

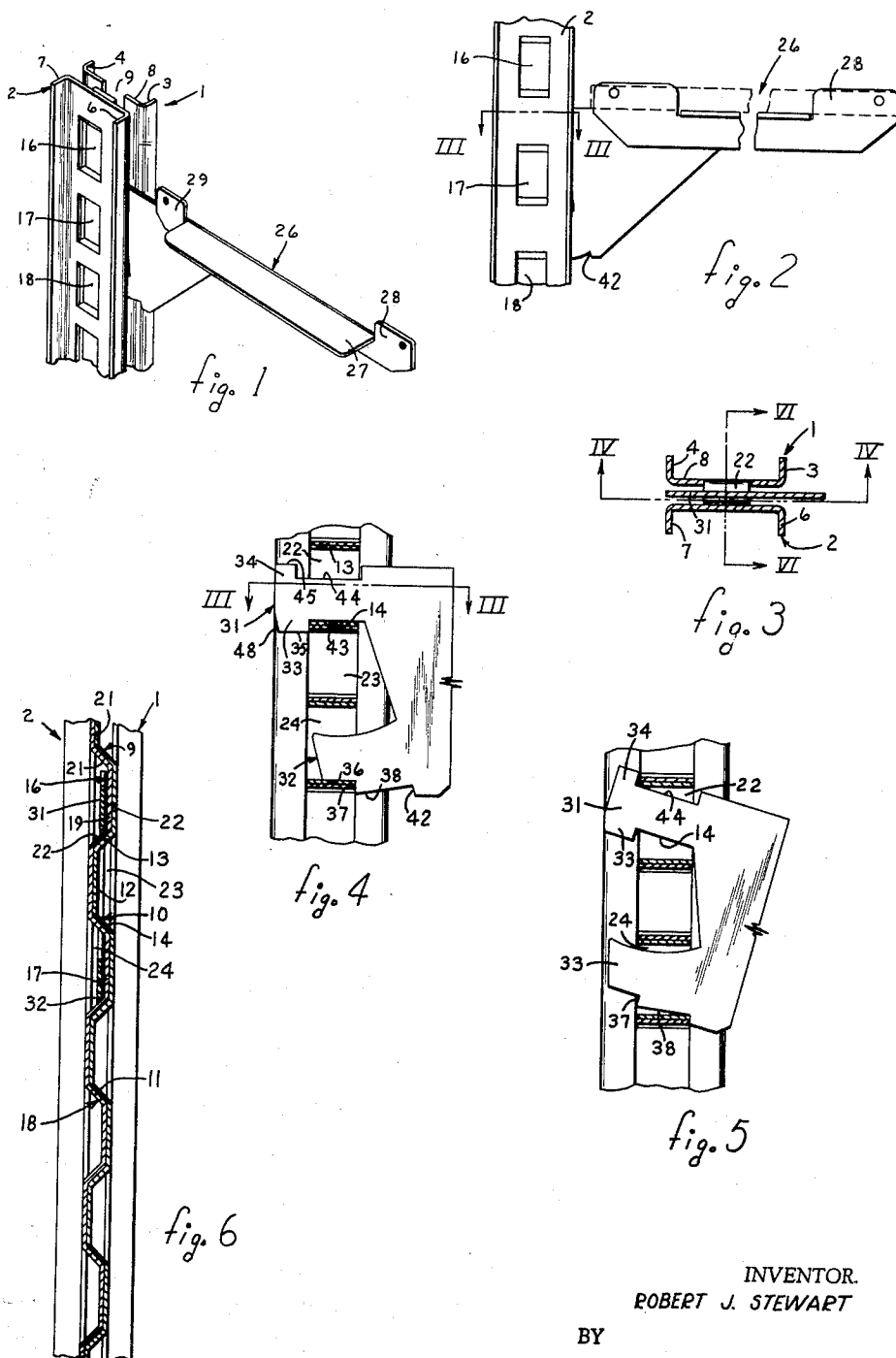
May 10, 1960

R. J. STEWART

2,936,147

SHELF SUPPORTING BRACKET

Filed June 16, 1958



INVENTOR.
ROBERT J. STEWART

BY

Woodhouse, Blanchard & Flynn
ATTORNEYS

1

2,936,147

SHELF SUPPORTING BRACKET

Robert J. Stewart, Comstock Park, Mich., assignor to The Bulman Corporation, Grand Rapids, Mich., a corporation of Michigan

Application June 16, 1958, Serial No. 742,322

8 Claims. (Cl. 248—243)

This invention relates to shelf bracket construction and particularly to a type of shelf bracket whereby a shelf supported on and by such bracket can occupy at least two positions with respect to the horizontal.

In the providing of shelf supporting brackets for a variety of uses and particularly for use for merchandise display in retail establishments, it has been previously known to provide shelving positionable horizontally or shelving positionable at an angle with the horizontal. Such different positions are desired for the attractive display of merchandise in different positions according to the type of display desired and according to the type of merchandise being displayed. However, in a continuous attempt to improve this type of device, it becomes desirable to provide a shelf structure which is simple and economical to manufacture but which can be arranged to occupy either a horizontal position or a slanted position and which can be arranged to occupy either a horizontal position or a slanted position and which can be easily converted from one position to the other position without the necessity of manipulating such fastening means as bolts or screws.

However, in carrying out this general purpose, one problem is of particular importance and has not, insofar as I am aware, been previously solved. Where shelving is interchangeable from one position to another, and can be so changed while it is in an assembled condition and even while it is loaded, there is a great temptation on the part of store personnel to effect such changes with the shelves loaded more heavily than the person making the change can safely handle. In this results in dropping the shelf or spilling the contents thereof, the store operators frequently blame the shelving and position changeable shelving thereby acquires a bad reputation. Accordingly, in designing shelving of this type, it is desirable to include in such design safety features that will make it impossible for the shelving to fall out or become displaced into any position other than one of the two operating positions as a result of changing from one position to the other while the shelf is loaded.

Accordingly, the objects of the invention are:

(1) To provide a shelf bracket construction receivable into a supporting post having a plurality of spaced slots and which is receivable therein in either of two positions, whereby a shelf supported thereon may occupy either of two positions with respect to the horizontal.

(2) To provide a bracket, as aforesaid, which cannot occupy other than its two normal operating positions during ordinary manipulation thereof and particularly which will be safe from dropping into an abnormal position as a result of or during the ordinary changing thereof from one of its normal positions to the other thereof.

(3) To provide a shelf bracket, as aforesaid, which can be moved from one position to another by a simple manipulation, which may include a lifting operation, but which cannot escape from one of its two normal positions by other than a compound movement of such character that, while easy to perform when the operator desires to

2

move the shelf, it is highly unlikely to be performed accidentally and during an ordinary position changing operation.

(4) To provide a shelf bracket, as aforesaid, which is of extremely simple construction and can be made very inexpensively.

(5) To provide a shelf bracket, as aforesaid, which can be readily moved from one position to the other position with respect to the horizontal by a simple manipulation and without the necessity of manipulating bolts, screws or other similar types of fastening devices.

(6) To provide a shelf bracket, as aforesaid, which is readily usable in association with presently known vertical column structures.

(7) To provide a shelf bracket which will be of ample strength for all ordinary service but wherein such strength will not detract from the economy and ease of manipulation above set forth.

(8) To provide a shelf bracket, as aforesaid, which is readily adaptable for use with a wide variety of specific shelf-engaging devices in order that a wide variety of particular kinds and types of shelves may be supported on and by said bracket.

Other objects and purposes of the invention will become apparent to persons acquainted with apparatus of this general type upon reading the following specification and inspection of the accompanying drawings.

In the drawings:

Figure 1 is an oblique view of a vertical column of previously known type in association with a shelf supporting bracket embodying the invention.

Figure 2 is a side view of said column and shelf supporting bracket of the invention.

Figure 3 is a sectional view taken along the line III—III of Figures 2 and 4.

Figure 4 is a section taken on the line IV—IV of Figure 3.

Figure 5 is a sectional view substantially as taken along the line IV—IV of Figure 3, showing the shelf bracket of the invention in a different position.

Figure 6 is a sectional view taken along the line VI—VI of Figure 3.

In general

In general, the invention consists of providing a pair of oppositely directed hooks near the upper portion of the bracket structure and a hook and spacer device near a lower portion of the bracket structure. When the shelf is in one position, one of the upper hooks and the lower hook cooperate to extend through a pair of vertically spaced slots and engage the lower edges of said slots. In other position, the bracket is caused to ride upon the spacer device above-mentioned and thereby urges the other of the upper hooks into engagement with the upper side of the uppermost of two vertically spaced slots.

Detailed description

For purposes of convenience in description, certain terminology will be used which will be understood as descriptive only and not limiting. The following designations of particular words will be understood also to include derivatives of said words and words of similar import. The terms "upward" and "downward" will refer to directions when the parts are in ordinary operating position which are also the directions appearing in the drawing. The terms "forward" and "rearward" refer, respectively, to directions toward the edge of the shelf furthest from its support or to directions toward shelf support, the same being, respectively, rightward and leftward in the drawing.

Referring now to the drawings in more detail, there is here utilized to illustrate the invention a vertical col-

3

umn of the type shown in the patent to E. W. Waltz, No. 2,684,224, issued July 20, 1954 and assigned to E. O. Bulman Manufacturing Company, Inc. It will be understood, however, that the column illustrated in this patent is only one of many different types of columns with which the bracket of the invention may be advantageously used and said bracket may be utilized with practically any column having vertically aligned and vertically spaced slots.

While the column herein utilized in association with the bracket of the invention is fully disclosed and described in the above-identified patent, a brief description will be presented herein for purposes of convenient reference.

The column comprises in this particular embodiment a pair of back-to-back arranged U-shaped channels 1 and 2, the channel 1 being provided with flanges 3 and 4 and the channel 2 being provided with flanges 6 and 7 for strengthening purposes in a well-known manner. The web 8 of channel 1 is provided with a plurality of longitudinally arranged and longitudinally spaced lanced out sections 9, 10 and 11 which sections have central portions 12 arranged parallel with the web of the channel and angularly positioned integral connecting portions 13 and 14 at each end of said central portion. The other channel 2 has similarly lanced out sections 16, 17 and 18 having similar central portions 19 and similarly integrally connected end portions 21 and 22. The channels are arranged together in such relationship with each other that each of the lanced out portions nest between a pair of adjacent lanced out portions on the opposite channel (Figure 2) and the parts may then be fastened in any convenient means such as spot-welding for providing a very firm and rigid structure. The openings 22, 23 and 24 defined between each lanced out section and the web from which said lanced out section was taken provide the desired vertically aligned and vertically spaced slots into which the bracket extends.

Turning now to the bracket structure embodying the invention, there is shown a bracket arm 26 to which may be fastened in any convenient manner, such as by spot-welding, a shelf supporting and retaining device. In the present case, said shelf supporting and retaining device has an angle member 27 for distributing the reaction pressure of the bracket against the shelf and the ears 28 and 29 for holding the shelf against motion toward or away from the vertical columns on which it is supported. However, it will be understood that the particular shelf engaging structure used is entirely optional and it is usually a function of the type of shelf being used and can be varied widely as desired in a particular installation without departing from the scope of the invention.

The end of the bracket arm 26 extending toward the column divides generally into an upper extension 31 and a lower extension 32. The upper extension 31 terminates in a downwardly extending hook 33 and an upwardly extending hook 34, which hooks are substantially opposite each other in back-to-back relationship. The lower extension 32 has a lower first supporting surface 36 which extends substantially horizontally through a zone which is below and offset somewhat forwardly from the downwardly extending hook 33 when the parts are arranged to hold a shelf horizontally as appearing in Figure 4. A downwardly extending stop 37 extends downwardly from said lower supporting surface 36 for purposes appearing hereinafter. A second lower supporting surface 38 appears as a smoothly curved surface extending horizontally forwardly from the stop 37 and curving through approximately as many degrees of curvature as the shelf is desired to shift from one position to the other position, the frontward portion of said second supporting surface 38 being substantially horizontal when the shelf and shelf bracket are in their second or tilted position. A second stop 42 is provided for purposes appearing hereinafter. The spacing from the lower edge 43 of the upper extension 31 to the first supporting surface 36 of the lower

4

extension 32 is substantially equal (less clearance space) to the distance between the lower edges of a pair of hook receiving slots, as the slots 22 and 24. The distance from the rearward end of the upper edge 44 of the upper extension 31 to the second stop 42 is substantially equal (less clearance space) to the distance from an upper edge of the slot receiving the extension 31 to the lower edge of the slot receiving the lower extension 32.

Further, the distance from the lower edge 35 of the lower hook 33 to the upper edge 45 of the upper hook 34 is slightly, but only slightly, greater than the distance from the lower edge of the upper opening 22 to the upper edge of the said opening 22, all for reasons appearing hereinafter.

Operation

The operation of the shelf bracket above described will be self-evident from the description of the device, but some further specific description of its manner of operation will be set forth for complete clarity in an understanding of the invention.

When the shelf bracket is to be positioned horizontally, the extensions 31 and 32 span a vertical distance slightly greater than the available space between the lower edge of a lower opening 24 and the lower edge of an upper opening as the opening 22. Since the distance from the lower edge of the lower hook 33 to the upper edge 45 of the upper hook 34 is greater than the vertical dimension of the opening 22, it will be necessary to tilt the bracket counterclockwise (as appearing in Figure 4) in order to pass the hooks 33 and 34 through said opening and to place the upper hook 34 to the left of the leftward extent of the opening 22 before the first supporting surface 36 enters the opening 24. Thus, with the parts so introduced into vertically spaced slots 22 and 24 and with their lower edges 43 and 36, respectively, contacting the respective lower edges of said slots 22 and 24, the downwardly extending hook 33 bears against an inward side of the material defining the said slot 22 and the first stop 37 bears against the outer side of the material defining the lower edge of the slot 24, thereby resisting the bending movement applied thereto by a load placed on the shelf and effecting a full and adequate support of said shelf.

When it is desired to place the shelf in a tilted position, the bracket is merely lifted sufficiently to enable the lower edge of that portion of the lower extension 32 defining the first stop 37 to clear the lower edge of the lower slot and same is then rotated in a clockwise direction as appearing in Figure 4 until the upper hook 34 engages the inner side of the material defining the upper end of said upper slot 22 and the second stop 42 engages the outer side of the lower edge of the lower slot 24. In this position, parts are in position shown in Figure 5.

It will be recognized that the moving of this bracket from its horizontal position to its tilted position may be easily and simply carried out by ordinary personnel and, further, for adjusting a relatively short shelf it will be found convenient to grasp each end of the shelf by each respectively of the operator's two hands and move same as desired. Thus, it will be recognized that the adjustment can be carried out readily and without disassembling the shelf structure and even, under some circumstances, while the shelf remains loaded.

Since the distance as above described from the lower edge 35 of the lower hook 33 to the upper edge 45 of the upper hook 34 is slightly greater than the corresponding dimension of the slot 22, there is no possibility that said hooks will be able to pass through the slot 22 when the bracket is in its horizontal position. In view of the presence of the stops 37 and 42, it will not be possible for the hooks 33 and 34 to be passed through said slot by tilting same in a clockwise direction. Therefore, it will be impossible for the bracket to escape from said slots either by direct horizontal movement or by clockwise tilting thereof. Accordingly, it will be impossible for said

5 bracket to escape from said slots during shifting from one position to another position.

However, when it is desired to remove the bracket from said slots, this can be done very simply by first lifting the bracket sufficiently to enable the lower hook 33 to clear the lower edge of the upper slot 22 and then by tilting the bracket in a counterclockwise direction sufficiently to enable the hooks 33 and 34 to clear the correspondingly adjacent ends of the upper slot 22. This may be assisted by bevelling the lower corner of the hook 33 as indicated at 48.

Thus, the shelf can be readily moved from its horizontal position to its tilted position and there is no danger at all that the shelf can escape from either of such positions even if the operator should completely release the shelf at any point in its movement from one position to the other position. Nevertheless, the shelf can be readily and easily removed when desired but the motion for so doing is a sufficiently different motion than the motion involved in moving the shelf from either position to the other position that it is very unlikely to occur accidentally.

While a particular embodiment of the invention has herein been utilized for illustrative purposes, it will be recognized that a variety of other structures can be provided utilizing the substance of the invention and accordingly the hereinafter appended claims will be interpreted as including such other structures excepting as said claims may by their own terms expressly require otherwise.

What is claimed is:

1. A bracket for holding a shelf alternately in two positions on and with respect to a vertically positioned post, said post having at least two vertically aligned and vertically spaced slots therein, comprising in combination: a bracket arm having at the rearward end thereof a pair of vertically spaced extensions extending rearwardly therefrom, said extensions being spaced a center line distance substantially equal to the center line spacing between said slots; a pair of substantially back-to-back arranged hooks at the rearward extremity of the uppermost one of said extensions, one hook extending upwardly and the other hook extending downwardly; a first supporting surface on the lower side of said lower extension, said surface being substantially horizontal when said bracket arm is aligned for supporting said shelf horizontally and a downwardly extending first stop at the forward end of said surface and a second supporting surface extending from said first stop further forwardly and having a downwardly extending second stop at the forward end thereof, said last named supporting surface being curved from said first stop to said second stop so that said last named supporting surface is substantially horizontal when said bracket is in its tilted position, whereby when the bracket is in its horizontal position the first supporting surface and the first stop rests against the lower end of the lowermost of said slots and the downwardly extending hook on the upper extension engages the lower rearward edge of the uppermost of said slots, and when said bracket is in its tilted position the second supporting surface and the second stop engages the lower edge of the lowermost of said slots and the upwardly extending hook on said upper extension engages the upper rearward edge of the uppermost one of said slots.

2. The structure defined in claim 1 wherein said lower second supporting surface is a smooth curve extending from the lowermost extremity of the said first stop to the uppermost end of said second stop.

3. The structure defined in claim 1 wherein the distance from the upper edge of the upper hook to the lower edge of the upper hook is slightly greater than the vertical extent of the uppermost of said slots, whereby the bracket is required to be rotated slightly in a direction to move the shelf supporting portion upwardly in order to pass said bracket through the upper of said slots.

4. A bracket for supporting a shelf on an upright post and selectively holding same in a plurality of positions

6 with respect thereto, said post having at least two vertically spaced slots therein, comprising in combination: a bracket arm having at the rearward end thereof a pair of vertically spaced extensions extending rearwardly therefrom, said extensions being vertically spaced a sufficient distance that same may simultaneously extend through said slots; the upper one of said extensions having first and second stop means extending upwardly and downwardly therefrom and engageable, respectively, with the upper and lower edges of the upper slot so that said upper extension may be moved within said upper slot between positions where the second stop means engages said lower edge of said upper slot and said first stop means engages said upper edge of said upper slot; said lower extension having a first support portion and third stop means extending downwardly therefrom and engageable with the lower edge of the lower slot when said second stop means engages the lower edge of said upper slot so that said bracket arm may be located in one of its positions with respect to said post, said lower extension having a second support portion offset horizontally from said first support portion and fourth stop means extending downwardly therefrom and engageable with the lower edge for the lower slot when said first stop means engages the upper edge of said upper slot so that said bracket may be located in the other of its positions with respect to said post.

5. A bracket for supporting a shelf on an upright post and selectively holding same in a plurality of positions with respect thereto, said post having at least two vertically spaced slots therein, comprising in combination: a bracket arm having at the rearward end thereof a pair of vertically spaced extensions extending rearwardly therefrom, said extensions being vertically spaced a sufficient distance that same may simultaneously extend through said slots; the upper one of said extensions having an upper hook extending upwardly from the upper edge thereof and having a lower hook extending downwardly from the lower edge thereof, said hooks being offset horizontally from each other so that they can be moved between positions where the upper hook is adjacent the upper edge of the upper slot or the lower hook is adjacent the lower edge of the upper slot; said lower extension having a first support portion and first stop means extending downwardly therefrom and engageable with the lower edge of the lower slot when said lower hook is adjacent the lower edge of said upper slot whereby said bracket arm may be positioned in one of its positions with respect to said post, said extension having a second support portion offset horizontally from said first support portion and second stop means extending downwardly therefrom and engageable with the lower edge of the lower slot when said upper hook is adjacent the upper edge of said upper slot whereby said bracket arm may be positioned in another of its positions with respect to said post.

6. A bracket according to claim 5 wherein said second support surface extends forwardly from the lower end of said second stop and is inclined upwardly at a slight angle.

7. A bracket for supporting a shelf on an upright post and selectively holding same in a plurality of positions with respect thereto, said post having at least two vertically spaced slots therein, comprising in combination: a bracket arm having at the rearward end thereof a pair of vertically spaced extensions extending rearwardly therefrom, said extensions being vertically spaced a sufficient distance that same may simultaneously extend through said slots; the upper one of said extensions having a pair of substantially back-to-back arranged hooks adjacent the rearward end thereof, one of said hooks extending upwardly and the other hook extending downwardly, the forward edge of said upper hook being offset rearwardly from the forward edge of said lower hook; the lower edge of said lower extension having a first,

7

substantially horizontally extending, support portion adjacent its rearward end; a first, downwardly extending stop portion at the forward end of said first support portion; a second support portion extending forwardly from the lower edge of said first stop portion and being slightly curved upwardly therefrom; and a second, downwardly extending stop portion at the forward end of said second support portion.

8. A bracket for supporting a shelf on an upright post and selectively holding same in a plurality of positions with respect thereto, said post having at least two vertically spaced slots therein, comprising in combination: a bracket arm having at the rearward end thereof a pair of vertically spaced extensions extending rearwardly therefrom, said extensions being vertically spaced a sufficient distance that same may simultaneously extend through said slots; the upper one of said extensions having a pair of substantially back-to-back arranged hooks adjacent the rearward end thereof, one of said hooks extending upwardly and the other hook extending downwardly, the forward edge of said upper hook being offset rearwardly from the forward edge of said lower hook; the vertical distance between the upper edge of said upper hook and the lower edge of said lower hook being slightly greater than the vertical distance between the upper and lower edge of said upper slot; the lower edge of said lower extension having a first, substantially

8

horizontally extending, support portion adjacent its rearward end; a first, downwardly extending stop portion at the forward end of said first support portion; a second support portion extending forwardly from the lower edge of said first stop portion and being slightly curved upwardly therefrom; a second, downwardly extending stop portion at the forward end of said second support portion; the vertical distance between a portion of the lower edge of said upper extension located forwardly of said hooks and said first support portion being substantially equal to the distance between the lower edges of said slots and the distance between a portion of the upper edge of said upper extension located forwardly of and adjacent the forward edge of said upper hook and the point at which said second support portion joins said second stop portion being substantially equal to the vertical distance between the upper edge of the upper slot and the lower edge of the lower slot; the portion of the rearward edge of said bracket arm which lies between said extensions extending forwardly and downwardly from said upper extension to said lower extension.

References Cited in the file of this patent

UNITED STATES PATENTS

2,684,224	Waltz	July 20, 1954
2,691,502	Jones	Oct. 12, 1954
2,788,949	Curries	Apr. 16, 1957