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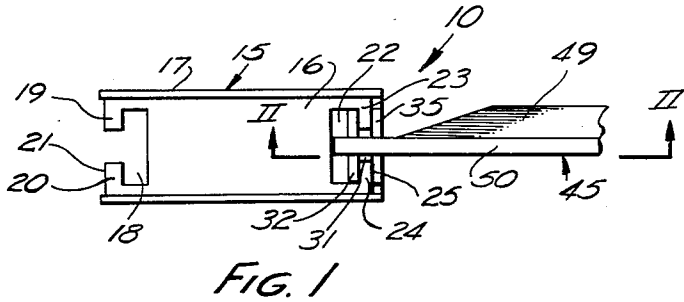


FIG. 1

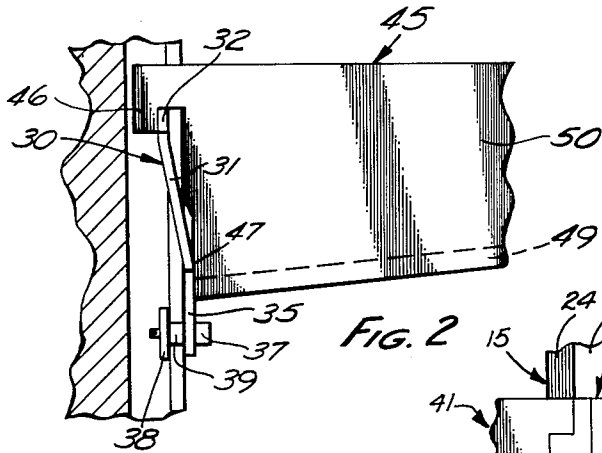


FIG. 2

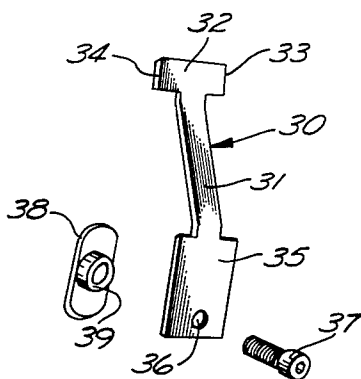


FIG. 3

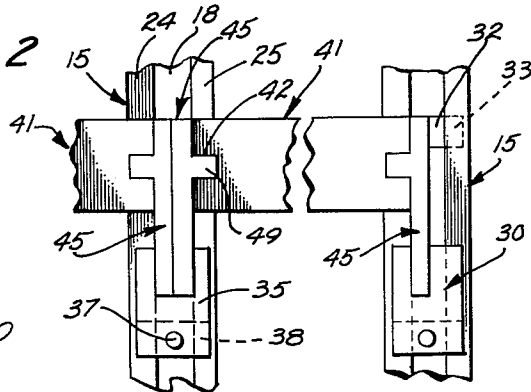


FIG. 4

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This invention relates to a bracket, and more particularly to a bracket assembly including a clip which is detachably connected to a support structure and which supports a readily removable shelf bracket.

Brackets are commonly used to support shelving on a framework of poles or other supports. They have to be inexpensive to be economically competitive, yet sturdy enough to support heavy loads. Structures satisfying these requirements have previously been proposed in the form of supports having T-shaped grooves formed therein into which T-shaped flanges of shelf supporting brackets are slidably received. These sliding brackets are usually held in place by pins insertable into the T-shaped groove at predetermined locations. The disadvantage of such constructions resides in the fact that they are not continuously adjustable, and in the fact that the brackets cannot be removed from the support except at the end of the groove, thus making removal of a central bracket impossible without removal of adjacent brackets.

The present invention overcomes these disadvantages by providing a readily removable clip which can be readily mounted anywhere along the T-shaped groove and forms an anchor over which a shelf bracket can be hooked. The clip of this invention is extremely inexpensive, yet provides a sturdy support for even the simplest brackets.

It is therefore an object of this invention to provide a bracket structure which may be readily connected and disconnected from a grooved support post without disturbing adjacent brackets.

Still another object of this invention is to provide a bracket structure which may be readily adjusted on the support post.

Still another object of this invention is to provide a bracket structure which is economical to make, thereby providing a competitive article of manufacture.

Another object of this invention is to provide bracket structure which has a bracket arm with a shelf ledge adapted to engage a shelf which prevents sidewise movement of the bracket arm.

Yet another object of this invention is to disclose a clip which is detachably connected to the support post and in turn supports the shelf bracket.

These and other objects and advantages of this invention will become more apparent upon reading the specification in conjunction with the accompanying drawings.

In the drawings:

FIG. 1 is a top plan view of the assembly;

FIG. 2 is a cross sectional view of the bracket assembly taken along the section lines II-II of FIG. 1;

FIG. 3 is a perspective view of the clip showing the fastener means in an exploded position; and

FIG. 4 is a front elevation view of the bracket assembly showing the brackets in shelf supporting position.

Basically, this invention involves a bracket structure, and means for supporting the bracket structures. This invention is associated with an upright support structure in the form of a post. The post has T-shaped slots formed therein throughout the longitudinal extent thereof. The slots open onto the end faces of the post through a linear opening defined by a pair of flanges and forming the trunk of the T. A clip is detachably connected to the post. The clip has a lug portion, a neck portion formed integral with the lug portion, and a face plate at the

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opposite end of the neck portion. To install the clip, the lug is turned sidewise and passed through the opening into the slot. The clip is then rotated and the lug is retained in position in the slot by the flanges. The neck portion of the clip passes from the slot through the opening to the exterior of the post. The face plate of the clip abuts the end face of the post and is of a dimension that will not pass through the opening into the slot. The face plate is provided with an aperture which allows passage of a screw or other fastener. The screw has an enlarged head which engages the face plate. The shank of the screw engages a nut which is positioned in the slot and retained therein by the flanges. The fastener fixes the clip in position on the support post. A shelf support having a hooklike member and an abutment surface formed at one end thereof is suspended from the clip. The hook portion passes through the opening and hooks over the lug of the clip. The base of the shelf bracket engages the face plate of the clip. The shelf bracket is thus supported from the post by being suspended from the clip connected to the post.

The bracket assembly is designated generally as 10. The bracket assembly 10 includes the post 15, the clip 30, the screw 37 and nut 38, and shelf bracket arm 45.

Referring now more specifically to the details of the invention, FIGS. 1 and 2 best illustrate the post 10 now to be described.

The post 15 is generally rectangular in cross sectional configuration and may be cut to various length to satisfy the requirement of a particular installation. The post has a body portion 16 which is normally constructed from some type of light metal such as aluminum or magnesium. However, it is to be understood that within the broadest aspect of the invention other materials may be utilized for the post. The sides of the post body 16 may be provided with a decorative covering 17 (FIG. 1) to enhance the appearance of the post. The coverings 17 may be strips of plastic bonded to the body 16, enamel, or any conventional covering material utilized for this purpose.

The ends of body 16 are provided with T-shaped slots 18 and 22 which extend throughout the longitudinal extent of the post. The slots 18 and 22 open onto the respective end faces 21 and 25 of the post 15. This results in the forming of flanges 19 and 20 on the one end face and flanges 23 and 24 on the other end face.

The bracket clip is designated generally as 30 and is best shown in FIG. 3. The clip 30 is a platelike member of generally rectangular configuration.

One end of the clip has a lug portion 32 with outwardly projecting ears 33 and 34.

Formed integral with the lug portion 32 is a neck portion 31. The neck portion 31 has a width dimension which is substantially less than the width of lug 32. The width of neck portion 31 is somewhat less than the distance between the ends of flanges 19 and 20 to allow the neck portion to extend from the slot 18 to the exterior of the post as shown in FIG. 2.

Formed integral with the neck portion 31 is a face plate portion 35. The face plate portion 35 is substantially the same width as lug 32; however, its length dimension is approximately three times that of the lug 32. The lug 32 is offset from the face plate 35 a distance approximately equal to the thickness of the flanges formed in body 16. This is best illustrated in FIG. 2. Although the lug 32 and face plate 35 are offset from each other, it should be noted that they lie in parallel planes. The face plate 35 is provided with a fastener aperture 36 which is adapted to allow passage of the fastener 37 now to be described.

The fastener 37 is a conventional machine screw. It has an enlarged head which abuts the face plate 35. The threaded portion of the screw passes through the aper-

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ture 36 and engages threads formed in the nut 38. The nut 38 is an elongated oblong shaped member with a centrally disposed boss 39. The width dimension of the nut 38 is less than the width dimension of the slot openings or the distance between the ends of the flanges. However, the length dimension of the nut is greater than this distance to prevent withdrawal of the nut from the slot when it has been inserted and turned crosswise. The ends of the nut engage the flanges and are retained thereby when the screw 37 is threaded in the nut and drawn tight upon the face plate 35.

The shelf support is designated generally as 45. The vertical rib portion 50 of the bracket arm is of conventional design which is generally triangular in shape having a blunted apex. However, the base of the rib 50 differs in that it has a hook formed thereon. The hook 46 projects a substantial distance beyond the base of the vertical rib 50 for purposes which will be explained more fully hereinafter. A portion of the base is also cut away to form an abutment surface 49 which is adapted to engage the base plate 35 as shown in FIG. 2. A shelf ledge 49 is formed integral with the vertical rib 50 and extends throughout substantially the entire length thereof. The shelf ledge 49 projects transversely from the vertical rib 50 as best shown in FIG. 1. It fits in a groove 42 formed in the end of a conventional shelf 41 such as shown in FIG. 4.

Assembly

To assemble the shelf bracket 10 it is first necessary to secure the post 15 in a proper upright position. This may be done by anchoring the ends of the posts 15 to the floor and ceiling by conventional support structure or by connecting the post 15 directly to a supporting wall. The posts may be placed at spaced intervals according to the length of shelving desired. The spacing may be varied to meet the requirements of the situation at hand.

Each of the posts are provided with shelf brackets. Since the installation of each bracket is essentially identical a description of only one such installation will be described in detail.

To suspend the shelf bracket arm 45 from the post 15 it is first necessary to install the clip 30 from which the shelf bracket arm 45 is hung. The initial step in installing the clip 30 is to pass the threaded portion of screw 37 through aperture 36 and screw it partially into the nut 38. The clip 30 is then turned sideways so that the lug 32 thereof passes through the opening of slot 22. The clip 30 is inserted in the slot 22 until the lug 32 engages the back of slot 22. It is then turned a quarter turn so that the ears 33 and 34 engage the back of the flanges 23 and 24 respectively. Since the lug 32 is of a greater width than the opening of slot 22 the clip 30 cannot be withdrawn from the slot as long as it remains in this position.

The nut 38 is then aligned so that it will pass through the slot opening into the slot 22. When the screw 37 is rotated, the nut will rotate to a position crosswise the slot opening 22 and the ends thereof abut the backs of flanges 23 and 24. The clip 30 is then adjusted to the proper height and the screw 37 tightened. When the screw 37 is tightened it will draw the face plate 35 into engagement with the end face 25 and the ends of nut 38 into engagement with the backs of flanges 23 and 24. When the screw 37 is fully tightened the clip 30 will be secured in position on the post.

The shelf bracket arm 45 is connected to the post 15 by passing the hook 46 through the opening of slot 22 and hooking it over the lug 32. The shelf bracket 45 is then rotated in a clockwise direction until the abutment surface 47 engages the face plate 35 as shown in FIG. 2. The bracket is now fully installed.

If for any reason it is necessary to disassemble the bracket it is done in the reverse manner of the above description.

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Notice that the opening of slot 22 is of sufficient width to accommodate shelf bracket arm 45 placed back to back as shown in FIG. 4. This arrangement is necessary in many installations where shelves of great length are needed, and they are required to support great weight thus necessitating several posts 15 to support the weight. The ledges 49 engage grooves 42 formed in the end of the shelves 41. When the bracket arms 45 are placed back to back the inner-engagement of the ledges 49 with the grooves 42 lock the bracket arms against sidewise movement. This is also true in a simple installation where the bracket arms are not placed back to back. This arrangement eliminates the necessity of fixing the bracket arm to the shelf with fasteners such as screws as in conventional arrangements. Brackets may also be supported from the other end face of the post.

From the above description of the invention it can be seen that the bracket assembly disclosed herein is of simple design which can be manufactured economically. The clip and thus the bracket arm can be assembled or disassembled at any point along the support post. The clip is also designed so that it may be assembled to or disassembled from the post regardless of other shelves supported by the post. Thus, a shelf and its bracket structure may be removed from the post or a new shelf and its bracket structure added without interrupting the position of the shelves which may appear above or below the pending installation. It is also a simple matter to adjust the distance between the shelves. This can be accomplished by merely loosening the fastener which will allow the clip and thus the shelf and other bracket structure to be raised or lowered in the slot as the situation demands.

While a preferred embodiment of this invention has been described, it will be understood that modifications and improvements may be made thereto. Such of these modifications and improvements as incorporate the principles of this invention are to be considered as included in the hereinafter appended claims unless these claims by their language expressly state otherwise.

We claim:

1. A bracket assembly comprising; a support member having flanges forming a T-shaped slot, a clip having a lug fitting in said slot and engaging said flanges, a neck connected to said lug and to a face plate, said neck projecting from said slot to the exterior of said support member, said face plate abutting the exterior of said support member, and fastening means securing said face plate to said support member, said lug being adapted to receive and support the hook of a hooked bracket arm.

2. A bracket assembly comprising; a support post having flanges defining a slot therein, said slot opening onto an end face of said post, a clip having a lug, a neck portion and a face plate, said lug adapted to be inserted through said opening and turned to catch behind said flanges, said neck portion projecting through said slot opening, said face plate engaging the face of said post, and fastener means for detachably connecting said clip to the post, said lug receiving a hook formed on a bracket arm which is suspended therefrom.

3. A bracket assembly comprising; a support post having flanges defining a slot formed therein, said slot opening onto an end face of said post, a clip having a lug, a neck portion and a face plate, said lug adapted to be inserted through said opening and turned to catch behind said flanges, said neck portion projecting through said slot opening, said face plate engaging the face of said post, fastener means for detachably connecting said clip to the post, a bracket arm having a shelf supporting ledge, the base end of said bracket arm having a hook and an abutment surface, said hook passing through the opening of said slot and being hooked to said lug, said abutment surface engaging said face plate.

4. A bracket assembly comprising; a support post having flanges defining a slot formed therein, said slot open-

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ing onto a face of said post, a clip having a lug, a neck portion and a face plate, said lug adapted to be inserted through said opening and turned to catch behind said flanges, said neck portion projecting through the opening of said slot, said face plate engaging the face of said post, fastener means including a screw and nut, said screw passing through an aperture formed in said face plate and engaging said nut retained by said flanges, said fastener means being detachably connected to said post to allow removal of said clip and an associated 10 bracket arm supported thereby without removal of other bracket structures supported by said post.

5. A bracket assembly comprising; a support post having flanges defining a slot therein, said slot opening onto an end face of said post, a clip having a lug, a neck portion and a face plate, said lug adapted to be inserted through said opening and turned to catch behind said 15

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flanges, said neck portion projecting through said slot opening, said face plate engaging the face of said post, and fastener means for detachably connecting said clip to the post, said lug receiving hooks from bracket arms placed back to back and being suspended therefrom, said bracket arms having ledges adapted to engage grooves in the ends of a shelf to lock said bracket arms against side-wise movement.

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