June 9, 1959 J. DEITCH 2,890,012

ADJUSTABLE SHELF BRACKET

Filed April 16, 1957

FIG. 5

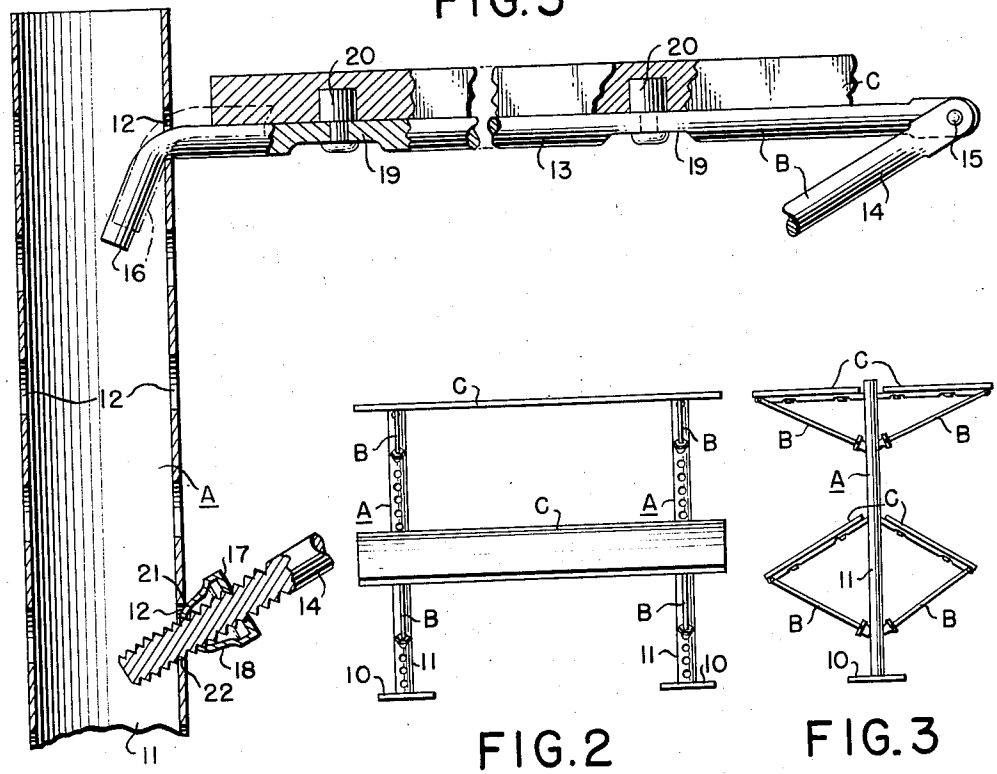


FIG. 2

FIG. 3

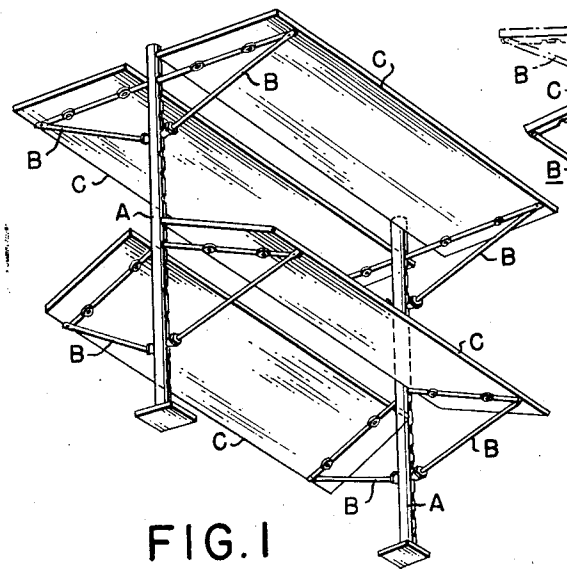


FIG. 1

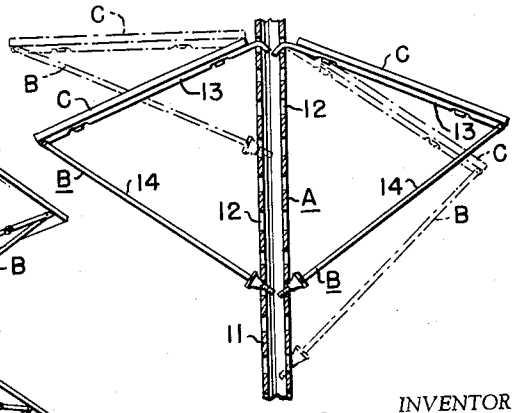


FIG. 4

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ADJUSTABLE SHELF BRACKET

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4 Claims. (Cl. 248—242)

This invention relates generally to shelf supporting means and particularly to shelf supporting brackets that are selectively positionable at different levels and selectively adjustable for different inclinations of the shelves.

An important object of the present invention is to provide improved shelf supporting means which may be readily disassembled and reassembled for supporting shelves at various heights and/or adjusted for supporting the same at various inclinations.

Another important object of the present invention is to provide such shelf supporting means which is neat in appearance, compact and rugged in construction, comparatively simple and inexpensive to manufacture, easy to install and adjust, and highly dependable in use.

Still another important object of the present invention is to provide such shelf supporting means wherein a pair of identical, similarly adjusted shelf supporting brackets may be mounted upon the same bracket supporting standard so as to extend outwardly in opposite directions therefrom at the same level without interfering with one another.

And still another important object of the present invention is to provide the shelf supporting brackets aforesaid with strut members that are straight throughout the entire lengths thereof and which have special nuts threaded thereon so that when freely projected through the wall of a supporting standard the nuts aforesaid engage the wall of the standard and operate to cam the threads into such engagement with the same that they are secured against being disconnected freely therefrom.

Further objects and advantages of the present invention will appear more fully hereinafter, it being understood that the present invention consists in the combination, construction, location and relative arrangement of parts, all as will appear more fully hereinafter, as shown in the accompanying drawings and as finally pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a perspective view looking upwardly at the front and one end of an assembly constructed in accordance with and embodying the principles of the present invention.

Figure 2 is a front elevation of the assembly shown in Figure 1.

Figure 3 is an end elevation of the assembly shown in Figures 1 and 2.

Figure 4 is a fragmentary vertical section taken through the shelf supporting standard at one end of the assembly, illustrating various adjusted positions of the bracket.

Figure 5 is an enlarged fragmentary vertical section taken through the shelf supporting standard at one end of the assembly, illustrating various details.

The assembly constructed in accordance with and embodying the present invention comprises upright standards A—A that are located respectively at opposite ends of the assembly, shelf supporting brackets B that are carried by the standards, and shelves C that are carried by the brackets.

Each standard A includes a base plate 10 that is utilized for fixing the standard to a floor, and an upright tubular member 11 which is secured by its lower end, as by welding, to the base plate 10. At regularly spaced intervals along the length of the tubular member 11 the latter is provided with a pair of diametrically opposed apertures 12, there being one row of apertures 12 along the front and another row of apertures 12 along the back of the tubular member 11.

Each bracket B includes a tie or tension member in the form of a rod 13 and a strut or compression member in the form of a rod 14. Corresponding flattened end portions of these rods 13 and 14 side abut one another and are pivotally secured together, as by a rivet 15. The free end portion of the tie rod 13 is turned laterally from the main body of the rod through an angle of approximately 70° to form a hook 16. The free end portion of the strut rod 14 has threaded thereon a nut 17, which nut 17 is of the type stamped from sheet metal. This nut is provided with a rounded outer end or crown portion 18.

In the use of the bracket B, the hooked end of the tie rod 13 is projected freely through a selected one of the apertures 12, and the threaded end of the strut rod 14 is projected freely through another selected one of the apertures 12 so as to position the bracket at the desired height and inclination of the tie rod 13. The latter is provided with a pair of longitudinally spaced flattened portions 19—19 that mount respectively a pair of laterally extending pins 20—20 which are riveted in place. The shelf C that is carried by the bracket B is fitted over the pins 20—20 and is seated directly upon the tie rod 13. The weight of the shelf or of the shelf and the merchandise thereon tensions the tie rod 13 and tends to pull the hook 16 from the standard, in consequence of which the hook 16 may shift upwardly to the dotted line position shown in Figure 5. However, it cannot be disconnected from the standard on account of the length of the hook 16 being greater than the diameter of the aperture 12. Simultaneously, the weight aforesaid places the strut rod 14 in compression and tends to push the threaded end thereof farther into the standard, in consequence of which the rounded crown portion 18 of the nut 17 moves farther into the aperture 12 in sliding contact with the upper portion of the narrow edge that defines the aperture 12, as at 21, whereby to cam the threaded end of the strut rod 14 downwardly and to cause the lower portion of the narrow aperture defining edge to lodge between the threads, as at 22.

A bracket B may be mounted upon its standard A at any suitable height and adjusted for supporting a shelf C in a horizontal position or at any desired inclination, as illustrated. In addition, a pair of the brackets B—B, in any adjusted condition thereof, may be mounted upon a standard A respectively on opposite sides thereof at one and the same level without the opposed tie or strut rod ends interfering with one another.

In order to adjust a bracket B, the shelf C is merely raised to thereby disengage it from the pins 20. Then a slight pressure upwardly is applied to the inner end of the strut rod 14, whereupon the rounded crown portion 18 of the nut 17 moves outwardly from the standard A in sliding contact therewith at 21, whereby to relieve the threaded portion of the strut rod 14 from its interlocked engagement with the bottom edge of the strut-receiving aperture 12. Now the outer end of the bracket B is swung upwardly, in consequence of which the threaded end of the strut rod 14 freely withdraws from the strut B. Finally, the outer end of the bracket B is swung back downwardly to unhook the tie rod 13 and to withdraw the same from the strut A. To remount the bracket B, in

the same or in a different adjusted position, the procedure just described is reversed.

A bracket B is highly dependable in use, not only because it is capable of supporting a considerable load, but also because of the engagement at **22** of the strut rod threads with the narrow edge of the aperture formed in the standard, in consequence of which the strut rod **14** cannot be freely withdrawn from the standard A without first deliberately applying to the threaded end thereof an upward force, as indicated hereinbefore.

It will be noted that due to the rounded crown **18** of the nut **17** there is no necessity for bending the strut rod **14** to position the threaded end thereof horizontally for projection thereof into the standard A, in consequence of which the strut rod **14** is made straight throughout the entire length thereof.

It will be understood, of course that the present invention as hereinbefore described and as shown in the accompanying drawings is susceptible of various changes and modifications which may be made from time to time without departing from the general principles or real spirit of the invention, and accordingly it is intended to claim the same broadly, as well as specifically, as indicated by the appended claims.

What is claimed as new and useful is:

1. In combination with a bracket support member provided with an upright wall having formed therein a pair of vertically spaced bracket receiving apertures, a bracket comprising a first rigid elongated member having an inner end portion freely projected through the upper one of said apertures a distance exceeding the diameter of the latter and turned downwardly along said wall, a second rigid elongated member having a threaded inner end portion freely projected through the lower one of said apertures, and a nut threaded upon said second elongated member inner end portion and disposed upon the bracket side of said wall, said nut being provided with a crown portion having an axially tapering surface of revolution, said members being disposed in outwardly converging relation with meeting ends secured together for pivotal movement relative to one another about a horizontal axis, the tapering surface of the crown portion of said nut slidably engaging a portion of the edge of said second aperture and operating to force the threaded portion of said second member into engagement with the edge of said second aperture as said nut is advanced toward the end of said second rod so that a portion of said edge lodges between said threads, whereby said second member is locked to said bracket support member.

2. In combination with an upright tubular standard having formed therein a series of vertically spaced bracket receiving apertures, a bracket comprising a rigid elongated rod having an inner end portion freely projected through an upper one of said apertures and turned downwardly into said tubular standard a distance exceeding the diameter of said apertures, a second rigid elongated rod having a threaded inner end portion freely projected through a lower one of said apertures and into said tubular standard, the diameter of said apertures being substantially greater than the threaded portion diameter of said second rod, and a nut threaded upon the inner end portion of said second elongated rod and disposed thereupon on the outer side of said standard, said nut being provided with a crown portion having an axially tapered surface of revolution, said rods being disposed in outwardly converging relation with meeting ends secured together for pivotal movement relative to one another about a horizontal axis, whereby said inner end portions may be projected respectively through selected different ones of said apertures for positioning said bracket in any of a plurality of adjusted conditions thereof at any desired level, the tapered surface of the crown portion of said nut slidably engaging a portion of the edge of said second aperture and operating to force the threaded portion of said second rod into engagement with the edge of said second aperture as said nut is advanced toward the end of said second rod so that a portion of the edge of said second aperture lodges between said threads, whereby said second member is locked to said tubular standard.

3. In combination with an upright tubular standard having a series of axially spaced pairs of bracket receiving apertures, one aperture of each pair being on one side of said tubular standard, and the other aperture of each pair being on the diametrically opposite side of said tubular standard, a pair of brackets mounted respectively upon opposite sides of said standard each comprising a first rigid elongated rod having an inner end portion freely projected through an upper one of said apertures and turned downwardly into said tubular standard a distance exceeding the diameter of said apertures, a second rigid elongated rod having a threaded inner end portion freely projected through a lower one of said apertures and into said tubular standard, the diameters of said apertures being substantially greater than the threaded portion diameter of said second rods, and a nut threaded upon the inner end of each of said second elongated rods and disposed upon the outer side of said standard, said nuts being provided with a crown portion having an axially tapered surface of revolution, said first and second rods comprising each bracket being disposed in outwardly converging relation from said standard with meeting ends secured together for pivotal movement relative to one another about a horizontal axis, whereby said inner end portions of the rods of each bracket may be projected respectively through selected different ones of said apertures for positioning said bracket in any of a plurality of adjusted conditions thereof at any desired level, the tapered crown portion of said nut slidably engaging a portion of the edge of said lower aperture and operating to force the threaded portion of said second rod into engagement with the edge of said lower aperture as said nut is advanced toward the end of said second rod so that a portion of the edge of said lower aperture lodges between said threads, whereby said second rod is locked to said tubular standard, said standard being of an internal diameter sufficient for insuring that bracket rod inner end portions projected respectively through diametrically opposed apertures of the standard clear one another irrespective of the adjusted conditions of the brackets.

4. In combination with a bracket support having a bracket member receiving aperture, a bracket comprising a rigid member having a threaded end portion with a nut threaded thereon, said nut being provided with a crown portion having an axially tapered surface of revolution, the smaller tapered end of said crown portion facing toward said threaded end portion of said rigid member, the threaded end of said rigid member extending freely at an acute angle through said aperture with said nut in abutting relation to said aperture, the tapered surface of said nut slidably engaging a portion of the edge of said aperture and operating to force the threaded end of said rigid member into engagement with the edge of said aperture as said nut is advanced toward the threaded end of said member so that a portion of said edge lodges between the threads, whereby said rigid member is locked to said bracket support.

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