United States Patent

Denny

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[54] STRUCTURAL ELEMENT AND STRUCTURE

[72] Inventor: **Denny A. Denny**, Dallas, Tex.

[73] Assignee: **Inca Metal Products Corporation**, Carrollton, Tex.

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[52] **U.S. Cl.** **211/176**, 52/731, 108/56, 108/144

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

[58] **Field of Search** 211/176, 177, 148; 52/731; 108/56, 51, 54, 144, 152, 156

[56] **References Cited**

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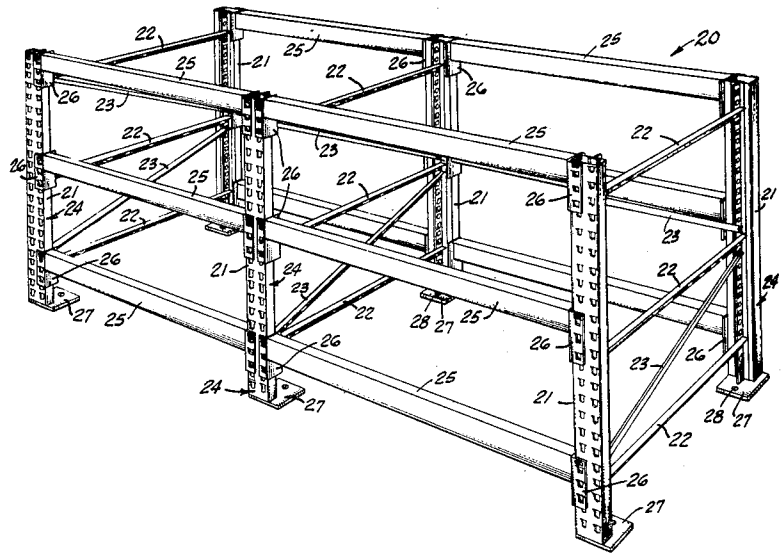
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Primary Examiner—Nile C. Byers, Jr.
Attorney—E. Hastings Ackley

[57] **ABSTRACT**

A supporting column member for use in sectional shelving, racks, scaffolding and the like, of the knockdown or point of use type. A truss supporting assembly constructed by use of such columnar elements, and a rack or shelving structure formed by means of the elements and the truss assemblies and having adjustable horizontal supporting beams for supporting shelving, walkways or the like.

27 Claims, 9 Drawing Figures



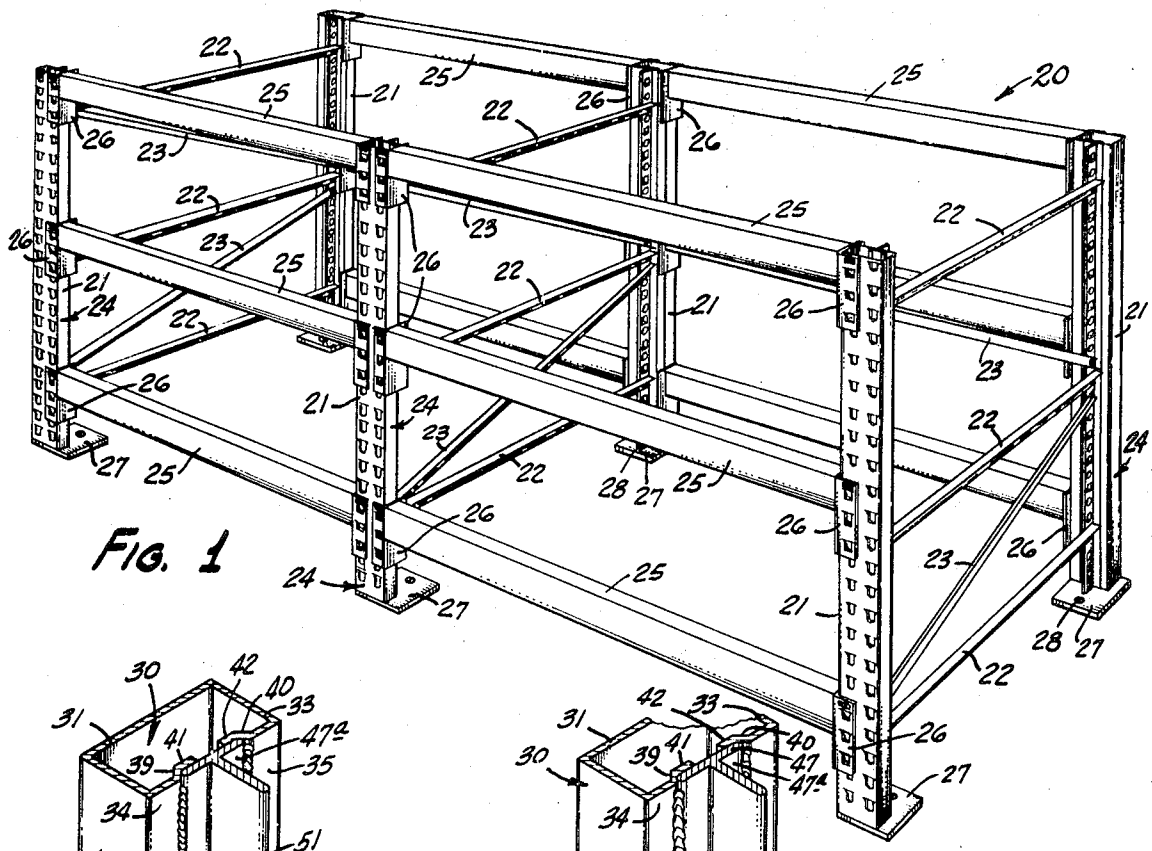


FIG. 1

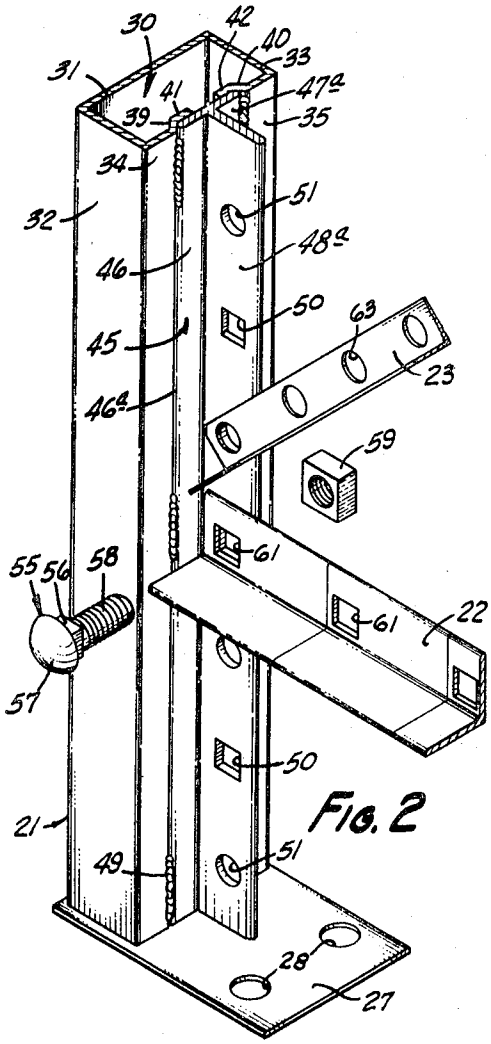


FIG. 2

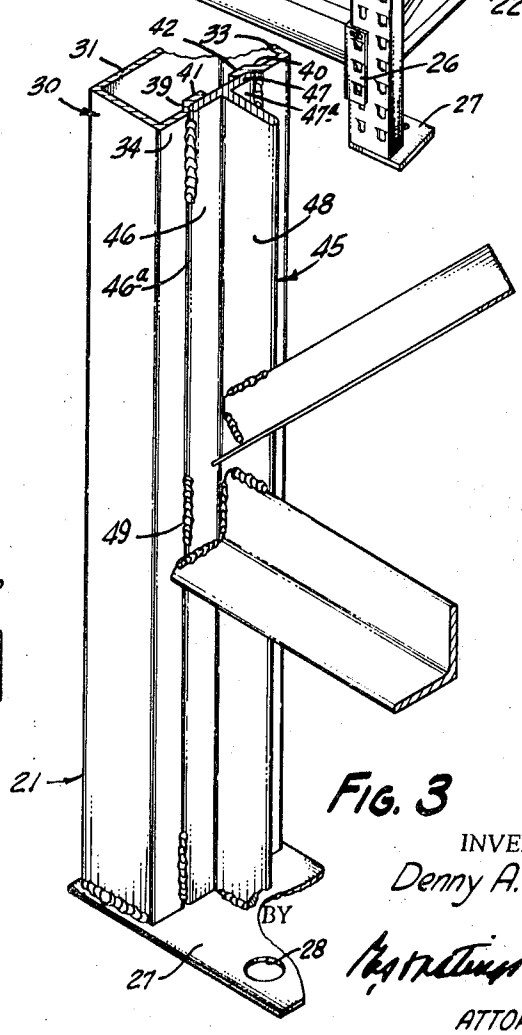


FIG. 3

INVENTOR.
Denny A. Denny

BY

ATTORNEY

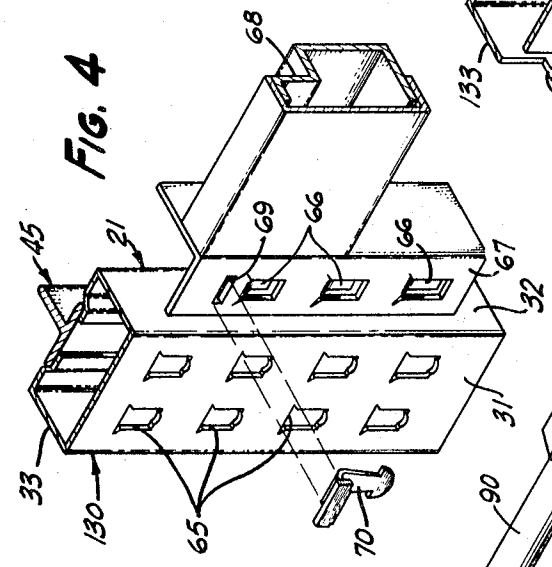


FIG. 4

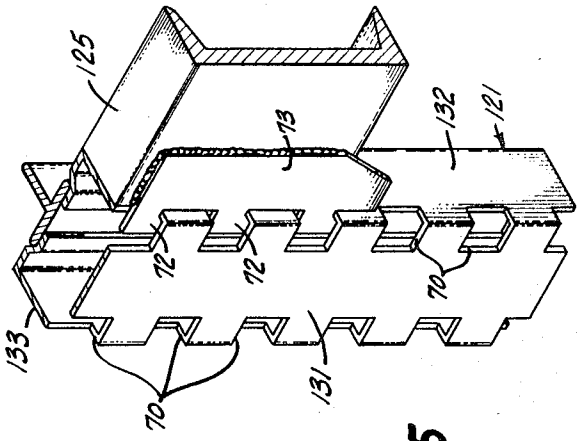


FIG. 5

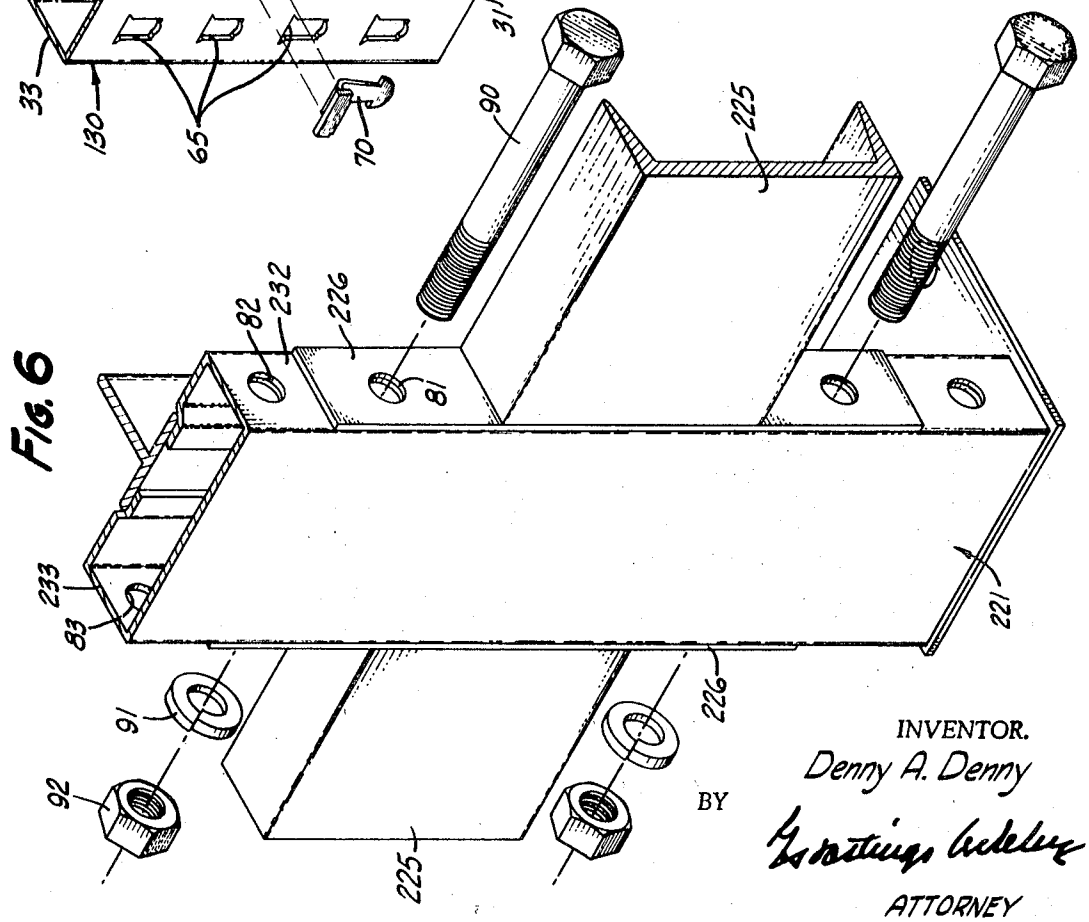


FIG. 6

INVENTOR.
Denny A. Denny
BY
Hastings & Baldwin
ATTORNEY

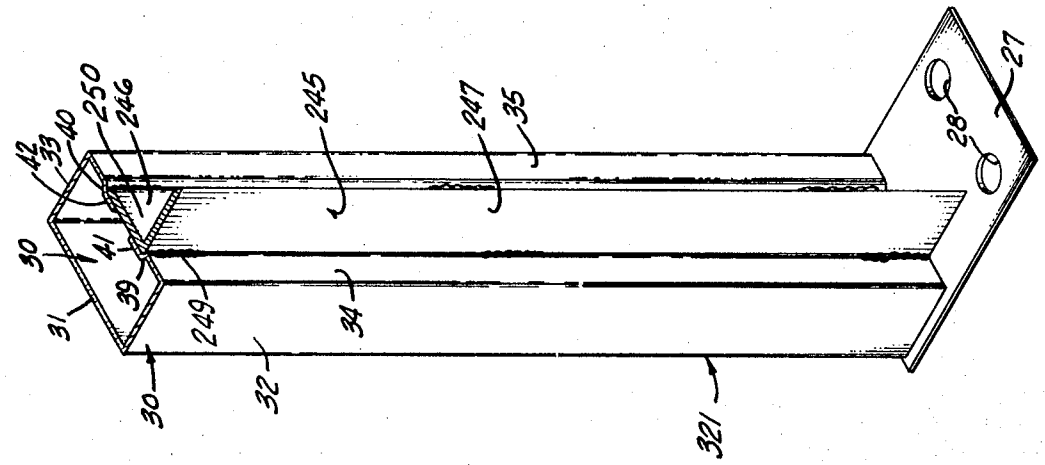


FIG. 8

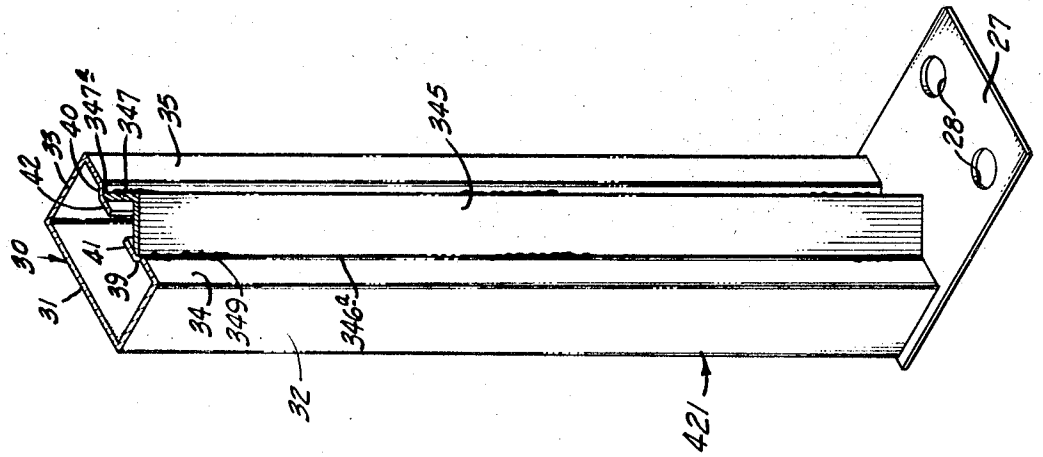


FIG. 9

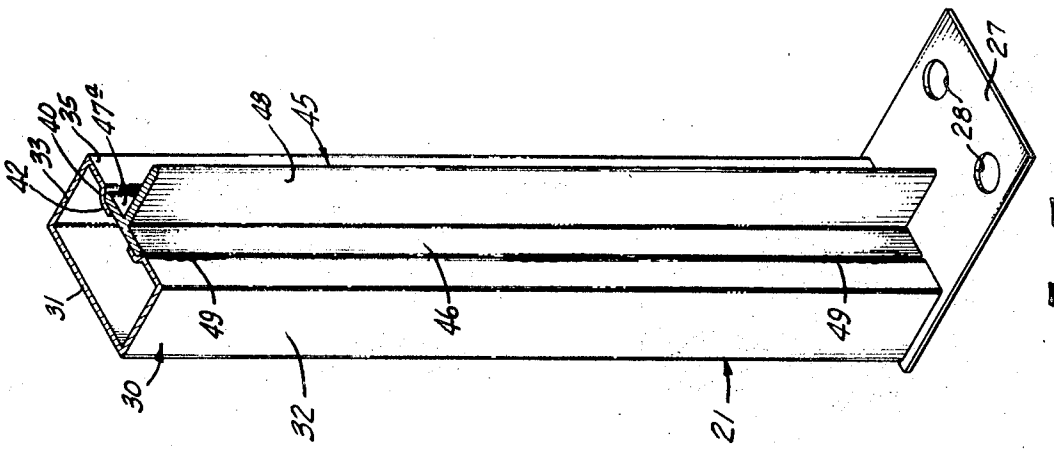


FIG. 7

INVENTOR.
Denny A. Denny

BY

ATTORNEY

STRUCTURAL ELEMENT AND STRUCTURE

This invention relates to a columnar structural element for use in "knockdown" type shelving, scaffolding or the like structures assembled by the use of such elements.

An important object of the invention is to provide a new and improved columnar structure for use as the front and rear vertical posts of a truss supporting structure forming a part of a scaffolding or shelving assembly.

It is a particular object of the invention to provide a rigid substantial structural element formed of a hollow column having a projecting reinforcing and connecting rib or supporting structure, which is rigid and has greater strength for the weight of the material utilized, and which may be readily manufactured using mass production techniques, requiring a minimum of jigs, fixtures and the like.

It is another object of the invention to provide a structural assembly, shelving, rack or scaffolding structure having columnar elements forming the supporting elements of the truss portions of the structure provided with means for adjustably connecting thereto horizontal supporting beams.

A further particular object of the invention is to provide a structural supporting member in the form of a tubular column having a connecting member formed thereon for receiving crossmembers to be joined with another identical complementary supporting member to provide a structural supporting truss, having maximum rigidity, and of a structure which minimizes twisting of the column and provides increased load-bearing strength of the members.

Still another object of the invention is to provide a device of the character described which is particularly adaptable for "knockdown" type, or point of use, structures wherein various forms of interfitting and interlocking elements may be connected to the column to form the same into a structural element such as a truss for shelves, racks, scaffolding or other suitable desirable structures.

A still further object of the invention is to provide sectional or knockdown shelving or scaffolding members which are adapted for assembly to form supporting structures of various sizes with a minimum of parts, wherein the parts are interchangeable, or a minimum number of different parts are required, to assemble the members into a supporting structure.

A further object of the invention is to provide a rack structure, as for shelving, scaffolding or the like, including a plurality of pairs of substantially vertical supporting members constructed in accordance with the invention and a plurality of substantially horizontal and diagonal bracing members connecting the vertical supporting members to form a truss structure, and having a plurality of elongate horizontal weight supporting or carrying members, such as shelf beams or the like, and means for adjustably connecting the same to the vertical supporting columns and the trusses formed by means thereof.

Additional objects and advantages of invention will be readily apparent from the reading of following description of a device constructed in accordance with the invention, and reference to the accompanying drawings thereof, wherein:

FIG. 1 is a perspective view of a shelf, rack or like structure having supporting column members constructed in accordance with the invention joined together to form trusses and having load-supporting elements adjustably connecting the several supporting members to provide the shelf or other structure;

FIG. 2 is an enlarged isometric view of one form of column structure of the invention, having means for connecting the same to other columns by bolted cross braces;

FIG. 3 is a view similar to FIG. 2 showing the column structure element joined to other columns by crossmembers welded thereto to provide a truss for use in a rack;

FIG. 4 is a fragmentary isometric view of a portion of a column member constructed in accordance with the invention and showing one means for adjustably connecting horizontal load-bearing beams with the upright column;

FIG. 5 is a view similar to FIG. 4 showing a column member having a further modified means for adjustably connecting horizontal load-bearing beams or the like to the column member;

FIG. 6 is a view similar to FIG. 4 showing a column member having means for connecting load-bearing beams therewith by bolting;

FIG. 7 is a view similar to FIG. 2 showing the first form of the column member of the invention without connecting means formed thereon;

FIG. 8 is a fragmentary isometric view of a modified form of the column member of the invention; and,

FIG. 9 is a fragmentary isometric view of a further modified form of the column member of the invention.

In the drawings, FIG. 1, a rack or similar structure **20** is shown as formed of a plurality of vertical supporting column members **21** joined by horizontal cross brace members **22** and diagonal cross brace members **23** to form a truss a plurality of trusses **24**, each comprised of a pair of the upright columns **21** joined by the cross brace members, having horizontal load bearing beams **25** adjustably connected to the vertical columns by suitable connecting means **26** and providing elongate horizontal supporting means upon which planking, shelving or other suitable material (not shown) may be affixed or supported to provide shelves for supporting pallets, industrial supplies or goods or other goods. The columns **21** each have baseplates or foot members **27** welded or otherwise suitably secured to their lower ends and having apertures **28** for receiving bolts or the like for securing the same to a supporting surface such as a floor, slab or the like.

Each of the supporting columns is formed of a substantially C-shaped rectangular channel member **30** having a front **31**, a pair of sides **32** and **33**, and inturned back flanges **34** and **35**, respectively, as will clearly be seen in FIGS. **7**, **8** and **9**. Each of the inturned flanges **34** and **35** has a reverse bend **39** and **40**, respectively, formed therein and extending longitudinally of the flange near its medial portion. The offset flange portions **41** and **42**, respectively, are disposed inwardly toward the back **31** of the channel member and the reverse bend is of a thickness or sufficient depth to receive a T-shaped structural reinforcing and connecting member **45** therein as is clearly shown in FIGS. **7**, **8** and **9**. The structural member **45** shown in FIGS. **1** through **7** is T-shaped in cross section and the lateral arms **46** and **47** of the crossmember of the T are disposed within the offset or reverse bends **39** and **40** of the flanges **34** and **35** and supported by the marginal flange portions **41** and **42** and confined between the reverse bends to dispose the shank rib or stem **48** of the T-shaped reinforcing and supporting member to project vertically from the plane of the back flanges **34** and **35** of the channel member **30**, extending longitudinally along the midportion of the back flanges. The inwardly offset flange portions **41** and **42** form supporting portions on the inturned flanges between the reverse bends **39** and **40**, which are disposed in a plane spaced inwardly toward the back **31** of the C-shaped channel member **30** a distance equal to the thickness of the material forming the crossarms **46** and **47** of the T-shaped supporting and reinforcing member **45**. Each arm **46** and **47** of the T-shaped member is supported on the offset portions **41** and **42**, respectively, of the inturned flanges between the reverse bends **39** and **40** formed in and extending longitudinally of the inturned flanges. The size of the T-shaped reinforcing and supporting member **45** is chosen so that the outer edges **46***a* and **47***a* of the arms **46** and **47** of the T-member **45** will be disposed to lie along and substantially abut the reverse bends **39** and **40**, respectively, formed in the flanges. A plurality of spaced weld sections **49** are provided to join the arms **46** and **47** of the T-member **45** with the inturned flanges **34** and **35** of the C-shaped channel member **30**, as clearly shown in FIG. **7**. These weld spots or strips are spaced longitudinally along the edges of the arms and provide for the rigid joinder of the T-shaped member to the channel member to provide a substantially rectangular thin-walled hollow column member **21**. If desired, of course, the welds may extend along the full length of the marginal edges **46***a* and **47***a* of the T-shaped supporting and reinforcing member **45**. The

hollow tubular column member so formed has great rigidity and loadasupporting capacity. Also, the projecting stem or rib portion **48** of the T-member provides means for connecting cross braces to the column **30** in the manner shown in FIGS. **1**, **2** and **3** to provide the truss assemblies having the two spaced parallel front and rear upright columns joined by the cross brace members. As shown in FIG. **2** the lower end of the column member **21** has the plate or baseplate or foot member **27** welded thereto as shown at **29**.

The stem or rib portion **48***a* of the T-member **45** of the column **21** shown in FIG. **2** is provided with a plurality of longitudinally spaced apertures for connecting cross brace members to join the column to another identical complementary opposing column to form the truss structure **24**. As shown, the apertures are alternately square, as shown at **50**, and round, as shown at **51**. The square apertures **50** are adapted to receive square shanks **56** of carriage bolts or similar bolts **55** formed on the bolt near the head **57**, and the cylindrical threaded portion **58** of the bolts receive nuts **59** for securely clamping the bolt in the square apertures **61** formed in one arm of the horizontal angle cross brace member **22**. The square apertures **61** formed in the horizontal crossmember are of identical size and shape to the square apertures **50** formed in the stem or rib **48***a* of the column, so that the square shank section **56** of the bolt **55** engages in the two square openings in the horizontal brace member **22** and the rib or stem **48***a* of the column to hold the horizontal brace member against movement about the axis of the bolt when the nut is tightened thereon. The horizontal cross brace **22** is therefore rigidly held against twisting or turning movement with respect to the column and the two columns joined by the crossmember are thus held in parallel relationship. The diagonal braces **23** are formed of angle members which have circular holes or apertures **63** formed in their end portions which are adapted to receive the ordinary carriage or like bolt (not shown) in the aperture to provide a joint between the stems or rib portions **48***a* of the two columns being joined by the cross braces into a truss structure.

As is clearly shown in FIG. **2** the diagonal crossmember and the horizontal crossmember are also clearly marked, at intervals of 2 inches, or any other desired distance, with lines for sawing or otherwise cutting the members to a shorter length, and square apertures **61** are formed at spaced points along the horizontal brace members **22**, and round apertures **63** are formed at spaced intervals along the diagonal brace members **23** adjacent the marks at which the brace members will be cut to shorten the brace members. The additional apertures provide for connecting the brace members to the stems or ribs **48***a* of the columns to provide a truss of a narrower front to back dimension, if desired. Also, the diagonal braces may be shortened, if desired, to provide a different angle of connection between the two columns of the truss.

It will readily be seen that the pair of columns **21** may be supplied with a suitable number of horizontal cross braces and diagonal cross braces and bolts to provide a truss of any desired height or brace arrangement. The column members would be identical and the cross brace members would be identical for all the common dimensions, such as from 2 to 4 feet, in depth of the truss. Six holes at each end of the horizontal crossmembers **22** spaced 2 inches apart would provide a suitable variation in depth of the truss, and corresponding spacing of the round apertures in the diagonal braces **23** would provide for suitable angular bracing of the truss members, which sizing may be readily accomplished at the job after the structural elements have been shipped in the knocked down unassembled condition.

The elongate shelf-supporting beams **25** may be connected to the truss members in any desired suitable manner. As shown in FIGS. **1** and **4**, a connecting structure identical to that shown in the patent application of Denny A. Denny, Ser. No. 678,819, filed Oct. 30, 1967, may be used to support the horizontal shelf-supporting beam. In this structure, the back **31** of the channel member **30** forming the column **21** is provided with a plurality of shaped apertures or slots **65** longitudinally spaced from each other above the backwall of the column, which are adapted to receive offset tongue members **66** formed at corresponding longitudinally spaced positions in one arm **67** of the angle connector member **26** welded or otherwise suitably secured to the end of the supporting beam **25** for supporting the shelf material. As shown, the beam **25** is hollow and has an offset portion **68** in its upper inner corner for receiving planking or other suitable shelving material therein. A lock slot or aperture **69** is formed in the flange **67** above the upper tongue member **66** and a suitable latch or locking member **70** may be inserted through this slot **69** into one of the slots **65** in the column **21** in the same manner as is set forth in the aforesaid application.

If desired, a backbone-type construction may be provided for adjustably supporting the elongate horizontal load-supporting beams **25**. The backbone structure, shown in FIG. **5**, comprises a plurality of longitudinally spaced apertures **70** formed at the side corner angles between the back **131** and the sides **32** and **33** of the channel **130** forming the column. These apertures are adapted to receive the hooks **72** of a flange plate member **73** welded or otherwise suitably secured to a channel-type horizontal supporting beam **125**, the hooks **72** of the supporting connecting plate member engaging in the apertures in the channel and extending downwardly below the apertures in the manner shown, which is commonly known in the art and is shown in the patent to D'Altrui, U.S. Pat. No. 3,194,407, dated July 13, 1965. Also, if desired, a suitable clip **74** may be supplied for preventing displacement of the hooks of the supporting connecting plate member to retain the shelf-supporting beam **125** in place on the column.

A further type of adjustable supporting connecting means between the vertical columns **221** of the truss and the horizontal shelf-supporting beams **225** is shown in FIG. **6**, wherein the channel forming the beam **225** is provided at each of its ends with a connecting plate **226** which projects beyond the flanges of the beam and is provided with a circular aperture **81** through which a bolt **90** may be inserted to extend through horizontally aligned apertures **82** and **83** in the sides **232** and **233** and completely across the column **221** to a lock washer **91** and a nut **92** on the opposite side for connecting two of the horizontal supporting beams **225** to the column simultaneously. A suitable number of apertures **82** and **83** may be provided in the sidewalls **232** and **233**, respectively, of the channel forming the tubular column.

It is therefore believed readily apparent that the column structure shown in the rack assembly of FIG. **1** is readily adaptable to use for forming upright supporting trusses **24** in various types of structural units such as shelfing or scaffolding or the like. It is also readily apparent that the column structure of FIG. **7** is readily adaptable to "knockdown" type, on the job erected, structures for economy and storage, shipping and assembly or erection. The column may be bolted or otherwise suitably joined, as by welding or riveting, to cross brace members to provide the truss and may be provided with any suitable satisfactory connecting structure for detachably and adjustably connecting horizontal load-supporting beams to provide the shelving or scaffolding structure.

It is also clearly apparent that the substantially rectangular hollow tubular column structure **21** provided by the C-shaped channel **30** and the T-shaped reinforcing and supporting member **45** is more rigid than an open channel, and has a greater supporting stability and capacity than such an open structure. The column is also more economical to manufacture and uses less material, so that the cost of the same is reduced. The provision of the reverse bends in the inturned flanges of the C-shaped channel member provide for accurate positioning of the T-shaped reinforcing and supporting member, and therefore substantially reduce costs of manufacture, since the T-shaped reinforcing and supporting member combined with the channel member provides a rigid hollow column. This structure of the column also provides for greater ease, accuracy and economy in welding the T-shaped reinforc-

ing and supporting member to the channel member, since the edges of the arms are held in proper relationship to the inturned flanges for welding at all times, and the welding head of the usual traveling welding machine may pass along the edges of both cross arms of the T and so simultaneously weld the T to both inturned flanges of the channel at the same time or during a single pass. Also, such structure lends itself to automatic machinery in the formation of the column. The apertures in the stem or shank portion of the T may be formed prior to welding or thereafter as desired. Also, the apertures in the channel member for connecting the horizontal load-supporting beams to the upright columns may be formed prior to bending the metal of the channel member into shape, or afterwards if desired, as is customary in the industry. The plurality of apertures in the horizontal and diagonal cross brace members also provides for adjustment in the depth of the truss during assembly, if desired, at the place of use, and so provides a more universally adaptable and usable structure for knockdown-type shelving or scaffolding.

The preferred column structure **21** shown in FIGS. **1** through **7** utilizes a T-shaped reinforcing and supporting member to provide the connecting rib or connecting member for the cross braces used in constructing a truss for the shelving or scaffolding. However, it is readily apparent that the reinforcing and supporting member may take the form of an angle **245** of equal arms secured to the inturned flanges **34** and **35** of the channel **30** used to form the column **321**. The angle arms **246** and **247** will be of a size or dimension to fit between the reverse bends **39** and **40**, respectively, on the inturned flanges as shown in FIG. **8**, to be welded to the inturned flanges in the same manner as the T-shaped reinforcing and supporting member **45** was secured thereto. In this case, one arm **246** will be secured between the reverse bends in the inturned flanges and welded thereto along the lines formed by such reverse bends in such inturned flanges. The opposite arm **247** will extend vertically outwardly from the face plane of the inturned flanges of the column to provide a longitudinal connecting and reinforcing rib substantially identical to the rib stem or shank **48** of the T-shaped reinforcing and supporting member **45**. However, in this form of the column, the projecting rib arm **247** will be disposed to one side of the center of the face of the column formed by the inturned flanges **34** and **35** and the arm **245** of the angle member welded thereto. This type column structure would permit the connection of the cross braces to the projecting arm **247** of the angle and permit the cross braces to lie in substantially a planelike area between the arms **246** of the two complementary columns. In other words, the connecting braces would be disposed on the inside of the projecting arm **247** of the two oppositely facing columns **321** and lie in an area defined by the arms **246** welded to the inturned flanges, and so be disposed substantially medially of the column **321** in the space designated as **250** in FIG. **8**. The projecting arm **247** of the angle **245** may be provided with suitable apertures, alternately square and circular, corresponding identically to those formed in the shank or stem of the T-shaped supporting and reinforcing member **45** of the form first described, and the cross brace members may be secured thereto in the same manner. Also, the cross brace members may be welded to the angle arm **247** in the same manner as shown in FIG. **3** to provide a welded truss. Further, the connecting means for coupling the horizontal load-bearing beams **25** to the upright columns may be any of those shown in FIGS. **4**, **5** or **6**, if desired. Of course, any other suitable coupling structure may also be utilized.

A further modified form of the column **421** is shown in FIG. **9**, wherein the angle reinforcing and supporting member **345** is disposed with the outer edges **346*a*** and **347*a*** of each of the arms positioned to lie along the reverse bends **39** and **40**, respectively, of the inturned flanges **34** and **35** of the channel member **30**, and to be welded to the inturned flanges along their edges to provide a V-shaped projecting rib or reinforcing and supporting element **345**. Such a structure is shown in the patent to D'Altrui, U.S. Pat. No. 2,971,658 issued Feb. 14, 1961, and the connecting means similar to that shown in the D'Altrui patent may be used for connecting the cross braces and diagonal cross braces to the columns to form the truss structure. This form of the column is also rigid and adapted to on the job assembly from knockdown elements. However, it is believed that the two forms first described are more adaptable to such assembly than this form. Suitable coupling members means such as those shown in FIGS. **4**, **5** and **6** may also be utilized to connect the horizontal load-supporting beams to the upright columns **421** of the truss after the truss has been assembled.

From the foregoing, it will be seen that a plurality of forms of reinforcing and supporting means may be incorporated and secured to a C-shaped channel member having inturned flanges provided with reverse bends extending longitudinally substantially medially of the inturned flanges to form a rigid hollow rectangular tubular supporting column member having a projecting connecting member. It will be seen that the reverse bends with the offset flange portions provide means for positioning the reinforcing and supporting members in place on the channels for welding the reinforcing and supporting members to the channels to produce the supporting column. It is also readily apparent that the column so formed is more rigid than open channel-type columns, and that a lighter weight material may be used for forming the columns than is useable in the open channel structure to support a comparable weight. It is also believed readily apparent that the column structure lends itself to the use of automatic welding machinery, and that a method of making the columns has been provided of positioning the reinforcing and supporting members on the inturned flanges of the channel member with the edges of the supporting member disposed adjacent or engaging the reverse bends in the opposed inturned flanges, and welding the reinforcing and supporting members to the inturned flanges along the reverse bends and along the edges of the reinforcing and supporting member adjacent such bends to provide the column.

Also, the reverse bends provide an aligning means or, in substance, a jig for holding the reinforcing and supporting member in proper position with respect to the C-shaped channel member for welding thereto, and so effect a saving in time of construction of the column in the manner used for manufacture thereof. Also, a more uniform and more accurately constructed column is produced by the method and using the structure described.

The foregoing description of the invention is explanatory only, and changes in the details of the construction illustrated may be made by those skilled in the art, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed and desired to be secured by Letters Patent is:

1. A supporting column member comprising: a substantially rectangular C-shaped channel member having opposed inturned flanges lying in a common plane parallel to its major cross-sectional axis and spaced from each other; means on said flanges spaced inwardly from the outer edge of each of said flanges and extending longitudinally thereof parallel to said means on the opposite flange and spaced therefrom for receiving and positioning a reinforcing and supporting member; a reinforcing and supporting member engaging said receiving and positioning means of said spaced inturned flanges and having a projecting supporting member projecting from the plane of the inturned flanges; and means joining said reinforcing and supporting member to said inturned flanges on said receiving and positioning means to provide a hollow tubular column.

2. A supporting column member comprising: a substantially rectangular C-shaped channel having a planar front wall, a pair of parallel sidewalls and inturned flanges lying in a common plane and laterally spaced from each other; each of said inturned flanges having a reverse bend formed therein in its medial portion providing an offset inwardly extending planar

supporting flange portion disposed inwardly of said plane of said inturned flanges toward the front wall of the channel and lying substantially parallel thereto and providing means for receiving and positioning a reinforcing and supporting member, said reverse bends extending longitudinally of the inturned flanges substantially parallel to each other; a reinforcing and supporting member engaging said receiving and positioning means of said inturned flanges; means joining said reinforcing and supporting member to said inturned flanges to provide a hollow tubular column; and a projecting supporting member projecting from the plane of the inturned flanges.

3. A column structure of the character set forth in claim 2 wherein: the reinforcing and supporting member is disposed on the offset flange portions of the inturned flanges between the reverse bends therein and having edge portions extending along and adjacent the longitudinal reverse bends in the inturned flanges.

4. A column structure of the character set forth in claim 3 wherein: the reinforcing member comprises a member T-shaped in cross section and having the outer edge portions of its crossarms disposed on the offset planar flange portions between the reverse bends, and its stem projecting vertically thereto longitudinally of the channel member.

5. A column member of the character set forth in claim 3 wherein: the edge portions of the reinforcing and supporting member are welded to the inturned flanges of a channel member along the reverse bends of the inturned flanges to secure the reinforcing and supporting member to the channel member to provide a hollow tubular column.

6. A column member of the character set forth in claim 3 wherein: the reinforcing and supporting member comprises an angle member of substantially equal arms having one arm disposed in engagement with the offset flange portions and has its edges and angle corner lying parallel to and adjacent the reverse bends of the inturned flanges, and having its other arm projecting vertically thereto.

7. A column member of the character set forth in claim 3 wherein: the reinforcing and supporting member comprises an equal armed angle member having the outer edges of the arms thereof lying on the offset flange portions of the inturned flanges and adjacent and parallel to the reverse bends formed in said inturned flanges.

8. A column structure of the character set forth in claim 1 wherein: the projecting portion of the reinforcing and supporting member is provided with means for securing brace members thereto.

9. A column structure of the character set forth in claim 7 wherein: the projecting portion of the reinforcing and supporting member is provided with means for securing brace members thereto.

10. A column member of the character set forth in claim 4 wherein: the projecting stem member of the T-shaped reinforcing and supporting member provides a projecting rib; and means is provided on said rib for securing cross brace members to the rib to join the column to another column to provide a truss structure.

11. A column of the character set forth in claim 4 wherein: the projecting stem member of the T-shaped reinforcing and supporting member is provided with a plurality of longitudinally spaced apertures formed therein for bolting cross brace members thereto.

12. A device of the character set forth in claim 11 wherein: the apertures are alternately square and round.

13. A column of the character set forth in claim 4 wherein: the projecting arm of the angle reinforcing and supporting member provides a projecting rib; and means is provided on said rib for securing cross brace members to the rib to join the column to another column to provide a truss structure.

14. A column of the character set forth in claim 4 wherein: the projecting arm of the angle reinforcing and supporting member is provided with a plurality of longitudinally spaced apertures formed therein for bolting cross brace members thereto.

15. A device of the character set forth in claim 14 wherein: the apertures are alternately square and round.

16. A column member of the character set forth in claim 1 wherein: the channel portion of the column member is provided with means for adjustably coupling horizontal supporting beams thereto to form a supporting structure.

17. A column member of the character set forth in claim 10: wherein: the channel portion of the column member is provided with means for adjustably coupling horizontal supporting beams thereto to form a supporting structure.

18. A column member of the character set forth in claim 13 wherein: the channel portion of the column member is provided with means for adjustably coupling horizontal supporting beams thereto to from a supporting structure.

19. A column member of the character set forth in claim 7 wherein: the channel portion of the column member is provided with means for adjustably coupling horizontal supporting means thereto to form a supporting structure.

20. A column member of the character set forth in claim 12 wherein: the channel portion of the column member is provided with means for adjustably coupling horizontal supporting beams thereto to form a supporting structure.

21. A method of making a supporting column member comprising: forming a substantially C-shaped channel member having opposed inturned flanges lying in a common plane; forming reverse bends substantially medially of the inturned flanges extending longitudinally of the channel member; disposing a reinforcing member on the offset portions of the inturned flanges of the channel member; and securing said reinforcing member to said inturned flanges of the channel member.

22. A method of making a supporting column member comprising: forming a substantially C-shaped channel member having opposed inturned flanges lying in a common plane; forming reverse bends substantially medially of the inturned flanges extending longitudinally of the channel member; disposing a reinforcing member on the offset portions of the inturned flanges of the channel member; positioning the reinforcing and supporting member with respect to the channel member by means of the offset bends formed in the inturned flanges; and securing said reinforcing member to said inturned flanges of the channel member.

23. A supporting structure including: a pair of spaced upright supporting truss members and a plurality of substantially horizontally disposed load-bearing members detachably joined at their ends to the truss members; each of said truss members comprising a pair of substantially C-shaped channel members, each having a substantially planar front wall, a pair of parallel sidewalls and inturned flanges lying in a common plane and laterally spaced from each other and having reinforcing and connecting members secured thereto to provide a backwall and a projecting connecting member; horizontal and diagonal cross brace members joining the connecting members of each of the pair of channel members; and means on the channel members and load-bearing members for connecting the load-bearing members to the channel members at a plurality of vertically spaced positions to provide supporting surfaces between the spaced truss members.

24. A structure of the character set forth in claim 23 wherein: each of the channel members of the truss members are substantially rectangular C-shaped and the opposed inturned flanges each have a reverse bend formed therein in its medial portion extending longitudinally of the flange and providing an offset inwardly extending planar supporting flange portion disposed inwardly of the backwall of the channel and lying substantially parallel thereto; and said reinforcing and connecting member is disposed between the reverse bends in the inturned flanges in engagement with the offset planar supporting flange portion and is secured to said flanges at said reverse bend.

25. A structure of the character set forth in claim 24 wherein: said reinforcing and connecting member comprises a member T-shaped in cross section and having the edges of its

crossarms disposed on the offset planar flange portions of the inturned flanges of the channel member between the reverse bends and its stem projecting vertically therefrom longitudinally of the back of the channel member.

26. A structure of the character set forth in claim 24 wherein: said reinforcing and connecting member comprises an angle member of substantially equal arms having one arm disposed in engagement with the offset flange portions and has its edges and angle corner lying parallel to and adjacent the reverse bends of the inturned flanges, and having its other arm projecting vertically thereto.

27. A structure of the character set forth in claim 24 wherein: said reinforcing and connecting member comprises an equal armed angle member having the outer edges of the arms thereof lying on the offset flange portions of the inturned flanges and adjacent and parallel to the reverse bends formed in said inturned flanges.

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