Feb. 13, 1945. C. L. DEWEY 2,369,140

TABLE STRUCTURE

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Fig. 1

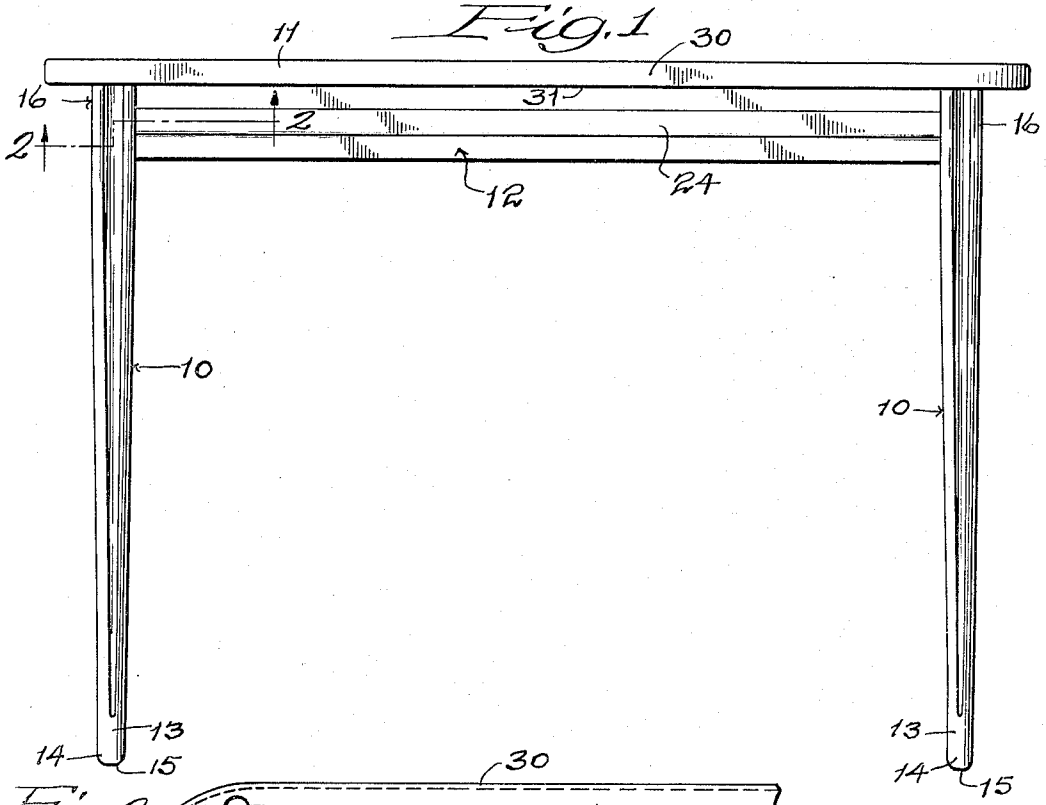


Fig. 2

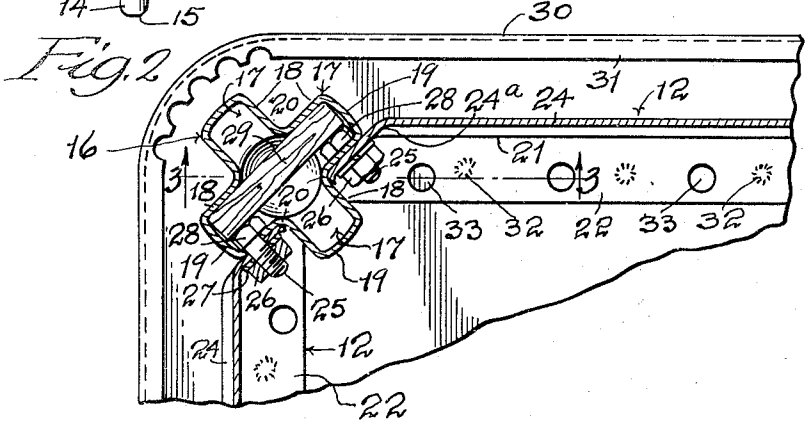


Fig. 5

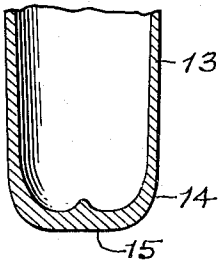
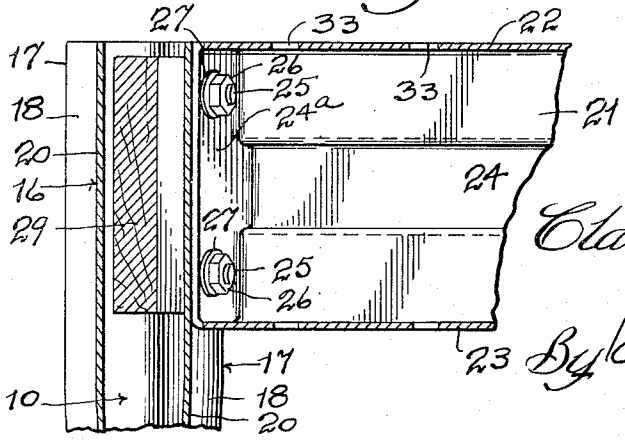


Fig. 3



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TABLE STRUCTURE

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Fig. 4

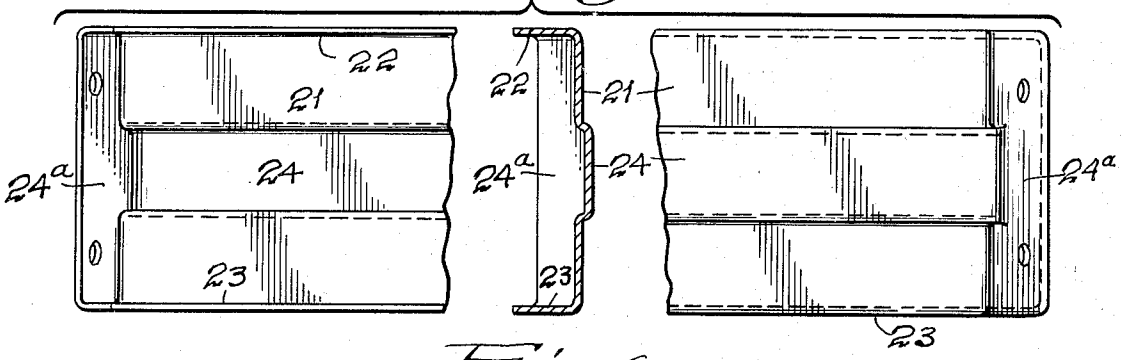


Fig. 6



Fig. 7

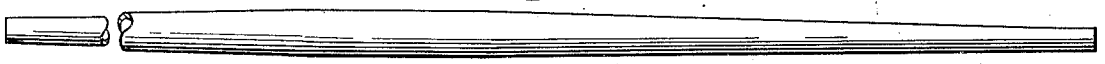


Fig. 8

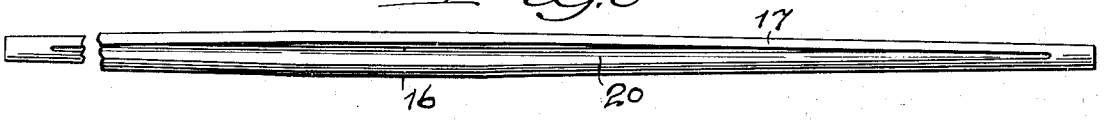
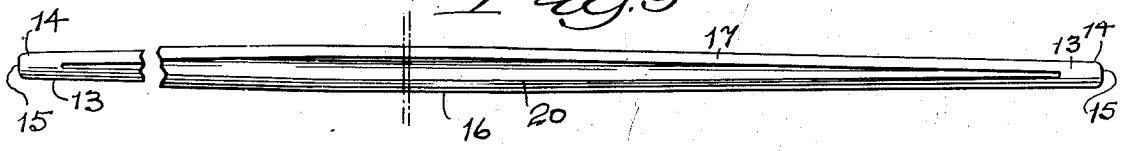


Fig. 9



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Patented Feb. 13, 1945 2,369,140

UNITED STATES PATENT OFFICE

2,369,140

TABLE STRUCTURE

Clarence L. Dewey, Elkhart, Ind.

Application May 27, 1943, Serial No. 488,645

5 Claims. (Cl. 311—110)

This invention is directed primarily to the means provided for uniting table legs of the special tubular metallic formation herein described to a table top or the like, which may be of metal, wood, or composition, in such a way as to provide a union which is sufficiently firm and rigid to permit braces or spreaders to be dispensed with and which will at the same time permit the table and legs to be shipped or stored in disassembled or knock-down condition and be readily assembled as occasion may require. Further objects and details will appear from the following description in conjunction with the accompanying drawings wherein—

Figure 1 is a side elevation of the table embodying the features of the present invention;

Fig. 2 is an underview of a corner of the table top with the leg and supporting sill shown in section;

Fig. 3 is an under sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a composite view showing the opposite faces of one of the sills and a cross section thereof;

Fig. 5 is a sectional detail of the lower end of the leg and foot; and

Figs. 6—7—8 and 9 are details showing the forms progressively assumed by a length of tubing in the fabrication of the table legs of the present invention.

The table as shown is provided with four legs 10, a top 11, and end and side sills 12 which underlie the top and unite the legs at their upper ends. Each of the legs is of four-lobed, star-shaped formation in cross section throughout most of its length but merging at its lower end into a short length 13 of circular cross section terminating in a foot 14 which is closed and rounded into a flat base 15.

The leg at its upper end terminates in a short top section 16 of uniform cross dimensions which provides for the attachment of the ends of the adjacent side and end sills, and below the top section the leg tapers downwardly to its lower end. The leg is formed to provide four ridges 17, each having parallel side walls 18 and a rounded outer face wall 19. The ridges radiate outwardly at angles of 90° from one another and stand in diagonal relation to the table top which is rectangular or square, and between each rib is a V-shaped groove 20 defined by the ridge walls which diverge from the base of the groove at 90° angles to one another.

The bases of the grooves are at uniform level throughout the major portion of each leg, but the leg being tapered, the depth of each groove measured by the height of the ridges, will progressively decrease until the grooves terminate in the curved walls of the foot portion. The four legs being spaced at the four corners of the table will present their diagonally opposed inner ridges toward the center of the table which also presents the inner side faces of the adjacent ridges in a plane which lies at 90° to the sides and ends of the table top and these aligned side faces afford the contact surfaces to which the ends of the sills are attached in the manner now to be described.

Each sill is of elongated rectangular formation and is stamped from a section of thin metal plate to provide a rectangular body 21 edged by upper and lower flanges 22 and 23 struck inwardly at a 90° angle. The body of the sill is offset outwardly to provide a longitudinal rib 24, and the ends of the ribbed body are deflected inwardly at an angle of 45° to provide obliquely disposed end faces, the ends of which merge into the ends of the flanges.

The end faces thus formed fit snugly against the opposed side faces of the leg ridges at opposite corners of the table with the sill rib projecting outwardly to a slight degree to provide a panelled effect and to reenforce and stiffen the sill. Since each sill is relatively broad as appears from Fig. 3 a firm union can be effected by the provision of upper and lower bolts 25 which extend outwardly through apertures in the ridge walls of the leg and through registering apertures in the sill end, and carry nuts 26 and spring washers 27. The heads 28 of the bolts are clipped on the outer edge to lie closely within the inner corners of the ridges, and to hold the bolts against retraction the bolt heads are backed by a block 29 or the like.

The table top 11 may be of wood, composition or metal, but for purposes of illustration, I have shown a metal top provided with downwardly struck edge flanges 30 terminating in inturned lips 31. In the case of a metal top the sills 12 are spot welded at the points 32 to the under face of the metal top and in exact position to present the oblique ends of contiguous sills in diagonally extending planate relation and spaced to afford a gap for the close entrance of the inner ridge of the intended leg.

With the table top thus formed and laid downwardly with its back face uppermost, the legs can be stood vertically in the corners and slid inwardly in position to bring the projecting bolts into register with the apertures in the sill ends

so that the nuts can be screwed down tightly thus firmly uniting the legs whose upper ends stand in butt contact with the back face of the top.

In case a wooden or composition top is used, the same procedure will be followed with the exception that screws will be entered through apertures 33 in the upper side flanges of the sills and screwed into the back face of the table top.

The method observed in the formation of the legs is illustrated in Figs. 6 to 9 inclusive. As shown a section of cylindrical tubing is first tapered toward each end to provide for the formation of two legs which are subsequently cut apart.

The tapering operation provides a short medial section of uniform cross section which ultimately becomes the upper end of a leg to which the sills are secured. The doubly tapered length of tubing is next drawn through dies or rolls to produce the four-lobed grooving effect with the bases of the grooves extending at a uniform distance from the axis of the tubing and with the intervening straight sided ridges progressively increasing in height toward the center.

The length of tubing may now be cut apart through the center to provide two legs the ends of which are then upset to provide the closed feet for the legs or the upsetting operation may be performed before the tubing is cut apart. The table top if of metal may be formed by a simple stamping operation after which it is only necessary to secure the sills and insert the bolts in position which prepares the table for shipment in flatwise condition and final assembly without the use of special tools or appliances.

The invention is one which enables the tables to be produced rapidly and cheaply; but the character of the connections employed serves to effectively conceal the same while the fluting of the legs not only tends to stiffen the same and to provide for the attachment heretofore described, but also greatly improves the appearance of the table and enhances its availability for use amid artistic surroundings.

It will be understood that by the use of the term "table," I mean to cover and include stands, desk tops, platforms, or the like which employ tops or platforms which in general structure conform to the one here described.

Also it will be understood that the term "sill" is not necessarily limited to a flat or planate connection between the legs, but that it is intended to cover and include the bowed or arcuate form of construction or other variations in form which are adapted to afford a connection of the character herein described.

I claim:

1. In a table structure or the like, the combination of a table top angularly extending, metallic sills with their adjacent ends converging toward the corners of the table, said sills being provided along their upper edges with inturned flanges in face contact with the under side of the table top and secured thereto with their convergent ends spaced to provide gaps, table legs having their upper ends inserted within the gaps thus afforded, each table leg being formed of tubular material provided with spaced longitudinal grooves, the groove walls on the inner sides constituting the side walls of an intervening ridge protruding inwardly toward the center of the table with the end edge of each sill lying in facewise contact with the outer side wall of the associated groove, bolts having their heads within the upper ends of the respective legs and with their threaded stems extending through the groove walls and through the abutting ends of the sills, and nuts on the ends of the bolts for holding the end faces of the sills in face contact with the walls of the respective grooves.

2. In a table structure or the like, the combination of a table top angularly disposed, metallic sills with their adjacent ends converging toward the corners of the table, said sills being provided along their upper edges with inturned flanges in face contact with the under side of the table top and secured thereto with their convergent ends spaced to provide gaps, the ends being deflected inwardly to provide obliquely disposed attaching faces, table legs having their upper ends inserted within the gaps thus afforded, each table leg being formed of tubular material provided with spaced longitudinal grooves, the groove inner walls constituting the side walls of an intervening ridge protruding inwardly toward the center of the table with the oblique end of each of the sills lying in facewise contact with the outer side walls of the associated groove, bolts having their heads within the upper ends of the respective legs and with their threaded stems extending through the groove walls and through the abutting ends of the sills, and nuts on the ends of the bolts for holding the end faces of the sills in face contact with the walls of the respective grooves.

3. In a table structure or the like, the combination of a table top, a group of not less than three sills disposed beneath the margins of the table top with their ends in convergent relation and spaced to provide gaps, the ends of the sills being deflected inwardly to provide obliquely disposed attaching faces, table legs having their upper ends inserted within the gaps thus afforded, each table leg being formed of tubular material provided with a pair of longitudinally extending spaced grooves defining an intervening ridge projecting inwardly toward the center of the table, the ends of convergent sills at each corner presenting their attaching faces in flatwise contact with the opposed groove walls which diverge from the base of the intervening ridge, and attaching means uniting said groove walls with the obliquely disposed end faces of the associated sills.

4. In a table structure or the like, the combination of a table top, four metallic sills disposed at angles of 90° to one another and underlying the margins of the table top with their converging ends spaced to provide gaps, the sills being provided along their upper edges with inturned flanges in face contact with the under side of the table top and secured thereto, the ends of the sills being deflected inwardly at an angle of substantially 45° to provide obliquely disposed attaching faces, table legs having their upper ends inserted within said gaps, each leg being formed of tubular material tapered downwardly and provided with four longitudinally extending, circumferentially spaced grooves, each having side walls diverging from one another at substantially a right angle and constituting each the side wall of a ridge separating the groove in question from the adjoining groove, and the legs each presenting one of its ridges diagonally inwardly toward the center of the table, the oblique attaching faces of converging sills contacting the opposed side walls of the ridges which lie laterally adjacent the intervening inwardly extending ridge,

the grooves of each leg terminating short of the lower end and the latter being configured to provide a foot, headed bolts having their heads within the upper ends of the respective legs with their threaded stems extending outwardly through the ridge walls against which the attaching faces of the sills abut and through said faces, and nuts on the ends of said bolts for holding the parts in firm engagement.

5. In a table structure or the like the combination of a table top, four metallic sills disposed at angles of 90° to one another and underlying the margins of the table top with their converging ends spaced to provide gaps, the sills being provided along their upper edges with inturned flanges in face contact with the under side of the table top and secured thereto, the ends of the sills being deflected inwardly at an angle of substantially 45° to provide obliquely disposed attaching faces, table legs having their upper ends inserted within said gaps, each leg being formed of tubular material tapered downwardly and provided with four longitudinally extending, circumferentially spaced grooves, each having side walls diverging from one another at substantially a right angle and constituting each the side wall of a ridge separating the groove in question from the adjoining groove, and the legs each presenting one of its ridges diagonally inwardly toward the center of the table, the oblique attaching faces of converging sills contacting the opposed side walls of the ridges which lie laterally adjacent the intervening inwardly extending ridge, and the end edges of the sill flanges making butt contact with the opposed side walls of the intervening ridge, the grooves of each leg terminating short of the lower end and the latter being configured to provide a foot, headed bolts having their heads within the upper ends of the respective legs with their threaded stems extending outwardly through the ridge walls against which the attaching faces of the sills abut and through said faces, and nuts on the ends of said bolts for holding the parts in firm engagement.

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