# United States Patent [19]

**Featherman**

[11] **3,788,490**

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[54] **ERECTIBLE SHELVING**


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[73] Assignee: **Featherman, Featherman and Featherman,** Philadelphia, Pa.



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[52] **U.S. Cl.** ..... **211/176**

[51] **Int. Cl.** ..... **A47f 5/10**

[58] **Field of Search** .... 211/176, 177, 148; 248/243; 108/107, 108, 109; 287/54 C, 189.36 R



[56] **References Cited**

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| 844,989 | 6/1968 | Canada | 211/176 |



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[57] **ABSTRACT**

Erectible metal shelving having a plurality of verticle supporting posts and bracing members extending horizontally between and secured to the posts to brace the posts in an upright position. The bracing members are secured to the posts so that the shelving can be easily assembled or disassembled without the need of any special tools.


**6 Claims, 5 Drawing Figures**

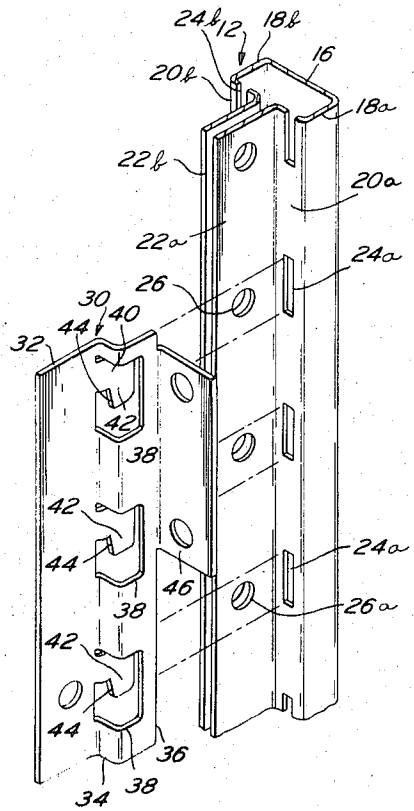
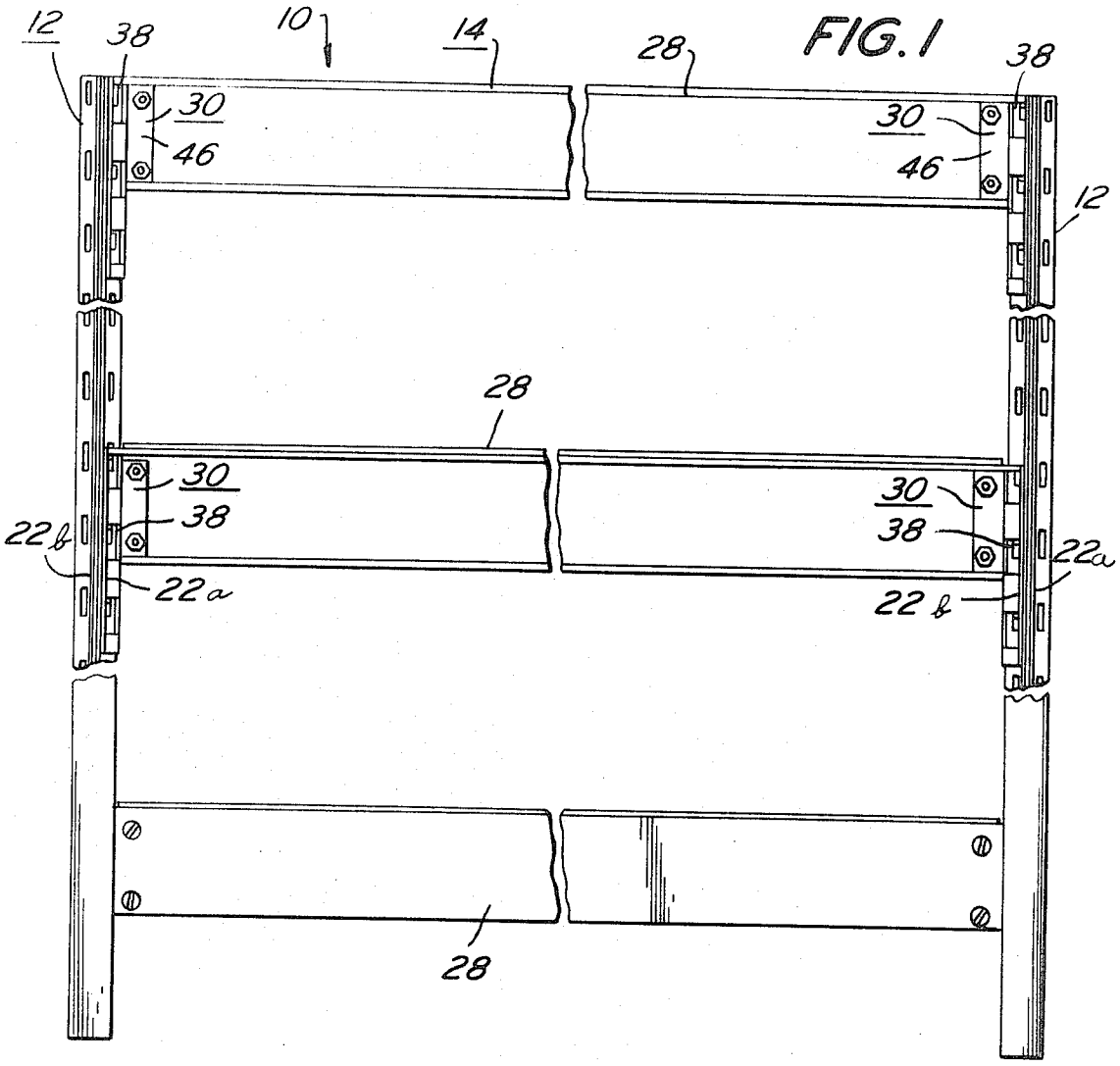


FIG. 1



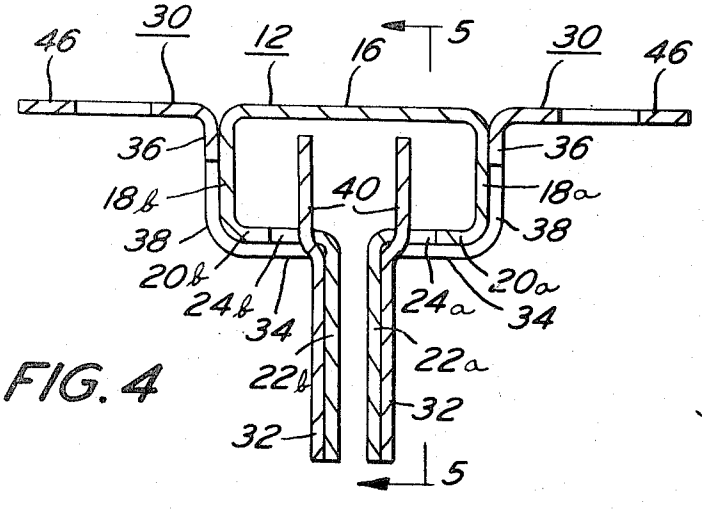




FIG. 4

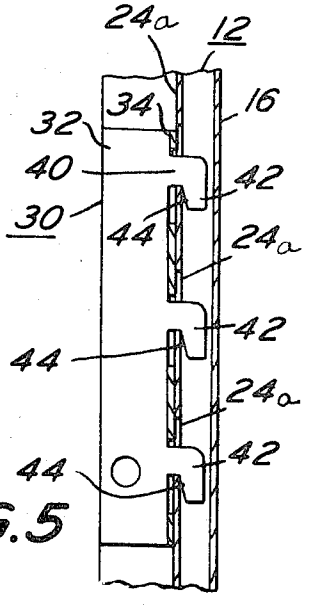



FIG. 5

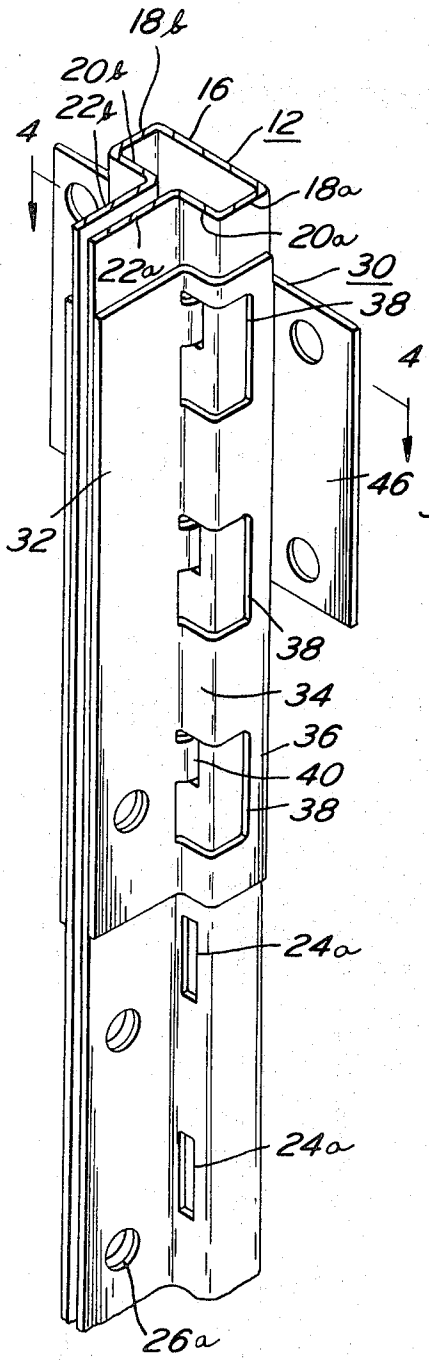

18b
20b
22b
16
12
4
18a
20a
22a
30
38
4
46
32
38
34
36
40
38
24a
24a
26a

FIG. 2

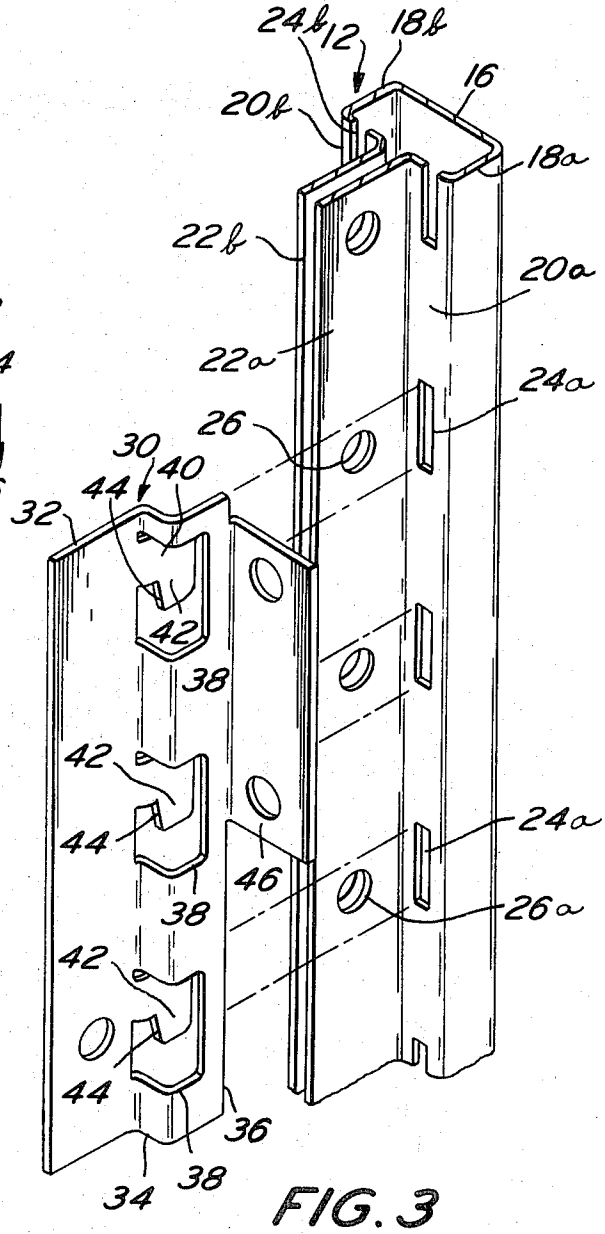

24b
12
18b
16
20b
18a
22b
20a
22a
24a
26
30
40
44
32
42
38
42
44
38
46
24a
26a
42
44
36
34
38

FIG. 3

# ERECTIBLE SHELVING

## BACKGROUND OF THE INVENTION

The present invention relates to the construction of erectible metal shelving, and more particularly to a manner of connecting a bracing member to the supporting posts to brace the posts in an upright position.

Erectible metal shelving generally comprises a set of at least four upright metal supporting posts and metal shelves mounted horizontally between the posts with the posts being at the corners of the shelves. One type of such shelving is shown in the U.S. Pat. to Rosenberg, No. 2,631,913, issued Mar. 17, 1953, entitled "Erectible Shelving," and the U.S. Pat. to Rosenberg, No. 2,719,633, issued Oct. 5, 1955, entitled "Erectible Shelving and Brackets Employed Thereby." In such shelving it is necessary to brace the supporting posts to firmly support them in an upright position. It is desirable that such bracing members be narrow, sheet metal beams which extend horizontally between the supporting posts so that the bracing members do not block access to the shelves from any side of the shelving. Also, such horizontally extending bracing members could be used to support the shelving, serve as bin fronts or closed bases for the shelving. However, the connection between the narrow bracing member and the supporting post must provide the supporting post with the necessary bracing action. Also, it is desirable that the connection provide for ease of assembling and disassembling the shelving without the need of any special tools.

## SUMMARY OF THE INVENTION

An erectible shelving including a hollow supporting post which is substantially rectangular in cross-section and has a plurality of longitudinally spaced openings in one wall thereof. A bracing member has a connector secured to one end thereof which releasably secures the bracing member to the supporting post. The connector includes portions which engage at least two walls of the supporting post, and fingers which extend through the openings in the supporting post and engage the inner surface of the one wall of the supporting post.

## BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a front elevation view, partially broken away, of the metal shelving assembly of the present invention.

FIG. 2 is a perspective view of one of the supporting posts with bracing member connectors mounted thereon.

FIG. 3 is an exploded perspective view of a supporting post and bracing member connector.

FIG. 4 is a sectional view taken along line 4—4 of FIG. 2.

FIG. 5 is a sectional view taken along line 5—5 of FIG. 4.

## DETAILED DESCRIPTION

Referring initially to FIG. 1, the shelving assembly of the present invention is generally designated as 10. The shelving assembly 10 comprises a plurality of upright metal supporting posts 12, at least four of which are required, arranged at the corners of a rectangle. Bracing members 14 extend horizontally between and are secured to the two rear supporting posts, and similar bracing members extend between and are secured to the two front supporting posts. Connecting members, not shown, secure the front and rear supporting posts together in spaced relation.



As shown in FIGS. 2, 3 and 4, each of the supporting posts 12 is an elongated member of hollow sheet metal construction. The supporting post 12 comprises a rear wall 16, a pair of parallel side walls 18*a* and 18*b*, and a pair of aligned front walls 20*a* and 20*b*, all of which form a hollow rectangular configuration. A pair of juxtaposed, parallel flanges 22*a* and 22*b* extend forwardly from the adjacent edges of the front walls 20*a* and 20*b* respectively. Each of the front walls 20*a* and 20*b* has a plurality of spaced, elongated rectangular openings 24*a* and 24*b* respectively therethrough. The openings 24*a* and 24*b* are arranged in alignment with their longest edges extending longitudinally along the supporting post 12. The flanges 22*a* and 22*b* have a plurality of longitudinally spaced holes 26*a* and 26*b* respectively therethrough. Each of the holes 26*a* in the flange 22*a* is in alognment with a separate hole 26*b* in the flange 22*b*.

Each of the bracing members is an elongated, narrow, sheet metal channel 28 having a connector 30 at each end thereof. As shown in FIGS. 2, 3 and 4, each of the connectors 30 is a metal sheet having a front section 32, a middle section 34 extending perpendicularly from the back edge of the front section 32, and a rear section 36 extending perpendicularly from the middle section 34 away from but substantially parallel to the front section 32. As shown in FIGS. 2 and 4, the front section 32 is of a length corresponding to the length of the flanges 22*a* and 22*b* of the post 12. The middle section 34 is of a length corresponding to that of the front walls 20*a* and 20*b* of the post, and the rear section 36 is of a length corresponding to that of the side walls 18*a* and 18*b* of the post. The connector 30 is of a height so as to extend over and slightly beyond three of the rectangular openings 24*a* and 24*b* in the front walls of the posts.

The connector 30 has three spaced openings 38 therethrough, each extending from the rear edge of the front section 32 completely across the middle section 34 and partially across the rear section 36. Each of the openings 38 is of a height corresponding to the height of a rectangular opening 24*a* and 24*b* in the post front walls 20*a* and 20*b*. The openings 38 are spaced apart a distance corresponding to the spacing between the rectangular openings 24*a* and 24*b*. Flat fingers 40 extend from the back edge of the front section 32 at each of the openings 38 with the top edges of the fingers being slightly below the tope edges of the openings 38. As shown in FIG. 4, the fingers 40 are bent slightly toward the rear section 36 and then extend parallel to the rear section. A lip 42 extends downwardly from the end of each of the fingers 40. The inside edge 44 of each lip 42 is tapered away from the rear edge of the front section 32 so as to provide a camming surface. A mounting flange 46 extends perpendicularly from the rear edge of the rear section 36 away from the plane of the front section 32. The mounting flange 46 is of a height to fit into the channel 28, and is secured thereto, such as by bolts 48. However, the mounting flange 46 may be secured to the channel 28 by any known means,

such as rivets or welding, or may be an integral part of the channel.

To secure a bracing member **14** to a supporting post **12,** the connector **30** is placed adjacent the supporting post **12** with the front section **32** of the connector being juxtaposed a flange of the supporting post and the fingers **40** being in alignment with three of the rectangular openings in the supporting post. The connector **30** is then moved to insert the fingers **40** into the rectangular openings until the middle section **34** of the connector **30** abuts the front wall of the supporting post, and the rear section **36** of the connector is juxtaposed to a side wall of the supporting post. At this point the lips **42** of the fingers **40** are completely within the hollow portion of the supporting post. The connector **30** is then pressed vertically downwardly to move the lips **42** of the fingers **40** behind the front wall of the supporting post as shown in FIG. **5.** As the lips **42** move downwardly in the supporting post, the camming surfaces **44** of the lips engage the front wall of the supporting post to cammingly lock the lips in the supporting post. Thus, the connector **30** is secured to the supporting post **12** without the need of any special tools, except perhaps for a hammer. To remove the bracing member, it is only necessary to lift the connector **30** upwardly until the fingers **40** engage the top ends of the rectangular openings, and then pull the fingers out of the post.

Thus, there is provided an erectible shelving having bracing members which can be mounted horizontally between the supporting posts at any point along the supporting posts. The bracing members have connectors which can be easily secured to and removed from the supporting posts without the need for any special tools. Also, the connectors firmly secure the bracing member to the supporting posts. In addition, since the connector has portions which engage three surfaces of the supporting posts over a length longer than the width of the bracing member, there is provided a great load bearing strength between the bracing member and the supporting posts. The bracing member in addition to providing support for the supporting posts can be used to support shelving, serve as a bin front or base for the shelving.

I claim:

**1.** An erectible shelving comprising

a hollow supporting post which is substantially rectangular in cross-section and has a plurality of longitudinally spaced openins in one wall thereof and a flange extending substantially perpendicularly outwardly from said one wall,

a bracing member, and

a connector secured to an end of the bracing member and releasably securing said bracing member to said supporting post, said connector having a front section engaging said flange, a middle section extending from the back edge of the front section and engaging said one wall of the supporting post, a rear section extending from the middle section away from the front section and engaging a wall of the supporting post adjacent the one wall and a plurality of fingers extending through the openings in the supporting post and engaging the inner surface of said one wall of the supporting post.

**2.** An erectible shelving in accordance with claim **1** in which the fingers of the connector extend from the back edge of the front section substantially parallel to but spaced from the rear section.

**3.** An erectible shelving in accordance with claim **2** in which each of the fingers has a downwardly extending lip on its end.

**4.** An erectible shelving in accordance with claim **3** in which each of the lips of the fingers has a camming edge which engages the inner surface of the one wall of the supporting post.

**5.** An erectible shelving in accordance with claim **4** in which the camming edge of each of the lips is tapered downwardly and away from the back edge of the front section of the connector.

**6.** An erectible shelving in accordance with claim **5** in which the connector has a mounting flange extending substantially perpendicularly from the rear edge of the rear section, said mounting flange being secured to the bracing member.

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