April 19, 1960 L. CHILDS 2,933,196

BASE FOR SHELVING SUPPORT

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FIG. 1

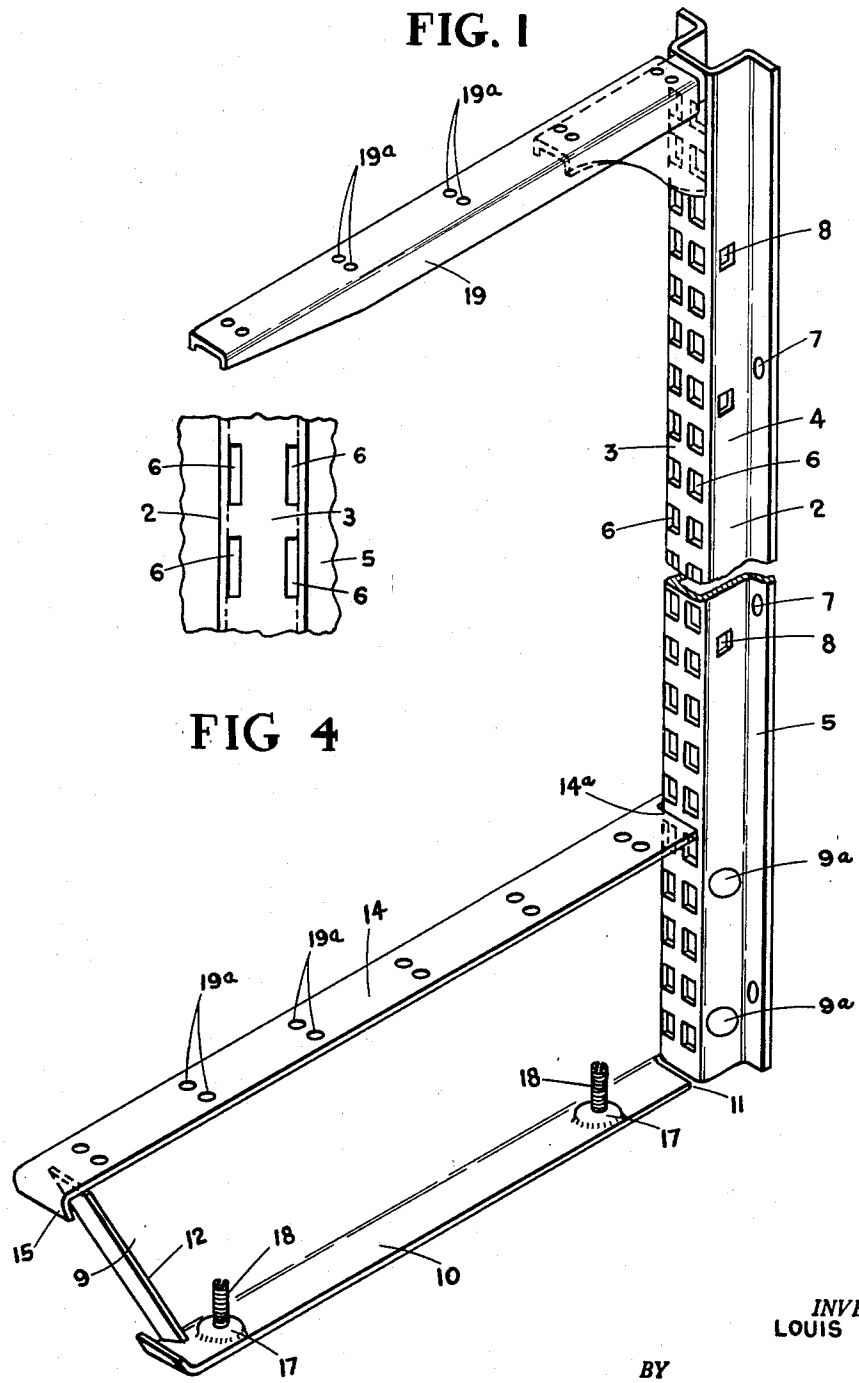

FIG 4

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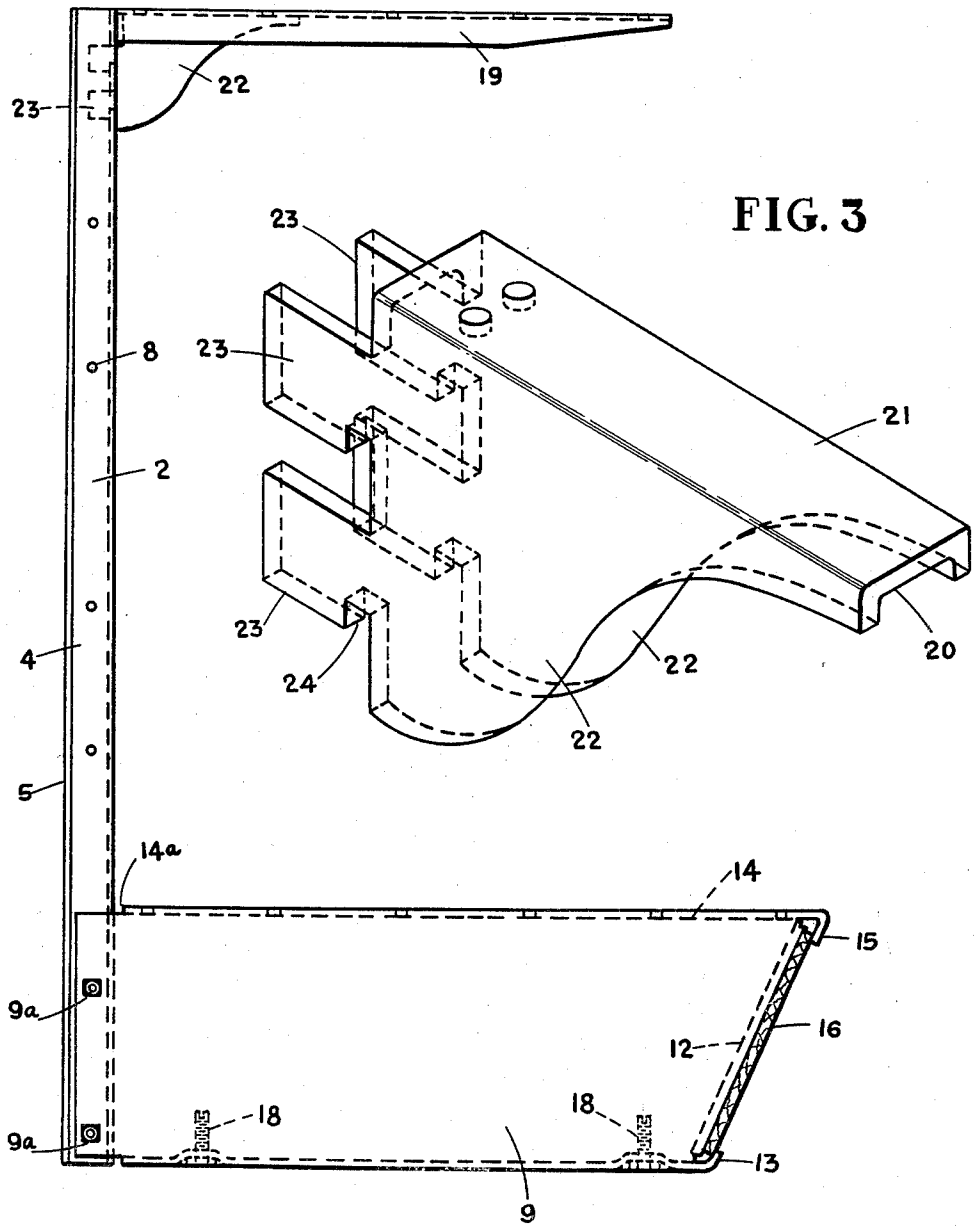

FIG. 3

FIG. 2

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BASE FOR SHELVING SUPPORT

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3 Claims. (Cl. 211—183)

This invention relates to shelving such as that widely used in stores, both against walls and in back-to-back relation forming what are termed "gondolas" and is for an improved upright assembly for such shelving.

Shelving of the kind to which the present invention pertains is extensively used in retail stores of various kinds and comprises two or more metal uprights, each having at its base a base panel that projects forwardly from the upright and serves as a support for the bottom shelf. It has the important function of giving stability to the vertical support. At various levels above the base are forwardly-projecting brackets extending in the same direction as the base. They may be of the same or different lengths, and they serve to support wooden shelves. The entire shelf-supporting assembly is referred to in the trade as an "upright," and they are used at intervals of four, five or six feet, depending on the load they are to carry, one being at each end of the shelving, and intermediate ones being provided at intervals as required. When used against a wall they are usually secured to the wall, but when used in the open floor they are customarily connected with one another by diagonal sway braces.

The present invention has for its principal object to provide an upright assembly of this general type in which the upright section itself is of improved construction designed to carry heavy loads and minimize the weight and cost of manufacture. A further object of my invention is to provide an improved bracket construction readily adjustable to various positions on the upright section. A further object of my invention is to provide in conjunction with these features an improved base construction.

These and other objects and advantages of my invention may be more fully apparent from the following detailed description in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view of an upright assembly embodying my invention;

Fig. 2 is a side elevation thereof;

Fig. 3 is a perspective view on a larger scale of the bracket connection detached from the bracket; and

Fig. 4 is a fragmentary plan view of a portion of the upright.

In the drawings, 2 designates the main upright member which is of a so-called "hat" section rolled or otherwise formed from moderately heavy gauge sheet metal. It has a central web portion 3 with side flanges 4 forming with the web a channel section, and each of the flanges 4 has an outwardly-turned wing or base flange 5 at its inner edge.

The main web portion is provided throughout its length with two parallel vertical rows of slots or vertically elongated rectangular openings 6 therein, the slots being arranged in horizontally aligned pairs. For clarity of illustration these openings are shown somewhat wider in Fig. 1 than is required, as the distance between each of the openings of a pair is greater than the combined width

of the opening, as more correctly seen in Fig. 4, which is drawn to scale. The outer vertical edge of each opening closely coincides with the plane of the inner face of the flanges 4, that is, these openings are as close to the sides 4 of the hat section as reasonably possible. This main upright member has a plurality of holes 7 in the lateral or base flanges 5 which may be used for securing the uprights against a wall, or for attachment of a backboard, or for attachment of sway braces It has other openings 8 through the side flanges 4 which are preferably square on one side as shown in Fig. 1, and round on the other, as shown in Fig. 2, so that carriage bolts may be placed therethrough and held from rotating. Such bolts are used to attach the base member, to be described, or for retaining a back panel in position and for other convenience.

The base panel is pressed from heavy gauge sheet metal and has a wide vertical web 9 of several inches in height, such as that generally used in fixtures of this kind. This web, as shown in Fig. 2, laps over one side face of the upright and is rigidly secured to the lower end of the upright by bolts and nuts 9*a*. The web has an integral horizontally-turned bottom flange 10 that is flush with the bottom of the upright section, and which terminates at its inner end at 11 close to the front of the web of the upright section. The outer end of the vertical web 9 is turned laterally over the bottom flange 10, as indicated at 12, and the bottom flange has an upwardly-turned end 13 spaced outwardly from the flange 12. At the top of the web 9 the base has a second horizontally-turned flange 14 that terminates at its inner end at 14*a* in front of the upright. Its outer end projects beyond the turned end portion 12 of the web and is bent downwardly in front of it, forming a lug 15.

The portion 12 of the web and the turned ends 13 and 15 of the bottom and top horizontal flanges respectively provide a keeper to receive and hold a toe-board 16 that extends from one upright to another. This toe board is inclined from a vertical position with the slope being downwardly and inwardly toward the upright, and the metal of the base is shaped and formed to secure this result. The toe-board as shown in Fig. 2 is wide enough so that when it rests on the protruding end of the bottom flange, its top edge is spaced below the top flange but retained by the lug 15. To remove the toe-board, it is lifted to clear its bottom edge above bottom lug 13, then swung forwardly and dropped down until its top edge is below the lug 15. It is inserted by sloping the bottom edge of the board outwardly with its upper edge resting against the flange 12, raising its upper edge under the lug 15, swinging the bottom edge inwardly until it hits the flange 12, and it is then dropped into the position, Fig. 2. By having finger holes in the base board this operation can be quickly and easily done. This makes the removal of the toe board for cleaning under the shelf very easy and enables surplus stock or seasonable items to be stored under the shelving between the base panels, thereby making space available which is inaccessible with other shelving.

The bottom flange 10 has two recesses pressed into the bottom face, forming bosses 17 on the upper face. These have threaded openings therethrough into which leveling screws 18 are entered from the bottom, these screws having large flat heads that are normally received in the recesses, but which can be projected downwardly for leveling the base. For this purpose the upper ends of the screws have kerfs in the ends with which a screw driver can be used to turn the screws from above.

The uprights are designed to carry self-supporting brackets. These brackets comprise a main arm portion 19 pressed from heavy gauge sheet metal into inverted channel form with a flat top web and downwardly-turned

flanges. A connecting bracket 20, also pressed from sheet metal and of the form shown in Fig. 3, has a flat top portion 21 and two downwardly-turned gussets 22. These gussets are spaced to snugly fit between the flanges of the main arm and have lugs 23 at their wide inner vertical edges, each edge having two of these lugs with undercut notches 24 in their lower edges. The notches are located where the lugs join the gussets. The lugs are of a size and are so spaced that they may be engaged in the slots 6, those of one gusset in two slots of one vertical row, and those of the other gusset in the corresponding slots of the other vertical row. This connector is of a width such that it will fit into the rear end of the arm 19 and is welded to the under face of the flat web of the arm in such position that only the lugs project rearwardly of the end of the arm.

With this bracket arrangement, the arm may be engaged in the upright at any selected level permitted by the spacing of the slots 6 vertically, quickly detached and reset at another level. The lugs, being undercut or notched as shown, interlock with the bottom edges of the slots and the rear vertical edges of the gussets bear against the web of the upright. The bracket is thus capable of carrying an extremely heavy load. By making the connector separate from the main arm and welding the two together, the top of the main arm can be fully as wide as the face of the upright, while the gussets are spaced only the width of the slots.

Shelving is placed on the tops of the arms, and because two confronting shelf ends must often be supported in end-to-end relation on the same arm, the gain in width so secured is important. The top web of the arm and the top flange 14 of the base have pairs of holes 19*a* therein at intervals. Screws may be passed up through these into shelving boards, or preferably, drive pins on the boards may be forced down into these holes.

Because of the shape of the parts, they can all be made of relatively heavy gauge sheet metal, without requiring the use of special rolled heavy sections. This enables the upright to be of relatively light weight and economical to make, and yet be capable of carrying heavy loads. In the drawing I have shown but a single bracket. However usually there are several brackets on each upright. By having the openings 6 close to the side flanges 4 of the upright, there is a minimum load or strain on the web area 3 and this load is localized in areas where the upright has its greatest rigidity. Each bracket, being secured to the upright at horizontal spaced distances, resists twisting under heavy loads. As above pointed out, the brackets are wider than the connectors on which they are carried, which is of substantial importance in accommodating shelf ends. Other advantages of the construction, including the ready removal of the toe board as above explained, will be apparent to those skilled in the art.

I claim:

1. A base member for shelving uprights comprising an integral sheet metal body having a vertical web portion with a laterally-turned flange at its outer end, a horizontal flange at the bottom of the web turned in under the first flange and projecting forwardly beyond the first flange, with its forward end turned upwardly in a plane spaced forwardly of the plane of the first flange, a top flange on the web turned horizontally to extend over the bottom flange, the top flange also extending over and beyond the first flange and having its outer end turned downwardly in the plane of the upwardly-turned end of the bottom flange, a toe board receiving and holding means being provided between the first flange and the turned ends of the top and bottom flanges.

2. A base member for shelving uprights as defined in claim 1 in which the first flange is inclined from a vertical plane with the bottom of the flange closer to the rear end of the web than the top, and a toe board confined at its back surface by the first flange and at its front at its top and bottom edges by the turned ends of the horizontal top and bottom flanges, the board having a height greater than the distance between the terminals of the upwardly and downwardly-turned flange ends but less than the height of the web to provide a vertical clearance between the top edge of the toe board and the top flange at least as great as the vertical height of the upwardly-turned end of the bottom flange.

3. A base member for a shelving upright as defined in claim 2 in which the vertical web projects rearwardly of the bottom and top flanges so as to lap past and be bolted to the side face of a metal upright.

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