June 21, 1966 R. F. SEERY 3,256,658

VERTICALLY ADJUSTABLE POST ASSEMBLY

Filed Sept. 17, 1962 2 Sheets-Sheet 1

FIG. 1

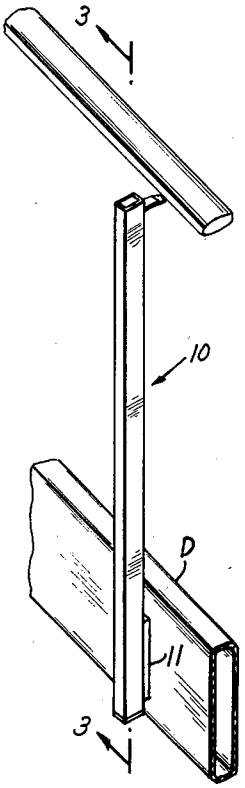


FIG. 2

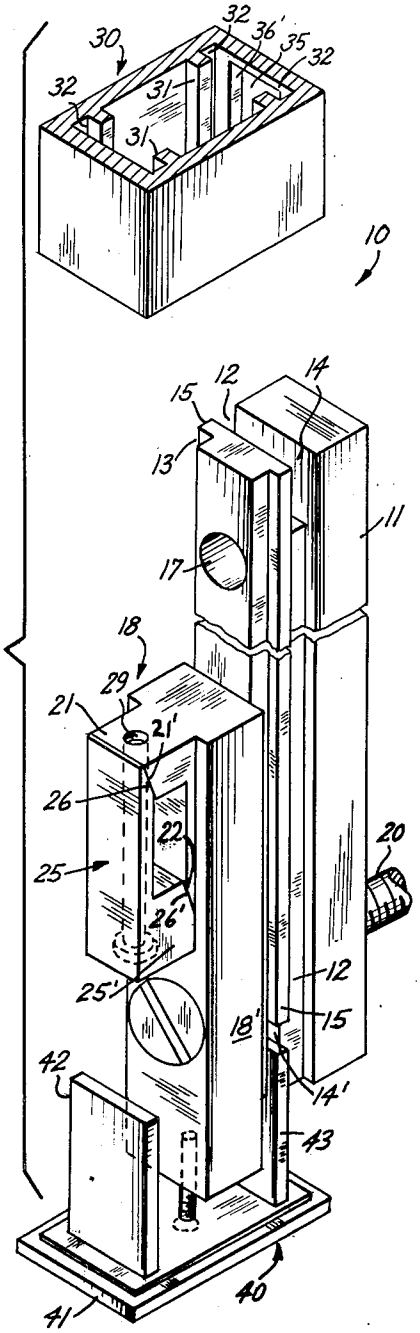
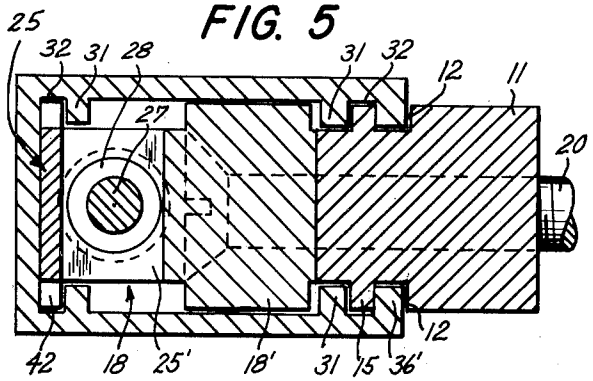


FIG. 5



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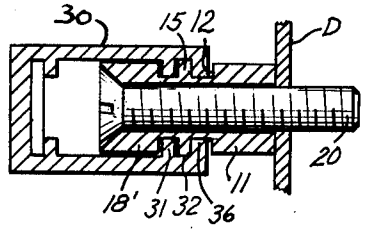


FIG. 4

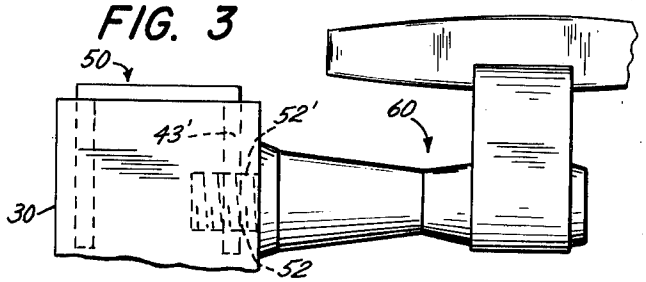


FIG. 3

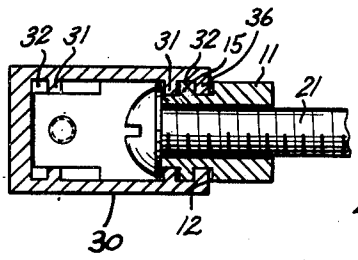
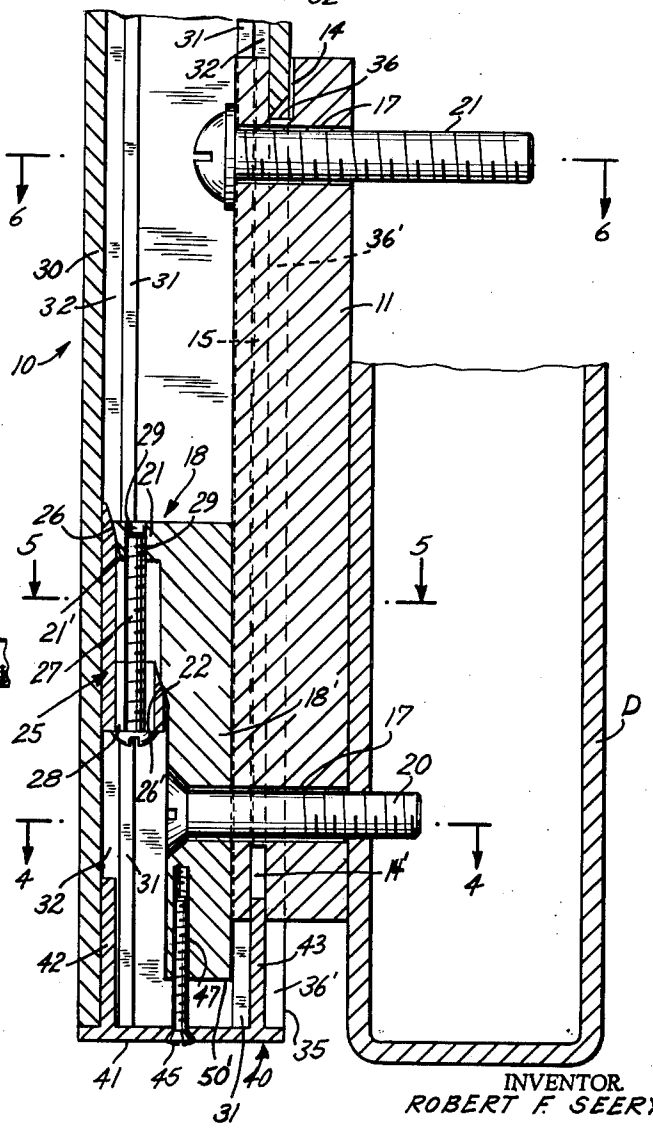


FIG. 6



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United States Patent Office

3,256,658

Patented June 21, 1966

3,256,658

VERTICALLY ADJUSTABLE POST ASSEMBLY

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Filed Sept. 17, 1962, Ser. No. 224,133
7 Claims. (Cl. 52—292)

This invention relates to the art of structural components, more particularly to an improved post assembly of the type having utility as a support for a railing such as used on stairs, balconies or the like.

As conducive to an understanding of the invention, it is noted that a variety of post assemblies have been evolved to provide support for rail members extending, for example, either horizontally, as on balconies, or at an angle to the horizontal, as on staircases. To obtain the desired feeling of lightness and airiness, which is in accord with the requirements of contemporary architectural design, the structural component must be of relatively small dimension, as a result of which problems are engendered in obtaining requisite strength. In order to obtain as clean an appearing surface as possible, it is desired to mount the post assembly by fastening means which are not preceptible, since screw heads or the like conventional fastening members interfere with surface continuity.

It is, accordingly, among the objects of the invention to provide an improved structural component, such as post assembly which, though of relatively small cross-sectional dimension provides desired structural strength, and at the same time permits ready installation and adjustability to accommodate normally encountered installation variations, with the fastening members employed for securing the post assembly to a datum being concealed without marring the surface continuity of the structural component.

More particularly, an additional object of the invention is to provide a post assembly of the above type which includes coupling means permitting the utilization of hollow post members, thereby to reduce weight, yet at the same time give the illusion and strength functions of a solid member.

A further object of the invention is to provide coupling means of the above type which may readily be adjusted releasably to lock a post member to a fixed datum.

According to the invention, the post assembly components comprise attaching or support means in the form of an elongated strip adapted for securement to some datum, such as a wall, railing, or the like. Slidably arranged with respect to these attaching means is a hollow post member, which will be understood to designate any columnar structural component, preferably formed of an extruded section of aluminum or the like material of suitable structural strength. Novel coupling means are provided between the post member and the attaching means so as to permit releasable locking and selective adjustability of the post member with respect to the attaching means and permitting the use of hidden fastening members. The coupling means utilizes a locking strip adapted for rigid securement to the attaching means. Formed on the locking strip are beveled surfaces adapted for coaction with complementary beveled surfaces on a locking member movable thereagainst, with the locking member acting as a wedge bearing against the interior of the hollow post member which encompasses the coupling means to retain the post member in fixed position.

An important feature of the invention resides in the fact that the fastening members employed for securing

the post member to a datum are hidden within the post to prevent marring of surface continuity.

In the accompanying drawings in which are shown one or more of various possible embodiments of the several features of the invention,

FIG. 1 is a perspective view showing the novel structural component as embodied in a mounting member such as a post assembly arranged to support a railing,

FIG. 2 is an exploded perspective view with parts broken away showing the details of the components of the post assembly,

FIG. 3 is a longitudinal cross-sectional view taken on line 3—3 of FIG. 1 indicating the desired relationship between the components of the post assembly,

FIG. 4 is a cross-sectional detail view taken on line 4—4 of FIG. 3,

FIG. 5 is a cross-sectional view taken on line 5—5 of FIG. 3, and

FIG. 6 is a cross-sectional view taken on line 6—6 of FIG. 3.

Referring now to the drawings, as shown in FIGS. 2 and 3, the post assembly **10** comprises an attaching strip **11** substantially rectangular in cross-section, and preferably fabricated of bar stock. An elongate, longitudinally extending groove **12** is formed on each side of strip **11**, and a rabbet **13** is spaced from groove **12** to form an elongate, longitudinally extending fin **15**, as best seen in FIGS. 2 and 5. A plurality of bolt holes **17** are arranged to extend through strip **11**, as best viewed in FIG. 3. Suitable fastening members are extended through these holes **17** to secure the attaching strip to a desired datum D such as a wall or the like. Thus, a lower bolt **20** in the form of a flat-headed machine screw is extended through the lower-most hole **17**, and a round-headed machine screw **21** is illustrated as employed in upper hole **17** as seen in FIG. 3. It will be apparent to those skilled in the art that a flat-headed machine screw may also be utilized in lieu of round-headed screw **21**. At the lower hole **17**, however, a flat-headed machine screw **20** is required, to provide clearance in assembly as will become hereafter apparent.

A coupling member **18** is provided comprising a strip **18'** formed of bar stock similar to that of attaching strip **11**, and is positioned adjacent to the lower end of the strip **11** as seen in FIGS. 2 and 3. The upper and of strip **18'** has an outwardly extending lip **21** with a beveled front edge **21'**. In addition, the strip **18'** has an inclined surface **22** between the ends thereof, the beveled edge **21'** and inclined surface **22** forming camming surfaces. Movably mounted for coaction with the camming surfaces **21'**, **22**, is a locking or wedge member **25** of L-shaped configuration as shown in FIGS. 2 and 3 and having beveled surfaces **26**, **26'** coacting respectively with the camming surfaces **21'**, **22**. Movable locking member **25** is maintained in operative position with respect to the camming surfaces **21'**, **22** of strip **18'** by means of machine screw **27** which passes freely through a bore **28** in the foot **25'** of L-shaped locking member **25** as seen in FIG. 3, and into threaded engagement with a tapped bore **29** in the lip **21**.

The bore **28** is of diameter considerably greater than that of screw **27** to permit lateral movement of the locking member **28** when the screw **27** is rotated. The post **30** is formed of hollow bar stock as best seen at the upper portion of FIG. 1. The bar stock employed in fabricating post **30** is preferably an extruded non-ferrous metal such as aluminum, brass bronze, or some suitable alloy, or plastic having requisite strength and lending itself to formation by extrusion. Formed on the interior of post

30 which illustratively is rectangular in cross section, are spaced fins 31 serving to form channels 32 at each corner of the interior of the post 30, and a wall of the post 30 at its lower end, is cut away as at 35, as by milling, as shown in FIG. 3.

The upper transverse periphery of cutaway 35 forms a flange 36 positioned in upper transverse groove 14 in attaching strip 11 aligned with grooves 12 as shown in FIGS. 2 and 3 and the parallel longitudinal edges of the cutaway 35 define flanges 36' which fit in the grooves 12.

An end cap 40, as best seen at the lower end of FIG. 2, is formed with base plate 41 having upstanding flanges 42 and 43. Cap flanges 42 and 43 are substantially identical and are of a thickness permitting them to slide freely within channels 32 as viewed in FIG. 3. As viewed in FIG. 3, it will be noted that flange 43 is also adapted for insertion into lower transverse groove 14' of attaching strip 11 also aligned with grooves 12. A cap fastening means 45 in the form of a machine screw extends freely through base plate 41 into engagement with threaded aperture 47 in strip 18'.

At the upper end of the post 30 as seen in FIG. 3, a cap member 50 similar to cap member 40 is provided, with the one distinguishing feature between cap 50 and cap 40 residing in the absence of the fastening member 45 within cap member 50. Instead, cap member 50 is held in place with respect to the post 30 by means of a bolt member 52 here shown as part of rail support 60, which extends through a hole 52' in the post 30 into a threaded hole in flange 43' of cap 50.

In use of the post assembly, above described, the attaching strip 11 is secured, illustratively in vertical position, to any suitable datum D, here illustrated as a base rail in FIG. 1 of either a staircase or balcony. Attaching strip 11 is firmly secured with respect to this datum D by means of bolts 20 and 21. First, upper bolt 21 is anchored into position to hold attaching strip 11 with respect to the datum. Thereafter, the strip 18' with its associated locking member 25 is secured into position with respect to the attaching strip 11 by means of lower bolt 20 which extends through aligned holes in the strip 18' and the attaching strip into the datum D.

The hollow post member 30 which may be cut to the desired length from a continuous length of stock and then provided with the cutaway 35 and hole 52', is then slid over the assembled coupling member 18 with the cutaway 35 facing the strip 11 and with the post flanges 36' engaging in groove 12 of strip 11. The post is moved downwardly desirably until the flange 36 at the upper edge of the cutaway 35 enters the upper transverse groove 14 and seats on the floor thereof as clearly shown in FIG. 3. Screw 27 is then rotated to be drawn upwardly into tapped aperture 29 to draw the locking member 25 upwardly. As a result, the beveled surfaces 26, 26' will ride up the camming surfaces 21', 22 of strip 18 causing the locking member to move outwardly to wedge against the inner surface of post 30 as shown in FIG. 3, forcing post 30 to the left, referring to FIG. 5, so that the post flanges 36' will press against the fins 15 along their entire length, thereby securely locking the post in position.

Thereafter, end cap 40 is secured into position by means of screw 45 at the bottom of the post assembly, and cap 50 is similarly secured into position at the top of the post.

It is apparent that the vertical position of the post 30 is adjustable upwardly from the position shown in FIG. 3, with respect to the datum D, by a distance equal to the distance between the end 50' of the strip 18' and the plate 41 of cap 40.

This is usually sufficient to take care of normal tolerances that may occur in manufacture of the components such as the size of screw holes.

If it is desired to increase the range of adjustability, it is merely necessary to increase the length of the cutaway 35 and the length of screw 45 which holds the end caps in position.

The post assembly above described provides an architectural support member with desired airiness and lightness and permits desired releasable locking of the post member with respect to a datum, with all fastening members hidden and with adjustability to compensate for slight variations in dimensions.

Though the invention has been presented as embodied in a mounting post assembly, it is readily understood that a construction for securing a hollow member to a datum is presented having utility in connection with a wide variety of structural components where it is necessary or desirable to present a continuous face of the component unmarred by the appearance of fastening members.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

I claim:

1. A post assembly comprising a hollow elongated structural post member having a cutaway formed in a wall thereof defining inwardly extending flanges, an attaching strip adapted to be secured by conventional fastening members to a desired datum, said strip having an elongated groove formed on each side thereof slidably receiving said flanges, and coupling means received in said cutaway and secured to said attaching strip and encompassed by said hollow post member, said coupling means including a generally vertically movable wedge member engaging the interior of said hollow post member and reacting against said attaching strip thereby releasably securing said hollow post member to said attaching strip.

2. A post assembly as defined in claim 1 wherein said coupling means further includes a locking strip secured to said attaching strip, a camming surface on said locking strip, and means extending between said locking strip and wedge member to facilitate locking engagement with the post member.

3. The combination set forth in claim 1 in which said coupling means further includes a locking strip having camming surfaces secured to said attaching strip, said wedge member having complementary inclined surfaces contacting and adapted to ride on the camming surfaces of said locking strip, means to effect movement of said wedge member with respect to said locking strip to engage the inner surface of said hollow post member to lock said post member in position.

4. The combination set forth in claim 3 and further including a screw extending through said movable wedge member into threaded engagement with said locking strip, whereby upon turning of the screw, said wedge member will be moved with respect to said locking strip to effect movement of the inclined surfaces of said wedge member with respect to the camming surfaces of said locking strip, thereby to effect such outward movement of said locking member.

5. The combination set forth in claim 1 in which said attaching strip has a fin extending along each of the grooves, said post member having a fin located behind each of said post flanges and spaced therefrom to form channels, said fins of said attaching strip being received in said channels.

6. The combination set forth in claim 1 in which said post member is substantially rectangular in cross section and is formed with channels on the interior thereof at each corner, an end cap closing off the ends of said post, each of said end caps having a pair of parallel flanges extending respectively into an associated pair of said channels.

7. A post assembly comprising a hollow elongated structural post member having a cutaway formed in a wall thereof, an attaching strip adapted for securement by conventional fastening members to a desired datum, said strip having an elongate longitudinally extending groove on each side thereof within which the edges of the walls of said post member adjacent said cutaway are slidably accommodated to permit sliding of said post member with respect to said attaching strip, a coupling secured to said attaching strip and encompassed by said hollow post member, said coupling comprising a locking strip secured to said attaching strip, a camming surface on said locking strip, a wedge member having a camming surface contacting and adapted to ride on the camming surface on said locking strip, and a screw member extending between said wedge member and said locking strip, whereby tightening or loosening of said screw member will effect associated displacement of said wedge member into and out of engagement with the inner surface of said hollow post member to effect locking and unlocking of said post with respect to said attaching strip.

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