Nov. 5, 1968 R. T. CARLSON 3,409,258

TABLE LEG ATTACHING MEANS

Filed Sept. 12, 1966 2 Sheets-Sheet 1

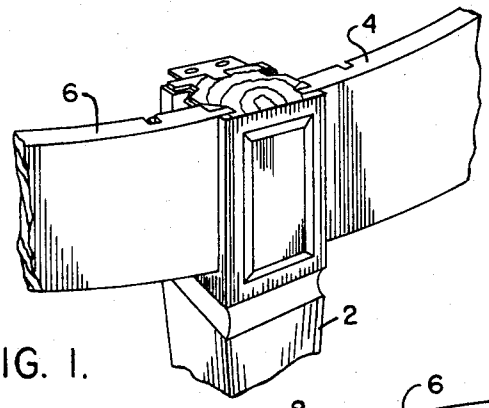


FIG. 1.

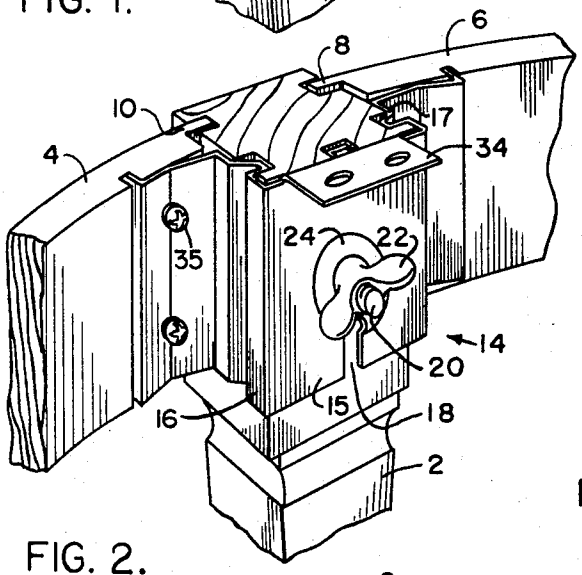


FIG. 2.

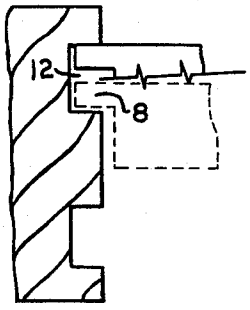


FIG. 3.

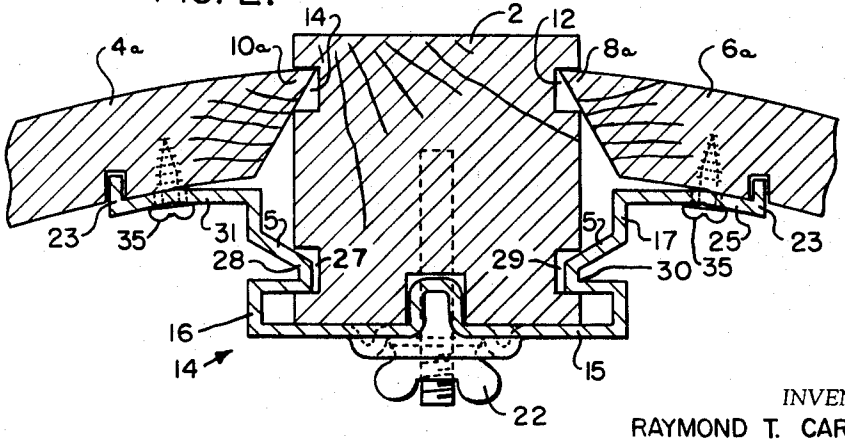


FIG. 4.

INVENTOR.
RAYMOND T. CARLSON
BY Norman L Wilson Jr.
HIS ATTORNEY

Nov. 5, 1968 R. T. CARLSON 3,409,258

TABLE LEG ATTACHING MEANS

Filed Sept. 12, 1966 2 Sheets-Sheet 2

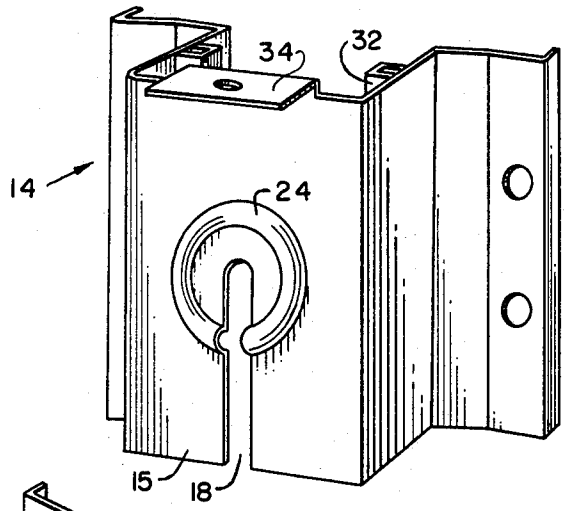


FIG. 5.

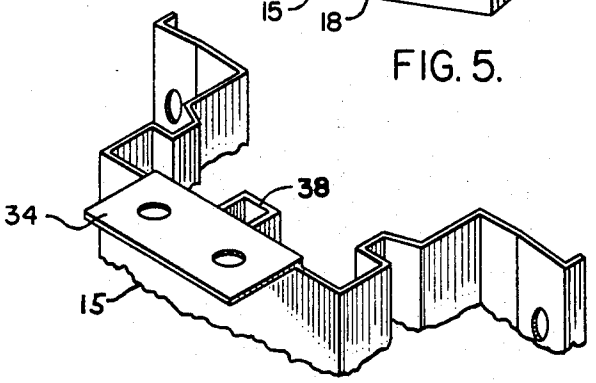


FIG. 6.

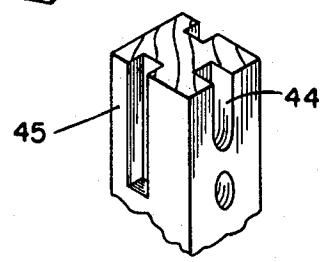


FIG. 9

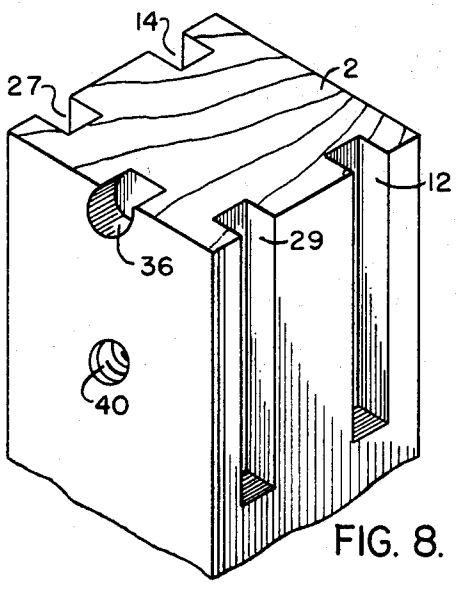


FIG. 8.

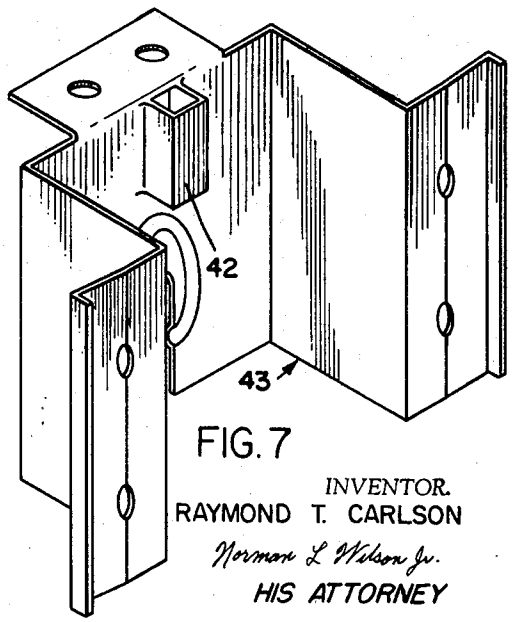


FIG. 7

INVENTOR.
RAYMOND T. CARLSON
Norman L Wilson Jr.
HIS ATTORNEY

United States Patent Office

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TABLE LEG ATTACHING MEANS

Raymond T. Carlson, P.O. Box 82, Lookout Mountain, Tenn. 37350

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9 Claims. (Cl. 248—188)

ABSTRACT OF THE DISCLOSURE

Bracket and leg combinations for attaching legs to tables having side rail sections. Bracket permits leg to be secured so that maximum rigidity is achieved with the front of the leg still visible for improved appearance. Leg used in combination with the bracket has grooves to receive rail ends and bracket.

This invention relates to the attachment of legs to tables whereby the legs can be easily detached for shipping in a disassembled condition. More particularly, the invention pertains to a new and improved attaching means for removably securing legs to tables which have downwardly depending table rims, or side rails.

BACKGROUND OF THE INVENTION

Many mounting brackets are known for attaching legs at corners of square or rectangular tables having side rails. However, no satisfactory leg bracket is available for dining tables and the like requiring intermediate legs, that is, legs between corners, especially in tables having arcuate rails wherein the legs are inserted in openings between separate side rail sections. In tables of this type, the side rails are usually provided with tenons or dowels designed to enter or fit into grooves or drilled holes in the leg. A leg so attached, nevertheless, is not extremely rigid, especially if assembled by other than the manufacturer. An unsteady table often results.

In an effort to strengthen leg joints of tables sold unassembled, a wood mounting block is generally employed requiring gluing and an abundance of wood screws. Such wood mountings, particularly in the case of curved side rails, are frequently time consuming and contribute to an unsatisfactory piece of furniture, resulting in bad tolerances because of lack of precision required, and because of the tendency of wood to shrink.

Due to laminating difficulties and other limitations in the process of manufacturing curved table rails, it is a usual practice for these rails or rims to be made in sections. This means that table legs must be disposed between such sections. Consequently, appearance dictates that the top fronts of table legs disposed between sections be visible between these sections. They cannot be surrounded by metal brackets. Hence, conventional straps which embrace the leg cannot be used. The front of the leg would be visible.

SUMMARY OF THE INVENTION

A wide variety of brackets are available for corners, but it is much more difficult to fabricate a leg assembly for those tables in which legs are inserted between separate side rail sections, especially round, oval and similar tables having legs along their sides. This invention has as an object the provision of an attaching means for round, oval and other tables having legs inserted between separate side rail sections. A bracket is provided allowing assembling and disassembling at will. The invention encompasses a bracket embracing the back, and part of each side, of a table leg, the bracket having substantially vertical flanges for attachment to side rail sections on each side of the leg. An advantage of the attaching means of this invention is the manner in which the top end of the leg is secured

thereto so that maximum strength and rigidity are achieved. In order to accomplish this, the body of the bracket is provided with at least one generally vertical inwardly depending rib. The rib rides in a groove in the upper end of the table leg. The rib or ribs thus confer on the leg joint the additional stability necessary. The upper portion of the leg is also provided with additional grooves, one on each side, into which rail ends dovetail. The advantage of this attaching means in addition to increased stability is the manner in which it hides the gap created by the groove between the top end of the leg and a rail end as it draws the top end of the leg inwardly.

DETAILED DESCRIPTION OF THE INVENTION

These aspects of the invention as well as other advantages and objects of the invention can, perhaps, be better understood from a description thereof in conjunction with the accompanying drawing, which is, of course, for the purpose of illustration only. In the drawing

FIGURE 1 is a front perspective view of a leg attached to curved table rails according to this invention.

FIGURE 2 is a back perspective view of the attaching means of the invention.

FIGURE 3 is a partial top plan view showing how the rails abut the leg as the leg seats in the bracket.

FIGURE 4 is a top view of the leg attaching means of the invention showing slightly different rail ends.

FIGURE 5 is a perspective view of a different form of leg bracket.

FIGURE 6 is a partial isometric front view of the upper portion of a leg bracket.

FIGURE 7 is an isometric view of another embodiment of the invention.

FIGURE 8 is a partial isometric view of the upper end of a table leg as adapted for the bracket of FIG. 6.

FIGURE 9 is a partial isometric view of the upper end of a table leg as adapted for the bracket of FIG. 7.

Referring now to FIGS. 1 and 2, a table leg **2** is shown disposed between two curved side rail sections **4** and **6** of an oval or round table (not shown). Side rail sections **4** and **6** are provided with ends which serve as tenons **8** and **10**, entering grooves **12** and **14** on opposite sides of the upper end of leg **2**, the grooves being shown better in FIGS. 8 and 4. FIG. 4 also shows a different type of tenon. Thus, side rails **4***a* and **6***a* are each angled to form wedges **8***a* and **10***a*, the tips of which function as tenons.

In addition to the tenons, leg **2** is held securely by mounting bracket **14**, shown generally in FIG. 2. As can be seen in FIG. 4, mounting bracket **14** has a U-shaped body portion having a back **15** and sides **16** and **17**. To tighten the mounting bracket, back **15** is provided with a hole, preferably slot **18**, which accommodates a screw or a bolt such as bolt **20**. Aperture **18** is a central slot opening from the bottom of back wall **15** and extending upwardly to nearly midway of the wall to receive the bolt or screw in table leg **2**. Preferably back **15** is provided with a shoulder **24**, shown best in FIGS. 2 and 5. This shoulder forms a depression into which a washer-based wing nut fits. This permits even a loose fitting nut to function adequately, preventing accidental detachment of the leg while lifting or otherwise moving the table.

Referring now in greater detail to mounting bracket **14**, it can be seen from FIG. 4 that back **15** and side walls **16** and **17** are formed by substantially perpendicular bends. However, rather than converging to form a surrounding strap, walls **16** and **17** are bent outwardly to form flanges **25** and **31** bordering the rail walls. These flanges are adapted, as by screw holes or other means, for attachment to adjacent side rails **4***a* and **6***a*. For instance, as shown in FIGURE 4 flanges **25** and **31** can be attached to side rails **4***a* and **6***a* by means of screws **35**. In a preferred embodiment, each side flange terminates

in a forwardly directed edge **23**. Grooves are provided in adjacent table rails for edges **23**, thus locating the bracket, and simplifying fabrication of the table. It is desirable that each flange **25** and **31** contain a very slight bend near the middle, the outer section of the flange being deflected or flared backwardly, in the direction of the back wall of the bracket body. This bend or flare permits the rail ends to move more easily in their respective grooves, and while the angle depends somewhat on the curvature of the rail, more leeway in rail curves is permitted by the angle.

One of the advantages of the mounting bracket provided herein is the provision of the protruding strips or ribs **28**, **30**, or **32**. These ribs are leg stabilizers, cutting down wobbling. To form these depressions, side walls **16** and **17** on back wall **15** can be dented by any known means or a rib can be welded thereto as shown in FIGS. 5 and 7. A particularly desirable rib is in the form of substantially U-shaped depressions **28** and **30**, shown in FIGS. 2 and 4. This rib results from four bends, an inward bend, desirably substantially perpendicular to the side, a forward bend, also approximately perpendicular to the back, an outward bend, preferably at an angle to the side, followed by a second forward bend. A depression thus formed has a surface **5** which is oblique relative to either side.

The details of the operation of the attaching means of this invention can now be explained with reference to FIGS. 2 and 4, in conjunction with FIG. 3. In FIG. 3 the initial position of a tenon or rail end or insertion of the leg is shown, somewhat exaggerated, by dotted lines. It can be seen that there is a gap between the front of the rail end **8** and the forward wall of groove **12**. As the leg top is drawn back toward the rear of the bracket body portion, the gap between the forward wall of groove **12** and the front wall end **8** closes. The same is true of groove **14** and rail end **10** or **10***a*. On continued tightening of nut **31** leg **2** becomes fully seated into bracket **14**, resulting in a flawless joint. Thus, because of pressure from front to back as the leg seats, the front walls of the grooves are drawn tightly against the front rail ends so that there is no visible gap therebetween. In addition, looking at either depression **27** or **29**, it can be seen that as leg **2** is drawn toward the rear, or back wall **15**, ribs **28** and **30** seat in their respective grooves. As a result of this construction, the leg joint is extremely rigid because there are stabilizing points in addition to lock nut **22**. These are groove walls on each side of the leg. The groove is so cut that as the leg is drawn back by the locking bolt, the rib bears against the front groove wall, minimizing front to back wobbling. It is desirable that the ribs also bear on the side groove wall, relative to the table. This keeps the table leg from moving sideways.

Another advantage of this invention is that in addition to stabilizing the leg, ribs **28** and **30** automatically determine the pitch of the table leg because of the angles which depressions and corresponding leg grooves make with the vertical and with each other. As an example, using the mounting of FIG. 2 with a leg having a vertical groove will result in a vertically disposed leg. On the other hand, a mounting bracket with slanting ribs results in a leg extending outwardly from the table even though rib grooves may be vertical. It will be understood also that with vertical mounting bracket depressions, such as are shown in FIG. 2, leg **2** can nevertheless be positioned outwardly or inwardly by the use of non-vertical grooves in the leg. Desirably bracket depressions or ribs will be substantially vertical, making an angle of one or two degrees with the vertical, with vertically cut leg grooves. The leg thus will be disposed at a slight angle for stability and improved appearance. A rib angle of one or two degrees from the vertical sloping outwardly from the top also has the advantage that as the leg slides into the bracket, the angled ribs draw the leg toward the back of the bracket. The bolt need not be relied on for this action,

the tight fit being accomplished by the ribs. The ribs also close the gap between the rail and its front groove wall. Other modifications will be apparent to those skilled in the art. Thus flanges **34** can be formed integrally with the back, or side, body walls. Such flanges are provided with suitable apertures for the passage of holding screws.

Still another advantageous aspect of this invention is shown in FIGS. 6, 7, 8 and 9. Grooves, **12**, **14**, **27**, and **29** and **44**, in addition to positioning the leg with respect to the vertical in one plane, keep the leg from wobbling. In other words, the grooves prevent a leg from moving inwardly, outwardly or sideways. In accordance with the aspect of the invention shown in FIGS. 6 and 8, the leg is prevented from moving in any direction. Referring first to FIG. 8 the upper end of a leg is shown with its grooves **12**, **14**, **27** and **29**. Numeral **40** indicates the hole which is provided for bolt **20**. Also shown in FIG. 8 is a shallow hole **36** which usually will be drilled at the time bolt hole **40** is made. Cooperating with shallow hole **36** is an additional rib or projection in the top of body wall **15**. This projection can be a pin or similar stud welded to the back of wall **15** in line with center slot **18**. In my preferred form, however, this projection is in the form of an extension or rudder **38** in the form of a U-shaped band affixed to wall **15**. When leg **2** is positioned within bracket **14** stud **38** seats in a shallow hole **36** or other depression in the leg, the combination thus providing a locking means against leg pivoting relative to screw hole **40**.

It will be understood that in another of its embodiments the invention contemplates lengthening projection **38** to form rib **42** shown in FIG. 7. With the use of this rib **42**, since additional stabilization surfaces are provided by back rib **42** to minimize wobbling, the side ribs can be eliminated. It can thus be seen that the use of the leg locking assembly of this invention leads to a variety of designs, as well as insuring positive positioning in each instance. The leg attaching means allows the natural leg finish or design to be visible on the outside for beauty as shown in FIG. 1. Further, because of its construction, the mounting bracket also permits some latitude in the sizes of legs used therein. This leeway is achieved by increasing the groove depth as the size of the leg increases. Thus, square legs of from two inches square as well as rectangular legs, e.g. two by two and one half, can be used in the same metal or reinforced plastic mounting bracket. As illustrated by the embodiment of FIG. 5, the bracket of this invention can take several forms. In addition, the bracket of the invention applies to oval as well as round tables, and to lamp tables and coffee tables as well as to dining tables. These and other obvious ramifications are deemed to be within the scope of this invention. Thus as indicated hereinbefore the ribs and leg grooves can be disposed at angles relative to the vertical. For the vertical plane of reference the table is considered in its assembled condition; in other words vertical is a perpendicular to the floor. Since in this instance legs and brackets will be vertically disposed, non-vertical grooves and ribs will form angles with the vertical leg or bracket axis. Various modifications will occur to one skilled in the art.

What is claimed is:

1. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, including a mounting bracket comprising a substantially U-shaped body portion having a back wall and two side walls formed by substantially perpendicular bends to receive the upper end of a leg, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with the adjacent rail, each flange terminating in a forwardly directed positioning edge adapted to engage a substantially vertical groove in a side rail section, means for securing the side flanges to the inside rail walls, means for securing the upper leg

end against the back wall of the body portion to seat the leg in the bracket, substantially vertical protruding strips forming ribs in each wall side, the ribs being formed by inward, outward, and forward bends, forming ribs in each wall side.

2. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, including a mounting bracket comprising a substantially U-shaped body portion having a back wall and two side walls formed by substantially perpendicular bends to receive the upper end of a leg, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with the adjacent rail, the flanges at about their middle being angled backwardly in the direction of the back body wall, means for securing the side flanges to the inside rail walls, means for securing the upper leg end against the back wall of the body portion to seat the leg in the bracket, at least one substantially vertical protruding strip on an inside bracket wall forming a rib to extend into a groove in the upper leg end so that the leg is stabilized thereby as it seats in the bracket.

3. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, including a mounting bracket comprising a substantially U-shaped body portion having a back wall and two side walls formed by substantially perpendicular bends to receive the upper end of a leg, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with the adjacent rail, means for securing the side flanges to the inside rail walls, means for securing the upper leg end against the back wall of the body portion to seat the leg in the bracket, a substantially vertical protruding strip forming a projecting rib in the back body wall, fitting into a groove in the leg, the combination providing the stabilizing means limiting leg pivoting on the bolt or screw in the table leg.

4. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, including the combination of (1) a mounting bracket comprising a substantially U-shaped body portion having a back wall and two side walls formed by substantially perpendicular bends to receive the upper end of a leg, a substantially vertical protruding strip on each inside bracket side wall forming a rib to extend into a groove in each side of the upper leg end, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with the adjacent rail, (2) means for securing the side flanges to the inside rail walls, and (3) means for securing the upper leg end against the back wall of the body portion to seat the leg in the bracket, with (4) a table leg, and rail sections on either side thereof, the leg having vertical grooves in the top thereof, at least one groove adapted to receive said stabilizing rib, the other grooves adapted to receive rail ends, the pressure from the front to the back as the leg seats on a stabilizing rib forcing the forward wall of each rail groove against the front end of its adjacent rail so that there is no visible gap therebetween when viewed from the front, the side stabilizing ribs being disposed in the bracket at angles relative to their leg grooves such that as the leg slides into the bracket the side ribs force it toward the rear bracket wall.

5. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, including the combination of (1) a mounting bracket comprising a substantially U-shaped body portion having a back wall and two side walls formed by substantially perpendicular bends to receive the upper end of a leg, a substantially vertical protruding strip on each inside bracket side wall forming a rib to extend into a groove in each side of the upper leg end, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with the adjacent rail, (2) means for securing the side flanges to the inside rail walls, and (3) means for securing the upper leg end against the back wall of the body portion to seat the leg in the bracket, with (4) a table leg and rail sections on either side thereof, the leg having vertical grooves in the top thereof, at least one groove adapted to receive said stabilizing rib, the other grooves adapted to receive rail ends, the pressure from the front to the back as the leg seats on a stabilizing rib forcing the forward wall of each rail groove against the front end of its adjacent rail so that there is no visible gap therebetween when viewed from the front, the side stabilizing ribs being disposed in the bracket at angles relative to the vertical, such that with vertical leg grooves the leg slopes outwardly from the top.

6. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, with the side rail sections inserted in grooves on opposite sides of the upper end of a leg, the attaching means including a mounting bracket adapted to draw the leg into it, and at the same time against the rail sections inserted therein so that there is no visible gap therebetween as viewed from the leg front, said mounting bracket comprising a body portion having a back wall and two side walls made by substantially perpendicular bends, forming a hollow rectangle with one side omitted to enclose three sides of a rectangular upper leg end, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with adjacent side rail sections on opposite sides of the upper leg end, the mounting bracket being provided with seating means for the upper leg end including at least one substantially vertical protruding strip on an inside bracket wall forming a rib on the wall to fit into a groove in the upper leg end and so that the leg is stabilized thereby when it seats in the bracket, and an aperture in the back bracket wall to receive a bolt by which the upper leg portion can be drawn against the side rail sections, and into the bracket body portion to seat on the rib, and against the back wall in the bracket, the aperture in the back bracket wall being a central slot opening from the bottom thereof and extending to nearly midway of the wall.

7. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, with the side rail sections inserted in grooves on opposite sides of the upper end of a leg, the attaching means including a mounting bracket adapted to draw the leg into it, and at the same time against the rail sections inserted therein so that there is no visible gap therebetween as viewed from the leg front, said mounting bracket comprising a body portion having a back wall and two side walls made by substantially perpendicular bends, forming a hollow rectangle with one side omitted to enclose three sides of a rectangular upper leg end, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with adjacent side rail sections on opposite sides of the upper leg end, the mounting bracket being provided with seating means for the upper leg end including at least one substantially vertical protruding strip on an inside bracket wall forming a rib on the wall to fit into a groove in the upper leg end and so that the leg is stabilized thereby when it seats in the bracket, and an aperture in the back bracket wall to receive a bolt by which the upper leg portion can be drawn against the side rail sections, and into the bracket body portion to

seat on the rib, and against the back wall in the bracket, the aperture in the back bracket wall being a central slot opening from the bottom thereof and extending to nearly midway of the wall where it terminates in an attachment hole, the attachment hole being surrounded by a shoulder forming a depression around the hole into which a washer seats.

8. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, with the side rail sections inserted in grooves on opposite sides of the upper end of a leg, the attaching means including a mounting bracket adapted to draw the leg into it, and at the same time against the rail sections inserted therein so that there is no visible gap therebetween as viewed from the leg front, said mounting bracket comprising a body portion having a back wall and two side walls made by substantially perpendicular bends, forming a hollow rectangle with one side omitted to enclose three sides of a rectangular upper leg end, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with adjacent side rail sections on opposite sides of the upper leg end, the mounting bracket being provided with seating means for the upper leg end including a substantially vertical protruding strip on each side bracket wall forming a rib on the wall to fit into a groove in the upper leg end and so that the leg is stabilized by the side ribs when it seats in the bracket, and an aperture in the back bracket wall to receive a bolt by which the upper leg portion can be drawn against the side rail sections, and into the bracket body portion to seat on the rib, and against the back wall in the bracket.

9. Attaching means for removably securing legs to those tables having legs inserted between separate side rail sections along table sides other than at corners, with the side rail sections inserted in grooves on opposite sides of the upper end of a leg, the attaching means including a mounting bracket adapted to draw the leg into it, and at the same time against the rail sections inserted therein so that there is no visible gap therebetween as viewed from the leg front, said mounting bracket comprising a body portion having a back wall and two side walls made by substantially perpendicular bends, forming a hollow rectangle with one side omitted to enclose three sides of a rectangular upper leg end, an outwardly depending, substantially vertical, flange bordering the end of each bracket side wall and extending away from said body portion for engagement with adjacent side rail sections on opposite sides of the upper leg end, the mounting bracket being provided with seating means for the upper leg end including at least one substantially vertical protruding strip on an inside bracket wall forming a rib on the wall to fit into a groove in the upper leg end and so that the leg is stabilized thereby when it seats in the bracket, and an aperture in the back bracket wall to receive a bolt by which the upper leg portion can be drawn against the side rail sections, and into the bracket body portion to seat on the rib, and against the back wall in the bracket.

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JAMES T. McCALL, *Primary Examiner.*