

[54] **SHELVING ARRANGEMENT OR THE LIKE**

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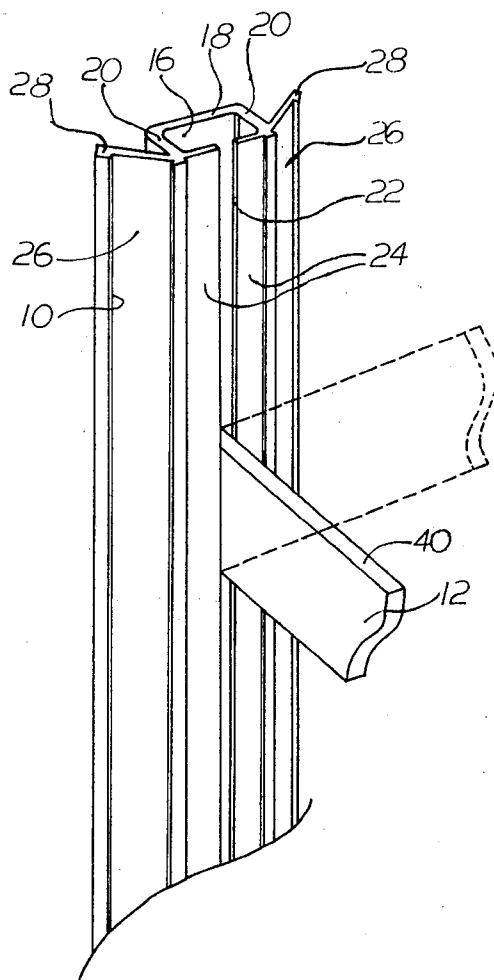
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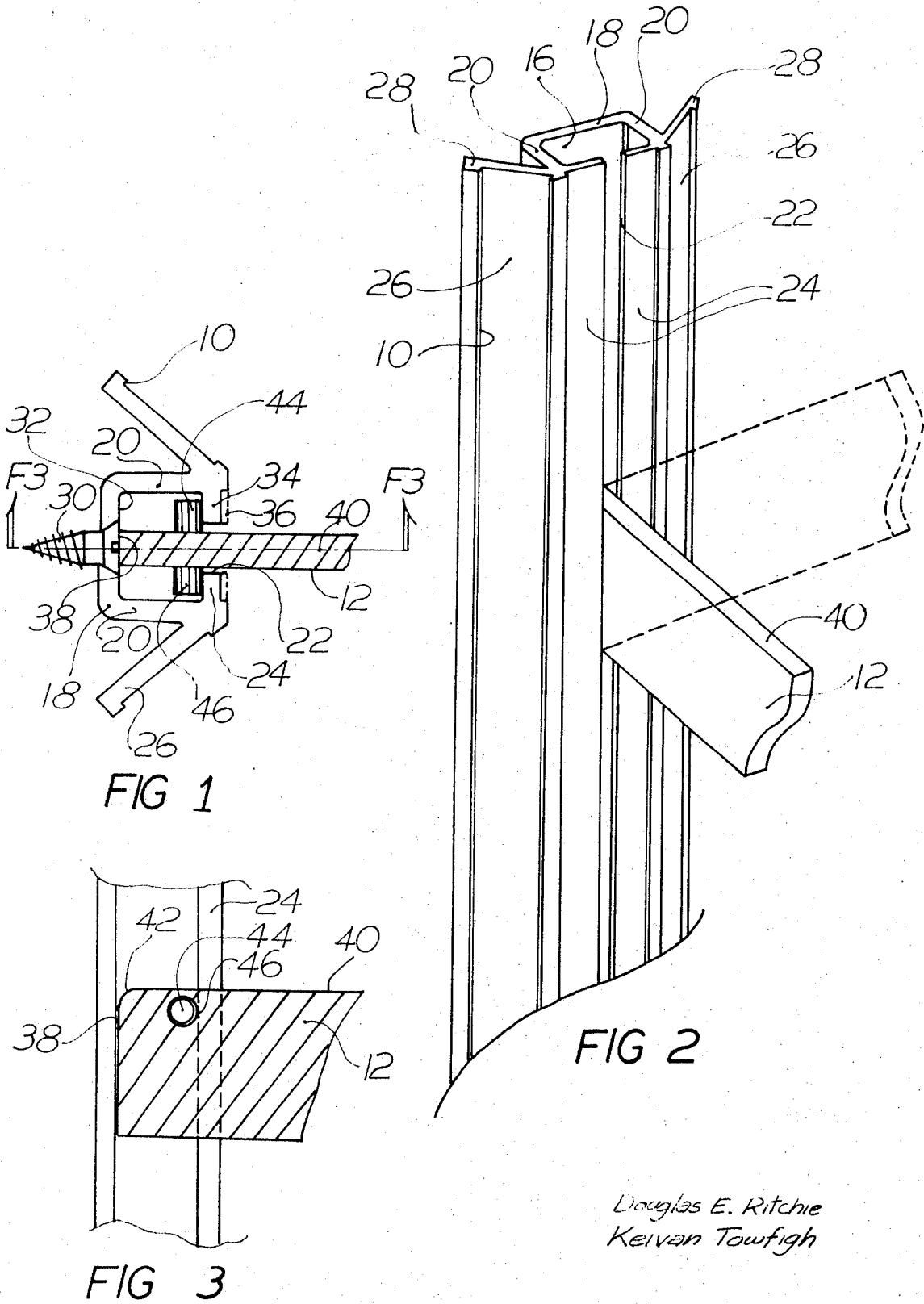
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[57] ABSTRACT

A shelving arrangement having a number of transversely spaced vertical standards receives a shelf bracket in each standard. The connection between each shelf bracket and its associated standard is slidable to permit the shelf bracket to be positioned at any heightwise location along the length of its respective standard. The connective end of each bracket fits within a T-shaped channel in the standard and is retained by special cooperation of the bracket, the channel and a transverse pin secured to the bracket, the ends of the transverse pin being retained within the T-shaped slot. In the preferred embodiment, the location and configuration of the bracket, pin and T-shaped channel define a toggle-like retaining mechanism.

7 Claims, 4 Drawing Figures





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SHELVING ARRANGEMENT OR THE LIKE

This application is a continuation-in-part of my co-pending prior application Ser. No. 211,943 filed Dec. 27, 1971 and now abandoned.

BACKGROUND OF THE INVENTION

Our invention relates to shelving arrangements or the like and, more particularly, to a flexible type of arrangement which may be adjusted easily. The prior art includes a wide variety of standard and bracket shelving arrangements, most of which are of varying complexity. Most such prior shelving arrangements include special fastening devices to lock the bracket rigidly to the standard. Additionally, most of such arrangements only enable the shelf brackets to be positioned at fixed locations along the standard. In those proposed arrangements which have been intended to provide infinitely variable shelf positioning, the structure has been somewhat complex and expensive to manufacture. In most cases, one advantage of the arrangement is achieved at the expense of another feature. It is among the primary objects of the invention to provide an improved shelving arrangement which is extremely simple yet which displays all of the characteristics which are desirable in such shelving arrangements and in which the achievement of one desirable characteristic is not obtained at the expense of another.

SUMMARY OF THE INVENTION

In brief, the invention employs an elongate standard which includes a channel of somewhat T-shaped cross section. The channel includes a longitudinal slot to expose the channel along the full length of the standard. The bracket comprises a cantilever elongate member adapted to support a shelf or the like. The cantilevered end of the bracket, which fastens to the standard, is flat and is of a thickness to enable the connective end to be inserted into the central slot so that the inner end may lie flat against the interior surface of the bracket in abutment with the inner flat surface of the central slot. The connective end of the bracket also includes a pin which extends transversely through the bracket to project transversely into the transverse sides of the channel. The pin is spaced from the inner end of the bracket so that when the bracket is manipulated into its final configuration in the bracket, the pin and inner end of the bracket will be wedged firmly into the channel. The wedging effect is sufficient to lock the bracket in place although any load applied to the free end of the bracket would further rigidify it in the channel. The ends of the pin preferably are splined to enhance their grip on the inner surfaces of the channel. With the load removed from the bracket, the heightwise position of the bracket on its associated standard may be adjusted simply by pivoting the bracket about the pin to swing the inner end of the bracket free from the inner surface of the channel and then slide the bracket with the pin in the channel to the desired heightwise position along the standard. The bracket may be secured to the standard at any other position by simply rotation the outer end of the bracket downwardly to wedge the pin and inner end of the bracket into the channel.

It is among the primary objects of the invention to provide an improved shelf supporting arrangement.

A further object of the invention is to provide an easily adjustable shelving bracket arrangement in which no special tools or fasteners are required to adjust the

position of the bracket or to fasten the bracket in place.

A further object of the invention is to provide a shelving system which is highly flexible.

Another object of the invention is to provide a shelving arrangement in which the shelving brackets may be variably positioned at any heightwise position along the associated standards.

Yet another object of the invention is to provide a bracket of the type described which is inexpensive and yet which is aesthetically pleasing and rugged.

DESCRIPTION OF THE DRAWINGS

These and other objects and advantages of the invention will be understood more fully from the following detailed description thereof with reference to the accompanying drawings wherein:

FIG. 1 is an end view of the shelving arrangement;

FIG. 2 is an isometric elevation of the shelving arrangement;

FIG. 3 is a sectional view of the arrangement as viewed along the line F3—F3 of FIG. 1; and

FIG. 4 is an enlarged side elevation of the inner end of the shelf bracket and illustrating the dimensional relationships between the pin, the inner end of the bracket and the channel in the standard.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The shelving arrangement includes a number of standards 10 which are fastened to a wall, as described herein, at least one shelf bracket 12 associated with each standard and the shelf itself (not shown). The standard 10 may be formed from an appropriate material such as extruded aluminum. As shown in the drawings the cross-sectional configuration of the standard defines a channel 16 defined by the rear wall 18 and side walls 20. The channel 16 is exposed along the length of the standard by a restricted longitudinal slot 22 defined by a pair of inwardly extending longitudinal flanges 24. The flanges 24 and rear and side walls 18, 20 define a somewhat T-shaped cross-sectional configuration for the channel 16. A pair of oblique longitudinal walls 26 may extend from the forward corner of each side wall 20 rearwardly and outwardly so that their free edges 28 lie in substantially the same plane as the rear wall 18 of the standard 10.

When the standard 10 is fastened to the wall, the edges 28 of the oblique walls 26 bear firmly against the wall and provide additional support for the standards.

The standard 10 is fastened to a wall by appropriate fasteners, such as flat head screws or bolts 30 extending through appropriate hole formed in the rear wall 18 of the standard. The fastener 30 preferably is countersunk within the rear wall 18 so that the forwardly facing inner surface 32 of the rear wall 18 presents a smooth planar surface.

The forwardly facing outer surfaces 34 of the flanges 24 and/or the walls 26 preferably are recessed slightly to enable an adhesive strip of decorative material 36 to be bonded thereto in flush relation to the exposed surface of the standard. This presents a pleasing appearance and enables the standard to be matched to the room decor with ease.

The shelf brackets 12 may be formed simply from a suitably dimensioned aluminum bar in which at least the inner connective end of the bracket is of a width adapted to pass easily through and along the longitudi-

nal slot 22. The inner end of the bracket defines an inner edge 38 which is generally normal to the longitudinal supportive edge 40 of the bracket 12. In some instances it may be desirable to fabricate the bracket 12 so that the shelf supporting edge 40 extends at a slight upward and outward incline to retain the shelf effectively without requiring shelf retaining projections at the end of the bracket as is employed commonly in the art. It should be noted, however, that in some instances it may be desirable for the shelf to be supported in a forwardly and downwardly inclined attitude. With such a configuration the forward end of the shelf should have a lip and the forward end of the bracket 12 should have the means commonly employed to retain the shelf from sliding off of the bracket.

The corner juncture between the edges 38, 40 is rounded or otherwise reduced as shown at 42. For example, FIG. 4 shows an embodiment in which the corner juncture is defined by the oblique surface 42. The pin 44 is spaced forwardly of the inner edge 38 of the bracket so that when the inner edge 38 is in flush abutment with the rear wall 18 of the standard 10 the transverse end of the pins 44 and edge 38 of the bracket 12 will be wedged between and bear firmly against the inner surfaces of the slot-defining flanges 24 and the rear wall surface 32. The grip of the transverse pin 44 against the flanges 24 may be enhanced further by providing the pin with splines 46 as shown in FIG. 1. An important aspect of the invention resides in the relative dimensions of the pin 44, its spacing from the inner edge 38 of the bracket, and the depth of the channel 16 between the rearward wall 32 and the rearwardly facing surfaces of the flanges 24. The distance between the forward most surface of the pin 44 and the inner edge 38 of the bracket 12 is slightly greater than the depth of the channel 16 as measured between the surface 32 and the rearwardly facing surface of the flanges 24. For example, with a standard in which the distance between the rear wall 32 and the inwardly facing surface of the flanges 24 is approximately 0.300 inches, the pin may be spaced from the inner edge 38 of the bracket 12 so that the forward facing portion of the pin surface is approximately 0.305 inches. When the shelf is in its shelf-supporting configuration (horizontal as shown in FIGS. 2 and 3) the pin and inner edge 38 of the bracket are wedged firmly and securely within the channel. The bracket 12 may be inserted and selectively positioned within the channel by orienting it in an attitude as suggested in phantom in FIGS. 2 and 4 in which the forwardly extending end of the bracket 12 is swung to an upward attitude. As suggested in phantom in FIG. 4, this effectively reduces the horizontal distance between the then inner most end of the bracket 12 and pin 44 and permits the bracket 12 to be moved vertically along the standard. The reduced corner juncture 42 or 54 permits the upward swinging of the bracket 12.

A further aspect of the invention resides in the relative location of the pin 44 with the point on the inner edge 38 of the bracket 12 where the vertical portion joins or merges into the reduced corner portion. This point is shown in FIG. 3 at 50 and in FIG. 4 at 52. The preferred embodiment of the invention includes a toggle-like action which is caused by spacing the pin 44 from the inner end of the bracket 12 as explained above and also by locating the pin slightly below the point 52 such as by the increment "y". By locating the pin 44 below point 52, downwardly swinging of the

bracket 12 about point 52 or pin 44, or either of them requires the pin 44 to pass through a maximum horizontal spacing from point 52 in which both the point 52 and pin are in horizontal alignment. The parts of the bracket and standard are preferably designed to provide yieldable resistance to such action. After the pin has passed through the imaginary horizontal line in which the pin 44 and point are horizontally aligned, the resistance decreases because the horizontal distance between the pin and point 52 then begins to decrease. The parts are so structured, however, that when the inner edge 38 of the bracket 12 lies flush against the surface 32 of the standard, the horizontal spacing from the inner edge 38 to the portion of the pin which bears against the flange 24 is slightly more than that between the inner surface 32 of the standard at the inwardly facing surface flanges 24 to give the wedged-in-action discussed above.

Heightwise adjustment of the bracket is removed, simple in that, after the shelf 14 has been removed, the heightwise position may be adjusted by rotating the bracket 12 to swing its inner surface away from the rear wall of the channel thus permitting it to slide freely along and within the channel. The flush configuration of the fasteners 30 along the rear wall 18 provides for a smooth uninterrupted surface along which the bracket may be variably positioned.

The invention has been described primarily in relation to a shelving arrangement which may be secured to a wall. It should be noted, however, that the features of the invention may be employed in other environments such as, for example, where the standard is free standing and is supported at its lower end, upper end, or either of them. In addition, the bracket may be modified to support other than shelves.

Thus, we have described an improved shelving bracket arrangement which is of simple and inexpensive construction yet which provides the advantages referred to herein. It should be understood, however, that the foregoing description of the invention is intended merely to be illustrative thereof and that other modifications and embodiments may be apparent to those skilled in the art without departing from its spirit.

Having thus described the invention what we desire to claim and secure by Letters Patent is:

1. A supporting structure comprising:

a elongate standard defining a longitudinal channel having a rear wall, a pair of spaced side walls extending forwardly from said rear walls, said channel having a forwardly facing restricted opening formed along its length and at the forward region thereof, said restricted opening being defined by a pair of flanges extending inwardly toward each other from the forward edge of said side walls; means enabling said standard to be secured in an upright position without presenting any obstruction to said channel;

a bracket having an inner connective end and an upper supporting surface at least along a portion of its length, said inner end of said bracket being receivable within said restricted opening to enable the inner edge of said bracket to abut the rear wall of said channel at least when said bracket is connected to said standard and extends therefrom in a member-supporting configuration; and

a pin connected to and extending transversely through said bracket, said pin being spaced from

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that region of the inner edge of said bracket which abuts the rear wall of said channel in an amount greater than the distance between said rear wall to the rearwardly facing surface of said flanges such that when said bracket is in said member supporting configuration with the inner bracket edge abutting said rear wall of said channel, the transversely extending ends of said pin will bear forwardly and will be wedged against the rearwardly facing surfaces of said flanges.

2. An arrangement as defined in claim 1 wherein the corner region between said inner edge of said bracket and said supporting surface of said bracket is reduced to enable said bracket to be pivoted about said pin between said member-supporting position and a non-supporting position when said pin is retained within said channel.

3. An arrangement as defined in claim 2 wherein said pin is splined.

4. An arrangement as defined in claim 2 wherein at least one end of said channel is open and unobstructed.

5. An arrangement as defined in claim 2 further comprising:

said pin being mounted on said bracket at a location which is below the juncture of said inner edge and said reduced corner region when said bracket is in

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said member-supporting position thereby to require a toggle-like action between said inner end of said bracket and said standard while pivoting the outer end of said bracket between member-supporting and non-supporting positions.

6. An arrangement as defined in claim 1 further comprising:

supplemental side wall means extending along the length of said standard on each side thereof, said supplemental side wall means extending from the forward ends of each of said side walls outwardly and rearwardly, the free edges of said supplemental side walls being disposed in substantially the same plane as the rear wall defining said channel whereby when said standard is secured to said wall, the edges of said supplemental wall means and said rear wall of said channel will bear firmly against said supporting wall.

7. A support arrangement as defined in claim 6 further comprising:

the outer surface of each of said supplemental side wall means being reduced slightly to receive a thin decorative tape strip along the length of each of said supplemental side walls.

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