United States Patent

Hage

[15] **3,636,894**

[45] **Jan. 25, 1972**

[54] TABLE CONSTRUCTION

[72] Inventor: **Carl H. Hage,** Youngstown, Ohio

[73] Assignee: **The General Fireproofing Company,** Youngstown, Ohio

[22] Filed: **Sept. 18, 1970**

[21] Appl. No.: **73,513**

[52] **U.S. Cl.** **108/156,** 248/188

[51] **Int. Cl.** **A47b 3/06**

[58] **Field of Search** 108/153, 156; 248/165, 188, 248/188.1

[56] **References Cited**

UNITED STATES PATENTS

2,608,455	8/1952	Paden	248/188
2,673,772	3/1954	Beasley	108/156
3,327,658	6/1967	Schreyer	248/188 X
3,341,160	9/1967	Jones	108/156 X

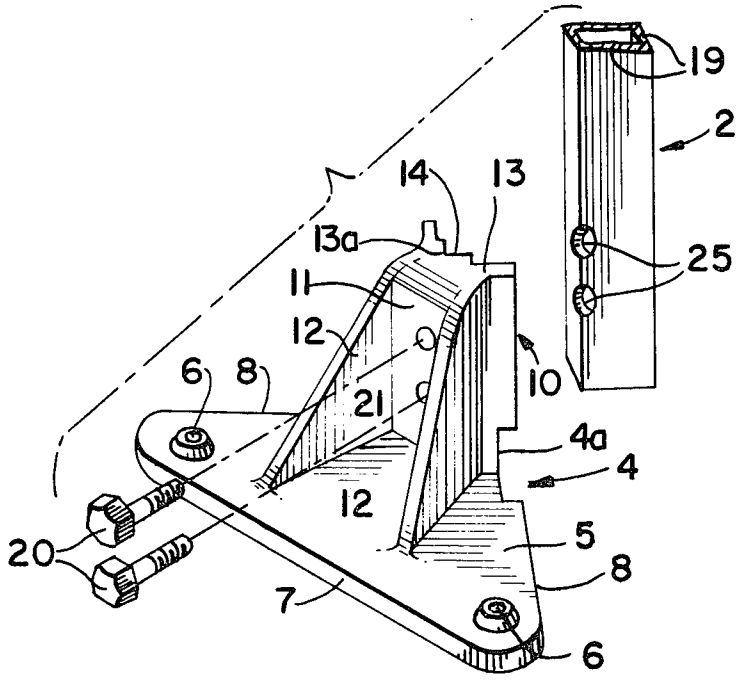
Primary Examiner—James C. Mitchell

Attorney—Emory L. Groff and Emory L. Groff, Jr.

[57] **ABSTRACT**

A furniture structure of the type having a horizontal planar surface supported by a plurality of legs which are bounded by skirt sections includes a mounting bracket at each corner defining a vertical channel below the planar surface adapted to mate with two sidewalls of a tubular leg. Mating fastener means carried by the bracket and interior of the leg provide means to removably attach each leg.

12 Claims, 8 Drawing Figures



PATENTED JAN 25 1972

3,636,894

SHEET 1 OF 2

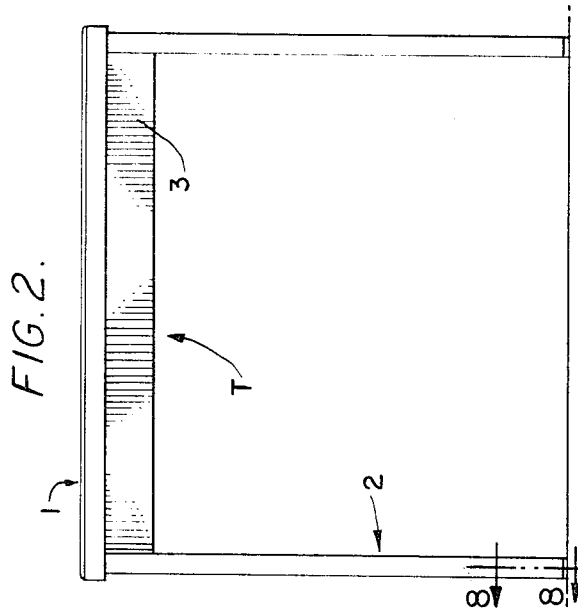


FIG. 2.

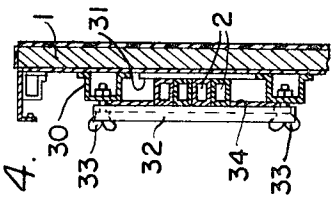


FIG. 4.

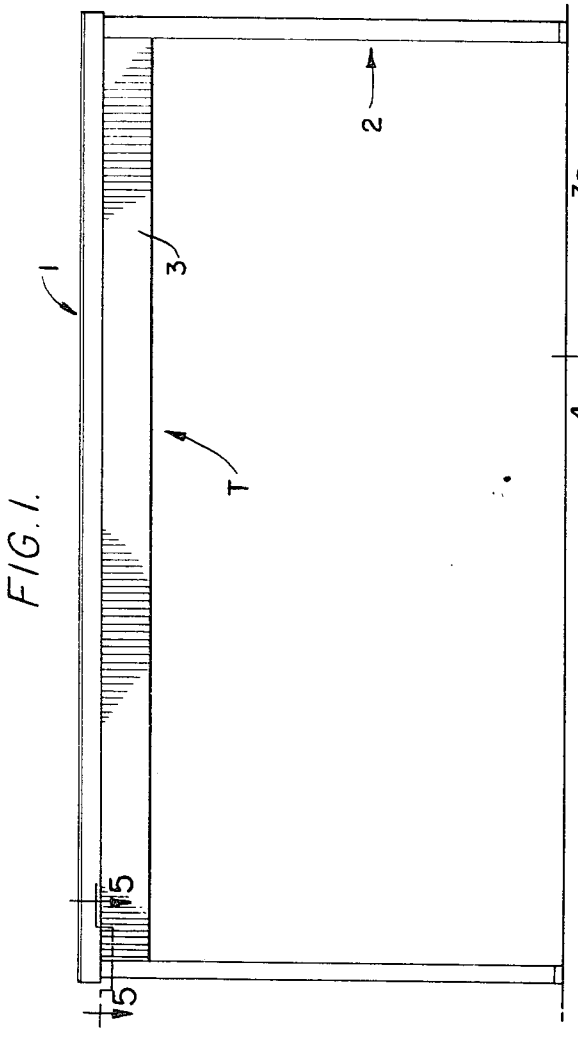


FIG. 1.

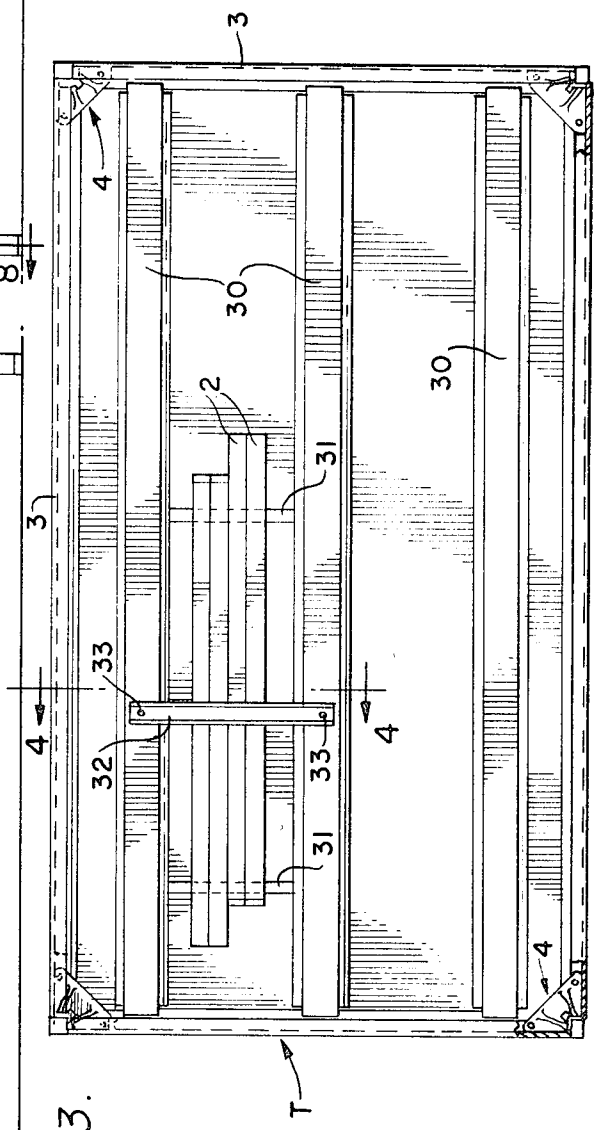


FIG. 3.

INVENTOR
CARL H. HAGE

BY Emory L. Groff Jr.

ATTORNEY

FIG. 5.

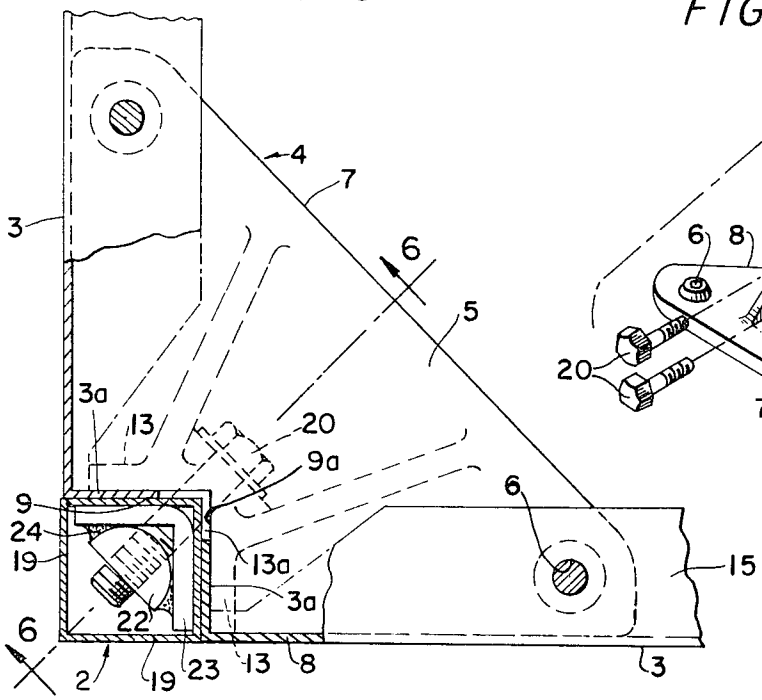


FIG. 7.

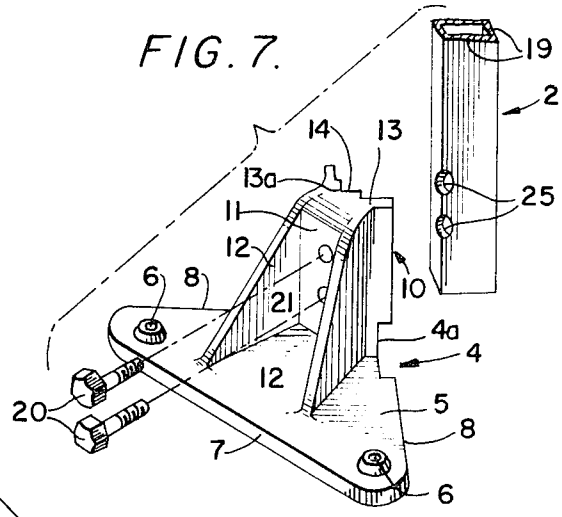


FIG. 6.

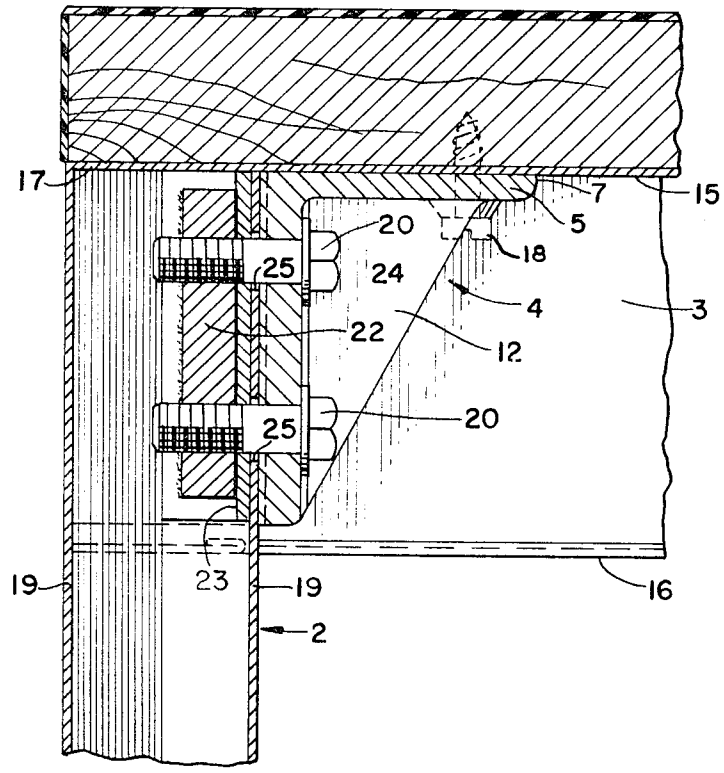
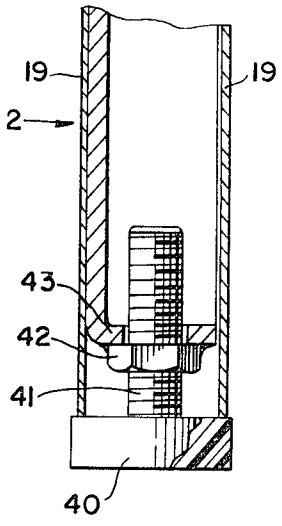


FIG. 8.



INVENTOR
CARL H. HAGE

BY Emory L. Groff Jr.

ATTORNEY

TABLE CONSTRUCTION

This invention relates generally to a mounting assembly and more particularly to a corner construction for removably attaching legs to articles of furniture such as tables, desks, shelving or the like.

In the construction of articles of furniture such as those designed to provide a horizontal planar surface, it is most desirable to provide for the shipping an storage of the article in a knock-down condition. It will thus be appreciated that in the case of an article having vertical supporting legs, it will be most advantageous to provide means whereby these legs may be readily attached and removed from the remainder of the structure such that a substantial saving in space is achieved when the article is not being used. Many prior known arrangements have been provided for the ready attachment and removal of leg assemblies; however, many of these devices necessitated the fabrication of intricate expensive components or required special tools or the expenditure of excessive time during the assembly of the components such that any advantage gained in the knock-down feature of the device was often lost when considering time and expense necessary to assemble the components.

By means of the present invention, an improved table construction is provided including a mounting bracket or brace disposed at each of the corners of the table adjacent the point of intended leg assembly whereby this mounting bracket not only serves to provide an interlocking means for the table top and the lateral skirt or apron sections, but also includes an integral support post having a leg receiving channel within which a tubular leg may be instantly inserted and quickly locked therein by means of suitable fastening members passing through the support post.

Accordingly, one of the primary objects of the present invention is to provide an improved table construction including a corner mounting bracket secured to the table top and lateral apron sections and having support means for locating and rigidly attaching a leg member thereto.

Another object of the present invention is to provide an improved table construction including a removable corner mounting bracket having a support post provided with a fastener base and a pair of right-angular flanges whereby a rectangular leg structure may be nested within the channel defined by the flanges and positively located with respect thereto by means of fasteners passing through said base.

A further object of the present invention is to provide an improved table construction including a mounting bracket adjacent each corner of the table top for retaining a hollow leg structure including an interior reinforcing member and threaded fastener means.

Still another object of the present invention is to provide an improved table construction having unique mounting means for removably attaching each leg and including self-contained means on the table top undersurface for storage of the legs when disassembled from the mounting means.

With these and other objects in view which will more readily appear as the nature of the invention is better understood, the invention consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

The preferred and practical embodiments of the invention are shown in the accompanying drawings, in which:

FIG. 1 is a front elevation of a table according to the present invention.

FIG. 2 is an end elevation of the structure illustrated in FIG. 1.

FIG. 3 is a bottom plan view of the table of FIG. 1 with the legs in the disassembled and stored position.

FIG. 4 is a partial transverse sectional view taken along the line 4—4 of FIG. 3.

FIG. 5 is a partial horizontal sectional view, greatly enlarged, and taken along the line 5—5 of FIG. 1.

FIG. 6 is a transverse sectional view taken along the line 6—6 of FIG. 5.

FIG. 7 is an exploded perspective view and illustrates, in an inverted position, the corner mounting bracket and leg as they would appear during assembly.

FIG. 8 is a vertical sectional view taken along the line 8—8 of FIG. 2.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

FIGS. 1 and 2 of the drawings illustrate the present invention as applied to a table generally designated T and including a horizontal top 1, vertical legs 2 and depending peripheral skirt or apron sections 3. It will be understood, however, that the mounting device of this invention may be associated with any analogous article of furniture such as a desk, shelving unit or the like wherein it is desired to provide readily removable leg assemblies.

The corner mounting bracket, generally designated 4, is illustrated most clearly in FIG. 7 and includes a generally triangularly shaped horizontal top plate 5 provided with at least a pair of mounting holes 6 adjacent the distal portions of the inside edge 7 thereof. The equal length outside edges 8—8 extend from the inside edge 7 to a point terminating adjacent the cutout 9 which is in the area located where the apex of the isosceles triangle would normally be disposed. As will be seen in FIG. 5, the cutout 9 comprises a pair of right-angular surfaces and each side thereof is approximately as long as each side of the leg 2 which is to be attached to the mounting bracket 4. With further reference to FIG. 7, the corner mounting bracket 4 will be seen to include a vertical depending support post, generally designated 10, and which includes a fastener baseplate 11 disposed adjacent the apex of the cutout 9 in the top plate 5. Reinforcing webs 12—12 extend away from the baseplate 11 disposed adjacent the from either side thereof to a point short of the inside edge 7 while the opposite side of the support post 10 includes a pair of diverging flanges 13—13 normal to one another and vertically aligned with the cutout 9 in the top plate 5 to provide a continuous right-angular leg receiving channel 14 therebetween. Each of the flanges 13—13 may be provided with an offset shoulder portion 13*a* as shown in FIG. 7, each of which will be seen to extend outwardly from the apex of the channel 14 a relatively small distance for reasons which will become apparent hereinafter.

The table top 1, skirt sections 3, mounting bracket 4 and legs 2 may all be shipped from the manufacturer in a totally unassembled relationship; however, it has been found that a limited preassembly of the table top 1, skirt sections 3 and mounting brackets 4 is most advantageous and only slightly increases the bulk of the table components during shipping since it will be readily appreciated that the legs 2 should most certainly include the knock-down feature. The corner mounting brackets 4 are constructed in a manner to provide means for rigidly interlocking the table top and skirt sections while at the same time, provide ready means for the subsequent attachment of the legs. Each of the skirt sections 3 includes a horizontal top flange 15 and bottom flange 16 at least the former of which extends inwardly a significant distance from the main wall of the skirts to provide sufficient bearing surfaces adjacent the outside edges 8—8 of the mounting bracket 4 well inwardly of the mounting holes 6. Provided at each end of the skirt or apron sections is an end return flange 3*a* extending inwardly from the skirt panel 3 and joined to both the top and bottom flanges 15 and 16, respectively. As will be seen in FIG. 5, the inner edge of each flange 3*a* preferably terminates short of the apex of the cutout 9 to provide the relief area 9*a* within which the shoulders 13*a*—13*a* of the mounting bracket are adapted to be disposed. As shown most clearly in FIGS. 5 and 6, the skirt sections 3 are initially assembled by placing the top flanges 15 in abutting relationship with the lower or under surface 17 of the table top 1 and thence, the top plate 5 of the mounting bracket is placed against the inside surface of two adjacent skirt top flanges 15 and by means of a single screw 18 placed through each of the mounting holes 6 and passing through corresponding holes in the skirt flanges, it will be understood that the mounting bracket 4 and the two ad-

jacent ends of two skirt sections 3 are thus rigidly attached to the undersurface 17 of the table top 1.

As previously mentioned, the structure of each leg 2 is preferably tubular and includes a plurality of sidewalls 19, the width of which is substantially comparable to the length of each edge of the bracket cutout 9 combined with the thickness of the skirt section 3.

It will be understood that upon the placement of a leg 2 within the leg receiving channel 14, a substantially flush relationship will then exist between the two outermost sidewalls 19 of the leg and the laterally adjacent surfaces of the skirt sections 3. As the leg is clamped into the channel 14, the apron and flange 3*a* will also be further secured as these flanges are sandwiched between the two inner sidewalls 19—19 of the leg and the bracket flanges 13—13. In this respect it will follow that the bracket shoulders 13*a*—13*a* are preferably of a thickness comparable to the thickness of the flange 3*a*. To permit for the ready attachment and removal of each leg 2 by means of the corner brackets 4, suitable internally threaded nut means is previously provided within the interior of each leg and is adapted to cooperate with one or more threaded bolts 20 to be passed through the holes 21 in fastener baseplate 11 of the support post 10. As shown in FIG. 5, the center axis of these holes 21 passes through the apex of the two support post flanges 13. FIGS. 5 and 6 illustrate one form of nut member 22 which may be previously assembled within the interior of the leg 2 and rigidly located therein by any suitable means such as by welding. In view of the thin-walled construction commonly utilized in present-day metal furniture, it is advisable to include a reinforcing angle member 23 between the arcuate surface 24 of the nut member 22 and the two sidewalls 19—19 adapted to be juxtaposed the channel 14 between flanges 13 of the mounting bracket 4. The leg assembly is completed by providing a suitable number of holes 25 corresponding to the number of holes 21 and bolts 20, which leg holes 25 will be seen to pass through the apex formed by the two intersecting leg sidewalls 19—19 such that the attachment of the leg may be achieved by combining the components illustrated in exploded position as in FIG. 7 so as to produce the rigid assembly as shown in FIGS. 5 and 6.

Shipping and storage of the legs 2 when disassembled from the corner mounting brackets 4 is facilitated by means of an assembly associated with the undersurface 17 of the table top 1 as shown in FIGS. 3 and 4. A plurality of reinforcing channels 30 extends substantially the length of the top undersurface 17 and are secured thereto by any suitable means (not shown). A pair of resilient cushion pads 31—31 extend between two adjacent reinforcing channels 30 and are laterally spaced apart from one another a distance which is less than the overall length of the legs 2 such that the total number of table legs may be positioned upon the two cushion pads in a bridging relationship as shown in FIG. 3. The legs are then retained in this storage position by means of a holddown bar 32, the two ends of which are removably secured to the lowermost surface of the two reinforcing channels 30 by means of suitable fasteners 33 whereupon by tightening these fasteners 33, the bar 32 is drawn toward the undersurface 17 of the table top and engages the juxtaposed sidewall of each of the plurality of table legs to retain them in a nonshiftable or rigid position upon the resilient pads 31—31. As a further means of insuring a rigid and positive locking of all the legs 2, a layer 34 of cushion material is also attached to the juxtaposed face of the bar 32.

The above description is directed primarily to the storage of the legs in a desk involving a wood base for the top. In the case of a steel top the braces or channels 30 may quite obviously comprise a part of the steel top itself.

The lower portion of each of the table legs 2 may be provided with any suitable adjustable foot or glide structure such as the arrangement illustrated in FIG. 8 which will be seen to disclose an adjustable glide 40 fixedly attached to an upstanding bolt 41 passing through the nut 42 which is secured to a support plate 43 anchored to the innersurface of the legs 2.

Additionally, the bracket 4 may be notched as at 4*a* in FIG. 7 to accommodate a section of trim (not shown) which may be provided adjacent the undersurface of the table top.

I claim:

1. The combination of a horizontal member and a tubular leg adjacent a corner thereof and having a air of angular sidewalls, mounting means attached to the under surface of said member adjacent the corner, said mounting means including a bracket having a top plate juxtaposed said member under surface, a support post depending from said top plate and provided with angular flanges defining a channel mating with said leg sidewalls, and fastener means carried by said support post and tubular leg to removably attach and secure said leg to said bracket.

2. The combination according to claim 1 wherein, said channel is disposed beneath said member under surface.

3. The combination according to claim 1 wherein, said flanges and leg sidewalls are disposed at right angles and the width of each said flange and each said leg sidewall are substantially equal.

4. The combination according to claim 3 wherein, said support post includes an opening intersecting the apex of said flanges and through which said fastener means passes.

5. The combination according to claim 3 wherein, said leg includes an opening intersecting the apex of said pair of leg sidewalls and through which said fastener means passes.

6. The combination according to claim 5 wherein, said leg includes a nut member secured within the interior thereof adjacent said leg opening.

7. The combination according to claim 6 including, a reinforcing plate within said leg intermediate said nut member and leg opening.

8. The combination according to claim 1 including, a vertical skirt section adjacent each side of said leg, said skirt section each provided with a top flange juxtaposed said member under surface, and attaching means passing through said bracket top plate, said top flange and into said member to simultaneously connect said bracket, skirt sections and member.

9. The combination according to claim 8 wherein, said bracket top plate includes a pair of right-angular outside edges and is provided with a cutout adjacent to and similar cross section to said channel, and said skirt sections abut said outside edges when said attaching means are applied.

10. The combination according to claim 1 wherein, said member is rectangular and each corner thereof is provided with one of said brackets and legs, said member under surface having storage means for retaining said legs when detached from said brackets, said storage means including a pair of spaced apart channels attached to said under surface, cushion strips on said under surface disposed transversely of said spaced channels a distance no greater than the length of said legs, and adjustable holddown means intermediate said cushion strips having fastener means for joining to said spaced channels.

11. The combination according to claim 8 wherein, said skirt section includes an end flange disposed between said support post angular flange and one of said leg sidewalls.

12. The combination according to claim 1 wherein, said angular flanges each include a shoulder projecting outwardly adjacent the apex of said channel.

* * * * *