIG. 5;

FIG. 7 is a vertical section on line VII—VII of FIG. 6;

FIG. 8 is an exploded perspective view of the mounting shown in FIGS. 5 to 7;

FIG. 9 is a horizontal section at the base of yet another type of handrailing post, showing the latter secured by yet another form of the mounting means to the open end of a pre-cast concrete stair tread;

FIG. 10 is a vertical section on line X—X of FIG. 9;

FIG. 11 is a vertical section on line XI—XI of FIG. 10; and

FIG. 12 is an exploded perspective view of the mounting shown in FIGS. 9 to 11.

The following description is directed to the specific forms of the invention illustrated in the drawings and is not intended to be addressed to the scope of the invention itself, which may be practiced in a wide variety of forms and arrangements.

Referring particularly to FIGS. 1-4, a pre-cast concrete stair tread 10 has embedded therein a tubular sleeve 12 which is rectangular in transverse section. The inner end of the sleeve 12 is closed by a plate 14 provided with a threaded aperture 16. The outer end of the tubular sleeve 12 is flush with the open end of the stair tread 10. If desired, the tubular sleeve 12 may be fitted with a pair of wing plates 17, turned up as at 18.

The mounting includes a wedge assembly having an inner wedge 20 rectangular in transverse section and provided with an outer end surface 24 which is inclined. The wedge is provided with a through bore 26 terminating

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at the inner end of the wedge in a square counterbore 28. The wedge assembly also includes a T-shaped outer wedge 30. The stem of the outer wedge, designated 32, is rectangular in transverse section and is provided with an inner end surface 34 which is inclined. The head of the outer wedge, designated 36, is rectangular in transverse section and fits up against the end of the sleeve 12 and the end of the stair tread. The outer wedge is provided with a through bore 38 registering with the bore 26 of the inner wedge 20 and terminating at the outer end thereof in a counterbore 40 which is round. Extending through the bores 38 and 26 is an Allen socket head cap screw 42 which is threaded into a square nut 44. The head of the screw 42 is nested in the counterbore 40, while the nut 44 is nested in the counterbore 28.

The lower end portion of a post 46 abuts the head 36 and is provided with through bores 48 terminating in counterbores 50. Extending through the bores 48 and threaded into bores 54 in the head 36 are Allen socket head cap screws 52.

Extending along the undersurface of the head 36 of the outer wedge and part way upwardly over the ends thereof is a U-shaped cap 56 with a base wall 57 and opposite end walls 58. The cap is provided with countersunk holes 60. Extending through the holes 60 and threaded into openings 62 in the head 36 are countersunk head screws 64.

Preferably, the stair tread 10 is made of pre-cast concrete, the sleeve 12 being positioned in the form by means of a bolt projected through the wall of the form and through the sleeve 12 and threaded into the opening 16 in the plate 14.

In the use of the mounting first the wedges 20 and 30 are assembled. This is done by projecting the screw 42 through bores 38 and 26 respectively of the wedges 30 and 20 and threading the screw 42 into the nut 44. The head of the screw 42 nests in the counterbore 40, while the nut 44 nests in the counterbore 28. The assembled wedges are then projected into sleeve 12 through the outer end thereof. The screw 42 is now turned to draw the wedges together, whereupon the inclined surfaces 24 and 34 move over each other, and the lower surface of wedge 20 and the upper surface of wedge 30 are forced respectively against the lower and the upper walls of the sleeve 12. Thus the assembly is wedged in the sleeve 12 in a selected position longitudinally thereof, but preferably with the head 36 of the outer wedge 30 abutting the outer end of the stair tread and of the sleeve 12.

The post 46 is now positioned with the inner face thereof abutting the head 36 of the outer wedge and is affixed to the head 36 by means of screws 52, the heads of which are concealed from view by means of plugs 66. In order to enhance the appearance of the mounting, the cap 56 may be affixed to the head 36 by means of screws 64, between the sleeve 12 and the post 46. It will be noted that the assembly may be selectively positioned and wedged in the sleeve 12 so as to locate the post in a predetermined position.

Now referring particularly to the embodiment of the invention illustrated in FIGS. 5 to 8, pre-cast concrete stair tread 70 has embedded therein a tubular sleeve 72 rectangular in transverse section. At the outer end of the sleeve 72 is a flange 74 flush with the end of the stair tread. The opposite end of the sleeve is closed by a plate 76 which is provided with a threaded aperture 78. In order to more firmly embed the sleeve 72 in the concrete, the sleeve may be provided with a pair of wing plates 80, turned up as at 82.

The mounting also includes a wedge assembly having an inner wedge 86 provided with rounded surfaces 88 on the top and bottom thereof and flat surfaces 90 on

opposite sides thereof. The inner end of the wedge 86 is provided with a cross slot 92. The outer end of the wedge is provided with an inclined surface 94. The wedge is also provided with a through bore 96. The mounting also includes an L-shaped outer wedge 98. One of the legs of the wedge 98, designated 100, extends horizontally and is provided with an inner end portion 102 which is round on the top and on the bottom, as at 104, and flat on the opposite sides thereof, as at 106. The inner end is provided with an inclined surface 107. At the outer ends of the flat areas 106 are a pair of shoulders 108. The outer portion of the leg 100, designated 110, is round in transverse section. The leg 100 is provided with a through bore 112 terminating at the outer end thereof in a counterbore 114. The through bore is aligned with the bore 96 in the inner wedge 86. Extending through the bores 112 and 96 is an Allen socket head cap screw 116 threaded into a square nut 118. The head of the screw 116 nests in the counterbore 114, while the nut 118 nests in the slot 92. The other leg of the outer wedge, designated 120, extends upright and fits into a socketed lower end portion of a post 122.

The sleeve 72 is embedded in the masonry stair tread as described in connection with the embodiment of FIGS. 1-4. The bolt which holds the sleeve to the form while the concrete is being poured is threaded into the aperture 78.

The wedges 86 and 98 are assembled by projecting the screw 116 through the bores 112 and 96 respectively of the wedges 98 and 86 and threading the screw 116 into the square nut 118. The head of the screw 116 nests in the counterbore 114, while the nut 118 nests in the slot 92. The assembled wedges are then projected into the sleeve 72 through the outer end thereof. The screw 116 is now turned to draw the wedges together, whereupon the inclined surfaces 94 and 107 move over each other, and the lower surface of the wedge 86 and the upper surface of the wedge 98 are forced respectively against the lower and upper walls of the sleeve 72. Thus the assembly is wedged in the sleeve 72 in a selected position longitudinally thereof, but preferably with the shoulders 108 abutting the flange 74.

The post 122 is now fitted over the leg 120 of the outer wedge 98.

As in the case of the embodiment of FIGS. 1 to 4, the assembly may be selectively positioned and wedged in the sleeve 72 so as to locate the post in a predetermined position.

Now referring to the embodiment of the invention illustrated in FIGS. 9 to 12, pre-cast concrete stair tread 150 has embedded therein a tubular sleeve 152 which is rectangular in transverse section. The inner end of the sleeve is closed by a plate 154 which has affixed thereto a crossbar 156. The plate 154 and crossbar 156 have extending therethrough a threaded aperture 158. The outer end of the sleeve 152 is flush with the end of the stair tread 150.

The mounting also includes a wedge assembly having an inner wedge 162 which is rectangular in transverse section. The outer end of the wedge is provided with an inclined surface 166. The wedge is provided with a through bore 168 terminating in a square counterbore 170. The mounting also includes an outer wedge 172 which is rectangular in transverse section. The inner end of the wedge is provided with an inclined surface 174. The wedge is also provided with a through bore 176 aligned with the through bore 168 of the inner wedge 162. Abutting the outer end of the outer wedge is an upright key bar 178 which is T-shaped in transverse section. Extending through the bar is a counter-sunk hole 180 aligned with the bores 176 and 168, and extending through these bores is a counter-sunk head screw 182 threaded into a square nut 184 nested in the counterbore 170. Fitted over the bar 178 is a post 188 having a key-

way 190 shaped to receive the head of the key bar 178. A pair of set screws 186 threaded into the key bar 178 engage the post 188 and hold it to the key bar.

In order to enhance the appearance of the mounting a cap 192 is provided to fit around the underside of the outer wedge between the sleeve and the post, being secured to the outer wedge by means of a screw 204.

The sleeve 152 is embedded in the masonry stair tread 150 as described in connection with the embodiments of FIGS. 1-4, and 5-8. The bolt which holds the sleeve to the form while the concrete is being poured is threaded into the aperture 158.

The wedges 162 and 172 are assembled by projecting the screw 182 through aperture 180 of the bar 178 and bores 176 and 168 respectively of the wedges 172 and 162 and by threading the screw 182 into the nut 184 nested in the counterbore 170. The assembled wedges 162 and 172 are then projected into the sleeve 152 through the outer end thereof. The screw 182 is now turned to draw the bar 178 and wedges 162 and 172 together, whereupon the inclined surfaces 166 and 174 move over each other and the lower surface of wedge 162 and the upper surface of wedge 172 are forced respectively against the lower and upper walls of the sleeve 152, wedging the assembly therein in a selected position longitudinally of the sleeve 152.

The post is now passed down over the bar 178, being interlocked therewith by its groove 90 receiving the T-shaped bar, thereupon the set screws 186 are threaded in to hold the post to the bar 178.

If desired, the cap 192 may be affixed to the outer wedge 172, between the sleeve 152 and the bar 178.

It will be noted that the assembly may be selectively positioned and wedged in the sleeve 152 so as to locate the post in a predetermined position.

What is claimed is:

1. In apparatus for securing the posts of handrailings to masonry stair treads, the combination comprising a tubular sleeve adapted for being embedded in and thereby anchored to a masonry stair tread, and a wedge assembly including inner and outer coacting wedges non-turnably fitted into and selectively positioned longitudinally of said sleeve and provided with abutting surfaces inclined relative to the axis of said sleeve, the outer one of said wedges being provided with a head extending across the outer end of said sleeve and adapted for being interposed between said sleeve and the base of the post, a screw extending through said wedges and drawing said wedges together for being wedged tightly in said sleeve in the selected position thereof, and screws threaded into said head and adapted for extending through the base of said post and holding the same to said head in overlying relation to the outer end of the first mentioned screw.

2. The combination defined in claim 1 wherein the screw extending through the wedges is threaded into a nut non-turnably engaged with the inner wedge, the sleeve is rectangular in transverse section, and said inner wedge and the part of said outer wedge fitted into said sleeve are rectangular in transverse section.

3. In apparatus for securing the posts of handrailings to masonry stair treads, the combination comprising a tubular sleeve adapted for being embedded in and thereby anchored to a masonry stair tread, and a wedge assembly including inner and outer coacting wedges non-turnably fitted into and selectively positioned longitudinally of said sleeve and provided with abutting surfaces inclined relative to the axis of said sleeve, the outer one of said wedges being provided with a lateral extension disposed a substantial distance outwardly from said sleeve and adapted for having the post fitted thereover, and a screw extending through said wedges and drawing said wedges together for being wedged tightly in said sleeve in the selected position thereof.

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4. The combination defined in claim 3 wherein the screw extending through the wedges is threaded into a nut non-turnably engaged with the inner wedge, the sleeve is rectangular in transverse section, the wedges are round in transverse section, and said inner wedge and the portion of said outer wedge fitted into said sleeve are each provided with oppositely facing flat surface areas received between opposite side walls of said sleeve.

5. In apparatus for securing the posts of handrailings to masonry stair treads, the combination comprising a tubular sleeve adapted for being embedded in and thereby anchored to a masonry stair tread, and a wedge assembly including inner and outer coacting wedges non-turnably fitted into and selectively positioned longitudinally of said sleeve and provided with abutting surfaces inclined relative to the axis of said sleeve, a bar abutting and extending across the outer end of the outer one of said wedges and thereby disposed a substantial distance outwardly from said sleeve, said bar being adapted for interlocking with the post, a screw extending through said bar and wedges and drawing said wedges together for being wedged tightly in said sleeve in the selected position

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thereof, and screws threaded into portions of said bar extending laterally from said outer wedge and adapted for holding the post and said bar in locked engagement.

6. The combination defined in claim 5 wherein the screw extending through the bar and the wedges is threaded into a nut non-turnably engaged with the inner wedge, the sleeve is rectangular in transverse section, the wedges are round in transverse section, the bar is T-shaped in transverse section and the opposite end portions thereof extend laterally respectively from the outer wedge, and the post securing screws extend respectively through the opposite end portions of said bar.

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